AGENDA

LAST FRONTIER HEALTHCARE DISTRICT

BOARD OF DIRECTORS

Thursday, October 29, 2026, 3:30 pm
City Council Chambers; Alturas, California

Parties with a disability, as provided by the American Disabilities Act, who require special accommodations or aids in order to participate in this public meeting should make requests for accommodation to the Modoc Medical Center Administration at least 48 hours prior to the meeting. Board Agenda packets are available to the public online at www.modocmedicalcenter.org or at the MMC Administration offices.

3:30 pm - CALL TO ORDER – R. Boulade, Chair

1. PLEDGE OF ALLEGIANCE TO THE FLAG OF THE UNITED STATES OF AMERICA – R. Boulade, Chair

2. AGENDA APPROVAL - Additions/Deletions to the Agenda – R. Boulade, Chair

3. PUBLIC COMMENT - *This is the time set aside for citizens to address the Board on matters not on the Agenda or Consent Agenda. Comments should be limited to matters within the jurisdiction of the Board. If your comment concerns an item shown on the Agenda, please address the Board after that item is open for public comment.* ***By law, the Board cannot act on matters that are not on the Agenda.*** *The Chairperson reserves the right to limit the duration of each speaker to* ***three minutes.*** *Speakers may not cede their time. Agenda items with times noted, will be considered at that time. All other items will be considered as listed on the Agenda, or as deemed necessary by the Chairperson.*

4. VERBAL REPORTS

A.) K. Kramer – CEO Report to the Board
B.) E. Johnson – CNO Report to the Board
C.) J. Lin – Finance Director Report to the Board
D.) A. Vucina – CHRO Report to the Board
E.) A. Willoughby – COO Report to the Board
F.) Board Member Reports

5. DISCUSSION

REGULAR SESSION

6. CONSENT AGENDA - *Items under the Consent Agenda heading do not require discussion before a vote. If discussion is needed, that item needs to be moved to the Consideration/Action part of the Agenda where discussion is allowed.*

A.) D. King - Adoption of LFHD Board of Directors Regular Meeting Minutes – September 24, 2026, Attachment A
A.) D. King - Adoption of LFHD Board of Directors Special Meeting Minutes – September 29, 2026, Attachment B
B.) T. Ryan - Medical Staff Committee Meeting Minutes – September 30, 2026 Attachment C

- **Pathology Report –7/1/2026 & 8/10/2026**
- **Committee Minutes:**
- **Infection Control Committee Minutes – 8/26/2026**
- **OP Infusion Committee Meeting Minutes – 9/8/2026**
- **Surgery Committee Meeting Minutes – 9/8/2026**

C.) E. Johnson – Policy and Procedures Attachment D

SURGERY/OPERATING ROOM

7420.26 Anesthesia Personnel
7420.26 Pre Anesthetic requirements

SKILLED NURSING FACILITIES

6580.26 Documentation-Risk Even Reporting
6580.26 415 Resident Rights- Pharmaceutical service
6580.26 Documentation- Monitoring Residents with Special Needs
6580.26 Monitoring Residents Weight

DIETARY ACUTE

8345.26 Guest Trays
8345.26 Hours of Operation
8345.26 Meal Times and Frequency
8345.26 Temperatures

NURSING MED/SURG

6170.26 Administration of Enteral Nutrition Using Kangaroo Feeding Pump Policy
6170.26 Care and Accommodation of Spiritual Needs in Patient Care
6170.26 Care Planning Policy
6170.26 Decubitus Ulcer Prevention and Care
6170.26 Denture Cleaning and Care
6170.26 Dying Patient Standard of Care for Inpatient
6170.26 Enema Administration Policy
6170.26 Enteral (Tube) Feeding Administration Policy
6170.26 Eye Compress Application Policy
6170.26 Informed Consent-Inpatient
6170.26 Initial Patient Assessment and Reassessment
6170.26 Injection-Intramuscular Administration
6170.26 Injection-Subcutaneous Administration
6170.26 Injections-Administration and Management
6170.26 Intravenous Therapy-Changing a Gown with Continuous Infusion
6170.26 Intravenous therapy Complications and Management Policy
6170.26 Intravenous Therapy-Discontinuing a Peripheral Line
6170.26 Rectal Tube Insertion Policy
6170.26 Release of Deceased Patient Policy
6170.26 Reporting Equipment Malfunction Policy
6170.26 Routine Night Shift Nursing Responsibility
6170.26 Safe Medical Devices Policy
6170.26 Seizure Management Standard of Care Policy
6170.26 Shaving a Patient Standard of Care Policy
6170.26 Suctioning Through a Tracheostomy Policy
6170.26 Suture Removal
6170.26 Telemetry Monitory Policy
6170.26 Thoracentesis Assisting Provider Policy

LABORATORY

7500.22 Blood Cultures-Processing and Reporting
7500.23 Bone Marrow Culture and Side Prep
7500.23 APIT (Siemens) Procedure
7500.23 Environmental cultures-identifying and reporting
7500.23 Labconco Biological safety Cabinet Usage
7500.23 Microbiology Plating Protocol

7500.23 Monthly Autoclave
7500.23 Respiratory cultures-identifying and reporting
7500.23 Streak Plate Technique
7500.23 Urine Cultures-Identifying and Reporting
7500.24 Blood Agar Instructions for Use
7500.24 Gram Stain Procedure
7500.24 Group A Beta Strep Agar Instructions for Use
7500.24 MacConkey Agar
7500.24 Thioglycolate Media Instructions on Use
7500.24 Use and Interpretation of Bacitracin A Disc
7500.25 Body Fluid Cultures
7500.25 Cepheid Xpert CoV2 Flue RSV Testing
7500.25 GeneXpert IQCP Risk Assessment
7500.25 Microbiology Quality Control updated 12.2024
7500.25 Urinalysis- Complete
7500.26 Neonatal Transfusion

TRANSFUSION

7500-T.23 ABO RH TYPING 3469
7500-T.23 Antibody Screen -3 Cell
7500-T.23 Crossmatch
7500-T.23 Direct Coombs Date
7500-T.23 Emergency Release of Uncrossmatched Blood
7500-T.23 General Transfusion Services Policy and Quality Assurance
7500-T.23 Grading Agglutination Reaction
7500-T.23 Infant Blood Testing
7500-T.23 Operation and Use of the Helmer DH
7500-T.26 Newborn Specimens and Order Sets

7.CONSIDERATION/ACTION

A.) E. Johnson – Departmental Manuals — Attachment E
B.) J. Lin – September 2026 LFHD Financial Statement *(unaudited)* — Attachment F
C.) K. Kramer – Regional Collaborative Agreement (Orthopedic Surgery) — Attachment G
D.) K. Kramer – Sexual Assault Response Team Budget Amendment — Attachment H
E.) K. Kramer – Wage Increase Proposal — Attachment I
F.) R. Boulade – Board Member Appointment

EXECUTIVE SESSION

8. CONSIDERATION / ACTION

A.) T. Ryan – Medical Executive Committee Minutes & Credentialing Items –September 30, 2026, (Per Evidence Code 1157) — Attachment J
- Medical Executive Committee Minutes & Credentialing Items OPPE 2019B –August 26, 2026

B.) A. Vucina – Litigation (Per Gov. Code 54956.9(d)(3).) — Attachment K

REGULAR SESSION

9. CONSIDERATION / ACTION

A.) T. Ryan – Medical Executive Committee Minutes & Credentialing Items –September 30, 2026 (Per Evidence Code 1157)
- Medical Executive Committee Minutes & Credentialing Items OPPE 2019B – August 26, 2026

B.) A. Vucina – Litigation (Per Gov. Code 54956.9(d)(3).)

10. MOTION TO ADJOURN – R. Boulade – Chair

POSTED AT: **MODOC COUNTY COURTHOUSE / ALTURAS CITY HALL / MMC WEBSITE / MMC FRONT ENTRANCE (www.modocmedicalcenter.org) ON October 22, 2026.**

LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT A

Regular Board Meeting Minutes

September 24, 2026

Consent Agenda

Presented by D. King

REGULAR MEETING MINUTES
LAST FRONTIER HEALTHCARE DISTRICT BOARD OF DIRECTORS
Thursday, September 24, 2026, at 3:30 pm
City Council Chambers; Alturas City Hall; Alturas, California

Directors present:	**Carol Madison, Mike Mason, Paul Dolby**
Directors absent:	**Rose Boulade, Keith Weber**
Staff in attendance:	**Kevin Kramer, CEO; Edward Johnson, CNO; Denise King, LFHD Clerk**
Staff absent:	**Adam Willoughby, COO; Amber Vucina, CHRO; Jin Lin, Finance Director**

CALL TO ORDER

Carol Madison, Vice Chair, called the meeting of the Last Frontier Healthcare District (LFHD) Board of Directors (Board) to order at 3:30 p.m. The meeting was held at the City Council Chambers, located at 200 W. North St., in Alturas, California.

1. PLEDGE OF ALLEGIANCE TO THE FLAG OF THE UNITED STATES OF AMERICA

2. AGENDA – Additions/Deletions to the Agenda

Mike Mason moved that the agenda be approved as amended with the removal of Item 4A Verbal Reports C.) J. Lin - Finance Director Report to the Board, D.) Amber Vucina – CHRO Report to the Board, and E.) A. Willoughby – COO Report to the Board, as well as changing Kevin Kramer to report on Item 7B - August 2026 LFHD Financial Statement (unaudited) and tabling Executive Session Item B.) A. Vucina – Litigation (Per Gov. Code 54956.9(d)(3).). **Paul Dolby seconded**, and the motion carried with all present voting "aye."

3. PUBLIC COMMENT

There was no public comment.

4. VERBAL REPORTS

A.) L. Burkholder – CMO Report to the Board

Provider Staffing and Clinic Coverage

- Two locum providers have departed; three have extended their assignments.
- A third provider has been hired for the Canby site.
- Tony will provide same-day appointments in Alturas.
- Tayna will take over Tony's patients, including non-established patients and workers' compensation cases.
- Heather will transition to a half-day of corrections coverage in December.
- Ryan will take over Friday jail clinics.
- Dr. Hagge was voted Employee of the Month.

Patient Access

- Feedback from Patty indicates an increase in calls regarding new providers.
- Primary care panel sizes will be reviewed to ensure they align with provider full-time equivalent.

Cardiology and Diagnostic Services

- A cardiology provider is expected to begin providing services.
- Considering a third infusion bay.
- Plans include adding CT cardiac calcium scoring and EKG services in the clinic.
- Upgraded Zio patches will allow patients to wear a monitor for two weeks to record heart rhythms and identify arrhythmias.

Surgical Services

- Two physicians began this week, with a smooth start reported.
- Ruth Moeller has added preoperative visits.

Community Support

- Housing continues to be a challenge.
- The Enhanced Care Management program has expanded to help individuals manage their health.

B.) K. Kramer – CEO Report to the Board

Security Incident

- Notices mailed to all impacted individuals.
- Website announcement updated with current information.
- Updated report submitted to regulatory bodies outlining the incident, impacted individuals, and plans moving forward.

Cost-Based Ambulance Services

- NorCal continues working with its attorney to develop policy language that would allow cost-based ambulance services.

Geothermal Grant

- Site host agreement with the school district approved.
- First grant invoice approved for SHN consulting services to prepare bid packages for initial testing and inspection.
- No bids received during the initial solicitation.
- Bid deadline extended; efforts continue to generate contractor interest.

Wage Analysis

- Analysis remains underway, including gathering comparable wage data for additional positions.
- Evaluating the cost of increasing retention adjustments to create greater pay separation between Step 1 and Step 15 employees.

IRS Review

- Initial submission completed.
- No requests for additional information received to date.

Community Health Workers

- Met with Modoc County Social Services and Public Health regarding assistance with changing eligibility redetermination, work, and income requirements under HR 1.
- Exploring whether hiring two community health workers would help support community members through these changes.

Sexual Assault Nurse Examiner Recruitment

- Recruitment efforts continue.
- Letters planned for all employed RNs outlining participation and compensation.
- Proposed compensation includes a $15,000 annual stipend, $1,000 per examination, and applicable regular, on-call, or call back pay.

Walk-In Services

- Telemedicine model determined financially unfeasible based on reimbursement rates.
- Daily walk-in services offered in Alturas and Canby.

Solar Array Project

- Project continues to progress slowly.
- Plans to engage Glen as a consultant to guide the project, protect MMC's interests, and support a cost-effective design.

Housing

- Project remains in the planning stages.
- Legal opinion needed regarding the viability of purchasing developed land.
- Meeting planned with Mitch Chuck the following week to discuss potential options involving his property

B.) E. Johnson – CNO Report to the Board

Skilled Nursing

- Maintains a 5-star CMS rating.
- Falls continue to decrease.

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- Resident activities planned include MHS Homecoming on October 2 and Pop Warner football on October 18.
- Warnerview census: 16.
- Mountain View census: 48, with two admissions and one discharge.
- Report lists a goal of reaching 70 patients by the end of August; the target date needs clarification.

Acute and Swing Bed Services

- Acute average census: 1.61; average length of stay: 1.00 day.
- Swing bed average census: 1.90; average length of stay: 7.38 days.
- Admissions: 50 acute and eight swing bed.
- Surgeries: 19.

Emergency Department and Ambulance

- Emergency Department served 523 patients, averaging 16.9 patients per day.
- Ambulance completed 77 runs during the month.

Pharmacy

- Retail Pharmacy Manager Adil has departed.
- A new pharmacist started the Monday preceding the report.
- Recruitment is underway for an additional pharmacist.
- Filled 4,458 prescriptions in June.

Physical Therapy

- Completed 796 sessions in June.
- Recruitment continues for a permanent physical therapist and physical therapist assistant.

Laboratory

- Completed 5,117 laboratory tests.

Wound Care and Infusion

- Programs are reported to be doing well.
- A meeting with the wound vacuum representative is planned to refine the process.

~~**C.) J. Lin – Finance Director Report to the Board**~~

~~**D.) A. Vucina – CHRO Report to the Board**~~

~~**E.) A. Willoughby – COO Report to the Board**~~

F.) Board Member Reports

- **Carol Madison** – Nothing to report.
- **Paul Dolby –** Absent.
- **Mike Mason –** Nothing to report.
- **Rose Boulade –** Absent.
- **Keith Weber –** Absent.

5. DISSCUSSION

A.) A. Doss – Quality and Risk Report to the Board

Alicia Doss reported A total of 60 events were reported during the reporting period, including 10 in May, 13 in June, 16 in July, and 21 in August. Patient care management and falls were the most frequently reported categories, with 18 events each, together accounting for 60% of all reported events. Other reported events included seven medication errors, five medication security events, four HIPAA/privacy events, three patient abuse/neglect events, three events involving patients leaving against medical advice, leaving without being seen, or elopement, and two skin integrity/pressure ulcer events. August had the highest overall event count, with patient care management accounting for six events, falls accounting for six, and medication security accounting for three. Falls peaked in July with seven reported events. The increase in reported events warrants further review to identify recurring concerns and potential opportunities for improvement. The summary provides event counts only; patient volume, severity, and contributing factors would be needed to determine whether the increase reflects a change in safety outcomes or reporting practices.

B.) K. Kramer – Board Vacancy Applicants

Kevin Kramer reported that three applicants have submitted applications and letters of interest for the vacant Board position. It was determined that **Mike Mason, Rose Boulade, and Kevin Kramer** will conduct

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interviews with the applicants. **Denise King, Board Clerk**, will coordinate a date and time that accommodates the interview panel and contact the applicants to schedule their interviews.

REGULAR SESSION

6. CONSENT AGENDA - *Items under the Consent Agenda heading do not require discussion before a vote. If discussion is needed, that item needs to be moved to the Consideration/Action part of the Agenda where discussion is allowed.*

A.) D. King - Adoption of LFHD Board of Directors Regular Meeting Minutes – July 30, 2026,

B.) T. Ryan - Medical Staff Committee Meeting Minutes – August 26, 2026

- **Pathology Report –No Report**
- **Committee Minutes:**
- **ER Committee Minutes – 8/4/2026**
- **Patient Safety/Safe Lifting Committee Minutes – 7/15/2026**
- **OP Infusion Committee Meeting Minutes – 7/27/2026**
- **Surgery Committee Meeting Minutes – 7/27/2026**
- **OP Infusion Committee Meeting Minutes – 8/4/2026**
- **Surgery Committee Meeting Minutes – 8/4/2026**

C.) E. Johnson – Policy and Procedures

Paul Dolby moved that the Consent Agenda be approved, **Mike Mason** seconded, and the motion carried with all present voting "aye."

7. CONSIDERATION/ACTION

A.) E. Johnson – Departmental Manuals

Ed Johnson, CNO, presented the Departmental Manuals to the Board, providing an overview of the manuals and the associated review processes while addressing questions from Board members.

Mike Mason moved to approve the **Departmental Manuals**, **Paul Dolby** seconded, and the motion carried with all voting "aye."

B.) ~~J. Lin~~ K. Kramer – August 2026 LFHD Financial Statement *(unaudited)*

~~Jin Lin, Finance Director~~ Kevin Kramer, CEO, presented the August 2026 LFHD Financial Statement provided in the Board meeting packet and answered the questions the Board had.

Paul Dolby moved to accept the August 2026 LFHD Financial Statement as presented, **Mike Mason** seconded, and the motion carried with all present voting "aye."

C.) K. Kramer – Budget Amendment

Kevin Kramer, CEO presented the budget amendment for the purchase of a Hamilton-T1 ventilator for the Emergency Department at a quoted cost of $27,357.40. The purchase includes adult, pediatric, and neonatal capabilities, supporting accessories, a trolley, and clinical and service training.

Paul Dolby moved to approve the **Budget Amendment** as presented, **Mike Mason** seconded, and the motion carried with all voting "aye."

D.) K. Kramer – Dr. Julie Torman Contract

Kevin Kramer, CEO, presented **Dr. Julie Torman's Contract** to the Board and answered any questions they may have had.

Mike Mason moved to accept **Dr. Julie Torman Contract** as presented, **Paul Dolby** seconded, and the motion carried with all present voting "aye."

E.) K. Kramer – Dr. Gustavo Galeano Employment Agreement

Kevin Kramer, CEO, presented **Dr. Gustavo Galeano Employment Agreement** to the Board and answered any questions they may have had.

Mike Mason moved to accept **Dr. Gustavo Galeano Employment Agreement** as presented, **Paul Dolby** seconded, and the motion carried with all present voting "aye."

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Mike Mason moved to close the Regular Session of the Board of Directors, **Paul Dolby** seconded, and the motion carried with all voting "aye."

The Regular Session of the Last Frontier Healthcare District Board of Directors was adjourned at 4:40 pm.

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EXECUTIVE SESSION

Executive Session was called to order by **Carol Madison, Vice Chair**, at 4:40 pm.

7. CONSIDERATION / ACTION

A.) T. Ryan – Medical Executive Committee Minutes & Credentialing Items – July 29, 2026, – (*Per Evidence Code 1157*).

- **Medical Executive Committee Minutes & Credentialing Items OPPE 2019B – June 24, 2026.**

Based upon character, competence, training, experience and judgment, favorable recommendation by peers and credentialing criteria fulfillments, the Medical Executive Committee recommended the following appointments for Last Frontier Healthcare District Board of Directors' acceptance:

- **Christopher Rowan, MD** – Recommends reappointment of Provisional privileges in the Cardiology category.
- **Mindy Cooper-Smith, MD** – Recommends reappointment of Consulting privileges in the Pathology category.
- **Matthew Kilpatrick, MD** – Recommends reappointment of Consulting privileges in the Pathology category.

~~**B.) A. Vucina – Litigation**~~
~~**(Per Gov. Code 54956.9(d)(3).)**~~

The Executive Session of the Board of Directors was adjourned at 4:47 pm.

RESUME REGULAR SESSION

The Regular Session of the Board of Directors was called back to session by **Carol Madison, Vice Chair**, at 4:48 pm.

8. CONSIDERATION / ACTION

A.) T. Ryan – Medical Executive Committee Minutes & Credentialing Items –July 29, 2026 – (Per Evidence Code 1157).

- **Medical Executive Committee Minutes & Credentialing Items OPPE 2019B – June 24, 2026.**

~~**B.) A. Vucina – Litigation**~~
~~**(Per Gov. Code 54956.9(d)(3).)**~~

Paul Dolby moved to approve and accept Minutes, Credentialing, and Privileging items as outlined above, **Mike Mason** seconded, and the motion carried with all members voting "aye."

11.) MOTION TO ADJOURN

Mike Mason moved to adjourn the meeting of the Last Frontier Healthcare District Board of Directors at **4:46 pm, Paul Dolby** seconded, and the motion carried with all present voting "aye."

The next meeting of the Last Frontier Healthcare District's Board of Directors will be held on October 29, 2026, at 3:30 pm in the Alturas City Council Chambers, City Hall in Alturas, California.

Respectfully Submitted:

_____ _____

Denise R. King **Date**
Last Frontier Healthcare District Clerk

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LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT B

Special Board Meeting Minutes

September 29, 2026

Consent Agenda

Presented by D. King

SPECIAL MEETING MINUTES

LAST FRONTIER HEALTHCARE DISTRICT BOARD OF DIRECTORS

Thursday, September 30, 2026, at 4:00 pm
Education Conference Room, Modoc Medical Center
Alturas, California

Directors present: **Carol Madison, Rose Boulade, Paul Dolby, Mike Mason**
Directors absent: **Keith Weber**
Staff in attendance: **Kevin Kramer, CEO and Denise King, LFHD District Clerk**
Staff absent:

CALL TO ORDER

Rose Boulade, Chair called the special meeting of the Last Frontier Healthcare District (LFHD) Board of Directors (BOD) to order at 4:00 pm. The meeting location was in the Education Conference Room at Modoc Medical Center in Alturas, California.

1. PLEDGE OF ALLEGIANCE TO THE FLAG OF THE UNITED STATES OF AMERICA

2. AGENDA – Additions/Deletions to the Agenda

Carol Madison moved that the agenda be approved as presented, **Paul Dolby** seconded, and the motion carried with all present voting "aye."

3. PUBLIC COMMENT

No Public Comment.

4. DISCUSSION

REGULAR SESSION

5. CONSIDERATION / ACTION

A.) K. Kramer – $6M Investment Transfer to Money Market

Kevin Kramer, CEO, presented a recommendation to liquidate $6 million in mortgage securities and reinvest the proceeds in a money market account, currently earning over 4% interest. He explained that unrealized losses on the mortgage securities significantly impact the District's annual income statement because the District is required to report those unrealized losses as a public/governmental entity. The proposed transfer to a money market account would also provide easier access to funds for a substantial Intergovernmental Transfer (IGT) payment anticipated in November. Board approval was requested to proceed with the liquidation and reinvestment.

Mike Mason made a motion to approve the **$6M Investment Transfer to Money Market**, **Paul Dolby** seconded, and the motion carried with **Carol Madison**, **Mike Mason**, and **Paul Dolby** voting "aye" and **Rose Boulade** abstaining from the vote.

5.) MOTION TO ADJOURN

Mike Mason moved to adjourn the Special Meeting of the Last Frontier Healthcare District Board of Directors at 4:07 pm, **Carol Madison** seconded, and the motion carried with all present voting "aye."

The next regular meeting of the Last Frontier Healthcare District's Board of Directors will be held on Thursday,

October 29, 2026, at 3:30 pm in the Alturas City Council Chambers at City Hall in Alturas, California.

Respectfully Submitted:

_____	_____
Denise King	**Date**
Last Frontier Healthcare District Clerk	

LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT C

Medical Staff Committee Meeting Minutes

September 30, 2026

Consent Agenda

Presented by T. Ryan

MODOC MEDICAL CENTER
A Public Entity
Healing Hands Close To Home
Last Frontier Healthcare District

DATE: OCTOBER 29, 2026

TO: GOVERNING BOARD

FROM: T. RYAN – CREDENTIALING AIDE

SUBJECT: MEDICAL STAFF COMMITTEE MINUTES

*The following Medical Staff Committee Minutes were reviewed and accepted at the September 30, 2026, meeting and are presented for Governing Board review:

A. REVIEW OF MINUTES

1. Medical Staff Committee Meeting Minutes – August 26, 2026

B. COMMITTEE REPORTS

1. Infection Control Committee Meeting Minutes – 08/26/2026
2. OP Infusion Committee Meeting Minutes – 09/08/2026
3. Surgery Committee Meeting Minutes – 09/08/2026

C. PATHOLOGY REPORT – 07/01/2026 & 08/10/2026

MODOC MEDICAL CENTER
A Public Entity
Healing Hands Close To Home
Last Frontier Healthcare District

MEDICAL STAFF COMMITTEE MEETING
August 26, 2026 – Education Building
MINUTES

In Attendance

Lisanne Burkholder, MD Chief Medical Officer
Edward Richert, MD Vice Chief Medical Officer
Landin Hagge, DO
Kevin Kramer- CEO
Ed Johnson- CNO
Walter Dimarucut- Laboratory Manager
Shannon King- Assistant Laboratory Manager
Alicia Doss- Risk Management
Brandy Morris-Wright- MSC/H.I.M
Taylor Ryan- Credentialing Aide

SUBJECT	DISCUSSION	ACTION
I. CALL TO ORDER	After noting that the required members were present to constitute a quorum, the regularly scheduled Medical Staff Committee Meeting was called to order at 1203 by Dr. Burkholder, MD Chief Medical Officer.	
II. CONSENT AGENDA ITEMS	1. The following Minutes were reviewed: A. Medical Staff Committee Meeting of July 29, 2026.	Minutes approved by motion, second, and vote. Forward to Governing Board.
	1. The following Committee Reports were reviewed with no corrections or additions noted: A. ER Committee Meeting Minutes, 08/04/2026. B. Patient Safety/Safe Lifting Committee Meeting Minutes, 07/27/2026. C. OP Infusion Committee Meeting Minutes, 07/27/2026. D. Surgery Committee Meeting Minutes, 07/27/2026. E. OP Infusion Committee Meeting Minutes, 08/04/2026. F. Surgery Committee Meeting Minutes, 08/04/2026. G. Quality Council Committee Meeting Minutes, 06/10/2026.	Minutes approved by motion, second, and vote. Forward to Governing Board.
III.	No Pathology Report.	

SUBJECT	DISCUSSION	ACTION
PATHOLOGY REPORT		
IV. CHIEF MEDICAL OFFICER REPORT	Currently, we continue to interview. Dr. Galeano came for a site visit. He is not board certified nor can be board certified, so we just need to make sure that does not put a stop in our pathway. Overall, more to come.	Report at next meeting
V. EMERGENCY ROOM REPORT	Nothing to report.	
VI. CEO REPORT	Currently, Terri Whiting, PA started with Dr. Richert. Dr. Ozuna is on hold. He may have to jump through some hoops to become licensed in California. Dr. Rice, the Orthopedic Surgeon, is still on the table. We are still trying to work through some logistics with Seneca to share his services. Walk-In Telemedicine Clinic, I had a phone call Wipfli and they are encouraging us to not do it. As a Rural Health Clinic, we cannot bill for originating site fee and the distant provider fee therefore making it not financially sustainable for us. I will be discussing this further with senior leadership. RHT funding is in the works, but nothing further will be submitted this year. Laparoscopic Surgeons will spin up soon. Cardiology may spin up late September or October so keep that in mind as well. Other than that, strategic planning, we are looking at additional staff housing. May look into planting some tiny homes but will have to work through the wage of it. I am also reviewing the contract for Psychiatric Medicare Care which is a company that would do the Geriatric Outpatient Behavioral Health program for us. We got a couple questions regarding the financial side of things out there, but that is in the works as well. Overall, more to come.	Report at next meeting
VII. CNO/SNF REPORT	Currently, over at the SNF we have 66 residents still. We have 47 at Mountain View and 19 at Warnerview. We are taking 27 residents to the fair on Friday. We are taking anybody who has a sitter or companion. Recently, we took 14 residents to the park 2 days ago. We are continuing to do more activities with them. We are having some hardships with Pharmacists. We have one Pharmacist that is currently out on FMLA until the end of the month. One is coming mid-September, and one was out sick for 8 days. That being, we were out here with one Pharmacist covering both Pharmacies. Wound	Report at next meeting

SUBJECT	DISCUSSION	ACTION
	Care remains in the Outpatient Infusion area. However, there is a chance Cardiology will be taking over that area. That being, we have a meeting on the 1st of the month to figure out what we are going to do. Overall, more to come.	
VIII. PHARMACY REPORT	Absent.	
IX. DIETITIAN REPORT	Absent.	
X. RISK MANAGEMENT REPORT	Nothing to Report.	
NEW BUSINESS XI. POLICY REVIEW & APPROVAL	The following New Business was presented for review/approval: 1. Updated Policies, August 2026 (71)	After review and discussion, a recommendation was made to implement the Updated Policies (71) presented August 2026. The recommendations were ratified by motion, second, and vote. Recommendations will be forwarded to the Governing Board for final approval.
XII. ADJOURNMENT	The meeting was adjourned at 1310.	

Lisanne Burkholder, MD Chief Medical Officer — Date: 09/30/2026

MODOC MEDICAL CENTER
A Public Entity
Healing Hands Close To Home
Last Frontier Healthcare District

AGENDA

INFECTION CONTROL COMMITTEE MEETING

Date: April, May, June
08/26/2026 Time: 12:00-1:00
Education Conference Room
Modoc Medical Center – 1111 N. Nagle Street
Education Conference Room; Alturas, California

Subject	Discussion	Attachment
1. Call to Order		
2. **Agenda Approval**	**Judy Jacoby** - Changes, additions and/or deletions to the agenda. Follow up Discussion of vaccinations, COVID 19 including Employee Travelers	
3. **Minutes 30-60 minutes, 2025 Infection Control Committee Meeting**	**Judy Jacoby** – Presentation of ------- Infection Control Committee Meeting. **No minutes to approve.**	**None attached.**
4. **Discussion**		
A. Strategic Goals: Current Goals Accomplished for 2026	1. **Influenza vaccines: 218** 2. **(+6 influenza Employee Travelers)** 3. **COVID 19: 20 vaccinations** 4. **Modoc Medical Center: Total MMC is 332 employees.** 5. **SNF Travelers: Radiology, Rad Tech, CNA, LVN, RNs, -Total 31** 6. **Acute Travelors-7** 7. **Physical Therapy-6**	
5. New Business	Total Employees staff on facility payroll: 332	
6. Blood Cultures	Blood Cultures -2 Blood cultures; Streptococcus anginous Anaerobic	
April 2026	Escherichia coli-19 Human Metapneumovirus-3 Staphylococcus aureus-4	**Urine: 44** **Escherichia E-coli: 23** ESBL: 4

Subject	Discussion	Attachment
	Klebsiella pneumonia-3 Influenza B respBFire-1 Norovirus GI/GII/GI BFire-1	**COVID 19:** 7 (sent home) ;
May 2026	1. Staphylococcus haemolyticus-2 2. Escherichia coli-22 3. Escherichia 4. Enterococcus faecalis-3 5. Cryptosporidium GiP-BFire-PHS-1 6. Hep C Ab/sent to Public Health 7. Escherichia coli/suspected ESBL-2	
June 2026	1. Hep C Ab sent to Public Health 2. Coronavirus NL 63 Not COVID 3. C.difficile toxin A/B GIP 4. C.difficile toxin A/B GIP BFire/Vanco started at 6 hour. 5. Enteropathogenic E.coli GIP-BFire; detected Enterotoxige E.coli LT/ST GIP-BFire 2 6. Rotavirus A Gip-BioF Detected 7. Escherichia coli 5 8. Proteus mirabilis 100,000 cfu and enterococcus faecalis 4 9. Escherichia coli 14 10. Escherichia suspected ESBL-1 11. Pseudomonas aeruginosa/Enterococcus faecalis (wound ulcer/ankle L). 12. Renown streptococcus pyogenes, oralis and aureus 13. E-coli Staphylococcus aureus (foot rt); surgery done for debridement. 14. Staphylococcus aureus (foot rt); debridement. 15. Respiratory Syncytial virus RespP-BFire 16.Shiga toxin-1/2 prod E coli CIP-BFire producing E. Coli (Stec) PUBLIC HEALTH	
A. Surgery:	**Delinda: will do follow up.**	
B. Employee Health	Employee exposure Line List/Employee Exposure Line List.	10 Employee Exposure Line List

Subject	Discussion	Attachment
	7 Employees had the Baseline Results One employee baseline result with 4 mm induration. Lab test ordered by PCP.	
C. Education		
1. Cleaning Supplies	**Bodily Fluid Spill Cleanup Kits** **Dispenser sanitizer HK078; HK077**	
2. The cleaning towels/sheets	Delinda Grover: lint free; blankets clean and no static with above.	**Continues to have blanket cleaning and sheets**
3. Environmental Care related Matters	Follow up for yellow bags (sugar-cured in washing); Red Body Fluids see	
4. Infusions:	**April -30; May -32; June -40**	
5. Warnerview	**Suzanne Johnson**	
Infection/Condition Isolation Precautions	**Contact Precautions - Nursing Quick Reference**	**Available for staff**
Changes Neutropenic Protective Precautions	**Everyone Must:** **Clean hands, including before entering and when leaving the room. Utilize the current Neutropenic Protective Precautions.**	

Subject		Attachment
Adjournment 2:57	**The next Infection Control Committee the next Infection Control committee will be April, May June 2026**	

MODOC MEDICAL CENTER
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MINUTES

INFECTION CONTROL COMMITTEE MEETING

08/26/2026 2:00-3:00 pm
Modoc Medical Center – 1111 N. Nagle Street
Education Conference Room; Alturas, California

Present
- Walter Dimarucut
- Suzanne Johnson
- Ed Johnson
- Amber Vucina
- Sandra Brown
- Judy Jacoby
- Edward Richert, M.D.
- Jeremy Murray
- Shannon King
- Megan Hays
- Jon Crnkovic
- Delinda Gover
- Susan Sauerheber
- Lisanne Burkholder, M.D.
- Edward Richert, M.D.
- Alicia Doss
- Megan Wright

Absent:
- Michael Appletoft
- Marty Shaffer
- Raven Sparks

Subject	Discussion	Attachment
1. Call to Order – The meeting was called to order by Judy Jacoby at 2:03 pm in the Education Conference Room.		
2. **Agenda Approval**	• See attached Agenda	All present approved the presented Agenda.
3. **Minutes**	• See attached Minutes	4/2026
4. New Business		
A.	• **Agenda items and analysis**	**Attached**
B.	• **IC 2nd Quarter/2nd Quarter SNF** • **Judy and Suzanne Acute and SNF**	**Attached**
C.	• **Shannon King discussion on lab discrepancies and possible ways to fix problem**	
	• **Lab reporting issue. Spot check showed discrepancies. These discrepancies were**	

Subject	Discussion	Attachment
	noted from lab to Infection Control. Shannon will work on fixing this issue but will need help from others as to what they need specifically.	
D.	• TO DO: Shannon needs to know State Requirements so she can adjust her reporting accordingly. Please provide same	
E.	• EOC Marty Shaffer -absent	
F.	• Amber Vucina/Incident reports	
G.	• Delinda Surgery-nothing to report	
H.	• Education-next month	
I.	• Cleaning Supplies-nothing to report	
J.	• Infusion-Susan Sauerheber-nothing to report	
K.	• **Need to add Wound Care, Instructors for CPR and Juanita for Education	
L.	• Summary of Meeting	Attached
7. Adjournment 2:31 p.m.	The next Infection Control Committee Meeting will be 10/22/2026 from 12:00 to 1:00 p.m., in the Education Conf. Room.	

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AGENDA

OP INFUSION COMMITTEE MEETING

9/8/2026 at 8:30 a.m.
Modoc Medical Center – 1111 N. Nagle Street
Infusion Department., Alturas, California

Subject	Discussion	Attachment
1. Call to Order		
2. **Agenda Approval**	No changes, additions and /or deletions to the Agenda	All present approved the presented Agenda.
3. **Minutes**	• Attached from 7/2026	All present approved the Minutes From 8/2026
4. Old Business		
	• **See Attached Minutes from 8/2026**	**Attached**
5. New Business		
	• **Reminder-not necessary to request a prior authorization for Heparin, Lactaid Ringers or normal saline** • **Open discussion for questions or comments**	
6. Roundtable		
7. Adjournment	The next OUTPATIENT INFUSION COMMITTEE Meeting will be 10/13/2026, at 8:30 am in the Infusion Dept.	

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MINUTES

OP INFUSION COMMITTEE MEETING

Tuesday, 9/8/2026 at 8:30-9:30 a.m.
Modoc Medical Center – 1111 N. Nagle Street
Infusion Department, Alturas, California

Present:

- Shirley Hughes, Infusion
- Linda Sawyer, Infusion Nurse
- Sandra Brown, Admin. Assistant
- Lisanne Burkholder, M.D.
- Vahe Hovasapyan, Hospital Pharmacy Manager
- Delinda Gover Perez, Surgery Manager
- Erika Dorati, Wound Care Nurse

Absent:

- Ed Johnson, CNO
- Susan Sauerheber, Committee Chair

Subject	Discussion	Attachment
1. Call to Order – The meeting was called to order at 8:37 am in the Infusion Room.		
2. **Agenda Approval**	No Changes, additions and/or deletions to the Agenda.	All present approved the presented Agenda.
3. **Minutes**	Approved	Attached hereto (8/2026)
4. Old Business	As noted on Minutes and discussed at 8/2026 OP Infusion Committee Meeting	
5. New Business		
	• Reminder, not necessary to request a prior authorization for Heparin, Lactaid ringers or normal saline. Trail period is over, 2 months review necessary, contact JJ or Krishna to see if we are being paid	
	• Prolia, thank you to everyone working on getting dates, etc.	
	• Sandra to confirm Infusion Order form approval with Ed when he returns in her standing Friday 12:00 meeting on the 18th	
	• Omnicell was broken Saturday, fixed	

Subject	Discussion	Attachment
	on Sunday, an Iron Infusion was missed Saturday do to Omnicell being down but, those windows are not as sticky so it should be able to be made up.	
	• Shirley getting a bit of flack regarding outside orders. There is a provider meeting this week and Dr. Burkholder will address Outside Orders with them	
6. Roundtable All discussed above		
7. Adjournment 8:41 a.m.	The next OP Infusion Meeting will be Tuesday, 10/13/2026 @ 8:30 a.m. in the Infusion Department	

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AGENDA

SURGERY COMMITTEE MEETING

9/8/2026 at 8:30 a.m.
Modoc Medical Center – 1111 N. Nagle Street
Infusion Dept., Alturas, California

Subject	Discussion	Attachment
1. Call to Order		
2. **Agenda Approval**	No changes, additions and /or deletions to the Agenda	All present approved the presented Agenda.
3. **Minutes**	• Attached from 8/2026	All present approved the Minutes From 8/2026
4. Old Business		
	• **See Attached Minutes 4/2026**	**Attached**
5. New Business		
	• **Update on equipment for surgery** • **Update on schedule for surgeons** • **Open discussion and questions**	
6. Roundtable		
7. Adjournment	The next SURGERY COMMITTEE Meeting will be 8/04/2026, at 8:30 am in the Infusion Dept.	

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MINUTES
SURGERY COMMITTEE MEETING
Tuesday, 9/8/2026, at 8:30-9:30 a.m.
Modoc Medical Center – 1111 N. Nagle Street
Infusion Department Alturas, California

Present:
- Linda Sawyer, RN
- Shirley Hughes, Infusion Clerk
- Delinda Gover Perez, Committee Chair
- Sidney Barns
- Erika Dorati, Wound Care Nurse
- Sidney Barns
- Lisanne Burkholder, M.D.
- Katrina Murray, Surgery Tech
- Vahe Hovsapyan, Pharmacy Manager
- Sandra Brown

Absent:
- Edward Richert, M.D.
- Dale Syverson, M.D.
- Kevin Kramer, CEO
- Marty Shaffer, Facilities/EOC
- Susan Sauerheber, Nursing Manager
- Edward Johnson, CNO

Subject	Discussion	Attachment
1. Call to Order – The meeting was called to order at 8:42 am in the Infusion Room.		
2. **Agenda Approval**	No Changes, additions and/or deletions to the Agenda.	All present approved the presented Agenda.
3. **Minutes**	See Attached from 8/2026	
4. Old Business	See attached Minutes	
5. New Business		
	• Update on equipment and surgery. Surgeons will be here on the 21st. No clinic visits this time. Still ordering instruments, mostly arthroscopic. Scrub tech from Lakeview up tomorrow to help with equipment purchasing	
	• Update on scheduling of surgeons. 2027 schedule is still be worked on. For now, Dr Severson is here 5 days a week between surgery and clinic, Dr. Torman going down	

Subject	Discussion	Attachment
	to 1 surgery day a week and 2 days clinic. Shooting for Dr. Torman Wed. for surgery and Thurs-Fri clinic and when other surgeons come they would do Monday and Tuesday.	
	• Surgeons will require housing and a vehicle. All that needs to go through Kevin. For the 21st, they will use Delinda's car and be housed at the Trailside Inn.	
	• Delinda is planning a dinner on the 21st for the surgeons to meet the other providers. It will likely be here but may be catered.	
7. Adjournment 9:02	The next Surgery Meeting will be Tuesday, 10/13/2026 @ 8:30 a.m. in the Infusion Room.	

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PATHOLOGIST ON-SITE VISIT REPORT
DATE OF VISIT: 07.01.2026

During the pathology on-site visit, I spent approximately 7 ½ - 8 hours in the Laboratory, Medical Records, and at Canby Clinic.

While in medical records, I reviewed 9 surgical path reports and compared them with their clinal histories, 3 mortality reviews and 5 transfusion reports. There were no issues that were identified in any of these reports.

While in the laboratory, I spoke with Walter concerning the replacement for our present coagulation analyzer. There are plans to replace the present analyzer with a CA-600 siemens instrument. This should be completed by the end of the year. I discussed the American Pathology Institute performance summaries and there were no issues with any of the API Proficiency testing. I briefly discussed the schedule with Walter about the staff and it's nice to see they continue to perform as a coherent unit. I reviewed The American Proficiency Institute (API) performance summary for 2026 chemistry chore second event. The CLIA waved the results for the 15-panel Fentanyl validation. The Modoc validation of the new Cepheid molecule number 2 (Gene Xpert). The American Proficiency Institute (API) testing evaluation for chemistry miscellanies First event 2026. The exceptions report for clinical value cause to clinicians. The American Proficiency Institute (API) 2026 microbiology second event, kit 1.

ROBERT JAMES, MD, PhD
CONSULTING PATHOLOGIST

9/14/26
Date

MODOC MEDICAL CENTER
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PATHOLOGIST ON-SITE VISIT REPORT
DATE OF VISIT: 08.10.2026

During the pathology on-site visit, I spent approximately 7 1/2 hours in the Laboratory, Medical Records, and at Canby Clinic.

While in medical records, I reviewed 25 surgical path reports and compared them with their clinal histories, 8 of these path reports were from June 2026 and 17 were from July 2026. There were 2 mortality reviews and 4 transfusion reports. There were no issues that were identified in any of these reports.

While in the laboratory, I spoke with Walter and he indicated everything was going smoothly and there were no issues that occurred since my last visit. The staff continues to do well and have good workmanship within the laboratory. While in the laboratory I reviewed the monthly quality control review summary for June. The exceptions report for June. The ALCOR group coordinator reports for June. The multiple updated policies include the HNID panel instructions for microbiology. The Micro scan +2 MSRP +2. The MTV/RIF testing on the GeneXpert instrument. The micro scan negative panel procedure for microbiology. The urine culture identification and reporting for microbiology. The micro scanner panel procedure for microbiology. The American Proficiency Institute (API) performance review for the 2026 microbiology second event. Correlation studies for the SYSMEX. The Beyond Report for the SYSMEX instrument. The certification statement for the 2026 Hematology / Coagulation verification second event. The QC statistics report for June. The QC chart for the XN-550 instrument for June. The American Proficiency Institute (API) performance evaluation for 2026 chemistry Chor second event. The QA Cantrell results for level 1 and level 2 for June. The seamen's hemostasis QAP program for June. And the QC reports for the glucose monitoring for June

ROBERT JAMES, MD, PhD
CONSULTING PATHOLOGIST

9/14/26
Date

LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT D

Policies and Procedures

Consent Agenda

Presented by E. Johnson

MODOC MEDICAL CENTER
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Last Frontier Healthcare District

MEMORANDUM

DATE: 10/29/2026
TO: Last Frontier Healthcare District Board of Directors
FROM: Policy Committee
SUBJECT: **Review of Departmental Policies and Yearly Memo/Signature Page**

The following information regarding Departmental Policies is submitted for your review:

Review of Departmental Policies (see attached):

SURGERY/OPERATING ROOM

7420.26 Anesthesia Personnel
7420.26 Pre Anesthetic requirements

SKILLED NURSING FACILITIES

6580.26 Documentation-Risk Even Reporting
6580.26 415 Resident Rights- Pharmaceutical service
6580.26 Documentation- Monitoring Residents with Special Needs
6580.26 Monitoring Residents Weight

DIETARY ACUTE

8345.26 Guest Trays
8345.26 Hours of Operation
8345.26 Meal Times and Frequency
8345.26 Temperatures

NURSING MED/SURG

6170.26 Administration of Enteral Nutrition Using Kangaroo Feeding Pump Policy
6170.26 Care and Accommodation of Spiritual Needs in Patient Care
6170.26 Care Planning Policy
6170.26 Decubitus Ulcer Prevention and Care
6170.26 Denture Cleaning and Care
6170.26 Dying Patient Standard of Care for Inpatient
6170.26 Enema Administration Policy

Review of Departmental Policies (continued):

6170.26 Enteral (Tube) Feeding Administration Policy
6170.26 Eye Compress Application Policy
6170.26 Informed Consent-Inpatient
6170.26 Initial Patient Assessment and Reassessment
6170.26 Injection-Intramuscular Administration
6170.26 Injection-Subcutaneous Administration
6170.26 Injections-Administration and Management
6170.26 Intravenous Therapy-Changing a Gown with Continuous Infusion
6170.26 Intravenous therapy Complications and Management Policy
6170.26 Intravenous Therapy-Discontinuing a Peripheral Line
6170.26 Rectal Tube Insertion Policy
6170.26 Release of Deceased Patient Policy
6170.26 Reporting Equipment Malfunction Policy
6170.26 Routine Night Shift Nursing Responsibility
6170.26 Safe Medical Devices Policy
6170.26 Seizure Management Standard of Care Policy
6170.26 Shaving a Patient Standard of Care Policy
6170.26 Suctioning Through a Tracheostomy Policy
6170.26 Suture Removal
6170.26 Telemetry Monitory Policy
6170.26 Thoracentesis Assisting Provider Policy

LABORATORY

7500.22 Blood Cultures-Processing and Reporting
7500.23 Bone Marrow Culture and Side Prep
7500.23 APIT (Siemens) Procedure
7500.23 Environmental cultures-identifying and reporting
7500.23 Labconco Biological safety Cabinet Usage
7500.23 Microbiology Plating Protocol
7500.23 Monthly Autoclave
7500.23 Respiratory cultures-identifying and reporting
7500.23 Streak Plate Technique
7500.23 Urine Cultures-Identifying and Reporting
7500.24 Blood Agar Instructions for Use
7500.24 Gram Stain Procedure
7500.24 Group A Beta Strep Agar Instructions for Use
7500.24 MacConkey Agar
7500.24 Thioglycolate Media Instructions on Use
7500.24 Use and Interpretation of Bacitracin A Disc
7500.25 Body Fluid Cultures
7500.25 Cepheid Xpert CoV2 Flue RSV Testing
7500.25 GeneXpert IQCP Risk Assessment
7500.25 Microbiology Quality Control updated 12.2024

Thank you for your time and attention to the above.

Respectfully submitted,

Sandra A. Brown
Administrative Assistant to CNO
1111 N. Nagle Street
Alturas, CA 96101
(530) 708-8808

Enc.

Review of Departmental Policies (continued):

LABORATORY

7500.25 Urinalysis- Complete
7500.26 Neonatal Transfusion

TRANSFUSION

7500-T.23 ABO RH TYPING 3469
7500-T.23 Antibody Screen -3 Cell
7500-T.23 Crossmatch
7500-T.23 Direct Coombs Date
7500-T.23 Emergency Release of Uncrossmatched Blood
7500-T.23 General Transfusion Services Policy and Quality Assurance
7500-T.23 Grading Agglutination Reaction
7500-T.23 Infant Blood Testing
7500-T.23 Operation and Use of the Helmer DH
7500-T.26 Newborn Specimens and Order Sets

Review of Department Yearly Manual Memo and Yearly Signature Page (see attached)

RADIOLOGY DEPARTMENT

Memorandum
Annual Review Signature Page

SNF-SOCIAL SERVICES

Memorandum
Annual Review Signature Page

SNF-ACTIVITIES

Memorandum
Annual Review Signature Page

ALTURAS CLINIC

Memorandum
Annual Review Signature Page

EXCELL SPREAD SHEET

To complete approval of the above-listed Policies, please sign and date where indicated on the attached Excell Spreadsheet.

SURGERY/OPERATING ROOM

REFERENCE #	7420.26	EFFECTIVE 04/2009
SUBJECT:	7420.26 ANESTHESIA PERSONNEL	REVISED 06/2026
DEPARTMENT:	OPERATING ROOM	

PURPOSE:
The purpose of this policy is to define requirements for Anesthesia Personnel.

AUDIENCE:
Department Staff

TERMS/DEFINITION:

POLICY:
It is the policy of Modoc Medical Center (MMC) that Anesthesia Personnel meet the requirements for providing these services in the surgery department.

PROCEDURE:
Anesthesiologist-/-Nurse Anesthetist:

- Must have completed an anesthesia training program at an approved school of anesthesia set forth by the by-laws of the American Association of Anesthesiologists or American Association of Nurse Anesthetists.
- Must have a current California License.
- Must have delineated privileges as set forth by the Medical Staff of this hospital.

PROCEDURE:
Surgeon:

- California is an "opt-out" state per the Centers for Medicare and Medicaid (CMS) with Medicare Part A.
- All Certified Registered Nurse Anesthetists (CRNA) are exempted from physician supervision in California, although individual healthcare facilities may elect to require CRNA supervision or medical direction if ~~they so~~they desire.
- In the event that an anesthesia ~~provider~~provider feels that the surgeon or doctors' requests are not consistent with good anesthesia principles and discussion nets no workable comprise the anesthesia ~~provider~~provider is not bound to administer this anesthesia.

Administration:

- Administrative questions are to be discussed with the Chief Executive Officer (CEO).
- All anesthesia duties will be carried out within the administrative framework of the hospital – as proper record preparation, obtaining proper permits, etc.

Department:

- Attempt to maintain cooperation with and from the patient and their relatives, the surgeon, operation room personnel, post anesthesia care unit (PACU) personnel, Cehief Nnursing Oofficer (CNO) and nursing, as well as other hospital departments.

REFERENCES:

California ~~association~~Association of N~~n~~urse A~~a~~nesthetists (CANA) practice division 06/2018, page 3, ii. 4.

ATTACHMENTS:

CANA practice division 06/2018, page 3.

REFERENCE #	7420.26	EFFECTIVE 04/2009
SUBJECT:	7420.26 PRE-ANESTHETIC REQUIREMENTS	REVISED 06/2026
DEPARTMENT:	OPERATATING ROOM	

PURPOSE:
The purpose of this policy is to define ~~the~~ Pre-Anesthetic Requirements.

AUDIENCE:
Department Staff

TERMS/DEFINITION:
None

POLICY:
It is the policy of Modoc Medical Center (MMC) that specific Pre-Anesthetic Requirements be met before surgical procedures are performed.

PROCEDURE:
Pre-Anesthetic Requirements:

- A copy of a History and Physical (H&P) that is less than 30 days old with an updated Surgical Progress note, or a new H&P if the original H&P is greater than 30 days, must be on the chart prior to the time scheduled for an operation, unless the surgeon states in writing that a delay would constitute a hazard to the patient. An H&P that is less than 24 hours does not require updating unless there has been a change in the patient's condition.
- A glucose blood sugar should be done on all patients after being admitted for surgery that have a known diagnosis of Diabetes or ~~is~~are taking medications that can alter the blood glucose, i.e. medications used for weight loss.
- Other labs will be done at the Surgeon or Anesthesia Provider's request.
- Electrocardiogram (ECG) will be done on all patients 50 years of age and older. ECG's done within the last 6 months are sufficient providing there has been no change in the patient's cardiac history. An ECG may be done on other patients when ordered by the provider.
- Cardiac clearance must be on the chart at the time of surgery for those patients that a physician has requested it.
- An informed consent for surgery signed by both the physician, patient and/or their responsible party.
- An informed consent for anesthesia will also be completed by the anesthesia provider, patient and or their responsible party.
- Lab tests or other examinations that may be requested by the physician or anesthesia provider based on the patient's medical history and physical may include:
    - Basic or Complete Metabolic Panel
    - Complete Blood Cell Count (CBC)
    - ECG or x-ray examination.
    - Type and cross match for blood products

- Protime and INR tests will be performed on all patients less than 10 years of age scheduled for a Tonsillectomy and Adenoidectomy. –These Lab tests can be performed on other patients at the physician's and anesthesia providers' request.
- A urine or blood serum pregnancy test will be done on all Dilation and Curettage surgeries.- Any patient scheduled for a Hysterectomy or Tubal Ligation will also require a pregnancy test.- Female patients undergoing anesthesia will also require a pregnancy test if they are still of childbearing age.
- The above requirements may be modified or waived by specific orders of the attending physician.

REFERENCES:

None

ATTACHMENTS:

None

SKILLED NURSING FACILITIES

REFERENCE #	6580.26 #149	EFFECTIVE 1992
SUBJECT:	6580.26 DOCUMENTATION-RISK EVENT REPORTING	REVISED 6/2026
DEPARTMENT:	SKILLED NURSING FACILITIES	

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PURPOSE

The purpose of this policy is to ~~indicate~~ensure that all Risk Events are property ~~to be~~ documented so that appropriate follow-up can be properly done.

AUDIENCE

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Department Wide

TERMS AND DEFINITIONS

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None

POLICY

It is the policy of Warnerview / Mountain View Skilled Nursing Facilities (SNF)~~y~~ that all unusual occurrences involving residents be documented in the medical record., ~~T~~the resident's family and the physician ~~will be~~ notified, and the Risk Event form ~~will be~~ completed for ~~the~~ follow-up and quality improvements ~~studies~~interventions.

PROCEDURE

- A Risk Event report must be completed on any Skilled Nursing Facility (SNF) resident involved in a fall, aspiration, burn, elopement, medication error, unexpected death, equipment malfunction, or any other unusual occurrence.
- The report form will be completed as thoroughly as possible including a description of the occurrence, the resident's status, any witnesses present, and persons notified. Other helpful information includes exactly where the occurrence took place, actual or probable causes, and what the resident and /or witness stated about the incident. The occurrence is reported to Administration or designee immediately and the completed form is then given to Administration, who review the occurrence and responds with five (5) working days, after which the report is sent to the appropriate department or committee. Actual and potential injuries are reported to the Safety committee for review, medication errors to Pharmacy and Therapeutics committee for review, and other unusual occurrences or risk management issues to Quality Improvement committee for review.
- The resident is thoroughly assessed for injuries, vital signs are taken, and the occurrence is documented in the nurse's notes. A notation is made by the CNA, if applicable, in the CNA notes on the back of the ADL form, which notes the circumstances and notification to the charge nurse. Additions or revisions are made in the care plan as needed. Follow-up assessments are conducted as the condition warrants.
- The resident's attending ~~physician~~physician, nurse practioner (NP) or physician assistant (PA) ~~is~~are notified in a timely manner about the occurrence, and day injuries are reported. Physician orders are

REFERENCE #	6580.26 #149	EFFECTIVE 1992
SUBJECT:	6580.26 DOCUMENTATION-RISK EVENT REPORTING	REVISED 6/2026
DEPARTMENT:	SKILLED NURSING FACILITIES	

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noted and carried out. The physician, NP or PA must be apprised of any further complaints/injuries as they are noted by nursing staff.

REFERENCES

None

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ATTACHMENTS

None

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REFERENCE #	6580.25 #415	EFFECTIVE 1993	
SUBJECT:	6580.25 RESIDENT RIGHTS- PHARMACEUTICAL SERVICE	REVISED 10/2025,6/2026	
DEPARTMENT:	SKILLED NURSING FACILITIES		

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PURPOSE

The purpose of this policy is to define resident rights and quality of care related to pharmaceutical services.

AUDIENCE

Facilities Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Warnerview and Mountain View Skilled Nursing Facilities (SNF) that all health care workers who administer drugs shall be knowledgeable about resident rights related to pharmaceutical service and shall abide by them to provide quality care to our residents.

PROCEDURE

- An individual resident may self-administer drugs if an interdisciplinary team has determined that this practice is safe.
- The resident has the right to be free of unnecessary drugs which includes medication in excess dose, for excessive duration, without adequate monitoring, without adequate indication of its use or in the presence of adverse consequences which indicate the dose should be reduced or discontinued.
- Prior to the use of psychotropic (psychotherapeutic) medications, residents, family and/or conservators are to be informed regarding the need for this medication as well as informed of the side effects prior to the initiation of the medication. This is to be done by the resident's physician or health care provider and must be done prior to giving the resident the medication unless an emergency exists.
- Residents who have not used antipsychotic drugs in the past are not given these drugs unless antipsychotic drug therapy is necessary to treat a specific condition as diagnosed and documented in the clinical records.
- Residents who use antipsychotic or antianxiety drugs shall receive gradual dose reductions and behavioral interventions, unless clinically contraindicated, in an effect to discontinue these drugs.
- Residents are free of significant medication errors.

REFERNECES

None

REFERENCE #	6580.25 #415	EFFECTIVE 1993
SUBJECT:	6580.25 RESIDENT RIGHTS- PHARMACEUTICAL SERVICE	REVISED 10/2025,6/2026
DEPARTMENT:	SKILLED NURSING FACILITIES	

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ATTACHMENTS

None

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6580.26 REFERENCE #	6580.26	EFFECTIVE 1998
SUBJECT:	6580.26 MONITORING RESIDENTS WITH SPECIAL NEEDS	REVISED 6/2026
DEPARTMENT:	SKILLED NURSING FACILITIES	

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PURPOSE

The purpose of this policy is to document all residents with special needs ~~in order~~to ensure that their care ~~can be~~is followed more closely by nursing and administrative staff.

AUDIENCE

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Department Wide

TERMS AND DEFINITIONS

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None

POLICY

It is the policy of Warnerview ~~/~~ Mountain View Skilled Nursing Facilities (SNF)~~s~~ for nursing staff to monitor and review residents with "special needs" to ensure quality of care.

PROCEDURE

- Residents with special needs will include, but are not limited to the following conditions:
  - Decubitus or major skin problems
  - Indwelling catheter
  - Tube feeding
  - Intake and output monitoring
  - Insulin dependent diabetics
  - Oxygen usage
  - Bladder/bowel training
  - Bedfast residents
  - Sensory impairments – major
  - Restraints
  - ~~o~~ Vital signs and weight monitoring other than routine
  - ~~o Resident with "special needs" are recorded at the beginning of each month, posted at the nurse's station and reviewed by each shift as part of the shift report.~~

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6580.26 REFERENCE #	6580.26	EFFECTIVE 1998
SUBJECT:	6580.26 MONITORING RESIDENTS WITH SPECIAL NEEDS	REVISED 6/2026
DEPARTMENT:	SKILLED NURSING FACILITIES	

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- Nursing administration is responsible for monitoring accuracy and appropriate utilization by the nursing staff, and in maintaining quality care.

REFERENCES

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None

ATTACHMENTS

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None

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REFERENCE #	6580.26	EFFECTIVE 1/1/2006
SUBJECT:	6580.26 MONITORING RESIDENTS WEIGHT	REVISED 6/1/2026
DEPARTMENT:	SKILLED NURSING FACILITY	

PURPOSE

It is the purpose of this policy to ensure each resident's weight is monitored for fluctuations.

AUDIENCE:

Department Wide

TERMS/DEFINITION:

None

POLICY

It is the policy of Warnerview /Mountain View Skilled Nursing Facilities (SNF) to closely monitor each resident's weight to identify significant fluctuations or possible problems related to nutrition.

PROCEDURE

All residents will be weighed on admission and at least monthly thereafter. The attending physician will be notified of significant change as identified by State and Federal regulations to provide quality resident care related to dietary needs.

- Each resident will be weighed upon admission with the results recorded on the nursing admission assessment sheet and on the vital signs and weight record.
- Each resident will be weighed at least monthly unless ordered otherwise by the Physician or Advanced Practice Provider (APP). Frequency of weighing within a month may be done on the recommendation of the Dietary Consultant or at the discretion of the Director of Nursing or Medical Data Sheet (MDS) Coordinator. This weight will be recorded on the vital signs and weight record.
- Any significant and unplanned weight gain or loss as identified by the parameters below is to be reported to the attending physician or APP.

Interval	Significant Loss	Severe Loss
1 month	5%	Greater than 5%
3 months	7.5%	Greater than 7.5%
6 months	10%	Greater than 10%

- Documentation of notification shall be recorded on the monthly vital signs and weight record as well as in the nurses notes.

- The consulting dietitian will review the weights of all newly admitted residents and at least quarterly thereafter and will make recommendations as to dietary changes if problems are identified.
- Intended weight loss may be ordered by the Physician/APP and/or requested by the resident. Orders or requests are documented in the resident's care plan and monitored.
- Residents who are unable to stand will be weighed on a sling scale (e.g., Hoyer scale) or wheelchair accessible scale. In the event of equipment failure, equipment from the adjoining acute facility will be utilized.

REFERENCES

None

ATTACHMENTS

None

REFERENCE #	8345.26	EFFECTIVE 7/2020
SUBJECT:	8345.26 GUEST MEAL TRAYS	REVISED 7/22/2026
DEPARTMENT:	DIETARY - ACUTE	

PURPOSE

The purpose of this policy is to provide guidance to staff members addressing patients and/or family members requesting a guest meal tray.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center's (MMC) Dietary Department to provide a guest meal tray for a family member or guest upon request.

PROCEDURE

- Nursing staff may request a guest meal tray for a family member or guest of a patient.
- The request for a guest meal tray needs to be sent to the kitchen at least 2 hours prior to the meal. This may be done by phone or in writing.
- The facility may provide a free meal to family or guests in need. The need for a free guest meal tray will be determined by the Nursing Supervisor, Dietary Manager, or designee. Such considerations would be; end of life, emergency services, assisting with care or a parent sitting with a child.
- The facility will only provide one free meal to family or guests. Other family members or guests are welcome to order and purchase a meal and/or utilize MMC's cafeteria.
- Any guest meal ~~trays~~tray ordered will be sent on the food cart for delivery to the patient's room.

REFERENCES

None

ATTACHMENTS

None

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REFERENCE #	8345.26	EFFECTIVE 7/2020
SUBJECT:	8345.26 GUEST MEAL TRAYS	REVISED 7/22/2026
DEPARTMENT:	DIETARY - ACUTE	

REFERENCE #	8345.26	EFFECTIVE 2005
SUBJECT:	8345.26 HOURS OF OPERATION	REVISED 7/22/2026
DEPARTMENT:	DIETARY - ACUTE	

PURPOSE

The purpose of this policy is to inform ~~staff~~staff about the hours of operation for the kitchen.

AUDIENCE

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Department Wide

TERMS/DEFINITIONS

None

POLICY

It is the ~~The~~ policy of Modoc Medical Center's (MMC) Dietary Department (Acute Kitchen) ~~is~~ to promptly open at 7:00 AM and close at 7:00 PM. Online ordering starts at 7:45 AM to 6:45 PM, with closures for tray-line at 7 AM to 7:45 AM, 11:20 AM to 12:00 PM, 5 PM to 5:30 PM.

PROCEDURE

- **The morning/AM cook will be responsible for opening the kitchen and the evening/PM cook and #7 aide will be responsible for closing and securing the kitchen when done at night.**
- **The kitchen will be thoroughly cleaned, including washing and putting away all dishes, wiping down counters, cleaning and sanitizing food preparation surfaces. The kitchen will be swept and mopped, and all trash removed before closing daily.**

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REFERENCES

None

ATTACHMENTS

None

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~~**PROCEDURE**~~

~~1. The morning/AM cook will be responsible for opening the kitchen and the evening/PM cook and #7 aide will be responsible for closing and securing the kitchen when done at night.~~

~~2. The kitchen will be thoroughly cleaned, including washing and putting away all dishes, wiping down counters, cleaning and sanitizing food preparation surfaces. The kitchen will be swept and mopped and all trash removed before closing daily.~~

REFERENCE #	8345.26	EFFECTIVE 2005
SUBJECT:	8345.26 HOURS OF OPERATION	REVISED 7/22/2026
DEPARTMENT:	DIETARY - ACUTE	

~~REFERENCES~~

~~2019 Becky Dorner & Associates, Inc.~~

REFERENCE #	8345.26	EFFECTIVE 2005
SUBJECT:	8345.26 MEAL TIMES & FREQUENCY	REVISED 7/22/2026
DEPARTMENT:	DIETARY - ACUTE	

PURPOSE

The purpose of the policy is for the Dietary Department at Modoc Medical Center (MMC) to provide at least three meals daily at regular scheduled times to patients.

AUDIENCE

Department Wide

TERMS/DEFINITIONS

None

POLICY

It is the policy of the ~~The~~ Dietary Department at Modoc Medical Center (MMC) to ~~will~~ provide at least three meals per day at regularly scheduled times comparable to standard mealtimes in the community or in accordance with the ~~patients~~patient's needs, preferences, requests, and plan of care.

PROCEDURE

- There will ~~regularly~~be regularly scheduled ~~meal times~~mealtimes.
- There will be no more than 14 hours between a substantial evening meal (dinner) and breakfast the following day.
- All patients will be offered an evening snack in accordance ~~to~~with their prescribed diet order.
- Meals and Hours of Sleep (HS) snacks will be served at the following times:
  - BREAKFAST 7:30 AM
  - LUNCH 12:00 PM
  - DINNER 5:30 PM
  - HS SNACK 7:30 PM

REFERENCES

None

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Commented [1R2]: Hour of Sleep. It's the bedtime snack.

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REFERENCE #	8345.26	EFFECTIVE 2005
SUBJECT:	8345.26 MEAL TIMES & FREQUENCY	REVISED 7/22/2026
DEPARTMENT:	DIETARY - ACUTE	

ATTACHMENTS

None

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REFERENCE #	8345.26	EFFECTIVE 2005	
SUBJECT:	8345.26 FOOD TEMPERATURES	REVISED 7/22/2026	
DEPARTMENT:	DIETARY - ACUTE		

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PURPOSE

The purpose of this policy is to ~~assure properensure that~~ food is maintained and served at safe and appropriate temperatures.

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AUDIENCE

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Department Wide

TERMS/DEFINITIONS

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None

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POLICY

It is the policy of ~~The policy of~~ Modoc Medical Center's (MMC) Dietary Department ~~is~~ that all food items will have the temperature taken and properly recorded prior to service of each meal.

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PROCEDURE

- All hot food items must be cooked to appropriate internal temperatures, held and served at a temperature of at least 135 degrees Fahrenheit.
    - Cooking temperatures must be reached and maintained according to regulations, laws, and standardized recipes while cooking.
    - Hot food items may not fall below 135 degrees Fahrenheit after cooking, unless it is an item which is to be rapidly cooled to below 41 degrees Fahrenheit and reheated to at least 165 degrees Fahrenheit (for a minimum of 15 seconds) prior to serving. Caution will be taken to avoid serving food and liquids at temperatures that are too hot to avoid the risk of burns.
- All cold food items must be stored and served at a temperature of 41 degrees Fahrenheit or below.
- Temperatures will be taken periodically to ~~assure~~ensure that hot foods stay above 135 degrees Fahrenheit and cold foods stay below 41 degrees Fahrenheit during the holding and plating process and until food leaves the service area (See Resource: Taking Accurate Temperatures and Resource: Minimum Cooking, Holding and Reheating Temperatures later in this chapter).
- Foods will be transported as quickly as possible to maintain temperatures for delivery and service. If food transportation time is extensive, food will be transported using a method that maintains temperatures. The Dietary Department at Modoc Medical Center (MMC) uses insulated plates, bases, domes, insulated cups and bowls to ~~assure~~ensure temperatures are maintained.
- Food preparation and service areas will follow these methods:

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REFERENCE #	8345.26	EFFECTIVE 2005
SUBJECT:	8345.26 FOOD TEMPERATURES	
DEPARTMENT:	DIETARY - ACUTE	REVISED 7/22/2026

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- Hold cold foods at or below 41 degrees Fahrenheit and hot foods at or above 135 degrees Fahrenheit to keep food out of the temperature danger zone.

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- Hold foods on a steamtable for less than four hours
- Do not use the steamtable to cook or heat foods.

Food items sent to the units for distribution (such as meals, snacks, nourishments, oral supplements) will be transported and delivered to unit storage areas to maintain temperatures at or below 41 degrees Fahrenheit for cold foods and at or above 135 degrees Fahrenheit for hot foods. Unit refrigerators will be monitored for temperatures that main foods at or below 41 degrees Fahrenheit.

Foods prepared during special events such as cookouts, picnics and barbeques or for take-out such as packed lunches will be handled using the same safe-temperature guidelines as all other foods. Appropriate food transport equipment or other methods of maintaining safe temperatures will be utilized.

REFERENCES

2019 Becky Dorner & Associates, Inc.

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2017 Federal Food Code

ATTACHMENTS

None

REFERENCE #	8345.26	EFFECTIVE 2005
SUBJECT:	8345.26 FOOD TEMPERATURES	REVISED 7/22/2026
DEPARTMENT:	DIETARY - ACUTE	

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NURSING MED/SURG

REFERENCE #	6170.26	EFFECTIVE: 7/2026
SUBJECT:	6170.26 ADMINISTRATION OF ENTERAL NUTRITION USING KANGAROO FEEDING PUMP	REVISED
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized procedures for the safe administration of enteral nutrition, hydration, and prescribed enteral flushes using the Kangaroo Enteral Feeding Pump for hospitalized patients. This policy promotes patient safety, minimizes complications associated with enteral feeding, and ensures compliance with applicable federal, state, accreditation, and manufacturer requirements.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Enteral Nutrition: delivery of nutrients directly into the gastrointestinal tract through an enteral access device.

Kangaroo Enteral Feeding Pump: an electronic infusion device designed specifically for administration of enteral nutrition and hydration.

POLICY:
It is the policy of Modoc Medical Center (MMC) that enteral nutrition administered via a Kangaroo Enteral Feeding Pump will be provided only upon the order of a ~~licensed provider~~physician, ~~Physician Assistant~~ Physician,~~()Family~~ Nurse Practitioner (NP) or Physician Assistant (PA) and in accordance with current ~~physician/provider~~physician, NP or PA, orders, manufacturer's instructions for use, hospital infection prevention policies, California licensing requirements, and Centers for Medicare & Medicaid Services Conditions of Participation.

PROCEDURE:
Verify the ~~Provider~~physician, NP or PA's Order

- Correct patient using two identifiers.
- Formula.
- Route
- Feeding rate (milliliters/hour).
- Total volume (if ordered).
- Flush volume and frequency.
- Feeding schedule (continuous or intermittent).

Assess the Patient

- Before beginning, verify the enteral tube placement per hospital policy.
- Assess abdomen for distention, bowel sounds, nausea, vomiting, and discomfort.
- Inspect ~~tube~~the tube insertion site.
- Ensure tube is patent.
- Elevate the head of the bed to 30-45 degrees, unless contraindicated.

Perform Hand Hygiene

- Wash hands according to hospital policy.
- Apply appropriate personal protective equipment (PPE).

Prepare the Formula

- Verify expiration date.
- Inspect container for damage.
- Shake formula if recommended.
- Pour only the amount permitted by facility policy (commonly no more than 8 hours of formula for adults).
- Label the feeding bag with date, time, and initials.

Position the Pump

- Attach the pump securely to an intravenous pole or stable surface.
- Hang the tube feeding bag.
- Position the highest fluid level in the bag approximately 10 inches above the top of the pump, as recommended by the manufacturer.

Turn On the Pump

- Press the **Power** button.
- The prior settings screen appears.
- Select the **Clear Settings** for a new feeding or **Keep Settings** if continuing the same ordered feeding.

Load the Tube Feeding Set

- Open the pump door if applicable.
- Insert the feeding set cassette following the on-screen animation.
- Press firmly until the cassette clicks into place.
- Confirm the pump recognizes the feeding set before proceeding.

Prime the Tubing

- The feeding tube should not be connected to the patient while priming.
- Select **Prime**.
- Choose **Auto Prime** or **Manual Prime**.
- Prime until formula reaches the end of the tubing with no visible air.
- If using a Feed & Flush set, prime both the feeding and flush tubing.
- Select **Done** when complete.

Program the Pump

- Select **Adjust Rate.**
- Enter the ordered feeding rate (milliliter/hour).
- Dose or volume.
- Verify all programmed settings against the ~~provider~~physician, NP, PA's order before starting the feeding.

Connect the Patient

- Verify tube placement according to hospital policy.
- Flush the feeding tube with the prescribed amount of water.
- Connect the tubing securely to the enteral tube.
- Ensure all connections are secure and free of leaks.

Start the Tube Feeding

- Press **Start**.

- Confirm the pump indicates that feeding is in progress.
- Observe the patient and tubing for several minutes to ensure proper operation.

Monitor During Feeding

- At least every four hours or more frequently if clinically indicated.
- Verify pump settings.
- Confirm prescribed rate.
- Assess tube placement.
- Assess feeding tolerance.
- Inspect tubing for kinks.
- Check remaining formula volume.
- Verify head-of-bed elevation.
- Assess for aspiration, nausea, vomiting, abdominal distention, diarrhea, constipation, or leakage around the tube.
- Respond promptly to any alarms.

Administer Water Flushes

- Flush the feeding tube before feeding, every 4 hours during continuous tube feedings, before medications, between medications, after medications, and after feeding completion.
- Use only the prescribed type and volume of water.

Respond to Pump Alarms

- If an alarm occurs read the alarm message.
- Inspect tubing for kinks or occlusion.
- Ensure the formula bag contains adequate formula.
- Verify the cassette is properly seated.
- Confirm tubing connections.
- Re-prime the tubing if indicated.
- If the alarm persists, remove the pump from service and notify Biomedical Engineering according to hospital policy.

Discontinue Feeding

- Press **Stop.**
- Disconnect the feeding set from the patient using clean technique.
- Flush the feeding tube with the prescribed amount of water.
- Dispose of feeding supplies according to hospital infection prevention policy.
- Clean the pump exterior per ~~manufacturer~~manufacturer's recommendations.
- Perform hand hygiene.

Documentation

- Document in the electronic medical record the following:
  - Formula type.
  - Feeding rate.
  - Total volume infused.
  - Water flushes.

- Tube placement assessment.

- Pump settings.
- Patient tolerance.
- Intake and output.
- Complications and interventions.
- Patient or caregiver education.

REFERENCE:

Cardinal Health. (2024). ***Kangaroo™ OMNI enteral feeding pump: Instructions for use*** (Rev. A). Cardinal Health.

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 2/2009
SUBJECT:	6170.26 CARE AND ACCOMMODATION OF SPIRITUAL NEEDS IN PATIENT CARE	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish a standardized approach for identifying, respecting, and addressing the spiritual, religious, and cultural needs of patients and their families as part of comprehensive, patient-centered care in accordance with applicable California law and healthcare accreditation standards.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Spiritual Care: support that addresses a patient's meaning, purpose, values, beliefs, and relationship to self, others, or a higher power.

Spiritual Care Provider: a trained chaplain or designated spiritual care professional.

POLICY:
It is the policy of Modoc Medical Center (MMC) to be committed to providing equitable, respectful, and culturally sensitive care that supports the spiritual and religious needs of all patients. Spiritual care is recognized as an integral component of holistic healthcare and may contribute to patient coping, decision-making, and overall well-being. No patient will be required to disclose spiritual or religious beliefs, and no patient will be discriminated against based on beliefs, practices, or non-religious affiliation.

PROCEDURE:
Identification of Spiritual Needs
- Spiritual needs may be identified during admission assessments, interdisciplinary rounds, or at patient request.
- Screening for spiritual concerns may be offered as part of holistic assessment but is voluntary.

Patient Rights and Accommodation
- Patients have the right to access spiritual or religious support of their choosing; decline spiritual assessment or services; and practice faith traditions when consistent with clinical safety and hospital policy.
- Reasonable accommodation will be provided for prayer, meditation, or quiet reflection; religious dietary requirements when clinically appropriate; religious artifacts or symbols, provided they do not compromise safety or infection control standards; and rituals associated with illness, death, or end-of-life care.

Spiritual Care Services
- The hospital will provide access to a designated spiritual care program or chaplaincy service.
- Upon patient request or clinical indication, staff will facilitate referral to spiritual care services.
- External clergy or spiritual advisors may be contacted at the patient's request, subject to hospital access procedures.

End-Of-Life Care
- Spiritual needs will be assessed and addressed as part of end-of-life care planning.
- Family and patient spiritual preferences will be respected when consistent with legal and clinical requirements.

Staff Responsibilities

- Provide care in a respectful, nonjudgmental manner.
- Avoid imposing personal beliefs on patients or family members.
- Recognize signs of spiritual distress and initiate referral when appropriate.
- Collaborate with interdisciplinary team, including chaplaincy service.

Documentation

- Relevant spiritual needs, requests, and accommodations may be documented in the patient's medical record in accordance with privacy regulations and clinical relevance.

Privacy and Confidentiality

- All spiritual care-related information will be treated as confidential and managed in compliance with the Health Insurance Portability and Accountability Act (HIPAA) and applicable California privacy laws.

REFERENCE:

California Department of Public Health. (2023). *Title 22: Social security, division 5, licensing and certification of health facilities*. https://www.cdph.ca.gov

Puchalski, C. M., Vitillo, R., Hull, S. K., & Reller, N. (2014). Improving the spiritual dimension of whole person care: Reaching national and international consensus. *Journal of Palliative Medicine, 17*(6), 642–656. https://doi.org/10.1089/jpm.2014.9427

American Hospital Association. (2020). *HRC: Spiritual care in healthcare settings*. https://www.aha.org

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 CARE PLANNING	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to ensure that every patient admitted to the hospital receives individualized, coordinated, and documented care based on a comprehensive assessment of identified needs, goals, and expected outcomes, consistent with California Title 22 regulations and applicable federal requirements.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Interdisciplinary Plan of Care: a documented, individualized plan developed from patient assessment data that identifies problems, goals, interventions, and expected outcomes to guide patient care.

Significant Change in Condition: a change in physical, mental, emotional, or functional status that requires reassessment and modification of the patient's treatment plan.

POLICY:
It is the policy of Modoc Medical Center (MMC) that an individualized plan of care will be developed, implemented, and maintained for every inpatient based upon assessed needs, identified problems, physician orders, and patient-specific goals. The plan of care will be interdisciplinary in nature, regularly evaluated, and revised as necessary throughout the patient's hospitalization.

PROCEDURE:
Admission Assessment

- Upon admission, a registered nurse will complete and document a comprehensive assessment that includes, but is not limited to the following:
  - Presenting condition and diagnosis.
  - Vital signs.
  - Pain assessment.
  - Functional status.
  - Mobility assessment.
  - Fall risk assessment.
  - Skin assessment.
  - Nutritional assessment.
  - Psychosocial assessment.
  - Learning needs assessment.
  - Cultural and spiritual considerations.
  - Advance directive status.
  - Discharge planning needs assessment.

Development of the Plan of Care

- The plan of care will be initiated upon admission and completed within twenty-four (24) hours of admission or sooner as patient condition warrants.

Required Elements of the Plan of Care

- Identified patient problems and care needs.
- Patient centered goals and expected outcomes.

- Nursing interventions.
- Medical treatment interventions.
- Rehabilitation interventions, when indicated.
- Educational needs and teaching plan.
- Discharge planning goals.
- Evaluation criteria.

Individualization

- The plan of care will be individualized and will not consist solely of standardized or preprinted interventions without modification to reflect patient-specific needs.

Implementation of the Plan of Care

- All healthcare personnel will provide care consistent with the established plan of care and ~~pPhysician or Advanced Practice Providers (APPs)rovider physician~~, nurse practitioner (NP) or physician assistant (PA)orders.
- Interventions will be documented according to hospital documentations standards.
- Patient responses and outcomes will be documented in the medical record.

Evaluation

- The registered nurse will evaluate the patient's progress toward established goals at least once per shift and more frequently as clinically indicated.

Revision

The plan of care will be revised when patient condition changes, new problems are identified, goals are achieved, goals are not being met, ~~Physician or APPsnew physician or provider physician~~, NP or PA

- orders are received, and new assessment findings warrant modification.
- All revisions will be documented in the electronic medical record and communicated to appropriate members of the healthcare team.

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Patient and Family Participation

- Patients will be encouraged to participate in care planning and goal setting.
- Family members, caregivers, or legal representatives may participate when appropriate and authorized.
- Patient education will be provided based on assessed learning needs.
- Documentation will reflect patient and family involvement, or the reason participation was not possible.

Discharge Planning

- Discharge planning will begin upon admission.
- The interdisciplinary team will assess and address post-discharge healthcare needs, medication management, durable medical equipment needs, follow-up appointment, community resources, home care services, and patient and caregiver education.
- Discharge plans will be documented in the electronic medical record.

Documentation Requirements

- Admission assessment.
- Individualized plan of care.
- Interdisciplinary assessments.
- Progress notes.

- Care plan updates.
- Patient education documentation.
- Discharge planning documentation.
- Discharge instructions.

REFERENCE:

California Department of Public Health. (2025). *California Code of Regulations, Title 22, Division 5: Licensing and certification of health facilities*. State of California. https://www.cdph.ca.gov

Centers for Medicare & Medicaid Services. (2024). *State operations manual: Appendix W—Survey protocol, regulations and interpretive guidelines for critical access hospitals*. U.S. Department of Health and Human Services. https://www.cms.gov

Centers for Medicare & Medicaid Services. (2024). *Hospital conditions of participation for patient rights, nursing services, and discharge planning (42 CFR Part 482)*. U.S. Department of Health and Human Services. https://www.ecfr.gov

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 CARE PLANNING	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to ensure that every patient admitted to the hospital receives individualized, coordinated, and documented care based on a comprehensive assessment of identified needs, goals, and expected outcomes, consistent with California Title 22 regulations and applicable federal requirements.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Interdisciplinary Plan of Care: a documented, individualized plan developed from patient assessment data that identifies problems, goals, interventions, and expected outcomes to guide patient care.

Significant Change in Condition: a change in physical, mental, emotional, or functional status that requires reassessment and modification of the patient's treatment plan.

POLICY:
It is the policy of Modoc Medical Center (MMC) that an individualized plan of care will be developed, implemented, and maintained for every inpatient based upon assessed needs, identified problems, physician orders, and patient-specific goals. The plan of care will be interdisciplinary in nature, regularly evaluated, and revised as necessary throughout the patient's hospitalization.

PROCEDURE:
Admission Assessment

- Upon admission, a registered nurse will complete and document a comprehensive assessment that includes, but is not limited to the following:
  - Presenting condition and diagnosis.
  - Vital signs.
  - Pain assessment.
  - Functional status.
  - Mobility assessment.
  - Fall risk assessment.
  - Skin assessment.
  - Nutritional assessment.
  - Psychosocial assessment.
  - Learning needs assessment.
  - Cultural and spiritual considerations.
  - Advance directive status.
  - Discharge planning needs assessment.

Development of the Plan of Care

- The plan of care will be initiated upon admission and completed within twenty-four (24) hours of admission or sooner as patient condition warrants.

Required Elements of the Plan of Care

- Identified patient problems and care needs.
- Patient centered goals and expected outcomes.

- Nursing interventions.
- Medical treatment interventions.
- Rehabilitation interventions, when indicated.
- Educational needs and teaching plan.
- Discharge planning goals.
- Evaluation criteria.

Individualization

- The plan of care will be individualized and will not consist solely of standardized or preprinted interventions without modification to reflect patient-specific needs.

Implementation of the Plan of Care

- All healthcare personnel will provide care consistent with the established plan of care and ~~pPhysician or Advanced Practice Providers (APPs)rovider~~ physician, nurse practitioner (NP) or physician assistant (PA)orders.
- Interventions will be documented according to hospital documentations standards.
- Patient responses and outcomes will be documented in the medical record.

Evaluation

- The registered nurse will evaluate the patient's progress toward established goals at least once per shift and more frequently as clinically indicated.

Revision

The plan of care will be revised when patient condition changes, new problems are identified, goals are achieved, goals are not being met, ~~Physician or APPsnew physician or provider~~ physician, NP or PA

- orders are received, and new assessment findings warrant modification.
- All revisions will be documented in the electronic medical record and communicated to appropriate members of the healthcare team.

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Patient and Family Participation

- Patients will be encouraged to participate in care planning and goal setting.
- Family members, caregivers, or legal representatives may participate when appropriate and authorized.
- Patient education will be provided based on assessed learning needs.
- Documentation will reflect patient and family involvement, or the reason participation was not possible.

Discharge Planning

- Discharge planning will begin upon admission.
- The interdisciplinary team will assess and address post-discharge healthcare needs, medication management, durable medical equipment needs, follow-up appointment, community resources, home care services, and patient and caregiver education.
- Discharge plans will be documented in the electronic medical record.

Documentation Requirements

- Admission assessment.
- Individualized plan of care.
- Interdisciplinary assessments.
- Progress notes.

- Care plan updates.
- Patient education documentation.
- Discharge planning documentation.
- Discharge instructions.

REFERENCE:

California Department of Public Health. (2025). *California Code of Regulations, Title 22, Division 5: Licensing and certification of health facilities*. State of California. https://www.cdph.ca.gov

Centers for Medicare & Medicaid Services. (2024). *State operations manual: Appendix W—Survey protocol, regulations and interpretive guidelines for critical access hospitals*. U.S. Department of Health and Human Services. https://www.cms.gov

Centers for Medicare & Medicaid Services. (2024). *Hospital conditions of participation for patient rights, nursing services, and discharge planning (42 CFR Part 482)*. U.S. Department of Health and Human Services. https://www.ecfr.gov

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 DECUBITUS ULCERS PREVENTION AND CARE	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish a standardized process for the prevention, assessment, treatment, documentation, and monitoring of pressure injuries in hospitalized patients, ensuring compliance with California Title 22 regulations, Center for Medicare & Medicaid Services (CMS) Conditions of Participation, and accepted standards of nursing practice.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Decubitus ulcer (pressure injury): is localized damage to the skin and/or underlying soft tissue, usually over a bony prominence or related to a medical device, resulting from prolonged pressure or pressure in combination with shear.

POLICY:
It is the policy of Modoc Medical Center (MMC) to be committed to preventing hospital-acquired pressure injuries through comprehensive risk assessment, implementation of individualized preventive interventions, prompt identification of skin changes, evidence-based wound management, and interdisciplinary collaboration.
Patients admitted with existing pressure injuries will receive timely assessment and appropriate treatment to promote healing and prevent complications.

PROCEDURE:
Admission Assessment

- The admitting nurse will complete a comprehensive skin assessment.
- Assess all skin surfaces.
- Identify existing pressure injuries.
- Document location, stage, measurements, drainage, tissue type, and pain.
- Photograph all identified skin injuries and upload them into the patient's electronic medical record.
- Complete the approved pressure injury risk assessment tool in Cerner.
- Initiate preventive measures immediately for at risk patients.

Risk Factors

- Patients will be evaluated for the following on admission:
    - Limited mobility.
    - Immobility.
    - Decreased sensory perception.
    - Incontinence.
    - Moisture exposure.
    - Poor nutrition.
    - Dehydration.
    - Diabetes.
    - Peripheral vascular disease.
    - Advanced age.

  - Hypotension.
  - Medical devices causing pressure.
  - Recent surgery.
  - Critical illness.

Prevention Measures

- Reposition at risk patients at least every two hours or more frequently based on clinical condition and tissue tolerance.
- Assist with weight shifts while seated at least every hour, when feasible.
- Position to minimize shear and friction.
- Place heels off the bed/chair using appropriate devices.

Support Surfaces

- Use heel protectors.
- Chair cushions.
- Specialty bed when indicated.

Skin Care

- Maintain clean and dry skin.
- Prompt incontinence care.
- Moisture barrier application.
- Appropriate moisturizers.
- Avoidance of vigorous massage over bony prominences.

Nutrition

- Monitor meal consumption percentage, hydration, and weight trends.
- Consult Dietitian for patients with poor intake, weight loss, malnutrition, and existing pressure injuries.

Pressure Injury Management

- Notify the attending ~~healthcare provider physician, PA, FNP~~physician, nurse practitioner (NP) or physician assistant (PA) when a pressure injury is identified.
- Document findings including photographs with patient's consent~~.~~
- Stage the wound using the current staging system.
- Measure length, width, depth, undermining and tunneling.
- Assess drainage, odor, pain, and tissue characteristics.
- Initiate ordered wound treatment.
- Consult the wound care nurse as ordered.
- Reassess according to hospital policy and wound status.

Documentation

- Admission skin assessment.
- Braden scale score.
- Risk factors.
- Prevention interventions.
- Turing and repositioning.
- Support surfaces used.
- Wound assessment.

- Treatments provided.
- Patient response.
- ~~Attending~~ ~~physicia~~Physciain, nursing practioner (NA) or physician assistant (PA)~~n, PA, FNP~~~~healthcare provider~~ notifications.
- Education provided.

Patient and Family Education

- Importance of repositioning.
- Skin inspection.
- Nutrition and hydration.
- Pressure relief techniques.
- Home care instructions, when applicable.

Interdisciplinary Collaboration

- May include nursing, ~~attending~~ ~~physician, PA, FNP~~~~healthcare provider~~physician, NP or PA, wound care nurse, dietician, physical therapist, and case manager.

REFERENCE:

California Department of Public Health. (2024). *California Code of Regulations, Title 22, Division 5: Licensing and certification of health facilities*. https://www.cdph.ca.gov

Centers for Medicare & Medicaid Services. (2024). *42 CFR Part 482—Conditions of Participation for Hospitals*. Electronic Code of Federal Regulations. https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-G/part-482

ATTACHMENTS:

None~~.~~

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 DENTURE CLEANING AND CARE	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to provide standardized procedures for the safe cleaning, storage, handling, and documentation of dentures to promote oral health and patient comfort, prevent healthcare associated infections, reduce the risk of denture loss or damage, and ensure patient dignity and safety.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
None.

POLICY:
It is the policy of Modoc Medical Center (MMC) that staff will provide appropriate denture care for patients who are unable to independently clean and maintain their dentures. Patients who are capable will be encouraged to perform their own denture care whenever possible.

PROCEDURE:
Assessment
- Upon admission, the nursing staff will determine whether the patient wears full or partial dentures.
- Assess the patient's ability to remove, clean, and replace dentures.
- Inspect dentures for cracks, loose teeth, sharp edges, and excessive wear.
- Inspect oral tissues for ulcers, redness, swelling, oral lesions, and signs of infection.
- Document findings in the medical record.

Nursing Staff
- Assess the patient's ability to perform denture care.
- Assist with denture cleaning as needed.
- Inspect the oral cavity during denture removal.
- Document denture status and care provided.
- Store dentures safely when not in use.

Patient
- Perform denture care independently when able.
- Report discomfort, poor fit, or damage.

Preparation
- Perform hand hygiene.
- Verify patient identification.
- Explain the procedure.
- Don gloves.

Denture Removal
- Assist patient as needed.
- Remove upper denture carefully using downward and outward motion.
- Remove lower denture by lifting gently.

Cleaning

- Line the sink with a towel or fill partially with water to prevent breakage if dropped.
- Rinse dentures with cool or lukewarm running water.
- Brush all surfaces using a soft denture brush.
- Use approved denture cleanser or mild soap.
- Do not use hot water, bleach, abrasive toothpaste, or household cleaners.

Oral Care

- Before reinserting dentures, brush gums, tongue, and palate with a soft toothbrush or foam swab.
- Moisturize lips if needed.

Storage

- When dentures are not worn, store them in a labeled denture cup.
- Keep dentures moist in clean water or approved soaking solution unless contraindicated by the manufacturer.
- Never wrap dentures in tissues or disposable towels.
- Store in the patient's room according to the hospital policy.

Reinsertion

- Rinse dentures thoroughly after soaking.
- Assist with reinsertion if necessary.
- Ensure proper fit and patient comfort.

Frequency

- Dentures should be cleaned after meals when feasible.
- Thoroughly cleaned at least once daily.
- Removed overnight unless otherwise ordered by the attending physician, PA, FNP, or requested by the patient for clinical reasons.
- Cleaned before reinsertion every morning.

Infection Prevention

- Perform hand hygiene before and after care.
- Wear gloves during denture handling.
- Use patient-specific denture containers.
- Do not share cleaning supplies between patients.
- Follow standard precautions.

Safety

- Handle dentures carefully to prevent breakage.
- Verify patient identification before returning dentures.
- Report lost or damaged dentures immediately. Report on Safety First site.
- Notify the attending physician, PA, or FNP if oral infection, bleeding, pressure injuries, or poorly fitting dentures are identified.

Documentation

- Presence of dentures (full or partial).
- Patient's ability to perform self-care.
- Oral assessment findings.
- Denture cleaning is completed.

- Denture removal and storage when applicable.
- Patient tolerance.
- Any abnormalities or concerns.
- Lost or damaged dentures and notifications made.

Special Considerations

- Remove dentures before surgery or procedures requiring general anesthesia, deep sedation, or airway management, unless otherwise directed.
- Remove dentures during cardiopulmonary resuscitation if they interfere with airway management.
- Remove dentures if they become loose and present an aspiration risk.
- Patients with cognitive impairment may require increased supervision to prevent accidental loss.

REFERENCE:

Association for Professionals in Infection Control and Epidemiology. (2024). *APIC text of infection prevention and epidemiology* (6th ed.). Association for Professionals in Infection Control and Epidemiology.

Centers for Disease Control and Prevention. (2003). *Guidelines for infection control in dental health-care settings—2003. Morbidity and Mortality Weekly Report, 52*(RR-17), 1–61. https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5217a1.htm

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 10/2007
SUBJECT:	6170.26 DYING PATIENT STANDARD OF CARE FOR INPATIENT	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized procedures for the identification and management of patients who are actively dying to ensure care that prioritizes comfort, dignity, and respect for patient autonomy.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Actively Dying Patient: a patient with clinical signs indicating death is imminent and irreversible.

Comfort care: treatment focused on symptom relief rather than curative intent.

Advance Directive: legal document outlining patient preferences for medical care.

POLICY:
It is the policy of Modoc Medical Center (MMC) to provide compassionate, patient-centered end-of-life care. When curative or life-prolonging treatment is no longer appropriate or desired, care will transition to comfort-focused measures consistent with the patient's wishes, advance directives, and clinical condition.

PROCEDURE:
1. Identification of the Dying Patient
    - Assess for signs of imminent death (e.g., multi-organ failure, decreased consciousness, irregular respirations).
    - Review documentation for advanced directives, Physician Orders for Life-Sustaining Treatment (POLST), or Do Not Resuscitate/Do Not Intubate Status.
    - If goals of care are unclear, the ~~ttending provider~~ attending physician, nurse practitioner (NP) or physician assistant (PA), ~~family nurse practitioner()~~ will initiate a goal-of-care discussion with the patient and/or surrogate decision-maker.
2. Transition to Comfort-Focused Care
    - The ~~attending provider~~physician, NP or PA will determine when further curative treatment is non-beneficial or inconsistent with the patient's wishes.
    - Discontinue non-essential monitoring, diagnostics, and interventions.
    - Document the decision to transition to comfort care in the medical record.
3. Symptom Management
    - The primary goal is relief of distressing symptoms.
    - Interventions may include, but are not limited to the following:
        - Pain: administer opioids as ordered by the ~~provider~~physician, NP or PA.
        - Dyspnea: provide oxygen therapy, opioids, and positioning.
        - Anxiety/Agitation: administer anxiolytics or sedatives.
        - Respiratory Secretions: administer anticholinergic agents.
        - Nausea/Vomiting: administer antiemetics.

- Titrate medications to patient comfort rather than physiologic targets.

4. Communication
   - The ~~provider~~physician,NP or PA will communicate clearly and compassionately with the patient and family regarding prognosis, expected course of dying, and plan of care and goals.
   - Allow time for questions and emotional support.
   - Document all discussions in the electronic medical record.
5. Environment and Dignity
   - Provide a private or quiet space if available.
   - Minimize noise, alarms, and unnecessary interruptions.
   - Facilitate family presence at the bedside.
   - Respect cultural, spiritual, and religious preferences.
   - Offer chaplaincy or spiritual care services.
6. Care During the Dying Process
   - Continue comfort measures and reassess symptoms frequently.
   - Avoid invasive or non-beneficial procedures.
   - Provide ongoing emotional support to family members.
7. After-Death Care
   - The ~~provider~~physician, NP or PA will pronounce death.
   - Notify appropriate parties (family, coroner/medical examiner).
   - Allow family time with the deceased.
   - Ensure proper handling of the body post-mortem.
   - Complete all required documentation, including time of death and circumstances.
   - Complete the Record of Death Form.

REFERENCE:
None

ATTACHMENTS:
None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 ENEMA ADMINISTRATION	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to provide standardized guidelines for the safe administration of enemas to hospitalized patients while ensuring compliance with California regulations, ~~provider~~physician, ~~physician assistant (PA), family~~ nurse practitioner (~~F~~NP)or physician assistant (PA) orders, nursing standards, infection prevention practices, and patient safety.

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AUDIENCE:
Department Wide

TERMS/DEFINITION:
None.

POLICY:
It is the policy of Modoc Medical Center (MMC) that enema administration will be performed by licensed nursing personnel who are authorized by their scope of practice, have demonstrated competency in the procedure, and adhere to established standards of nursing practice. Prior to administration, the nurse will assess the patient for clinical indications, contraindications, and potential risks, verify the ~~provider~~ physician, NP or PA's order, and obtain informed cooperation from the patient.

PROCEDURE:
~~Provider~~Physician, NP or PA Order

- The order will include type of enema, solution, volume, frequency, retention time if applicable, and any special instructions.
- Examples include sodium phosphate (Fleet), Mineral Oil, soap suds, Lactulose retention enemas, or medicated enemas.

Nursing Assessment

- Prior to administration the nurse will assess the following:
  - Indication.
  - Allergies.
  - Bowel history.
  - Last bowel movement.
  - Abdominal assessment.
  - Pain.
  - Bowel sounds.
  - Rectal bleeding.
  - Surgical history.
  - Ability to retain enema.
  - Fall risk.
  - Cognitive status.
- Notify the ~~provider~~Physician, NP ot PA before administration if findings suggest bowel obstruction, perforation, or other contraindications.

Equipment

- Ordered enema solution.

- Personal protective equipment.
- Waterproof pad (chux).
- Lubricant.
- Towels.
- Bedpan or bedside commode.
- Gloves.
- Waste receptacle.

Procedure

- Verify ~~provider~~physician, NP or PA's order.
- Confirm patient identity using two identifiers.
- Explain procedure and obtain patient cooperation.
- Provide privacy.
- Perform hand hygiene.
- Don gloves.
- Position patient in left lateral (Sims') position unless contraindicated.
- Lubricate the rectal tip.
- Insert gently.
- Administer solution slowly.
- Stop administration if there is any severe pain, bleeding, resistance, dizziness, or vagal symptoms.
- Encourage retention according to ordered treatment.
- Assist the patient to toilet or commode.
- Monitor response.
- Perform perineal hygiene.
- Disposing of equipment.
- Perform hand hygiene.

Monitoring

- Stool output.
- Relief of symptoms.
- Abdominal pain.
- Cramping.
- Bleeding.
- Syncope.
- Bradycardia.
- Electrolyte disturbances (particularly with sodium phosphate enemas).
- Signs of perforation.
- Notify the ~~provider~~physician, NP or PA immediately for severe pain, persistent bleeding, no response when clinically concerning, suspected perforation, and hemodynamic instability.

Documentation

- Date and time.
- Type of enema.
- Solution and volume.
- Patient tolerance.

- Stool characteristics.

- Retention time.
- Outcome.
- Patient education.
- Adverse reactions.
- ~~Provide~~Physician, NP or PA notification if applicable.
- California regulations require treatments to be documented, including the date, time, and identity of the person administering the treatment.

Patient Education

- Purpose of treatment.
- Expected results.
- Possible cramping.
- Need to report any severe pain, dizziness, rectal bleeding, and/or inability to retain solution.

Infection Prevention

- Standard precautions.
- Hand hygiene before and after procedure.
- Appropriate personal protective equipment.
- Proper disposal of contaminated materials.
- Cleaning of reusable equipment per hospital policy.

REFERENCE:

California Board of Registered Nursing. (2025). *Nursing Practice Act*. https://www.rn.ca.gov/practice/npa.shtml

California Code of Regulations, tit. 22, § 72313. (2025). *Nursing service—Administration of medications and treatments*. https://govt.westlaw.com/calregs/Document/IB917E8F55B6111EC9451000D3A7C4BC3

California Legislative Information. (2025). *Business and Professions Code, Division 2, Chapter 6 (Nursing Practice Act)*. https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=BPC&division=2.&chapter=6.

ATTACHMENTS:

None

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~6170.26 (TUBE) FEEDING ADMINISTRATION~~6170.26 ENTERNAL (TUBE) FEEDING ADMINISTRATION	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized procedures for the safe prescribing, preparation, administration, monitoring, and documentation of enteral nutrition for hospitalized patients requiring tube feeding. This policy promotes patient safety, reduces the risk of aspiration and enteral misconnections, supports optimal nutritional outcomes, and ensures compliance with Centers for Medicare & Medicaid Services (CMS), California Department of Public Health (CDPH), and nationally recognized standards of practice. CMS requires comprehensive nutritional assessment for patients receiving artificial nutrition, including enteral tube feeding.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Enteral Nutrition (EN): delivery of nutrients directly into the gastrointestinal tract through an enteral access device.

Enteral Access Device: nasogastric, orogastric, gastrostomy, gastrojejunostomy, jejunostomy, or other approved enteral feeding tube.

Bolus Feeding: administration of prescribed volume by syringe or gravity over a short period of time.

POLICY:
It is the policy of Modoc Medical Center (MMC) to provide enteral nutrition therapy in accordance with attending physician~~/attending physician~~, nurse practioner (NP) or physician assistant (PA), ~~family nurse practitioner (FNP)~~ orders, evidence-based nutrition practice standards, and applicable federal and state regulations. Enteral nutrition will be administered only by personnel who have demonstrated competency.

PROCEDURE:
Attending physician, PA, FNP Orders

- Orders to include tube type and location, formula name, infusion method, initial rate, goal rate, advancement schedule, water flushes, medication instructions, and laboratory monitoring as indicated.
- No enteral feeding will begin without a valid attending physician, ~~PA, F~~NP or PA order.

Tube Placement Verification

- Prior to the first tube feeding, newly inserted nasogastric or orogastric tube placement will be confirmed according to hospital policy before use.
- Tube external length will be assessed.
- Securement devices will be intact.
- Tube location will be verified before each feed and at least every shift.
- Feeding will not be initiated if placement cannot be verified.

Patient Positioning

- Maintain head of bed elevation between 30- and 45-degrees during tube feeding whenever medically feasible.

- Maintain elevation for at least 30 to 60 minutes following intermittent or bolus feedings.
- Patients unable to tolerate elevation will have aspiration precautions documented.

Administration

- Prior to initiating tube feeding verify patients using two identifiers.
- Confirm the ~~attending~~ physician, ~~PA, F~~NP or PA's order.
- Verify tube placement.
- Assess abdomen.
- Assess bowel function.
- Assess tube insertion site.
- Confirm formula expiration.
- Initiate the tube feeding at the prescribed rate.
- Advance only according to the ~~attending~~ physician, ~~PA, FN~~P or PA's order or approved nutrition protocol.
- Do not add medications directly into enteral formula.
- Do not mix medications directly into enteral formula.
- Do not mix medications together unless approved by the pharmacist.
- Flush tube before and after medication administration and between medications using ordered water volume.

Monitoring

- The registered/licensed nurse will assess the following:
  - Tube placement.
  - Feeding tolerance.
  - Nausea.
  - Vomiting.
  - Abdominal distention.
  - Pain.
  - Bowel function.
  - Hydration.
  - Intake and output.
  - Tube site condition.
- Nursing staff will notify the ~~attending~~ physician, ~~PA, F~~NP or PA of any of the following:
  - Suspected aspiration.
  - Persistent vomiting.
  - Significant abdominal distention.
  - Tube dislodgement.
  - Tube occlusion that is not resolved.
  - Severe diarrhea.
  - New respiratory distress.

Gastric Residual Volumes

- Routine interruption of enteral nutrition based solely upon gastric residual volume is discouraged.
- Residual volume findings will be interpreted together with the patient's overall clinical condition, abdominal examination, and signs of feeding intolerance.

Tube Occlusion

- Attempt unclogging using warm water and approved de-clogging procedures.
- Do not use sharp instruments.
- Do not use acidic beverages unless specifically approved by ~~attending~~ physician, ~~PA, F~~NP or PA's hospital procedure.
- Notify the ~~attending~~ physician, ~~PA, F~~NP or PA if tube patency cannot be restored.

Medication Administration

- Medication administration through feeding tubes will follow pharmacy/pharmacist guidelines.
- Whenever possible use liquid formulations.
- Crush only medications approved for crushing.
- Administer medications separately.
- Flush between medications.
- Extended-release, enteric-coated, or hazardous medications will not be crushed unless approved by the pharmacist.

Aspiration Precautions

- Patients at increased aspiration risk will receive additional precautions including:
  - Head-of-bed elevation.
  - Verification of tube placement.
  - Ongoing respiratory assessment.
  - Oral hygiene.
  - ~~Attending p~~Physician, ~~PA, F~~NP or PA notification for signs of aspiration.

Documentation

- Verification of tube placement.
- Formula administered.
- Infusion rate.
- Water flushes.
- Medication administration.
- Patient tolerance.
- Intake and output.
- Complications.
- ~~Attending P~~physician, ~~PA, F~~NP or PA notification.
- Patient education.
- Dietitian documentation includes nutrition assessment, nutrition diagnosis, estimated nutritional needs, formula recommendations, monitoring plan, and follow-up evaluations.

REFERENCE:

Centers for Medicare & Medicaid Services. (2020). *State Operations Manual, Appendix W—Survey protocol, regulations and interpretive guidelines for Critical Access Hospitals (CAHs).* U.S. Department of Health and Human Services. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/som107ap_w_cah.pdf

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 EYE COMPRESS APPLICATION	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to provide safe, consistent, and evidence-based practice of the application of warm or cold eye compresses for hospitalized patients to promote comfort, reduce inflammation, relieve pain, and support treatment of ophthalmic conditions.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
None.

POLICY:
It is the policy of Modoc Medical Center (MMC) that eye compresses will be applied only upon a ~~providerphysician assistant () family nurse practitioner()'s~~ physician, nurse practitioner (NP) or physician assistant (PA's) order. The type of compress (warm or cold), duration, frequency, and monitoring will be based on the patient's diagnosis, clinical condition, and ~~provider~~physician, PA, FNPs instructions.

PROCEDURE:
Preparation
- Verify ~~provider~~ physician,NP or PA order.
- Confirm patient identity using two identifiers.
- Explain the procedure and obtain patient cooperation.
- Perform hand hygiene.
- Apply gloves if contact with drainage or body fluids is anticipated.

Patient Assessment
- Eye appearance.
- Pain level.
- Swelling.
- Redness.
- Drainage.
- Skin integrity.
- Vision changes.
- Allergies.
- Contraindications.

Prepare the Compress
- Warm Compress
  - Disposable or reuseable packs available.
  - Ensure the compress is warm, not hot.
  - Do not place directly on the eyelid or skin.
  - Wrap the pack in a clean cloth.
- Cold Compress
  - Disposable or reuseable packs available.
  - Do not place directly on the eyelid or skin.

- Wrap the pack in a clean cloth.

Application

- Position patient comfortably.
- Ask patient to close affected eye(s).
- Gently place compress over closed eyelid(s).
- Avoid pressure on the eyelid.
- Replace or rewarm the compress as needed.
- Typical duration is 10-15 minutes.
- Frequency as ordered by ~~provider~~physcian, NP or PA.. Commonly 3-4 times daily for warm compresses.

Monitor During Application

- Observe for pain, increased redness, skin irritation, burns or cold injury, patient discomfort, or visual complaints.
- Discontinue immediately if any adverse effects occur.

Completion

- Remove compress.
- Dry surrounding skin gently.
- Dispose of single-use materials appropriately.
- Perform hand hygiene.
- Assist patient to a comfortable position.

Patient Education

- Keep eyes closed during application.
- Avoid rubbing the eyes.
- Report increasing pain or vision changes.
- Avoid sharing compresses.
- Practice hand hygiene before touching the eyes.

Documentation

- Date and time.
- Eye treated (right, left, or both).
- Type of compress (warm or cold).
- Duration of application.
- Patient tolerance.
- Assessment findings before and after treatment.
- Patient education provided.
- Any adverse reactions.
- Notifications made to the ~~provider~~ physician, NP or PA~~i~~f indicated.

Infection Prevention

- Use a clean compress for each application.
- Do not reuse disposable materials.
- Use separate compresses for each eye if infection is suspected.
- Follow standard precautions.
- Perform hand hygiene before and after the procedure.

Escalation Criteria

- Notify the ~~provider~~physician, NP or PA immediately if the patient develops any of the following:
  - Sudden vision loss.
  - Severe eye pain.
  - Increasing swelling.
  - Purulent drainage.
  - Fever with worsening eye symptoms.
  - Signs of orbital cellulitis.
  - Suspected globe injury.
  - No improvement or worsening symptoms despite treatment.

REFERENCE:
None.

ATTACHMENTS:
None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~INFORMED CONSENT- INPATIENT~~6170.26 INFORMED CONSENT- INPATIENT	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish a standardized process for obtaining and documenting informed consent for inpatient medical treatment and procedures. This policy ensures that patients are provided with sufficient information to make informed healthcare decisions and that informed consent is obtained and documented in accordance with applicable California law, the Centers for Medicare & Medicaid Services (CMS) Conditions of Participation, and accreditation standards.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Informed Consent: a process by which a patient voluntarily authorizes medical treatment after receiving sufficient information regarding the proposed treatment to make an informed decision.

Decision-Making Capacity: the patient's ability to understand relevant information, appreciate the consequences of treatment decisions, reason regarding treatment options, and communicate a consistent healthcare decision.

POLICY:
It is the policy of Modoc Medical Center (MMC) that informed consent will be obtained before any medical treatment or procedure requiring informed consent under applicable law or hospital policy.
The informed consent process is communication between the ~~provider~~attending physician, PA, ~~FNP~~healthcare ~~provider~~attending physician, nurse practitioner (NP) or physician assistant (PA) and the patient or the patient's legally authorized representative. Consent will be voluntary, informed, and obtained prior to initiating treatment except in legally recognized emergency situations.
A signed consent form documents the discussion but does not replace the ~~provider~~attending physician, PA, ~~'s healthcare provider's~~ physician, NP or PA responsibility to conduct the informed consent process.

PROCEDURE:
- The ~~provider~~attending physician, PA, ~~healthcare provider~~ physician, NP or PA will provide information appropriate to the patient's level of understanding.
- The discussion includes the following:
  - The patient's diagnosis or clinical condition.
  - The purpose of the proposed treatment or procedure.
  - The expected benefits of the proposed treatment.
  - Material risks and reasonably foreseeable complications.
  - Significant side ~~effects,~~effects when applicable.
  - Reasonable alternative treatments.
  - Risks and benefits of alternative treatments.
  - The anticipated outcome if treatment is declined.
  - Opportunity for the patient to ask questions.
  - The patient's right to refuse treatment.
  - The patient's right to withdraw consent before treatment when legally permissible.

- The ~~provider~~~~attending physician, PA, healthcare provider~~ physician, NP or PA will encourage active participation by the patient in the decision-making process.

Decision-Making Capacity

- The ~~provider~~~~attending physician, PA, healthcare provider~~ physician, NP or PA will evaluate decision-making capacity before obtaining informed consent.
- If the patient lacks ~~capacity~~capacity, the legally authorized representative will provide consent when permitted by law.
- Documentation will identify the basis for surrogate decision-making.
- If no surrogate is immediately available and delays would jeopardize the patient's health, treatment may proceed only as authorized by applicable law.

Emergency Treatment

- Treatment may proceed without prior informed consent when an emergency exists requiring immediate intervention to preserve life or prevent serious ~~harm~~harm, and obtaining consent is not feasible.
- The ~~provider~~~~attending physician, PA, healthcare provider~~ physician, NP or PA will document the nature of the ~~emergency,~~emergency; clinical necessity, reason consent could not be obtained, and treatment provided.

Documentation

- Date and time of consent.
- Name of ~~provider~~~~attending physician, PA, healthcare provider~~ physician, NP or PA obtaining consent.
- Assessment of decision-making capacity.
- Diagnosis ~~discussed~~is discussed.
- Proposed treatment.
- Expected benefits.
- Material risks.
- Alternatives discussed.
- Consequences ~~of~~for refusing treatment.
- Questions asked by the patient and responses provided.
- Interpreter services ~~utilized~~are utilized, if applicable.
- Name of legally authorized representative, if applicable.
- Signed consent form when required.
- ~~Provider~~~~Attending physician, PA, Healthcare provider~~ physician, NP or PA signature.
- Patient or representative signature.
- Witness signature when applicable.

Patient Rights

- Patients have the right to receive complete and understandable information regarding proposed treatment.
- Participate in decisions regarding their healthcare.
- Accept or refuse medical treatment to the extent permitted by law.
- Ask questions before consenting.

- Receive language assistance services when needed.
- Be free from coercion or undue influence when making healthcare decisions.

REFERENCE:

Centers for Medicare & Medicaid Services. (2024). *State operations manual: Appendix A—Survey protocol, regulations and interpretive guidelines for hospitals (Rev. 224).* U.S. Department of Health and Human Services. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Internet-Only-Manuals-IOMs

California Legislative Information. (2024). California Health and Safety Code and Civil Code: Consent for medical treatment. https://leginfo.legislature.ca.gov.

American Medical Association. (2023). Code of medical ethics opinion 2.1.1: Informed consent. https://www.ama-assn.org

ATTACHMENTS:

None~~.~~

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 INITIAL PATIENT ASSESSMENT AND REASSESSMENT	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized process for the timely assessment and reassessment of all inpatients to ensure safe, individualized, and continuous care in accordance with California Title 22 regulations, Centers for Medicare & Medicaid Services (CMS) Conditions of Participation, and hospital standards of practice.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Initial Assessment: a comprehensive nursing assessment completed upon admission to establish baseline physiological, psychosocial, functional, educational, cultural, and discharge planning needs.

Reassessment: an ongoing evaluation of the patient's response to treatment and changes in condition to determine whether modifications to the plan of care are necessary.

POLICY:
It is the policy of Modoc Medical Center (MMC) that all patients admitted to the Emergency Department (ED) or the medical-surgical ward will receive a comprehensive initial nursing assessment by a Registered Nurse (RN). Ongoing reassessments will be completed throughout hospitalization based on patient condition, ~~attending~~ physician, ~~Physician Assistant (PA)~~, ~~Family N~~nurse ~~P~~practitioner (~~F~~NP) physician assistant (PA) orders, nursing judgment, and regulatory requirements. Assessment findings will be incorporated into the individualized plan of care and documented in the electronic medical record.

PROCEDURE:
Initial Nursing Assessment

- The RN will complete and document the initial assessment.
- Upon admission to the inpatient unit.
- Prior to initiation of the individualized nursing care plan.
- As soon as clinically feasible for emergency admissions.

The Assessment will include, at minimum the following:

- Chief complaint and reason for admission.
- Medical and surgical history.
- Allergies.
- Current medications.
- Vital signs.
- Pain assessment.
- Neurological status.
- Respiratory assessment.
- Cardiovascular assessment.
- Gastrointestinal assessment.
- Genitourinary assessment.
- Musculoskeletal assessment.

- Skin integrity and pressure injury risk.
- Nutrition and hydration assessment.
- Functional status.
- Fall risk assessment.
- Infection risk.
- Mental health and behavioral assessment.
- Suicide screening, when indicated.
- Abuse/neglect screening.
- Learning needs
- Language and communication needs.
- Cultural and spiritual preferences.
- Advance directives.
- Discharge planning needs.

Care Plan

- Based on the initial assessment, the RN will do the following:
  - Develop an individualized nursing care plan.
  - Identify nursing diagnoses.
  - Establish measurable goals.
  - Initiate interventions.
  - Coordinate interdisciplinary care.
  - Update the care plan whenever reassessment identifies changes.

Ongoing Reassessment

- The RN will perform and document reassessments:
  - At least once every shift.
  - Whenever there is a significant change in patient condition.
  - Following procedures or invasive interventions.
  - After administration of medications requiring evaluation of effectiveness.
  - Following falls or adverse events.
  - Upon transfer to another patient care area.
  - Prior to discharge.
  - As otherwise indicated by physician order or patient condition.
- Reassessment at a minimum will include the following:
  - Vital signs
  - Pain
  - Response to treatment
  - Neurological status as indicated
  - Cardiopulmonary status
  - Skin condition
  - Mobility
  - Safety risks
  - Psychosocial status
  - Review of laboratory and diagnostic findings as appropriate.
  - Progress toward care plan goals.

Significant Change in Condition (the RN will complete immediately)

- Perform a focused assessment.
- Notify the ~~attending~~ physician, ~~PA, or FNP~~NP or PA.
- Initiate emergency interventions as appropriate.
- Update the nursing care plan.
- Document findings, notifications, interventions, and patient response.

Documentation

- Date and time.
- Assessment findings.
- Nursing diagnosis.
- Interventions.
- Patient response.
- Communication with ~~attending~~ physician, ~~PA, F~~N or PA~~Ps.~~
- Revisions to the care plan.
- Patient education.
- Discharge planning updates.
- Documentation will be completed in the electronic medical record promptly after assessment.

REFERENCE:

California Department of Public Health. (n.d.). *Regulations*. https://www.cdph.ca.gov/Programs/CHCQ/LCP/Pages/Regulations.aspx

Centers for Medicare & Medicaid Services. (2024). *State Operations Manual, Appendix A—Survey protocol, regulations and interpretive guidelines for hospitals*. U.S. Department of Health and Human Services. https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/som107ap_a_hospitals.pdf

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 INJECTION- INTRAMUSCULAR ADMINISTRATION	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish a standardized process for the safe preparation, administration, documentation, and monitoring of intramuscular (IM) medications for hospitalized patients in accordance with regulatory requirements, professional standards of practice, and hospital medication management policies.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Intramuscular (IM) Injection: administration of medication into skeletal muscle for systemic absorption.

POLICY:
It is the policy of Modoc Medical Center (MMC) to ensure that intramuscular (IM) medications are administered safely, accurately, and consistently by qualified licensed healthcare professionals within their authorized scope of practice.

Intramuscular medications will be administered only upon a valid order from an authorized licensed ~~attending~~ physician, nurse practitioner (NP) or physician assistant (PA), ~~FNP~~ and in accordance with California Code of Regulations, Title 22, the California Nursing Practice Act, applicable federal and state regulations, manufacturers guidelines, and current evidence-based standards of professional nursing practice.

PROCEDURE:
Intramuscular medication administration will be performed according to the hospital's approved procedure, including:

- Verification of attending physician, (NP) or ~~Physician Assistant~~ (PA), ~~Family Nurse Practitioner (FNP)~~ order.
- Completion of medication safety checks.
- Patient identification using approved identifiers.
- Assessment of allergies, contraindications, and clinical appropriateness.
- Selection of appropriate medication, equipment, dose, and injection site.
- Administration using aseptic technique.
- Monitoring for effectiveness and adverse reactions.
- Documentation of medication administration and patient response.

Assess Patient

- Allergies
- Previous adverse reactions.
- Current condition.
- Laboratory values when indicated.
- Injection site.
- Bleeding risk.
- Platelet count when clinically indicated.

- Anticoagulant therapy.
- Pain level.
- Ability to cooperate.

Hand Hygiene

- Perform hand hygiene before medication preparation and immediately before patient contact.
- Apply appropriate personal protective equipment (PPE) according to standard precautions.

Medication Preparation

- Prepare medication immediately prior to administration.
- The person preparing the medication will administer the medication.
- Do not prepare medications for multiple scheduled administration times.

Site Selection

- Preferred IM sites include the ventrogluteal (for adults), vastus lateralis, and deltoid (small-volume medications).
- Avoid inflamed tissue, bruised areas, scar tissue, infection area, and/or edematous tissue.
- Rotate injection sites when repeated injections are required.

Injection Volume

- Deltoid: up to 1 mL routinely; up to 2 mL may be acceptable in selected adults with adequate muscle mass.
- Vastus lateralis: up to 3 mL's~~.~~
- Ventrogluteal: up to 3 mL's
- "Volumes exceeding the recommended maximum for a single site should be divided into two or more injections at separate anatomical sites unless the medication ~~manufacturer's~~manufacturer labeling or prescriber specifically directs otherwise.
- Needle length and gauge will be selected according to the patient's body habitus, medication viscosity, and current clinical guidelines.

Administration

- Cleanse skin using approved antiseptic.
- Allow antiseptic to dry.
- Stretch or stabilize skin.
- Insert needle at 90 degrees.
- Inject medication slowly according to medication recommendations.
- Withdraw needle.
- Apply gentle pressure if appropriate.
- Do not massage unless medication guidelines permit.
- Activate safety device immediately.
- Dispose of sharps in approved sharps container.

Patient Monitoring

- Monitor the patient for allergic reaction, pain, bleeding, hematoma, medication effectiveness, and adverse effects.
- High-risk medications may require vital sign monitoring per ~~attending~~ physician, ~~PA~~NP~~, FNP~~, or ~~FNP~~PA order.

Documentation

- Medication, dose, route, site, time, patient assessment, patient tolerance, patient education, response to medication, and name/credentials of administering nurse.

Patient Education

- Purpose of medication, expected effects, possible side effects, injection site care, and symptoms requiring immediate attention.

REFERENCE:

California Board of Registered Nursing. (n.d.). *Nursing practice information and scope of practice regulations*. California Department of Consumer Affairs. https://www.rn.ca.gov

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~INJECTION- SUBCUTANEOUS ADMINISTRATION~~6170.26 INJECTION- SUBCUTANEOUS ADMINISTRATION	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized procedures for safe preparation, administration, monitoring, and documentation of medications administered by the subcutaneous route to hospitalized patients. This policy promotes medication safety, infection prevention, regulatory compliance, and evidence-based nursing practice.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Subcutaneous Injection (SC/SQ): administration of medication into the subcutaneous tissue layer beneath the dermis and above the muscle layer.

High-Alert Medication: a medication associated with an increased risk of causing significant patient harm when used incorrectly, including medications such as insulin and anticoagulants.

POLICY:
It is the policy of Modoc Medical Center (MMC) that ~~S~~subcutaneous medications will be administered only with a valid healthcare physician, nurse practitionr (NP) or Physician assistant (PA)s order and in accordance with California nurse scope of practice requirements, California Department of Public Health hospital regulations, applicable federal medication safety requirements, and current evidence-based nursing practice.

PROCEDURE:
Verification Before Administration
- Patient identity using two approved identifiers.
- Medication order: medication name, dose, route, frequency, indication, and administration time.
- Patient allergies.
- Required laboratory values or assessments.
- Medication-specific parameters and hold criteria. Examples include blood glucose level prior to insulin administration and renal function or platelet monitoring when applicable for anticoagulant therapy.

Medication Preparation
- Perform hand hygiene.
- Review the medication administration record (MAR).
- Compare the medication label with the MAR.
- Verify medication expiration date and integrity.
- Prepare the correct dose using approved technique.
- Perform required independent double checks for designated high-alert medications.
- Medication will not be left unattended after preparation.

Patient Assessment
- Prior to administration, assess patient identification, allergies, relevant clinical condition, injection site suitability, and skin integrity.

- Avoid injection areas with infection, bruising, hematoma, edema, open wounds, significant scarring, and/or impaired tissue perfusion.

Injection Site Selection

- Abdomen (avoiding the area immediately surrounding the umbilicus).
- Anterior or lateral thigh.
- Posterior upper arm.
- Other sites approved by medication-specific instructions.
- Injection sites will be rotated according to medication requirements and organizational guidelines.

Administration Technique

- Explain the procedure to the patient.
- Perform hand hygiene.
- Provide privacy and position the patient appropriately.
- Cleanse the injection site according to infection prevention standards.
- Allow antiseptic to dry.
- Select appropriate needle and technique based on the patient characteristics and medication requirements.
- Insert needle into subcutaneous tissue using appropriate angle.
- Administer medication as recommended.
- 'Remove needle safely.
- Activate safety device when applicable.
- Dispose of sharps immediately.
- Perform hand hygiene.

Medication-Specific Requirements

- Insulin Administration
  - Verify insulin type, dose, and timing.
  - Obtain and review blood glucose results as ordered.
  - Follow hospital hypoglycemia management procedures.
  - Follow organizational policy regarding independent verification.
- Anticoagulant Administration
  - Assess bleeding risk as appropriate.
  - Review required laboratory results when applicable.
  - Follow medication specific administration instructions.
  - Avoid actions contraindicated by manufacturer recommendations.
- Specialty Medications
  - Biologic and specialty medications will be administered according to the physician, NP, PA's order, pharmacy recommendations, manufacturer guidelines, and required monitoring parameters.

Patient Education

- Medication purpose.
- Expected effects.
- Injection process.
- Potential adverse reactions.

- Reporting of symptoms.

Monitoring and Adverse Reactions

- Injection site reactions.
- Bleeding or bruising.
- Allergic reactions.
- Medication-specific adverse effects.
- Therapeutic response.
- Unexpected findings will be reported promptly according to escalation procedures.

Documentation Requirements

- Medication name.
- Dose administered.
- Route.
- Date and time.
- Injection site when required.
- Relevant assessment findings.
- Patient response.
- Education provided.
- Any adverse reaction or intervention.
- Documentation will be completed in the electronic medical record (MAR).

Medication Error Management

- If a medication error or near miss occurs, assess the patient immediately, provide appropriate clinical intervention, notify the physician, NP or PA and pharmacy as required, follow organizational reporting procedures (Safety first), and document patient assessment and clinical care provided.

REFERENCE:

California Board of Registered Nursing. (n.d.). *Nursing practice act.* https://www.rn.ca.gov/practice/npa.shtml

California Department of Public Health. (n.d.). *California Code of Regulations, Title 22.* https://www.cdph.ca.gov/

Institute for Safe Medication Practices. (2024). *ISMP list of high-alert medications in acute care settings.* https://www.ismp.org/recommendations/high-alert-medications-acute-list

ATTACHMENTS:

None

REFERENCE #	6170.26	EFFECTIVE:9/2006
SUBJECT:	~~INJECTIONS- ADMINISTRATION AND MANAGEMENT~~6170.26~~INJECTIONS- ADMINISTRATION~~ AND MANAGEMENT	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized procedures for the safe prescribing, preparation, administration, monitoring, documentation, and management of injectable medications administered to inpatients in accordance with California law, federal regulations, accreditation standards, and evidence-based practices.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Injection: administration of medication by intradermal, subcutaneous, intramuscular, intravenous, intraosseous, or other approved parenteral routes.

High-Alert Medication: a medication that bears an increased risk of causing significant patient harm when used in error.

POLICY:
It is the policy of Modoc Medical Center (MMC) that ~~A~~all injectable medications will be ordered by a physician, nurse practitioner (NP), or physician's assistant (PA), ~~or nurse practitioner (NP)provider~~, prepared and administered only by personnel authorized under California law and organizational privileges, administered using aseptic technique, verified using approved patient identification processes, documented immediately after administration, and monitored for therapeutic response and adverse reactions.
This policy applies to all licensed healthcare professionals authorized to prescribe, prepare, dispense, administer, or monitor injectable medications for hospitalized patients. Included medications are intradermal (ID), subcutaneous (SC), intramuscular (IM), intravenous (IV), intraosseous (IO), vaccines, biological products, and blood-derived injectable products.

PROCEDURE:
Medication Orders
- Injectable medications will be administered only upon the order of ~~an authorized providerphysician, PA, or NP~~ physician, NP or PA.
- Medication orders will include the patient's name, medication, dose, route, frequency, indication, when applicable, date and time.

Patient Assessment (Prior to Administration)
- Patient identity using two approved identifiers.
- Allergies.
- Relevant laboratory results when indicated.
- Vital signs when appropriate.
- Contraindications.
- Previous adverse reactions.
- Injection site condition.

Medication Verification
- Right patient.

- Right medication.
- Right dose.
- Right route.
- Right time.
- Right documentation.
- Right indication.
- Right response.
- Barcode medication administration will be utilized whenever available.

Medication Preparation

- Injectable medications will be prepared using aseptic technique.
- Personnel will perform hand hygiene.
- Verify expiration dates.
- Inspect medication integrity.
- Use sterile equipment.
- Label prepared syringes if not administered immediately.
- Prepare medications as close as possible to time of administration.

Administration

- Explain the procedure to the patient.
- Verify informed participation when appropriate.
- Select the appropriate injection site.
- Utilize approved administration techniques.
- Observe recommended administration rates.
- Rotate injection sites when indicated.
- Dispose of sharps immediately after use.

High-Alert Injectable Medications

- The following medications require enhanced safety procedures:
  - Insulin
  - Anticoagulants
  - Opioids
  - Neuromuscular blocking agents
  - Concentrated electrolytes
  - Thrombolytics
- When required by hospital policy:
  - Independent double verification will be performed.
  - Enhanced patient monitoring will be performed.

Monitoring

- Patients will be monitored for therapeutic effectiveness.
- Allergic reactions
- Anaphylaxis
- Extravasation
- Injection site complications.
- Bleeding

- Medication-specific adverse reactions.
- Emergency response procedures will be initiated immediately when clinically indicated.

Documentation

- Medication administration will be documented in the electronic medical record immediately following administration.
- Documentation will include medication name, dose, route, injection site, date and time, patient response, adverse reactions, and name and credentials of administering clinician.

Medication Errors

- Immediately assessed.
- Reported to the ~~prescribing provider~~ prescribing physician, NP or PA
- Documenting in the medical record as appropriate.
- Reported through the hospital event reporting system (Safety first).

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Infection Prevention

- Hand hygiene
- Safe injection procedures/practices.
- Appropriate skin antisepsis.
- Single-use needles and syringes.
- Proper disposal of sharps.

Patient Education

- Medication purpose.
- Expected therapeutic effects.
- Potential adverse effects.
- When to notify healthcare personnel.
- Self-administration techniques when applicable.

REFERENCE:

California Board of Registered Nursing. (2023). *Nursing practice act*. https://www.rn.ca.gov/pdfs/regulations/npa.pdf

California Code of Regulations, Title 22, Division 5. (n.d.). *Licensing and certification of health facilities*. California Office of Administrative Law. https://govt.westlaw.com/calregs/

Centers for Disease Control and Prevention. (2024). *Injection safety*. https://www.cdc.gov/injection-safety/

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~INTRAVENOUS THERAPY- CHANGING A GOWN WITH CONTINUOUS INFUSION~~6170.26 INTRAVENOUS THERAPY- CHANGING A GOWN WITH CONTINUOUS INFUSION	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish a standardized process for changing an inpatient's hospital gown while continuous intravenous (IV) fluids are infusing, ensuring patient safety, maintaining the integrity of the IV system, preventing healthcare-associated infections, and promoting patient comfort and dignity.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Continuous IV Infusion: administration of fluids or medications through a vascular access device at a prescribed rate without interruption.

Vascular Access Device (VAD): peripheral intravenous catheter, midline catheter, peripherally inserted central catheter (PICC), central venous catheter (CVC), implanted port, or other approved venous access device.

POLICY:
It is the policy of Modoc Medical Center (MMC) that ~~P~~patients receiving continuous intravenous therapy will have hospital gowns changed as clinically indicated without unnecessary interruption of prescribed IV therapy. Nursing personnel will maintain aseptic technique, protect the vascular access device from accidental dislodgment, and continuously assess the integrity of the infusion throughout the procedure. Only licensed personnel may disconnect or reconnect the IV tubing unless otherwise permitted by organizational policy and state regulations.

PROCEDURE:
Preparation
- Verify the ~~provider's healthcare provider's~~ physician, nurse practitioner (NP) or physician assistant (PA) order for continuous IV therapy.
- Confirm patient identification using two approved identifiers.
- Explain the procedure and obtain patient cooperation.
- Perform hand hygiene.
- Don appropriate personal protective equipment (PPE) based on standard or transmission-based precautions.
- Assess for patient condition, type of vascular access device, IV insertion site, dressing integrity, tubing connections, infusion pump settings, and prescribed infusion rate.

Gown Change
- Position the patient comfortably while preserving the patient's privacy.
- Remove the gown from the arm without the IV catheter first.
- Support the IV catheter and tubing throughout the procedure to prevent traction.
- Carefully remove the gown from the IV arm by passing the IV-solution bag and tubing through the sleeve. Do not disconnect the IV tubing solely to remove the gown.

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- Place the clean gown on the IV arm first by gently threading the IV-solution bag and tubing through the sleeve while supporting the vascular access device.
- Insert the opposite arm into the remaining sleeve.
- Secure and adjust the gown for comfort.

Completion

- Verify the IV catheter remains secure.
- Dressing remains clean, dry, and intact.
- Tubing is free from kinks or tension.
- Infusion pump settings remain unchanged.
- Ordered infusion rate is maintained.
- Reassess the IV site for pain, redness, swelling, leakage, bleeding, and/or infiltration or extravasation.
- Remove PPE, if worn.
- Perform hand hygiene.
- Ensure patient comfort and place call light within reach.

Special Considerations

- High-alert medication infusions will not be interrupted unless clinically indicated.
- Patients receiving vasoactive medication, blood products, or other critical infusions require continuous monitoring and will follow organization medication administration policies.
- If catheter dislodgement, infiltration, extravasation, leakage, or pump malfunction occurs, stop the procedure, stabilize the vascular access device, implement appropriate interventions, and notify the ~~provider~~healthcare provider ~~provider~~ physician, NP or PA as indicated.

Documentation

- Date and time of gown change.
- Patient tolerance.
- Condition of vascular access site before and after procedure.
- Dressing status.
- Verification that prescribed infusion continued as ordered.
- Any interruption in therapy and reason.
- Patient education ~~provided~~is provided.
- Complications and nursing interventions, if applicable.

REFERENCE:

California Department of Public Health. (2024). *California Code of Regulations, Title 22, Division 5: Licensing and certification of health facilities*. https://www.cdph.ca.gov

Infusion Nurses Society. (2024). *Infusion therapy standards of practice* (9th ed.). *Journal of Infusion Nursing, 47*(1S Suppl. 1), S1–S285. https://doi.org/10.1097/NAN.0000000000000564

Centers for Disease Control and Prevention. (2024). *Guidelines for the prevention of intravascular catheter-related infections*. https://www.cdc.gov/infection-control/hcp/intravascular-catheter-related-infection/index.html

ATTACHMENTS:
None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 INTRAVENOUS THERAPY COMPLICATIONS AND MANAGEMENT	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized procedures for the prevention, early identification, management, documentation, and reporting of intravenous (IV) therapy complications in hospitalized patients, promoting safe, evidence-based care and compliance with applicable Ffederal and California regulations.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Infiltration: leakage of a non-vesicant solution into surrounding tissue.

Extravasation: leakage of vesicant medications into surrounding tissue causing tissue injury.

POLICY:
It is the policy of Modoc Medical Center (MMC) that intravenous therapy will be administered by qualified personnel who have demonstrated competency in vascular access and infusion therapy. Patients receiving IV therapy will be routinely assessed for complications throughout treatment. Any complications will be addressed promptly to minimize patient harm.

PROCEDURE:
Routine Assessment

- Catheter insertion site.
- Dressing integrity.
- Blood return when clinically indicated.
- Infusion rate.
- Pump setting.
- Pain or discomfort.
- Swelling.
- Redness.
- Drainage.
- Patient complaints.
- Signs of systemic infection.
- Peripheral IV sites will be assessed at least every shift and more frequently during medication administration or continuous infusions.

Management of Complications
Infiltration Signs

- Swelling
- Cool skin
- Pallor
- Pain
- Slowed infusion.

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- Interventions include the following:
  - Stop the infusion immediately.
  - Remove ~~catheter~~the catheter unless otherwise indicated.
  - Elevate affected extremity.
  - Apply warm or cold compress according to medication and institutional protocol.
  - Restart IV in another extremity if therapy continues.
  - Document findings.
  - Notify the ~~provider~~attending physician, PA, FNP ~~healthcare provider~~attending physician, nurse practioner (NA) or physician assistant (PA) of any significant injury.

Extravasation Signs

- Burning
- Severe pain
- Blistering
- Skin discoloration
- Tissue injury
- Interventions include the following:
  - Stop infusion immediately.
  - Leave ~~catheter~~the catheter in place if antidote administration is indicated.
  - Aspirate residual medication when appropriate.
  - Notify the ~~provider~~attending physician, PA, FNP ~~healthcare provider~~ attending physician, NP, PA immediately.
  - Administer antidote if ordered.
  - ~~Consult~~Consult with the Ppharmacist if needed.
  - Photograph the injury and place in the patient's electronic medical record.
  - Complete event reporting (Safety first report).

Phlebitis Signs

- Erythema
- Warmth
- Tenderness
- Interventions include the following:
  - Discontinue IV catheter.
  - Apply a warm compress.
  - Restart IV at another site if indicated.
  - Notify the ~~provider~~attending physician, PA, ~~healthcare provider~~ attending physician, NP, PA if symptoms progress.

Catheter Occlusion

- Interventions include the following:
  - Assess for a mechanical cause.
  - Reposition the patient.
  - Inspect the tubing.
  - Do not force flush.
  - Follow de-clotting protocol for central lines if ordered.

Catheter-Associated Bloodstream Infection (CABSI/CLABSI) Signs

- Fever
- Chills
- Hypotension
- Purulent drainage
- Interventions include the following:
  - Notify the ~~provider~~attending physician, PA, ~~healthcare provider~~ attending physician, NP or PA immediately.
  - Obtain blood cultures if ordered.
  - Initiate sepsis screening when indicated.
  - Administer antibiotics as ordered.

Air Embolism Signs

- Sudden onset of respiratory distress
- Chest pain
- Cyanosis
- Altered mental status.
- Interventions include the following:
  - Clamp the catheter.
  - Place the patient in left lateral Trendelenburg position if clinically appropriate.
  - Administer oxygen.
  - Activate the Rapid Response Team.
  - Notify the ~~provider~~attending physician, PA, FNP~~healthcare provider~~attending physician, NP or PA immediately.

Fluid Overload Signs

- Dyspnea
- Pulmonary crackles
- Peripheral edema
- Elevated blood pressure
- Increased oxygen requirements
- Interventions include the following:
  - Slow or stop infusion as clinically indicated.
  - Elevate the patient's head of bed.
  - Monitor oxygen saturation.
  - Notify the ~~provider~~attending physician, PA, ~~healthcare provider~~ attending physician, NP or PA
  - Administer medications as ordered.

Allergic or Medication Reaction Signs

- Mild reaction signs include the following:
  - Flushing
  - Itching
  - Localized rash or hives
  - Mild swelling of the face, lips, or eyelids
  - Watery eyes
  - Sneezing or nasal congestion

  - Mild nausea
- Moderate reaction signs include the following:
  - Generalized hives.
  - Angioedema
  - Wheezing
  - Shortness of breath
  - Chest tightness
  - Persistent cough
  - Hoarseness
  - Tachycardia
  - Dizziness or lightheadedness
- Severe reaction (anaphylaxis) signs include the following:
  - Difficulty breathing or severe respiratory distress.
  - Stridor (high-pitched inspiratory sound)
  - Severe wheezing
  - Airways swelling
  - Hypotension
  - Weak or rapid pulse
  - Cyanosis
  - Altered level of consciousness.
  - Syncope
  - Cardiac arrest
- Immediate Nursing Actions
  - Stop the medication infusion immediately.
  - Maintain IV access with compatible solution as appropriate.
  - Assess the patient's airway, breathing, circulation, and vital signs.
  - Notify the ~~provider~~attending physician, PA, ~~FNP~~~~healthcare provider~~ attending physician, NP or PA immediately.
  - Activate the Rapid Response Team or Code Blue if the patient exhibits signs of anaphylaxis or hemodynamic instability.
  - Administer emergency medications as ordered or according to emergency protocols.
  - Monitor the patient closely until symptoms ~~resolve~~are resolved.
  - Document the reaction, interventions, patient response, and ~~provider~~attending physician, PA, ~~FNP~~~~healthcare provider~~ attending physician, NP or PA notification.
  - Report the adverse drug reaction according to hospital policy (Safety first) and update the patient's allergy record as appropriate.

Documentation

- Catheter type and location
- Dressing condition
- Assessment findings
- Infusion solution and rate
- Patient tolerance
- Complications identified

- Interventions performed
- ~~Provider~~Attending physician, PA, FNP~~Healthcare provider~~ attending physician, NP or PA notification
- Patient response
- Education provided

REFERENCE:

Nickel, B., Gorski, L. A., Kleidon, T., Kyes, A., DeVries, M., Keogh, S., Meyer, B. M., Sarver, M. J., Crickman, R. A., Ong, J., Clare, S., & Hagle, M. E. (2024). *Infusion therapy standards of practice* (9th ed.). *Journal of Infusion Nursing, 47*(1S Suppl. 1), S1–S285. https://doi.org/10.1097/NAN.0000000000000532

Centers for Medicare & Medicaid Services. (2023). *State Operations Manual: Appendix A—Survey protocol, regulations and interpretive guidelines for hospitals.* https://www.cms.gov/medicareprovider/~~provider~~-enrollment-and-certification/guidanceforlawsandregulations/downloads/appendix-a-survey-protocol-regulations-and-interpretive-guidelines-for-hospitals.pdf

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~INTRAVENOUS THERAPY- DISCONTINUATION OF PERIPHERAL INTRAVENOUS CATHETERS FOR HOSPITALIZED INPATIENTS~~6170.26 INTRAVENOUS THERAPY- DISCONTINUATION OF PERIPHERAL INTRAVENOUS CATHETERS FOR HOSPITALIZED INPATIENTS	REVISED: 7/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to provide a standardized, evidence-based process for the safe discontinuation of peripheral intravenous (PIV) catheters, minimize the risk of bleeding and infection, promote patient comfort, and ensure appropriate documentation.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
None.

POLICY:
It is the policy of Modoc Medical Center that ~~P~~peripheral intravenous catheters will be discontinued by a licensed nurse or other qualified healthcare professional acting within their scope of practice and organizational competency validation. Peripheral IV catheters will be removed when any of the following conditions exist:

- IV therapy has been completed or is no longer clinically indicated.
- The catheter is no longer functional.
- Signs or symptoms of infiltration, extravasation, phlebitis, infection, occlusion, leakage, or catheter damage are present.
- The ~~provider~~physician, nurse practitioner (NP) or physician assistant (PA) orders discontinuation.
- The patient is discharged or transferred and the IV is no longer required.
- Removal is clinically indicated based on the patient assessment.

Peripheral IV catheters will not be routinely replaced based solely on dwell time. Catheters that remain functional and show no signs of complications may remain in place until therapy is complete or clinical indications for removal arise.

PROCEDURE:

- Verify the ~~provider~~physician, NA, PA order if applicable and confirm that IV therapy is no longer indicated.
- Perform hand hygiene according to standard precautions.
- Identify the patient using two approved identifiers.
- Explain the procedure to the patient and obtain cooperation.
- Assess the insertion site for redness, swelling, warmth, pain or tenderness, drainage, bleeding, or signs of infiltration or extravasation.
- Stop all infusions and clamp the extension tubing if present.
- Remove the dressing while stabilizing the catheter.
- Apply clean gauze over the insertion site without exerting pressure until catheter removal begins.

- Withdraw the catheter slowly and steadily, maintaining the catheter parallel to the skin. Do not use force.
- Immediately apply firm pressure with sterile gauze until hemostasis is achieved.
- Inspect the catheter to verify that it is intact.
- Apply clean adhesive dressing or bandage after bleeding has stopped.
- Dispose of supplies according to infection prevention and biohazard procedures.
- Perform hand hygiene.
- Instruct the patient to keep the dressing in place for the recommended period and to report persistent bleeding, redness, swelling, pain, or drainage.

Catheter Complications

- If resistance is encountered during removal:
  - Stop the procedure.
  - Reposition the extremity if appropriate.
  - Do not forcibly remove the catheter.
  - Notify the ~~provider~~ physician, NP or PA if resistance persists.
- If the catheter appears damaged or incomplete:
  - Preserve the catheter.
  - Notify the ~~provider~~ physician, NP or PA immediately.
  - Assess the patient for retained catheter fragment.
- If significant bleeding occurs:
  - Maintain direct pressure.
  - Elevate the extremity as appropriate.
  - Notify the physician, NP or PA ~~provider~~ if bleeding persists or the patient has a known bleeding disorder or anticoagulant therapy.

Documentation

- Date and time of removal.
- Reason for discontinuation.
- Catheter location.
- Assessment of insertion site.
- Confirmation that catheter tip was intact.
- Patient tolerance of the procedure.
- Dressing applied.
- Patient education provided.
- Any complication and interventions performed.

Patient Education

- Instruct the patient to leave the dressing in place for the period specified by organizational policy (typically 24 hours or until the site is dry).

- Monitor the site for redness, swelling, warmth, drainage, increased pain, numbness, or continued bleeding.
- Notify nursing staff immediately if concerning symptoms develop.

REFERENCE:

California Board of Registered Nursing. (n.d.). *Nursing Practice Act*. https://www.rn.ca.gov/practice/npa.shtml

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 RECTAL TUBE INSERTION	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish a standardized method for inserting a rectal tube for gastric or colonic decompression, management of severe fecal incontinence with skin protection goals, and relief of bowel distention as ordered by the ~~provider~~physician, nurse practitioner (NP) or physician assistant (PA), ~~family nurse practitioner(~~).

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Rectal Tube Insertion: insertion of a flexible rectal tube into the rectum for decompression of bowel gas or stool, diversion of liquid stool and/or relief of abdominal distention as medically ordered.

POLICY:
It is the policy of Modoc Medical Center (MMC) that the procedure will be performed only within the scope of the registered nurse's (RN's) demonstrated competence and in compliance with applicable federal and state laws, California Board of Registered Nursing standards, California Code of Regulations, Title 22 requirements, hospital policies, manufacturers instructions for use, and accepted standards of nursing practice.
The RN is responsible for assessing patient appropriateness for the procedure, identifying contraindications, implementing the procedure safely, monitoring complications, and documenting all assessments, interventions, and patient responses in the electronic medical record.
Performance of this procedure by personnel who have not met competency and authorization requirements is prohibited.

PROCEDURE:
- Verify ~~provider~~physician, NP or PA order and patient identification.
- Explain procedure and obtain cooperation.
- Position patient in left lateral Sim's position.
- Perform hand hygiene and don personal protective equipment.
- Inspect perianal area for contraindications.
- Lubricate tube adequately.
- Gently insert rectal tube following manufacturer guidelines.
- Advance without force; stop immediately if resistance, bleeding, or severe pain occurs.
- Secure device per protocol.
- Connect to drainage system if ordered.
- Ensure patient comfort and safety.

Monitoring Requirements
- Pain or intolerance during insertion.
- Signs of bleeding or mucosal injury.
- Output volume and character.
- Abdominal distention changes.
- Vagal response (bradycardia, hypotension, diaphoresis).

Complications/Emergency Response

- If complications occur stop procedure immediately; notify ~~provider~~physician, NP or PA; monitor vital signs; prepare for possible imaging or Gastroenterology (GI) consultation.
- Document incident per hospital policy.

Documentation

- ~~Provider~~Physician, NP or PA order verification.
- Indication for placement.
- Date/time of insertion.
- Tube type/size.
- Patient tolerance.
- Output and ongoing assessment findings.
- RN performing procedure.

Competency Requirements (Mandatory Title 22 Element)

- Each RN must complete and document education (anatomy, indications, risks, complications).
- Skills validation.
- Supervised clinical performance.
- Annual competency reassessment.

Contraindications

- Procedure will not be performed if any of the following are present unless explicitly ordered by the ~~provider~~physician, NP or PA:
  - Suspected bowel perforation.
  - Recent colorectal or rectal surgery.
  - Active rectal or GI bleeding of unknown origin.
  - Known rectal strictures or malignancy.
  - Severe neutropenia or high bleeding risk conditions.

REFERENCE:

California Board of Registered Nursing. (n.d.). Standardized procedures guidelines. State of California, Department of Consumer Affairs. https://www.rn.ca.gov/pdfs/regulations/npr-i-19.pdf

California Code of Regulations, Title 22, Division 5, Chapter 1, Article 7, § 70706.2. Standardized procedures. (n.d.). Westlaw/California Code of Regulations.

California Legislature. (n.d.). Business and Professions Code § 2725. Nursing practice defined. California Legislative Information. https://leginfo.legislature.ca.gov

State of California, Department of Consumer Affairs, Board of Registered Nursing. (2024). Nursing Practice Act. https://www.rn.ca.gov/pdfs/regulations/npa.pdf

ATTACHMENTS:

None~~.~~

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 RECTAL TUBE INSERTION	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 RELEASE OF DECEASED PATIENT	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish a standardized process for the identification, storage, documentation, custody, and release of deceased patients from the hospital to a licensed funeral establishment, mortuary, crematory, coroner, or medical examiner while maintaining dignity, security, and regulatory compliance.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Authorized Representative: individual legally entitled to control disposition of remains under California law.

Funeral Establishment/Mortuary: licensed entity authorized to receive and transport human remains.

POLICY:
It is the policy of Modoc Medical Center (MMC) to follow pronouncement of death and completion of all required ~~notifications,~~notifications; the decedent may be released from the hospital only to a licensed funeral establishment or upon authorization of the county coroner/medical examiner. Identity of the decedent and receiving mortuary personnel will be verified and documented. Release will not occur until any required coroner clearance has been ~~obtained~~obtained, and authorization for disposition has been confirmed.

PROCEDURE:
Death Pronouncement
- Death will be pronounced by an individual authorized under hospital medical staff rules and applicable law.
- Time of death will be documented in the medical record.
- Notifications will be completed according to hospital policy.

Required Notifications
- Attending physician.
- Family or next of kin.
- Organ procurement organization/tissue donation organization.
- Coroner/Medical Examiner.
- Law enforcement.
- Risk Management (if sentinel event).

Determination of Coroner Jurisdiction
- Before release, staff will determine whether the death is reportable.
- If the death falls within coroner jurisdiction, the body will not be released without coroner authorization and personal effects will be managed according to coroner instructions.
- Coroner directives supersede routine mortuary release procedures.

Identification of Decedent
- The deceased patient will be identified using at least two identifiers.

- Identification band will remain attached whenever possible.
- If the identification band is absent positive identification will be established through medical record verification.
- A replacement identification band will be affixed before transfer/discharge.

Postmortem Care

- Nursing staff will provide respectful postmortem care.
- Remove medical devices when authorized.
- Retain devices if required by coroner.
- Prepare the body according to infection prevention precautions.
- Place identification tags on wrist or ankle, and/or exterior of shroud/body pouch.

Personal Belongings

- Personal belongings will be inventoried.
- Personal belongings will be released to next of kin, authorized representative, or coroner when applicable.
- Receipt documentation will be completed.
- Valuables not released will be secured according to hospital policy.

Authorization for Release

- Prior to release, staff will verify designated mortuary selected by legal representatives.
- Coroner clearance if applicable.

Coroner Cases

- Written or verbal authorization from the coroner.
- Documentation of authorization.

Verification of Receiving Agency

- The individual receiving the deceased patient will provide funeral establishment identification.
- Hospital staff will verify the name of the mortuary, identity of transporter, and identity of decedent.
- Two hospital staff members should verify release whenever feasible.

Release Documentation (Record of Death Form)

- Date and time of release.
- Decedent name.
- Medical record number.
- Receiving mortuary.
- Name of receiving representative.
- Identification reviewed.
- Coroner authorization number (if applicable).
- Name and signature of staff releasing.
- Name and signature of receiving individual.

Special Circumstances

- Infectious Disease Cases
  - Mortuary needs to be notified of any infectious disease. Additional handling requirements may need to be implemented.
- Medical Examiner/Coroner Cases
  - The body will remain under hospital control until released by the Coroner/Medical Examiner.

REFERENCE:
CMS Conditions of Participation, Medical Record Services and Patient Rights requirements regarding documentation and hospital policies.

ATTACHMENTS:
None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 REPORTING EQUIPMENT MALFUNCTION	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized procedures for the identification, removal from service, reporting, evaluation, and escalation of malfunctioning or defective medical equipment to ensure patient safety and compliance with California Title 22 regulatory requirements.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Adverse Event: an occurrence involving patient care that results in injury, harm, or risk of harm, including equipment failure contributing to or causing such outcomes.

Malfunctioning Equipment: any medical device or equipment that fails to operate as intended, produces inaccurate results, or presents a risk to patient safety.

Removal from Service ("Tag Out"): the process of labeling equipment as unsafe and preventing further clinical use.

POLICY:
It is the policy of Modoc Medical Center (MMC) that all medical equipment used in patient care will be maintained in safe operating condition. Any malfunctioning, defective, or suspected defective equipment will be immediately removed from service, reported, evaluated, and managed in accordance with internal safety procedures and applicable California Title 22 reporting requirements.

PROCEDURE:
Identification and Immediate Action
- Any staff member identifying or suspecting equipment malfunction will immediately discontinue use of the equipment, ensure patient safety is maintained using alternative equipment or interventions, and label equipment as "Do Not Use" and remove from clinical area if possible.
- If patient harm or potential harm occurred, immediate clinical escalation will be initiated per unit protocol.

Reporting Requirements
- The discovering staff member will complete an incident report in the hospital's electronic event reporting system (Safety First) within the same shift.
- The report should include the equipment name and identification number, description of malfunction, location and time of occurrence, patient impact if any, and immediate corrective actions taken.

Biomedical Engineering Evaluation
- Inspect and evaluate the equipment as soon as possible.
- Remove equipment from service pending investigation.
- Document findings and corrective actions.
- Determine whether malfunction indicates device failure requiring vendor or manufacturer notification.

Risk Management Review and Escalation

- Risk Management will review all equipment related incident reports involving patient harm, potential life-threatening malfunction, and recurrent device failure patterns.
- Risk Management will determine whether the event meets criteria for external reporting under California Title 22.

Title 22 Reporting Compliance

- Events meeting criteria for reportable adverse events will be reported to the California Department of Public Health (CDPH) as follows:
  - Within 24 hours for events posing immediate or severe risk.
  - Within 5 calendar days for all other reportable adverse events.
- Documentation of reporting will be maintained in the Risk Management file.

Equipment Release Back to Service

- Equipment will not be returned to service until biomedical engineering confirms safe functionality, all corrective actions are completed and documentation is finalized.

Compliance

- Failure to follow this policy may result in disciplinary action and/or regulatory non-compliance. This policy is designed to comply with California Code of Regulations, Title 22, and applicable patient safety standards.

REFERENCE:

Centers for Medicare & Medicaid Services. (2024). *Conditions of participation for hospitals.* https://www.cms.gov/medicare/provider-enrollment-and-certification/surveycertificationgeninfo/hospital

California Department of Public Health. (2024). *Hospital adverse event reporting requirements.* https://www.cdph.ca.gov/Programs/CHCQ/LCP/Pages/AH.aspx

California Code of Regulations. (2026). *Title 22, Division 5, Chapter 1: Licensing and certification of health facilities, clinics, and referral agencies*. State of California. https://www.law.cornell.edu/regulations/california/title-22

Occupational Safety and Health Administration. (2023). *Medical and dental equipment safety guidelines.* https://www.osha.gov/medical-dental

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVEA: 9/2006
SUBJECT:	6170.26 ROUTINE NIGHT SHIFT NURSING RESPONSIBILITIES	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish responsibilities and expectations for nursing personnel assigned to inpatient night shifts and to ensure continuity of care, patient safety, regulatory compliance, and appropriate documentation.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Night Shift: the designated overnight nursing shift as defined by hospital scheduling practices. (1830-0700).

Charge Nurse: the nurse assigned responsibility for coordination and oversight of unit operations during a shift.

POLICY:
It is the policy of Modoc Medical Center (MMC) to provide organized nursing services twenty-four (24) hours per day to meet the nursing care needs of patients. Night shift nursing personnel will provide safe, effective, and continuous patient care in accordance with California Title 22 regulations, applicable state and federal laws, professional standards of practice, accreditation requirements, and hospital policies and procedures.

Night shift nursing staff are responsible for the assessment, planning, implementation, coordination, evaluation, documentation, and supervision of patient care during assigned hours. Staffing assignments will be based on patient acuity, patient care requirements, staff competency, and applicable nurse-to-patient ratio requirements.

PROCEDURE:
Shift Preparation

- At the beginning of each night shift, nursing personnel (registered nurse) will do the following:
  - Receive and provide standardized handoff communication.
  - Review ~~physician/providerphysician assistant () family nurse practitioner()~~physician, nurse practitioner (NP) or physician assistant (PA) progress notes, orders, nursing documentation, laboratory results, and diagnostic findings.
  - Identify high-risk patients requiring increased monitoring.
  - Verify completion of critical safety measures.
  - Update the patient information boards in each room.

Patient Assessment and Monitoring

- Complete and document assessments according to patient condition and unit standards. Assessments are completed at the beginning of each shift and for any change in condition.
- Monitor vital signs, neurological status, respiratory status, cardiovascular status, pain management effectiveness, intake and output, skin integrity, and fall risk status.
- Reassess patients following interventions and document outcomes.
- Escalate significant findings according to established clinical protocols.

Medication Administration and Treatment

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- Administer medications safely and accurately.
- Verify medication orders prior to administration.
- Monitor for adverse reactions and therapeutic effectiveness.
- Document medication administration and patient response.
- Perform ordered treatments and procedures according to policy.

Patient Safety

- Conduct purposeful patient rounding. Completed hourly.
- Implement fall prevention interventions.
- Maintain infection prevention practices.
- Ensure bed alarms, call lights, and safety equipment are functioning.
- Verify emergency equipment readiness.
- Maintain a safe patient care environment.
- Patients unable to reposition themselves will be turned and repositioned every 2 hours.
- Noise levels will be kept to a minimum during the nighttime hours.

Admissions/Transfers/Discharges

- Complete the required admission assessments and documentation. Make sure all paperwork is signed by the patient and/or legal representative.
- Review and implement ~~provider~~ orders.
- Prepare patients for transfer or discharge as applicable.
- Provide patient education and discharge instructions as applicable.
- Ensure continuity of care during transitions.

Documentation

- Complete documentation in the electronic medical record.
- Document any assessments, interventions, treatments, patient responses, and outcomes.
- Document any ~~provider~~attending physician, NP or PA notifications and resulting orders.
- Documentation will be accurate, timely, objective, and complete.
- Comply with legal, regulatory, and organizational requirements.

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Charge Nurse

- Monitor staffing throughout the shift.
- Adjust assignments based on patient acuity and census changes.
- Activate staffing contingency plans when necessary (Contact Nursing Manager for direction).
- Notify nursing leadership (Nurse Manager) of significant staffing concerns.

Communication and Handoff

- At shift change, nursing personnel will provide standardized bedside or approved handoff communication.
- Communicate patient condition, pending tests, treatment plans, safety concerns, and outstanding issues.
- Ensure continuity of care between shifts.

Other Duties as Assigned Include the Following

- Crash cart check and seal number in the emergency department and inpatient care area.
- Intubation box check and seal number.
- Cycle count in the Omnicell each shift. Resolve any discrepancies prior to end of each shift.

- Negative pressure room 107 check.
- Glucose monitor control checks for the emergency department and inpatient care area.
- Restock of rooms/supplies.
- Fresh water will be provided at the beginning of the shift and as needed.
- Each room will be cleaned prior to end of shift, including collecting trash.
- Vital signs will be completed every 4 hours for the acute admission and once per shift for the swing bed admissions.
- Any patient on a cardiac monitor will have the telemetry strips printed every 4 hours and placed on the chart.

REFERENCE:

Centers for Medicare & Medicaid Services. (2024). *State operations manual: Appendix A—Survey protocol, regulations and interpretive guidelines for hospitals*. U.S. Department of Health and Human Services. https://www.cms.gov

California Board of Registered Nursing. (2024). *Nursing practice act*. Sacramento, CA: Author. Retrieved from https://www.rn.ca.gov

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	6170.26 SAFE MEDICAL DEVICES	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to ensure that all medical devices used within the hospital are selected, maintained, monitored, and utilized in a manner that promotes patient safety, complies with federal medical device reporting requirements, and meets California Title 22 patient safety and adverse event reporting regulations.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Medical Device: any instrument, apparatus, machine, implant, or similar article used in diagnosis, treatment, monitoring, or prevention of disease.

Adverse Event: an event associated with patient care resulting in death, serious injury, or potential harm, including events involving medical devices as defined by California Health and Safety Code and Title 22.

POLICY:
It is the policy of Modoc Medical Center (MMC) that the hospital will maintain a comprehensive medical equipment management program designed to ensure safe operation of all medical devices, prevent patient injury related to device malfunction or misuse, identify, investigate, and report device-related adverse events, maintain documentation of inspection, maintenance, repair, and corrective actions, and support a culture of patient safety and continuous quality improvement.

PROCEDURE:
Biomedical Engineering Department
- Maintain equipment inventory.
- Perform preventive maintenance according to manufacturer recommendations or approved maintenance programs.
- Document inspections, repairs, testing, and calibration.
- Remove unsafe devices from service immediately.
- Coordinate recalls and hazard alerts.

Clinical Staff
- Perform pre-use equipment checks.
- Report equipment failures immediately.
- Remove malfunctioning equipment/devices from patient use.
- Complete incident reports (Safety Ffirst) when device-related events occur.

Equipment Maintenance
- Maintain an inventory of all patient-care equipment.
- Establish preventive maintenance schedules.
- Maintain record of inspections, calibration, repairs, and functional testing.
- Verify equipment safety before returning devices to service.
- Remove equipment from service when safety cannot be assured.

Device Failure Response

- When a device malfunction is suspected, remove the device from service immediately.
- Label the equipment "DO NOT USE."
- Preserve the device for investigation.
- Notify Biomedical engineering and Risk Management.
- Complete and incident report (Safety First) before the end of shift.

Adverse Event Reporting

- The hospital will comply with California Title 22 adverse event reporting requirements.
- Events posing an ongoing urgent threat to patient or staff safety will be reported within 24 hours of detection.
- Other reportable adverse events will be reported within five calendar days of detection.
- Documentation will be maintained for all investigations and corrective actions.

Root Cause Analysis

- For significant device-related patient safety events, the hospital will conduct a root cause analysis, identify contributing factors, implement corrective actions, and monitor effectiveness of corrective measures.

Recall and Hazard Alert Management

- Biomedical Engineering/Maintenance will monitor manufacturer recalls and safety notices, assess affected inventory, remove affected devices from service as appropriate, and document corrective actions.

Education and Training

- Staff members will receive training on safe device operation.
- Device-specific competencies.
- Incident reporting procedures.
- Recognition of equipment malfunctions.
- Training records will be maintained by the department manager.

REFERENCE:

California Code of Regulations, title 22, § 71567, Adverse Event Reporting Requirements (2025). https://www.law.cornell.edu/regulations/california/22-CCR-71567

Safe Medical Devices Act of 1990, Pub. L. No. 101-629, 104 Stat. 4511 (1990). https://www.congress.gov/bill/101st-congress/house-bill/3095/text/enr

California Code of Regulations, title 22, article 6.5, Adverse Event Reporting Requirements (2025). https://www.law.cornell.edu/regulations/california/title-22/division-5/chapter-2/article-6.5

California Code of Regulations, title 22, § 71568, Adverse Event Investigation (2025). https://regulations.justia.com/states/california/title-22/division-5/chapter-2/article-6-5/section-71568/

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~SEIZURE- MANAGEMENT STANDARD OF CARE~~6170.26 SEIZURE- MANAGEMENT STANDARD OF CARE	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to provide standardized procedures for the identification, management, treatment, monitoring, documentation, and follow-up of hospitalized patients experiencing seizure activity, and to ensure patient safety in accordance with applicable California licensing requirements, and hospital standards of care.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Seizure: a transient occurrence of signs and/or symptoms resulting from abnormal excessive or synchronous neuronal activity in the brain.

Status Epilepticus: a seizure lasting five minutes or longer, or recurrent seizures without returning to baseline level of consciousness between episodes.

Seizure Precautions: safety measures implemented to reduce the risk of injury in patients at risk for seizure activity.

POLICY:
It is the policy of Modoc Medical Center (MMC) to provide timely assessment and management of patients experiencing seizure activity. Patients identified as being at risk for seizures will have appropriate seizure precautions implemented. Hospital personnel will respond promptly to seizure events, protect patients from injury, maintain airway and cardiopulmonary stability, notify the ~~providerhealthcare provider~~ physician, nurse practitioner (NP) or physician assistant (PA) as appropriate, and document all interventions and outcomes in the electronic medical record.

PROCEDURE:
Indication for Seizure Precautions
- Known seizure disorder or epilepsy.
- Recent seizure activity.
- Acute neurological injury.
- Alcohol or substance withdrawal.
- Metabolic abnormalities ~~that are associated~~associated with seizure risk.
- History of status epilepticus.
- Other conditions determined by the treating ~~providerhealthcare provider~~ physician, NP or PA

Seizure Precautions
- Maintain bed in lowest position unless contraindicated.
- Ensure side rails are raised according to patient safety needs and facility protocol.
- Keep ~~environment~~the environment free of hazards.
- Maintain immediate availability of oxygen and suction equipment.
- Ensure emergency equipment is readily accessible.
- Implement fall precautions as indicated.

- Educate patient and family members regarding seizure safety measures.

Management During a Seizure

- Remain with the patient.
- Call for assistance as needed.
- Protect the patient from injury.
- Remove nearby hazardous objects.
- Loosen restrictive clothing around the neck if present.
- Support the patient's head.
- Do not restrain the patient unless it is necessary to prevent immediate harm.
- Do not place any object, medication, food, or fluid into the patient's mouth during active seizure activity.
- Assess and ~~maintain~~maintains airway patency.
- Position the patient on the side when feasible and safe.
- Observe and record the time seizure began, duration of seizure, type of movement observed, eye deviation, loss of consciousness, incontinence, cyanosis or respiratory compromise, and other pertinent clinical findings.

Emergency Response

- The rapid response team or code team will be activated immediately with any of the following:
  - Seizure activity exceeds five minutes.
  - Recurrent seizures occur without recovery between events.
  - Airway compromise is present.
  - Respiratory arrest occurs.
  - Hemodynamic instability develops.
  - Significant injury is sustained.
  - Status epilepticus is suspected.

Medication Administration

- ~~Antiseizure medication will be administered when ordered by a providerhealthcare provider~~ physician, NP or PA
- Nursing staff will monitor the patient for respiratory depression, hypotension, excessive sedation, and for any adverse medication effects.

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Post-Seizure Care

- Assess the patient's airway, breathing, and circulation.
- Vital signs.
- Neurological status.
- Level of consciousness.
- Pain.
- Evidence of injury.
- Maintain patient safety until baseline condition returns.
- Provide reassurance and reorientation as appropriate.
- Obtain laboratory testing or diagnostic studies as ordered.
- Notify the ~~providerhealthcare providphysician, NP or PA er~~ of the following:
  - ~~New-onset~~New onset seizure.

- Change in seizure ~~pattern~~patterns.
- Prolonged seizure activity.
- Injury related to seizure activity.
- Failure to return to baseline.

Documentation

- Date and time of seizure onset and cessation.
- Clinical characteristics of seizure activity.
- ~~Assessment~~Assessment of findings.
- Interventions performed.
- Medications ~~administered~~are administered.
- Notifications ~~made~~are made.
- Patient response to treatment.
- Post-ictal assessment findings.
- Patient injuries, if any.
- Changes to the treatment plan.

REFERENCE:

California Department of Public Health. (2024). *California Code of Regulations, Title 22, Division 5: Licensing and certification of health facilities, home health agencies, clinics, and referral agencies*. State of California. https://www.cdph.ca.gov

California Department of Public Health. (2024). *California Code of Regulations, Title 22, § 70203. Written policies and procedures*. State of California. https://www.cdph.ca.gov

American Epilepsy Society. (2024). *Guidelines for treatment of convulsive status epilepticus*. https://www.aesnet.org

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~SHAVING A PATIENT – STANDARD OF CARE~~6170.26 SHAVING A PATIENT – STANDARD OF CARE	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish guidelines for the safe, respectful, and clinically appropriate shaving and grooming of patients while protecting patient rights, maintaining dignity, promoting hygiene, and complying with applicable California Title 22 requirements and hospital standards.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
None.

POLICY:
It is the policy of Modoc Medical Center (MMC) to provide personal hygiene and grooming care as appropriate to the patient's condition, preferences, and plan of care. Patient shaving will be performed only when clinically indicated, requested by the patient, or necessary to maintain hygiene and comfort. Patient rights, cultural and religious practices, and informed consent will be respected at all times.
Hair removal for medical procedures will be limited to the minimum amount necessary and performed according to evidence-based infection prevention practices and hospital procedures.

PROCEDURE:
Assessment
- Patient preferences and consent.
- Cultural, religious, or personal grooming practices.
- Skin integrity and presence of wounds, rashes, or lesions.
- Bleeding risk, including anticoagulant therapy or bleeding disorders.
- Cognitive status and ability to cooperate.
- Medical necessity for hair removal.

Consent and Patient Rights
- Explain the purpose and procedure to the patient.
- Obtain verbal consent whenever possible.
- Respect a competent patient's refusal of non-essential shaving or grooming.
- Document refusals and patient preferences in the electronic medical record.
- For patients lacking decision-making capacity, care will be provided that is consistent with the plan of care and applicable consent requirements.

Routine Grooming -Shaving
- Perform hand hygiene before and after patient contact.
- Use hospital-approved electric shavers whenever possible.
- Follow manufacturer cleaning and disinfection instructions.
- Protect skin from injury and avoid areas of compromised skin integrity.
- Provide privacy and maintain patient dignity throughout the procedure.

Hair Removal for Medical Procedures
- Hair will be removed only when necessary to facilitate treatment or procedures.
- Electric clippers with disposable heads will be used whenever feasible.

- Razor shaving will be avoided unless specifically ordered or clinically necessary.
- Hair removal should occur as close to the time of the procedure as practical.
- Follow hospital infection prevention protocols.

Infection Control

- Use approved equipment and supplies.
- Clean and disinfect reusable equipment according to hospital policy.
- Dispose of single-use items appropriately.
- Adhere to standard precautions.

Management of Complications

- If skin injury, bleeding, or adverse reactions ~~occur~~occur, stop the procedure immediately, provide appropriate treatment, and notify the ~~provider~~attending physician, PA, healthcare provider.physician, nurse practitioner (NA) physician assistant (PA).
- Document findings and interventions.

Documentation

- ~~Assessment~~Assessment of findings and interventions.
- Patient consent or refusal.
- Reason for shaving or hair removal.
- Area shaved.
- Method used.
- Patient tolerance of the procedure.
- Any complications and corrective actions.

REFERENCE:

California Department of Public Health. (n.d.). *California Code of Regulations, Title 22, Division 5: Licensing and certification of health facilities*. California Department of Public Health. https://www.cdph.ca.gov

Centers for Disease Control and Prevention. (2024). *Guideline for the prevention of surgical site infection*. U.S. Department of Health and Human Services. https://www.cdc.gov

American Nurses Association. (2021). *Nursing: Scope and standards of practice* (4th ed.). American Nurses Association.

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~SUCTIONING THROUGH A TRACHEOSTOMY~~6170.26 SUCTIONING THROUGH A TRACHEOSTOMY	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish a standardized process for assessment, suctioning, monitoring, and documentation of patients with tracheostomies in order to maintain airway patency, optimize oxygenation and ventilation, minimize complications, and ensure compliance with California regulatory requirements.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Tracheostomy Suctioning: removal of pulmonary secretions from a tracheostomy tube using sterile or closed-system suction techniques.

Clinically Indicated Suctioning: suctioning performed based on patient assessment findings rather than a routine schedule.

POLICY:
It is the policy of Modoc Medical Center (MMC) that ~~T~~tracheostomy suctioning will be performed only when clinically indicated and by personnel who have demonstrated competency and are authorized by hospital policy and scope of practice. Suctioning will be performed in accordance with ~~providerhealthcare provider~~ Physician, nurse practitioner (NP) or physician assistant (PA's) orders, infection prevention standards, and this policy.

PROCEDURE:
Indications for Suctioning
- Audible or visible airway secretions.
- Increased work of breathing.
- Decreased oxygen saturation.
- Ineffective cough.
- Suspected mucus plugging.
- Increased peak airway pressures in mechanically ventilated patients (emergency department patients).
- Diminished or coarse breath sounds.
- Respiratory distress is attributable to retained secretions.
- Need to obtain a clinically ordered specimen.

Contraindications/Precautions
- No absolute contraindications exist when airway obstruction is suspected.
- Use caution in patients with any of the following:
  - Elevated intracranial pressure.
  - Severe bronchospasm.
  - Hemodynamic instability.
  - Significant bleeding disorders.
  - Recent tracheal surgery.
  - Cardiac dysrhythmia.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~SUCTIONING THROUGH A TRACHEOSTOMY~~6170.26 SUCTIONING THROUGH A TRACHEOSTOMY	
DEPARTMENT:	NURSING -MED SURG	REVISED: 6/2026

Assessment

- Prior to suctioning verify Physician, NP or PA~~Prior to suctioning verify providerhealthcare provider~~ order.
- Assess respiratory rate, effort, and breath sounds.
- Assess oxygen saturation and ventilator parameters (emergency department patients), if applicable.
- Evaluate patient ~~need~~needs for pre-oxygenation.
- Explain ~~procedure~~the procedure when appropriate.

Suctioning Technique

- Perform hand hygiene.
- Don appropriate personal protective equipment (PPE).
- Utilize sterile technique or approved closed-suction technique.
- Hyper-oxygenate as clinically indicated.
- Insert suction catheter without applying suction.
- Advance only to the predetermined depth or until resistance is encountered, then withdraw slightly.
- Apply intermittent suction during catheter withdrawal while rotating catheter.
- Limit each suction pass to no more than 15 seconds.
- Allow adequate recovery time between passes.
- Reassess ~~patient~~patients after each pass.
- Repeat only as clinically necessary.

Monitoring

- During and after suctioning, continuously monitor oxygen saturation.
- Observe heart rate and rhythm.
- Assess respiratory status and patient tolerance.
- Discontinue procedure and notify the ~~providerhealthcare provider~~ physician, NP or PA- if significant adverse events occur.

Complications

- Significant adverse events will be reported immediately to the attending ~~providerhealthcare provider~~ physician, NP or PA.
- ~~responsible.~~
- Potential complications include hypoxemia, bradycardia, dysrhythmia, bronchospasm, airway trauma, bleeding, increased intracranial pressure, and hemodynamic instability.

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Documentation

- Indication for suctioning.
- Date and time of procedure.
- Pre-procedure assessment findings.
- Number of suction passes.
- Character and amount of secretions.
- Patient response and tolerance.
- Oxygen requirements before and after procedure.
- Complications and interventions.

- Name and credentials of the individual performing the procedure.
- California regulations require respiratory treatments and their effects, including adverse reactions, to be recorded in the patient's medical record.

REFERENCE:

California Code of Regulations, tit. 22, § 70615 (2026). Respiratory care service definition. https://www.law.cornell.edu/regulations/california/22-CCR-70615

California Code of Regulations, tit. 22, § 70617 (2026). *Respiratory care service general requirements.* https://www.law.cornell.edu/regulations/california/22-CCR-70617

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~SUTURE REMOVAL~~ 6170.26 SUTURE REMOVAL	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to provide a standardized process for assessment, removal, documentation, and follow-up care of sutures for hospitalized patients while promoting patient safety, wound healing, and compliance with applicable regulatory requirements.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Suture Removal: the removal of nonabsorbable skin closure material from a healed surgical or traumatic wound.

Wound Dehiscence: partial or complete separation of wound edges.

POLICY:
It is the policy of Modoc Medical Center (MMC) that ~~S~~suture removal may be performed by qualified licensed nursing personnel who have demonstrated competency and are authorized under hospital policy to perform the procedure. Suture removal will be performed only upon the order of a ~~provider~~healthcare ~~provider~~ Physician, nurse practitioner (NP) or physician assistant (PA). Nursing personnel will assess the wound before, during, and after suture removal and notify the ~~provider~~healthcare ~~provider~~ physician, NP or PA of any abnormal findings.

PROCEDURE:
Pre-Procedure Assessment
- Verify patient identity using two identifiers.

Verify ~~provider~~healthcare ~~provider~~ orering physician, NP or PA
- order or approved protocol.
- Review the operative note or wound care documentation when applicable.
- Assess wound approximation, presence of drainage, signs of infection, redness, swelling, warmth, pain, or evidence of dehiscence.
- Explain procedure to the patient and obtain cooperation.

Removal Procedure
- Perform hand hygiene.
- Apply appropriate personal protective equipment.
- Position patient comfortably.
- Clean wound as indicated.
- Remove every other suture initially when clinically appropriate.
- Assess wound integrity.
- If wound edges remain well approximated, remove remaining sutures.

Discontinue procedure and notify ~~provider~~healthcare ~~provider~~ physician, NP or PA
- ~~Immediately~~immediately, if wound separation ~~occurs,~~occurs; significant drainage is present, infection is suspected, and/or patient experiences unexpected complications.
- Apply adhesive would support strips if ordered or clinically indicated.

- Dispose of supplies according to infection prevention requirements.

Post-Procedure Care

- Reassess wound integrity.
- Provide patient education regarding signs of infection, activity restrictions, wound care instructions, and when to seek medical attention.
- Notify ~~provider~~healthcare ~~provider~~ physician, NP or PAof any abnormal findings.

Documentation

- Date and time of procedure.
- ~~Provider~~Attending ~~physician, PA, Healthcare provider~~ ordering physician, NP or PAorder.
- Wound assessment findings.
- Location of wound.
- Number of sutures removed (if known).
- Presence or absence of complications.
- Use of adhesive strips or dressing.
- Patient tolerance and education provided.
- ~~Provider~~Attending ~~physician, PA, FNP~~Healthcare ~~provider~~ physician, NP or PA notification, if applicable.

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REFERENCE:

California Board of Registered Nursing. (n.d.). *Nursing practice act*. State of California. https://rn.ca.gov/practice/npa.shtml

California Code of Regulations, Title 22, § 70217. (2025). *Nursing service staff*. California Department of Public Health. https://www.law.cornell.edu/regulations/california/Cal-Code-Regs-Tit-22-SS-70217

Centers for Medicare & Medicaid Services. (2024). *Critical access hospitals*. U.S. Department of Health and Human Services. https://www.cms.gov/medicare/health-safety-standards/certification-compliance/critical-access-hospitals

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~TELEMETRY MONITORING~~6170.26 TELEMETRY MONITORING	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish consistent standards for initiation, maintenance, documentation, and discontinuation of telemetry monitoring and promote patient safety through timely detection of cardiac rhythm abnormalities.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Telemetry Monitoring: continuous electronic monitoring of cardiac rhythm using a centralized monitoring system and bedside telemetry transmitter.

POLICY:
It is the policy of Modoc Medical Center (MMC) ~~will~~to provide continuous cardiac monitoring (telemetry) for patients requiring observation of cardiac rhythm and cardiac status. Telemetry monitoring will be ordered by a ~~providerattending physician, PA, FNP~~healthcare provider physician, nurse practitioner (NP) or physician assistant (PA)~~,~~ performed by qualified personnel, and maintained in accordance with applicable California Title 22 regulations, hospital standards of care, and evidence-based clinical practice.

PROCEDURE:
Telemetry monitoring may be ordered for patients with acute coronary syndrome, suspected or confirmed arrhythmias, syncope under evaluation, heart failure exacerbation, post-cardiac intervention or procedure, significant electrolyte abnormalities, administration of medications associated with arrhythmia risk, or other clinical conditions as determined by the ~~provider~~healthcare provider attnding physician, NP or PA

.

Nursing Responsibilities

- Verify the telemetry order in the electronic medical record.
- Apply telemetry leads according to manufacturer instructions.
- Skin will be assessed daily to prevent skin excoriation and/or pressure area injury at the site of the electrode placement.
- Upon initiation of monitoring, the patient's name must be entered into the monitor system in the correct location/bed number.
- Verify signal quality and monitor function.
- Assess alarm settings and ensure appropriate parameters.
- Respond promptly to telemetry alarms.
- Assess the patient whenever clinically significant rhythm changes occur.
- Notify the ~~provider~~attending physician, PA, healthcare provider physician, NP or PAof any significant findings.
- Document rhythm assessments and interventions in the electronic medical record.
- Print rhythm strips and document every four hours in the chart.
- Registered nurses in charge of patients on telemetry must be competent in Basic Telemetry Monitoring.

Alarm Management

- Alarm limits will be individualized whenever clinically appropriate.
- Alarm settings will not be disabled except as clinically justified and documented.
- Critical alarms require immediate evaluation.
- Alarm management practices will support patient safety while minimizing alarm fatigue.

Documentation

- Date and time telemetry initiated. An initial rhythm strip will be printed and placed in the patient's chart.
- Clinical indication.
- Rhythm assessments per unit standard. (Telemetry strips will be obtained every four hours and with any change of rhythm or condition on any monitored patient).
- Significant rhythm changes.
- ~~Provider~~~~healthcare provider~~ physician, NP or PAnotifications.
- Interventions performed.
- An "Off Monitor for Tests" order must be obtained from the ~~provider~~ ~~healthcare provider~~ physician, NP or PA
- to remove telemetry from patients going to any ancillary department for diagnostic procedures.
- Date and time telemetry discontinued. A rhythm strip will be printed and placed on the chart when discontinued or patient discharged.
- Upon discharge, all telemetry units will be properly cleaned, batteries ~~removed~~removed, and ~~telemetry~~the telemetry unit returned to the storage area at the Acute Nursing Station.

Escalation of Care

- Patients exhibiting significant deterioration, unstable arrhythmias, hemodynamic compromise, or other emergent conditions will receive immediate clinical evaluation and escalation consistent with Rapid Response Team or Code Blue procedures.

Discontinuation of Telemetry

- Telemetry monitoring may be discontinued with any of the following:
  - The monitoring period ordered has ended.
  - Clinical indication no longer exists.
  - A ~~provider~~~~healthcare provider~~ physician, NP or PA enters an order to discontinue monitoring.
  - The patient is transferred or discharged.

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REFERENCE:

California Code of Regulations, Title 22, Division 5, Chapter 1, Article 3, § 70203. (2024). *Medical service—General requirements*. California Office of Administrative Law. https://govt.westlaw.com/calregs

California Code of Regulations, Title 22, Division 5, Chapter 1, Article 3, § 70213. (2024). *Nursing service policies and procedures*. California Office of Administrative Law. https://govt.westlaw.com/calregs

California Code of Regulations, Title 22, Division 5, Chapter 1, Article 3, § 70217. (2024). *Personnel requirements*. California Office of Administrative Law. https://govt.westlaw.com/calregs

The Joint Commission. The Joint Commission Sentinel Event Alert Issue 50: Medical device alarm safety in hospitals. http://www.jointcommission.org/sea_issue_50/. Accessed July 18, 2016.

ATTACHMENTS:

None.

REFERENCE #	6170.26	EFFECTIVE: 9/2006
SUBJECT:	~~THORACENTESIS ASSISTING PROVIDER~~ATTENDING PHYSICIAN, PA, 6170.26 THORACENTESIS ASSISTING PHYSICIAN, NP, PA	REVISED: 6/2026
DEPARTMENT:	NURSING -MED SURG	

PURPOSE:
The purpose of this policy is to establish standardized requirements for the safe and effective assistance of thoracentesis procedures by qualified healthcare personnel. This policy promotes patient safety, supports compliance with applicable regulatory and accreditation standards, and ensures that all assisting personnel perform duties consistent with their education, demonstrated competency, clinical privileges, and authorized scope of practice.

AUDIENCE:
Department Wide

TERMS/DEFINITION:
Thoracentesis: percutaneous insertion of a needle or catheter into the pleural space for diagnostic or therapeutic removal of pleural fluid.

POLICY:
It is the policy of Modoc Medical Center (MMC) that the ~~T~~thoracentesis procedures will be performed by ~~provider~~healthcare physician, nurse practitioner (NP) or physician assistant (PA)~~providers~~ who are appropriately licensed, credentialed, and granted clinical privileges by the hospital to perform the procedure. Personnel assisting with thoracentesis will provide procedural support only within the limits of their licensure, certification, training, documented competency, and assigned responsibilities. The hospital will maintain standardized processes for patient assessment, procedural assistance, monitoring, documentation, and competency validation to ensure the delivery of safe, high-quality care throughout the thoracentesis procedure.

PROCEDURE:
Pre-Procedure Verification
- Confirm patient identity using two identifiers.
- Verify ~~providerhealthcare provider~~ physician, NP or PA~~order~~.
- ~~Confirm~~Confirm that informed consent is completed.
- Review laboratory results and anticoagulation status.
- Assess respiratory status and baseline vital signs.
- Educate the patient regarding the procedure.
- Prepare equipment and supplies.
- Perform procedural timeout.

Procedural Assistance.
- Maintain sterile field.
- Assist with patient positioning.
- Provide equipment and supplies requested by ~~providerhealthcare provider.~~ physician, NP or PA
- Monitor vital signs, oxygen saturation, and patient tolerance.
- Assist with specimen collection, labeling, and transport.
- Communicate changes in patient condition immediately.

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- Document nursing interventions and patient response.

Post-Procedure Care

- Assess respiratory status.
- Monitor vital signs per unit protocol.
- Monitor for complications including pneumothorax, bleeding, respiratory distress, vasovagal response, and hypotension.
- Perform ongoing assessment and documentation.
- Document assessments and interventions.

Documentation

- Pre-procedure assessment
- Verification of consent and timeout.
- Patient monitoring during ~~procedure~~the procedure.
- Specimens obtained and disposition.
- Post-procedure assessment findings.
- Patient education ~~provided~~is provided.
- Communication with ~~provider~~~~healthcare provider~~ physician, NP or PA regarding any abnormal findings.

REFERENCE:

California Board of Registered Nursing. (n.d.). *Nursing practice act*. https://www.rn.ca.gov

California Code of Regulations, Title 22, Division 5, Chapter 1, Article 3, § 70203. (2024). *Medical service—General requirements*. California Department of Public Health. https://govt.westlaw.com/calregs

California Code of Regulations, Title 22, Division 5, Chapter 1, Article 3, § 70213. (2024). *Nursing service policies and procedures*. California Department of Public Health. https://govt.westlaw.com/calregs

ATTACHMENTS:

None.

LABORATORY

REFERENCE #	7500.22	EFFECTIVE
SUBJECT:	7500.22 BLOOD CLULTURE-PROCESSING AND REPORTING BACTEC	REVISED 9/2022
DEPARTMENT:	LABORATORY	

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to the test procedures performed in the Microbiology department at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the rules described herein with regard policies and procedures in the Microbiology Department.

PRINCIPLE

Blood culture is a microbiological culture of blood. It is employed to detect infections that are spreading through the bloodstream (such as bacteremia, septicemia among others). When a patient shows signs or symptoms of a systemic infection, results from a blood culture can verify that an infection is present and identify the type (or types) of microorganism that are responsible for the infection. For example, blood cultures can identify the causative organisms in severe pneumonia, puerperal fever, pelvic inflammatory disease, neonatal epiglottitis, sepsis, and fever of unknown origin (FUO). However, negative growths do not exclude infection.

The Bactec FX detects dye in the bottom of the blood culture vial when it reacts with CO_2 produced by microbial growth. The level of fluorescence corresponds to the amount of CO_2 produced, which is then interpreted by the system according to pre-programmed positivity parameters.

RISK AND SAFETY

1. Always adhere to Occupational Safety and Health Standards 1910.1030 Bloodborne pathogens when handling potentially infectious materials, and wear proper PPE, and handle blood cultures in a Biological safety cabinet.
2. Refer to the Bactec package insert. The media poses no safety risk.

SPECIMEN COLLECTION AND HANDLING

Specimen requirements

1. **Stability:** Blood Cultures can be kept at room temp for up to 12 hours before incubation

REFERENCE #	7500.22	EFFECTIVE
SUBJECT:	7500.22 BLOOD CLULTURE-PROCESSING AND REPORTING BACTEC	REVISED 9/2022
DEPARTMENT:	LABORATORY	

+I have read and acknowledged this procedure:

Name	Signature	Date

PURPOSE

2. **Collection requirements**
    a. Aerobe: 5 mL minimum volume. 8-10 mL optimal. Less can be used if note is made by phlebotomist
    b. anaerobe: 5 mL minimum volume. 8-10 mL optimal. Less can be used if note is made by phlebotomist
    c. Pediatric: 1 mL minimum volume, 3 mL optimal.
3. Disinfect the top of the Bactec culture vials before collection with 70% isopropyl alcohol pad and allow to dry.

Collection

4. The venipuncture site must be thoroughly disinfected with Chlorohexidine gluconate (3.15%) and 70% Isopropyl alcohol swab prior to blood collection. Once the site is sterilized the site must not be touched prior to venipuncture unless the gloved fingertip has also been sterilized.
    a. Special scrub kits are used to sterilize the venipuncture site. The kit contains two scrubbing swabs suitable for sterilizing the skin for sample collection.
    b. A 2-3" diameter site is scrubbed thoroughly with friction (30 sec-1 minute) with the swabs and allowed to dry.
5. Disinfect the top of the Bactec culture vials before collection with 70% isopropyl alcohol pad and allow to dry.
6. Ideally, the blood is collected directly into the blood culture bottles via a standard tube collection hub, but for difficult draws a syringe transfer is acceptable.
7. Blue (aerobic) blood culture bottle should be filled first, then the purple (anaerobic) bottle as the butterfly tubing may contain air.
    a. **5 ml** of blood is introduced to each of the Bactec blood culture vials. One is for aerobic growth and isolation and the other is enhanced to recover anaerobes. 8-10 ml of blood is optimal, but if less is obtained it may still be used to inoculate the bottle. A note should be made by phlebotomist about underfilled bottles.
    b. A Bactec Peds bottle may be used for pediatric patients. These bottles allow for use of a smaller blood volume **(1-3mL optimal),** inhibit the action of antibiotics already administered to the patient, and recover both aerobes and anaerobes.
    c. The bottles must be properly labelled at bedside immediately upon collection with draw time and initials.
8. Select a different body site for each culture drawn. Typically 2 sets (aeroboic/ana) are collected at different draw times from different sites.
9. NOTE: Drawing from a central line is not recommended due to the increased risk of contamination.

Amount per Venipuncture	Amount In Bactec Plus Aerobic	Amount In Bactec Plus Anaerobic
16-20 mL	Split equally between both	
13-16 mL	8mL	5-8mL
10-12 mL	5-7mL	5mL
5-9 mL	Entire Blood volume	0 mL

PROCEDURE

a. Initial Laboratory Processing:

1. The bottle is placed in the Bactec blood culture incubator as per the instructions in the Bactec operator's manual.
2. The Bactec maintains the bottles at the optimum temperature (35°C) for bacterial growth and the system monitors each bottle for growth.
3. When the growth indicator is tripped the system alarms so that the staff is made aware that a culture has turned positive.

Growth processing procedure:

1. Removal of sample from the bottle for gram stain and sub-culture:
   a. Swab the top of the bottle with an alcohol wipe. Using a subculturing/aerobic venting device, save more than 0.2 cc of broth from the well mixed blood culture bottle for Biofire blood culture ID.
   b. Place two drops from the tip of the venting device onto BAP, CHOC, and MAC and streak for isolation. The BAP and CHOC are incubated in CO2 bags. If it is the anaerobic bottle, set up a brucella plate as well, and incubate in the anerobic bag.
   c. After inoculating the plates, place a very small drop of the broth from the venting device tip on a slide and create a thin smear for gram stain. This technique results in a very thin residue for gram staining.

2. Order GRM STN POS BC:
   a. If the gram stain is negative, reload the bottle in the Bactec instrument. Label the plates that were set up as "No organisms seen" with the time of set up.
   b. If the bottle goes positive again, repeat step 1 and set up Biofire blood culture ID.
   c. Large gram-positive rods, spore forming rods, or fusiform types indicate an anaerobic organism. Check Brucella plates incubated in anaerobic pouches after 48 hours of growth.
   d. Note: If gram positive cocci fail to grow on the aerobic media after 24 hours of incubation the bottle will need to be re-entered and anaerobic blood plates inoculated. These are incubated in an anaerobic pouch. Anaerobic positive cocci are frequent skin contaminants and based on gram stain characteristics and catalase reaction are categorized as Peptococcus (anaerobic Staph), or Peptostreptococcus (anaerobic Strep).
   e. Positive gram stain results will be immediately called to the provider or RN and the call documented according to critical value notification criteria. Copies of all positive blood cultures will be sent to the attention of infection control and pharmacy. Proper documentation of the call verified by the lab manager and lab director.

3. Blood Culture Identification
   a. The 0.2 cc of blood culture that was saved from earlier step is used for Biofire Blood Culture ID. Refer to the user manual and package insert for more details. Order a BCID panel in the LIS when the run finishes. Result the findings, and call the RN/Provider with the updated ID. Anaerobic organisms will not identify using this system.

b. Organism identification and susceptibility testing of aerobic pathogens will be performed as with all other pathogenic organisms when colonies are large enough on media.
c. Anaerobic isolates will be sent to LabCorp for definitive identification.

1. REAGENTS/MATERIALS REQUIRED

1. Sterile blood collection materials.
2. Blood culture site prep kits.
3. Povidone and alcohol wipes.
4. 5% Sheep Blood agar, Chocolate agar, McConkey, and Brucella Agar
5. CO2 environment pouches.
6. Anaerobic environmental pouches.

QUALITY CONTROL

1. Bottles from each new lot of media are placed in the microbiology incubator and examined for sterility and gross deterioration for 48 hrs. Results are documented on the Media QC log.
2. The Bactec bottles are classified as exempt from QC testing per CLSI M22 prior to shipment from BD, so testing with QC organisms is not required but may be performed as needed. Inoculate 1 mL of 0.5 Mcfarland E. coli/Staph aureus prepared from an 18-24 hr old culture. The inoculated bottle should be positive at 72 hours.
3. Blood culture contamination rates will be monitored by infection control in conjunction with the lab.

RESULTS

1. "No growth" preliminary reports will be generated by the lab scientist at 24 and 48 hours, approximately.
2. After 5 days incubation and no signs of growth a final "No growth at 5 days" final report will be released automatically by the Bactec.
3. Copies of all positive blood cultures will be sent to the attention of infection control and pharmacy

Downtime:

1. In the event of LIS downtime, the Bactec will still be able to function, however when Blood cultures reach 5 days of incubation and are negative, a final report of "No growth at 5 days" will have to be issued manually by the tech on work card, and results faxed or delivered to appropriate department.
2. In event of Bactec downtime: Blood culture bottles may be incubated in the 35°C micro incubator offline.
    a. The bottles will be checked daily by the tech for signs of growth. Signs of growth include:
        i. Pellicle formation
        ii. Gas production
        iii. Turbidity
        iv. Fuzz balls

b. Bottles that display signs of growth will be gram stained and processed according to normal procedure
c. At 5 days of incubation, all bottles will be gram stained to confirm no growth was present.
d. Reports will be issued as normal, final report of "No growth at 5 days" will be issued manually in the LIS by the tech after negative gram stain.
e.

10.

a. INTERFERING SUBSTANCES/LIMITATIONS

1. Blood can neutralize toxicity of SPS towards SPS sensitive organisms. Optimum blood volumes benefits recovery of these organisms.
2. Fastidious organisms require growth factors such as NAD, which are provided by blood. Specimen volumes less than 3.0 mL for aerobic/anerobic, and 0.5 mL for Ped bottles may inhibit recovery of these organisms. Bactec FOS cat #442153/whole human blood may be added for nutritional supplementation.
3. Neutralization of antimicrobial activity by resins depends on dosage and timing of specimen collection
4. Studies have demonstrated inadequate neutralization of imipenem-cilastatin antimicrobials.
5. S. pneumoniae will typically turn bottle positive, but in some cases no organisms will be seen on gram stain/subculture. The organism can usually be recovered by performing an aerobic subculture of the anerobic vile as the organism has been reported to grow well under anaerobic conditions.
6. False negativity occurs when organisms do not produce enough CO2 to be detected by the system or if significant growth has occurred before placing the vial in the system
7. False positivity may occur when the white cell count is high, or bottles are overfilled.

REFERENCES:

1. Automated blood culture instrument procedure BD Bactec FX40
2. Biofire package insert and user manual
3. Patricia M. Tille PhD, MLS(ASCP), Bailey and Scott's *Diagnostic Microbiology*, Elsevier, 13th Edition.
4. CLIA Regulations.
5. California Title 17 regulations.
6. NCCLS Procedure Guidelines
7. Ombelet, S., Barbé, B., Affolabi, D., Ronat, J.-B., Lompo, P., Lunguya, O., Jacobs, J., & Hardy, L. (1AD, January 1). *Best practices of blood cultures in low- and middle-income countries*. Frontiers. Retrieved October 26, 2022, from https://www.frontiersin.org/articles/10.3389/fmed.2019.00131/full

ATTACHMENTS

None

REFERENCE #	7500.23	EFFECTIVE
SUBJECT:	7500.23 BONE MARROW CULTURE AND SIDE PREP	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE

Commented [BL1]: Reviewed 05/27/23. No suggestions to add.

The purpose of this policy is to establish basic guidelines for working up bone marrow cultures performed in the Microbiology Ddepartment ~~at Modoc Medical Center (MMC)~~ and setting up sample slides of the bone marrow aspirate to be sent to Shasta Pathology for pathology.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center (MMC) that staff will adhere to the guidelines described herein with regard to setting up bone marrow cultures, working up the isolates that are grown from the bone marrow culture, and setting up slides to be sent to Shasta Pathology for review.

PRINCIPLE:

Bone marrow biopsies are usually just sent for pathology. However, in certain circumstances, a culture may also be ordered. Bone marrow may be infected by many types of aerobic and anaerobic bacteria. Any pure culture in any quantity is significant and must be fully processed.

PROCEDURE

SPECIMEN for Pathology ~~Sendout~~Send out:

- 1 EDTA purple top tube
- 1 Heparin tube (no gel is preferred)
- Prepared Slides for Smear Review

BONE MARROW ASPIRATE SAMPLE PREPARATION

Bone marrow slides must be immediately prepared from the aspirate, either at the bedside or as soon as the sample is brought to the lab. Squash or crush preparations are preferred. See procedure below:

1. At the bedside, before the marrow has clotted, the person making the slides should expel a small amount of marrow aspirate into a petri dish or similar dish (use the top of a media dish, if needed). Since the marrow aspiration contains a mixture of blood and marrow, it is helpful to tilt the dish at a slight angle allowing the blood to flow to the bottom edge of the dish. This allows the marrow spicules to be more easily visualized. (Spicules are particles of distinct, solid tissue that are 1 mm or less in

dimension.) Pick up the spicules with a Pasteur pipette, along with a small drop of blood, and place near one end of a glass microscope slide. Carefully, place another glass microscope slide on top of the other slide and gently pull them apart in a direction parallel to their surfaces.

NOTE: As the marrow is being spread, the appearance of fat as irregular holes in the films gives assurance that marrow (not peripheral blood) has been obtained.

2. Prepare at least 4 to 6 slides in this manner.
3. Label all slides appropriately (at least the patient's first and last name).
4. Stain 1-2 of the slides with Wright Stain, and leave the rest unstained so that Shasta Pathology can use special stains as needed.
5. Place the slides into a slide- transport container and send the slides, along with 1 EDTA and 1 heparin tube to Shasta Pathology

PROCEDURE

SPECIMEN for Microbiology Culture:

1. Bone Marrow aspirate in a sterile container
2. Specimens should be inoculated to plated media as soon as possible

MEDIA/INCUBATION:

1. Blood agar, MacConkey's agar, Chocolate agar, Brucella agar, Thioglycollate Broth and 1 mL into a Pediatric Blood Culture bottle (if enough specimen remains).
2. All plates/thio are incubated at 35 degrees C +/- 2 degrees.
3. BAP and CHOC plates are incubated in a CO2 pouch.
4. Anaerobic Brucella plates are incubated in an anaerobic pouch.
5. The Pediatric Blood Culture bottle is incubated in the BacTec Blood Culture analyzer at 35 +/- 2 degrees C.

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PLATING/READING PLATES:

1. Plate specimens. See Plating Protocol for Clinical Microbiology Specimens policy.
2. Plated culture media is examined at roughly 24 and 48 hour incubation.
3. Negative cultures are finalized after the 5 day reading of the blood culture bottle.
4. Positive cultures may take an addition 2 days to complete.

IDENTIFICATION, SUSCEPTABILITY TESTING, AND REPORTING:

Identify all isolated organisms as potential pathogens:

1. Strep. pyogenes (group A Strep): -Beta on BAP – no growth around A disc - GPC – Cat Neg.

2. Streptococcus pneumonia (predominent) - Alpha on BAP - > 14mm zone for P disc – GPC – Cat Neg.
3. Staphylococcus aureus (predominant) - Beta on BAP – No zone for A or P disc – GPC clusters - Cat Pos – Coag Pos.
4. Coagulase Negative Staph (predominant) – Gamma on BAP – GPC clusters – Cat Pos – Coag Neg.
5. Yeast (predominant) - White and creamy on CHOC – minimal growth on BAP/MAC - yeast on gram stain.
6. Enterobacteraciae (predominant) - Beta on BAP – Growth on MAC – GNR – Do Oxidase on NLFGNR.
7. Enterococcus (predominant) - Gamma on BAP - Cat Neg – GPC chains.
8. Pseudomonas – Beta on BAP – fruity odor – GNR – Oxidase Pos.
9. Neisseria gonorrohoea - NG on BAP - Tan on CHOC – GN Diplo.
10. Niesseria menengitidis -- NG on BAP - Tan on CHOC – GN Diplo
11. Moraxella catarrhalis - NG on BAP - Tan on CHOC – small GNR.
12. Listeria monocytogenes – Beta on BAP – GPR (no spores) – Cat Pos – OX Pos - ID on Pos Panel.
13. Haemophilus sp. (predominant and if under five [5] years old) - NG on BAP - Tan on CHOC not inhibited by B10 disc – small GNR.
14. Strep agalactiae (newborns only) - Beta on BAP – Growth around a disc – Cat Neg – GPC chains.
15. Any pure culture should be identified and sensitivities performed if possible.

Perform Panel ID and Sensitivities on the following:

1. Enterobacteraciae
2. Pseudomonas.
3. Staph aureus
4. Enterococci
5. Strep pneumoniae
6. Staph aureus
7. Moraxella
8. Strep agalactiae

Perform HNID ID and beta lactamase on the following:

1. Haemophilus sp.
2. Neisseria sp.

Send out predominant yeast for ID if requested by attending physician, physician assistant (PA), family nurse practitioner (FNP).

Potential Anaerobic growth:

1. Growth is potentially anaerobic if:
    a. There is discordant growth in the bottom of the thio broth vial.
    b. Growth is initially present on the plates incubated under anaerobic conditions and not aerobic conditions.

   c. If growth is present on the anaerobically incubated plates that does not conform to the growth on the aerobically incubated plates.
2. Potential anaerobic colonies are gram stained and examined for atypical anaerobe morphology and the presence of spores.
3. Suspect anaerobe colonies are sub-cultured to matching BAP plates and incubated aerobically and anaerobically.
4. If growth is present anaerobically but not aerobically the organism is reported as a potential anaerobe and sent under anaerobic conditions to LabCorp for identification.

REFERENCES:

1. Patricia M. Tille PhD, MLS(ASCP), Bailey and Scott's *Diagnostic Microbiology*, Elsevier, 13th Edition.
2. CLIA Regulations.
3. California Title 17 regulations.
4. NCCLS Procedure Guidelines.

ATTACHMENTS

None

REFERENCE #	7500.23Click or tap here to enter text.	EFFECTIVE 4/2014
SUBJECT:	7500.23 ACTIVATED PARTIAL THROMBOPLASTIN TIME	REVISED 4/2023
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish consistent guidelines and procedures related to the collection and testing of Activated partial thromboplastin time (APTT) at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS & DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the guidelines described herein regarding the procedures in the Coagulation Department of MMC in order to properly collect, process, and test APTT samples.

PRINCIPLE

The activated partial thromboplastin time (aPTT) is a screening procedure for deficiencies in coagulation factors of the intrinsic coagulation pathway, factors **VIII, IX, XI, and XII.** Severe deficiencies of fibrinogen and factors II, V and X can also be detected by the aPTT. It is a useful and effective method for screening patients with a bleeding tendency, for evaluating the effect of therapy in procoagulant disorders and as the basis for several specific coagulation factor assay procedures. The aPTT is widely advocated as a test for monitoring and regulating unfractionated heparin therapy but is not used for this purpose at MMC. The presence of non-specific inhibitors, such as the lupus anticoagulant, may prolong the aPTT; this effect is variable and is generally recognized as being related to the nature and level of the inhibitor present. The aPTT consists of decalcifying plasma in the presence of a standardized number of platelet-like phosphatides and an activator of the contact factors of the intrinsic coagulation pathway. The aPTT is the time in seconds, required for a fibrin clot to form.

SPECIMEN COLLECTION AND HANDLING

Type:
Mix nine parts of freshly collected blood with one part of 0.11 mol/L (3.2%) sodium citrate anticoagulant (blue top), avoiding the formation of foam. Invert the tube gently three or four times immediately after venipuncture to ensure proper mixing of blood and anticoagulant. A syringe or evacuated tubes (blue top) may be used with caution for

collection. If multiple specimens are collected, the coagulation sample should be the first or second tube collected. If blood is drawn from a vascular access device (VAD), the line should be flushed with 5.0 mL saline and the first 5.0 mL of blood or six dead space volumes of the VAD discarded. The citrate concentration must be adjusted in patients who have hematocrit values above 55%. Specimens that are clotted, collected in the wrong tube, have visible hemolysis or have less than the expected fill should be rejected.

Handling Conditions:
The specimen should be transported at room temperature. The whole blood specimen is checked for clot formation by gentle inversion and centrifuged and tested within **4 hours** from the time of specimen collection. Centrifuge the capped specimen tube for a minimum of 10 minutes at 3000 rpm to consistently produce platelet poor plasma **(platelet count <10 x 10^9 /L).** See SOP for more information in validating centrifuges for platelet poor plasma production. To separate plasma, use a plastic transfer pipette; remove the plasma to a plastic tube without disturbing the buffy coat. If testing is not complete within 4 hours, specimens can be frozen at -20°C or below for short term storage (up to 2 weeks) or -70°C or below for long term storage. Frozen plasma samples must be rapidly thawed at 37°C while gently mixing and tested immediately. **Mixing is critical before testing.**

EQUIPMENT AND MATERIALS

Equipment:
- Sysmex® CA-600 series System
- 4.0 mL Sample cups
- Reaction tubes
- Waste and rinse bottles

Materials:
- Dade® Actin® FSL Activated PTT Reagent
- Calcium Chloride, 0.025M
- Dade® Ci-Trol® Coagulation Controls, Level 1 and Level 3,
- CA Clean I
- Preservative -free distilled or deionized water

Preparation:

1. **Dade® Actin® FSL Activated aPTT Reagent** -purified soy and rabbit brain phosphatides in
   1×10^{-4} M ellagic acid with added buffer, stabilizers and preservative.
   Dade® Actin FSL Reagent must be mixed gently by inversion (5 to 8 times) before use. The reagent is liquid and ready for use.

   Store at 2-8°C. **Do not freeze.**

Stability:

On board	8 hours (cooled position) 8 hours (non-cooled position)
+ 2 to 8°C	used by the labeled expiry date (closed container)
+ 2 to + 15°C	7 days

2. **Calcium Chloride (0.025M)**
   The reagent is liquid and ready to use.
   Store at 2-25°C when not in use.

   Stability:

On board	48 hours
+ 2 to 25°C	Stable until the date indicated on the vial label date.

3. **Dade® Ci-Trol® Coagulation Control, Level 1** (Normal) - Lyophilized preparation of human plasma, stabilizers and buffers. Used for Quality Control.

4. **Dade® Ci-Trol® Coagulation Control Level 3** (Abnormal) - Lyophilized preparations of human plasma, stabilizers and buffers. Used for Quality Control.

5.

   Reconstitute lyophilized Ci-Trol Control Level 1 and 3 with 1.0 mL distilled water.
   - Shake/invert carefully to dissolve (without foam formation).
   - Let stand at +15°C to +25°C at least 15 minutes.
   - Before use, again shake carefully.
   - Do not use distilled water containing preservatives.

Stability after reconstitution:

Condition	Ci-Trol 1, 2, 3	Control N
+2 to +8°C	16 hours (closed vial)	----------
+15 to +25°C	8 hours (closed vial)	4 hours
-20°C	----------	4 weeks
*Frozen and thawed once	NO	YES

* *Note: Do not expose thawed control to 15 to 25°C for longer than 2 hours*

6. **CA Clean I is liquid and ready for use.**

Store at 2-8 °C. Do not freeze.

Stable unopened at 2-8 °C until expiration date on bottle.
Opened bottle stable for 30 days at 2-8 °C.

These products are for in vitro diagnostic use only.

Reagent Integrity:
Indication of deterioration: No evidence of vacuum in vial upon opening, difficulty in reconstituting reagent, control values outside of determined range.

WARNING: Human source material. *Each donor or donor unit was tested and found to be negative for human immunodeficiency virus (HIV) 1 and 2, hepatitis B virus (HBV) and hepatitis C virus (HCV) using either tests found to be in conformance with the In Vitro Diagnostic Directive in the EU or FDA approved tests. Because no known test can offer complete assurance of the absence of infectious agents, all human derived products should be handled with appropriate caution.*

QUALITY CONTROL

Dade® Ci-Trol® Control Level 1 -Normal Control
Dade® Ci-Trol® Control Level 3 -Abnormal Controls

1. Controls should be tested at the initiation of testing, upon reagent changes, and at least once **each 8 hour shift.**
2. Controls should be run in the same manner as the test samples.
3. Controls should be within the tolerance limits established for the specific lot number of control.

If control values are outside of determined range:

- Check controls, reagents and instrument performance.
- Document actions taken to identify and correct the problem before reporting any patient data.
- New control ranges should be established for unassayed controls with changes in each lot of reagent or control material.

PROCEDURES FOR SETUP

Loading Reagents:
(when the instrument is not operating)

1. Open Light Shield.
2. Place Actin FSL Reagent in Reagent holder position 2. Place $CaCl_2$ in Reagent holder position 7.
3. Place CA Clean I in rinse position 11.

Loading Consumables and Discarding Waste Material:
(do the following as necessary)

1. **Replenish Reaction tubes.**
   Reaction tubes should be replenished as needed. The instrument will keep track of the last reaction tube position used.

2. **Replenish Rinse Solution.**
   - Confirm that the instrument is not operating or has been interrupted due to insufficient rinse (error message "Rinse Bottle Empty").
   - Remove the cap with the float switch from the Rinse solution container by turning the cap counter-clockwise.
     Caution: Do not touch the float switch. Rinse the float switch thoroughly with deionized or distilled water if contact is made.
   - Replace the Rinse solution with distilled or deionized water.
   - Replace the float switch by tightening the cap clockwise to close.
   - Verify that the tubing is securely connected and is not kinked.
   - If the analysis was interrupted due to insufficient Rinse, press [Start] key.

3. **Dispose of Liquid Waste.**
   - Confirm that the instrument is not operating or has been interrupted due to waste is full.
   - Remove the cap with the float switch from the Waste container by turning the cap counter-clockwise.
     Caution: **Biohazard**
   - Dispose of the Biohazardous liquid waste.
   - Replace the float switch by tight the cap clockwise to close.
   - Verify that the tubing is securely connected and is not kinked.

4. **Dispose of Used Reaction Tubes from the Trash Box.**
   - Confirm that the instrument is not operating.
   - On the right side of the instrument, remove the reaction tube trash box.
   - Discard the used reaction tubes.
     Caution: **Biohazard**
   - Clean the reaction tube trash box with tap water, and thoroughly wipe off moisture from the reaction tube trash box.
   - Restore the reaction tube trash box.

SAMPLE PROCESSING

Select test group to be used. Go to [Main Menu], [Settings], [Analysis Settings], [Test Group]. Arrow to appropriate group. Select [Return], [Fix]. Return to Main Menu.

Samples can be programmed and loaded on the analyzer using one of four options depending whether the sample is barcoded and/or the host is connected:

I. Manually enter sample ID (non-barcoded) /
No automatic inquiry of tests (no host connection or the host is down)

II. Manually enter sample ID (non-barcoded) /
Automatic inquiry of tests (host connection operational)

III. Sample ID number (barcoded sample) read by barcode reader /
No automatic inquiry of tests (no host connection or the host is down)

IV. Sample ID number (barcoded sample) read by barcode reader /
Automatic inquiry of tests (host connection operational)

I. Manually enter sample ID (non-barcoded) / No automatic inquiry of tests (no host connection or the host is down)

1. From the Main Menu, press [ID No. Entry]. If ID No. Entry does not appear, press [Next] for next available rack/position.
2. Use the up and down arrow keys to select the desired sample position.
3. The numeric keypad is displayed. Enter the sample ID number. Press the [PTT] key.
4. Continue to select test to be performed on the sample if necessary.
5. Press [Enter]. Each test selected should show the symbol "O".
6. Load the sample in the respective sample rack position.
7. Repeat until all sample ID numbers and tests are entered for the respective sample rack positions.
8. When all samples are programmed and loaded in the respective sample rack position, press [Quit] on the numeric keypad.
9. With all reagents and consumables on board, place the sample rack into position.
10. Press [Start].
11. Select [First Tube] or [Continue]:
    [Continue] will pick up cuvettes from the last position of cuvettes used.
    [First] will begin picking up cuvettes from the top, right hand position of reaction tube tray.
12. The message "Analyzing" will be displayed. When all samples have been aspirated, the "Replace Rack? Yes" message will appear.

II. Manually enter sample ID (non-barcoded) / Automatic inquiry of tests (host connection operational)

1. From the Main Menu, press [ID No. Entry]. If ID No. Entry does not appear, press [Next] for next available rack/position.
2. Use the up and down arrow keys to select the desired sample position.

3. The numeric keypad is displayed. Enter the sample ID number.
4. Press [Enter].
5. Load samples in the respective rack position.
6. Repeat until all sample ID numbers are entered for the respective sample rack positions.
7. When all samples are programmed and loaded in the respective sample rack positions, press [Quit] on the numeric keypad
8. With all reagents and consumables on board, place the sample rack into position.
9. Press [Start].
10. Select [First Tube] or [Continue].
    [Continue] will pick up cuvettes from the last position of cuvettes used.
    [First] will begin picking up cuvettes from the top, right hand position of reaction tube tray.
11. The message "Analyzing" will be displayed. When all samples have been aspirated, the "Replace Rack? Yes" message will appear.

III. Sample ID number (barcoded sample) read by barcode reader / No automatic inquiry of tests (no host connection or the host is down)

1. Press [Next] for next available rack/position.
2. Use the up and down arrow keys to select each tube position on the rack. Press the [PTT] key.
3. Continue to select test to be performed on the sample if necessary.
4. Press [Enter]. Each test selected should show the symbol "O".
5. Load the sample in the respective sample rack position.
6. With all reagents and consumables on board, place the sample rack into position. The bar code labels will face the user.
7. Press [Start].
8. Select [First Tube] or [Continue]. [Continue] will pick up cuvettes from the last position of cuvettes used. [First] will begin picking up cuvettes from the top, right hand position of reaction tube tray.
9. The message "Analyzing" will be displayed. When all samples have been aspirated, the "Replace Rack? Yes" message will appear.

IV. Sample ID number (barcoded sample) read by barcode reader / Automatic inquiry of tests (host connection operational)

1. When the host computer is connected using bi-directional communication, host inquiry takes place when the sample ID is read and the analysis parameters are automatically registered.
2. Load the sample in the respective sample rack position.
3. Press [Start] to begin processing.

4. Select [First Tube] or [Continue].
   [Continue] will pick up cuvettes from the last position of cuvettes used.
   [First] will begin picking up cuvettes from the top, right hand position of reaction tube tray.
5. The message "Analyzing" will be displayed. When all samples have been aspirated, the "Replace Rack? Yes" message will appear.

NOTE: *The cause of any printed error code must be investigated and the appropriate corrective action taken prior to reporting results.*

QUALITY CONTROL PROCESSING

The controls are run from the sample rack.

1. From the Main Menu, press [ID No. Entry].
2. Press the [QC] key on the numeric keypad and the quality control file number e.g. for QC file one, press [QC] and [01].
3. Press the [PTT] key.
4. Press [Enter]. The Worklist will display the ID as a quality control file number. e.g. "QC01"
5. Place the control material in a sample rack.
6. If necessary, continue to program routine patient or other levels of quality control material. When completed, press [Start].

Reference Interval:

Reference interval values determined for the current Actin FSL lot number (+/- 2.0 SD) are _____to _____seconds. (Reference interval should be established for pediatric groups if warranted.)

RESULTS

APTT values greater than 90_seconds must be phoned to the patient's nursing unit or physician as a Panic or Physician Alert Value.

Normal range for PTT is 24.0-28.0 seconds. Normal range is validated with 20 normal samples at the time of reagent/qc rollover.

TROUBLESHOOTING

Sometimes no result will be obtained, accompanied by an error such as Slight Coagulation, No Coagulation, or Analysis Time Over.

In these cases, always check the tube for a clot using wooden applicator sticks.

- If there is a clot, a recollection will be required.
  - If there is any other abnormality, recollection is recommended.

- If the patient has just gotten Heparin medication, recollection may also be required; confer with physician
- If there is **not** a clot, respin the tube and then test it again in normal PTT mode.
- Ensure there are no other sample abnormalities, such as a incorrectly filled tube, turbidity, hemolysis or other
- Ensure that there was delivery of sample and reagent by checking the waste container for the last tube. First, empty the waste bin that contains the used reaction tubes. Then run the test and check the tube that is discarded from the run to ensure that it contains sample.

If the resampled tube gives no result again, then run the sample in **Extended Mode (PTTX)**.

- This will allow for up to 300 seconds for a clot to form.
- The Reportable Range set at MMC for the aPTT is 18.0-106.8 seconds.
  - **Do NOT report out a result without a numerical value.**
    - The PTTX value will not cross over into the LIS, so the aPTT results will need to be manually entered into Cerner. DO NOT CONVERT THE NUMERIC RESULT TO FREETEXT! Freetext results do not flag as critical.
      - Example: PTTX result is 101.0 seconds. This value can be reported but must be manually entered as a numeric value. This will flag as critical.
    - If you still get **no result** after all the above, then you can convert the aPTT results to freetext, and enter "SEE CRITICAL". Add a comment to that result field that says "Unable to result; Value is outside analyzer linearity".
      - For aPTT, add to the comment (18.0-106.8 sec)
    - Example: ****No coagulation reports from analyzer; Convert the result to Freetext and enter SEE CRITICAL and add as a comment "Unable to result; Value is outside analyzer linearity of (18.0-106.8 sec)". Call and document the critical value as usual.

LIMITATIONS OF THE PROCEDURE

Plasma collection and storage conditions must be carefully controlled. Avoid small plasma volumes prior to testing which may cause pH changes in the plasma leading to inactivation of specific components of the coagulation system. Testing may be affected by a number of commonly administered drugs. Short aPTT values during conjugated estrogen therapy in males and oral contraceptive administration in females may occur. Diphenylhydantoin, heparin, warfarin, naloxone and radiographic agents may increase the aPTT. Therapeutic doses of hirudin or other thrombin inhibitors may prolong clotting times. The choice of anticoagulant (i.e., citrate vs. oxalate) and the condition of the specimen (i.e. hemolyzed, lipemic, parenteral feedings etc.) may also affect results. Blood clotting factor deficiencies which should produce prolonged aPTT values may be compensated and appear normal by elevated levels of one or

more different clotting factors. The presence of active intermediates which would normally shorten the clotting time may also mask conditions that would lead to prolongation of the aPTT. Mild or minor deficiencies in several factors may have an additive effect on increasing the aPTT. Unexpected abnormal aPTT results should be followed by additional coagulation studies to determine the cause of abnormal results.

REFERENCES

1. Sysmex Corporation CA-600 Instructions for Use, Kobe, Japan 2011-2012
2. Siemens Healthineers Automated Blood Coagulation Analyzer ACA-600 Series Reference Guide Version 5.0, Marburg, Germany, 2024-04
3. Sysmex CA-600 Series Analyzer Quick Reference Guide www.siemens.com/diagnostics
4. Dade Innovin package insert, Siemens Healthcare Diagnostics Inc., Newark, DE, May 2008
5. Dade Ci-Trol Coagulation Controls, Levels 1, 2 and 3 package inserts, Siemens Healthcare Diagnostics Inc., Newark, DE, May 2008.
6. Clinical Laboratory Standards Institute. Collection, Transport and Processing of Blood Specimens for Testing Plasma-Based Coagulation Assays: Approved Guideline-Fifth Edition. CLSI Publication H21-A5. Wayne, PA, January 2008
7. Clinical Laboratory Standards Institute, One-stage Prothrombin Time Test (PT) and Activated Partial Thromboplastin Time (APTT) Test Approved Guideline: H47-A. Wayne, PA, June 1996.

ATTACHMENTS

None

REFERENCE #	7500.23	EFFECTIVE 3/2017
SUBJECT:	7500.23 ENVIRONMENTAL CULTURES-IDENTIFYING AND REPORTING	REVISED 5/2023
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to the test procedures performed in the Microbiology department at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is t~~T~~he policy of MMC ~~is~~ that staff will adhere to the rules described herein with ~~regard~~regard to policies and procedures in the Microbiology Department.

PRINCIPLE:

Quality hospital infection control practices include the periodic evaluation of the cleanliness of equipment and surfaces to ensure adequate efforts are being made to reduce or eliminate the spread of infectious agents within the hospital environment. To that ~~end~~end, the infection control officer will periodically submit culture samples to the lab for evaluation of adequate cleaning, and identification of organisms of special concern such as MRSA.

PROCEDURE

SPECIMEN:

1. Remel Bactiswab fully labelled as follows:
    a. Infection Control environmental culture.
    b. Collection site.
    c. Date and time collected.
    d. Person collecting the sample.

MEDIA/INCUBATION:

1. Blood agar, MacConkey's agar, Hardy Chrome MRSA agar.
2. All plates are incubated at 35 degrees C +/- 2 degrees.
3. Plates do not need incubation in CO2 pouches.

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REFERENCE #	7500.23	EFFECTIVE 3/2017
SUBJECT:	7500.23 ENVIRONMENTAL CULTURES-IDENTIFYING AND REPORTING	REVISED 5/2023
DEPARTMENT:	LABORATORY	

PLATING/READING PLATES:

1. Plate specimens. See Plating Protocol for Clinical Microbiology Specimens policy.
2. Culture media is examined at roughly ~~24 and 48 hour~~24- and 48-hour incubation.
3. Negative cultures are finalized after the ~~48 hour~~48-hour reading.
4. Positive cultures may take an addition 2 days to complete.

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IDENTIFICATION, SUSCEPTABILITY TESTING, AND REPORTING:

Plates are examined for presence and quantity of growth. Growth is reported as 1+ to 4+.

If the growth appears to be mixed normal surface flora no identification of organisms is required. For example, report "2+ mixed contamination. No pathogen isolated." Such growth would be considered normal unless excessive. Excessive growth of room flora would indicate inadequate cleaning.

Identify and report the following as potential pathogens:

1. Staphylococcus aureus (predominant) - Beta on BAP – GPC clusters - Cat Pos – Coag Pos. Confirm that the organism is not MRSA via POS 33 combo panel ID and sensitivity.
2. MRSA (any quantity) Magenta color on Hardy Chrome plate.
3. Coagulase Negative Staph (predominant) – Gamma on BAP – GPC clusters – Cat Pos – Coag Neg.
4. Enterobacteriaceae (predominant) - Beta on BAP – Growth on MAC – GNR – Do Oxidase on NLFGNR. Identify the organism using our NUC 74 plate.
5. Pseudomonas – Beta on BAP – fruity odor – GNR – Oxidase Pos. NUC 74 plate not required.
6. Enterococcus (predominant) - Gamma on BAP - Cat Neg – GPC chains. Identify and perform sensitivity on the POS 33 plate.

NOTES:

1. On the culture work card, record the date, culture findings, tests and/or subcultures done and results of tests done on each day culture is read. Record CLS initials every day.
2. Do not discard plates with significant growth until the infection control officer is ~~notified~~notified, and pictures are taken for in-service purposes.
3. Plates may be discarded after ~~the 48 hour~~48 hours and after photos are taken.

REPORTING:

1. Environmental Cultures are not processed in the Laboratory Information System. After the infection control officer photographs useful examples for training purposes and they will make copies of the Microbiology work cards for record keeping.

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REFERENCE #	7500.23	EFFECTIVE 3/2017
SUBJECT:	7500.23 ENVIRONMENTAL CULTURES-IDENTIFYING AND REPORTING	REVISED 5/2023
DEPARTMENT:	LABORATORY	

REFERENCES:

~~1.~~ Patricia M. Tille PhD, MLS(ASCP), Bailey and Scott's *Diagnostic Microbiology*, Elsevier, 13th Edition.

CLIA Regulations, California Title 17 regulations, NCCLS Procedure Guidelines.

ATTACHMENTS:

~~2.~~

None

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REFERENCE #	7500.23	EFFECTIVE
SUBJECT:	7500.23 LABCONCO BIOLOGIAL SAFETY CABINET USAGE	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic guidelines for the use and maintenance of the Labconco Biological Safety Cabinet in the Microbiology Department at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center (MMC) that staff will adhere to the guidelines described herein with regard to using the Labconco Biological Safety for setting up cultures and other testing to protect the user, the sample, and the laboratory environment from biohazardous aerosols.

PRINCIPLE

The Logic+ Type A2 biosafety cabinet protects items placed on the work surface, the personnel working with material inside the cabinet, and the lab environment, when operated to manufacturer's specifications and proper aseptic techniques are employed. This protection is provided through the use of laminar airflow, HEPA filtration, careful cabinet construction, and Constant Airflow ProfileTM (CAP) ECM motors.

Laminar Airflow

Laminar airflow is defined as the movement of a body of air in a single direction, with a uniform velocity. In practice, the laminar downflow of air in the cabinet captures any aerosol generated in the work area of the ~~cabinet, and~~cabinet and directs it to the HEPA filters. ~~In order to~~To be true laminar downflow, a number of individual downflow velocity test points, commonly referred to as the Downflow Velocity Profile, must be +/- 16 feet per minute (0.08 m/s) of the average of all the test points.

Directional Airflow

Directional airflow also plays a key role in cabinet performance. Air is drawn into the front of the cabinet at the front grille. This "curtain" of air makes it more difficult for aerosols to escape out of the work area of the cabinet and into the outside environment. This airflow is often calculated and referred to as the Inflow Volume or Average Inflow Velocity.

Cabinet Air Intake (Front Grille)
The location, size, and pattern of the grille openings in the work area affect cabinet containment and performance. The front grille's airfoil profile, and air intake openings play an important role in establishing Directional Airflow, as described previously.

Note: Do not block or obstruct the grille openings of the biosafety cabinet.

HEPA Filters
HEPA filters are ~~disposable,~~disposable; dry-type particulate filters. The filter material or media is typically made of borosilicate microfibers formed into a thin sheet, in a process similar to the production of paper. This sheet is ~~folded, or~~folded or pleated to increase its surface area. The pleats are typically held in place by beads of glue that add rigidity to the media pack

The HEPA filter manufacturer establishes the efficiency of the filter by challenging it with an aerosol of known particle size. The number of particles that penetrate the filter are quantified, and this establishes the efficiency of the filter. The HEPA filters used in the biosafety cabinet are at least 99.99% efficient in removing particles 0.3 micron.

Note: The HEPA filter media is very fragile. DO NOT touch the media. If you think the media of a HEPA filter is damaged, DO NOT USE THE CABINET. Have the HEPA filter integrity tested by a certifier before using the cabinet.

Note: HEPA Filters are only effective against particulate material. Gases and vapors will pass through the filter.

Motor/Blower
The motor/blower assembly pulls room air into the front of the ~~cabinet, and~~cabinet and re-circulates it internally. During its recirculation, the air is split into two separate streams. One path leads through the exhaust HEPA filter and out of the unit. The second path flows through the supply HEPA filter, which then flows down through the work area, as shown in Figure 5-4. The motor in the cabinet is an electronically commutated motor (ECM). The ECM is a brushless DC motor that includes its own power supply to convert the incoming alternating current to direct current, as well as its own microprocessor to control and measure the motor's operation. The motor utilizes Labconco's exclusive Constant Airflow ProfileTM (CAP) program to deliver a consistent volume of air, throughout the life of the cabinet.

UV Lamp (optional)
The optional UV lamp generates a primary wavelength of light of 254nm. A secondary emission is in the visible (blue) wavelength, resulting in the characteristic blue color while operating. UV light at this wavelength is biocidal, primarily by creating thymine dimers in DNA. These dimers prevent the correct transcription of the DNA into RNA, resulting in cellular death or viral

inactivation. ~~In order to~~To be effective, the UV light must directly strike the nucleic acid, and its effectiveness can be diminished or negated by dissolved proteins or metals, or by other UV-opaque substances protecting the target nucleic acid.

Because of its limitations, UV light should be used as an adjunct to good surface disinfection practices. ~~In order to~~To achieve optimum performance from the UV lamp, it should be replaced after 6,000 hours of operation or less, and the exterior surface of the lamp should be kept clean and free of dust.

- Note: The product records the number of hours of operation of the UV light. You can program in the number of hours (in 100-hour increments) it will operate before a replacement message is displayed.

- Note: UV irradiation is absorbed by the tempered safety glass of the sash. Independent research has shown that the level of UV irradiation on the outside of the cabinet's sash is equal to background radiation levels.

- Note: The UV sensitivity of a target organism varies, depending on the UV output of the lamp, the genus and species of the organism, the medium the agent is suspended in, etc. Contact the Health and Safety Officer at your facility for UV light use and recommendations.

LOCATION AND SAFETY PRECAUTIONS

Location Requirements

A biosafety cabinet should be located away from areas of high foot traffic, doors, fans, ventilation registers or vents, chemical fume hoods or other air-handling devices. Any of these may interfere with the airflow patterns in and around the product, and subsequently diminish product and/or personnel protection. All windows in the room should remain closed.

Safety Precautions for this Product

- Electrical outlets in the cabinet are restricted to 5 amps (100-115v) or 3 amps (230v) maximum current.
- Do not use any detachable power cord that is not adequately rated for the unit.
- The biosafety cabinet should be certified by a certification technician before its initial use.
- The cabinet should be recertified whenever it is relocated, serviced or at least annually thereafter.
- Filter integrity and airflow performance should be verified before using the cabinet. Some internal components of the biosafety cabinet may become contaminated during operation of the unit.

- Only experienced personnel competent in decontamination procedures should decontaminate the cabinet before servicing these components.
- If you have any questions regarding certification agencies, or need assistance in locating one, contact Labconco's Product Service Department at 800-821-5525 or 816-333-8811.
- DO NOT load more than 50 lbs. (23 Kg) in the work area. Exceeding this limit may damage the work surface and its supports. Excessive weight in the cabinet may increase the risk ~~of it~~of overturning, or failure of hydraulic lift stands, resulting in the cabinet and stand overturning. If your application requires loading more than 50 lbs., contact Labconco's Product Service Department at 800-821-5525 or 816-333-8811 for assistance.
- Avoid the use of flammable gases or solvents in the biosafety cabinet. Care must be taken to ensure against the concentration of flammable or explosive gases or vapors.
- An open flame should NOT be used in the biosafety cabinet. Open flames will disrupt airflow patterns, burn the HEPA filter and/or damage the filter's adhesive.
- Gases under high pressure should not be used in the biosafety cabinet, as they may disrupt its airflow patterns. HEPA filters only remove particulate matter. Operations generating volatile toxic chemicals or radionuclides must be evaluated carefully.
- The media of HEPA filters is fragile and should not be touched. Avoid puncturing either HEPA filter during installation or normal operation. If you suspect that a HEPA filter has been damaged, DO NOT use the cabinet; contact a local certification agency or Labconco at 800-821-5525 or 816-333-8811 for recertification information.
- The HEPA filters in the biosafety cabinet will gradually accumulate airborne particulate matter from the room and from work performed in the cabinet. The rate of accumulation will depend upon the cleanliness of the room air, operating time and the nature of work being done in the cabinet.
- The Filter Gauge accurately displays the amount of filter life remaining. Proper operation of the cabinet depends largely upon its location and the operator's work habits.
- Avoid direct exposure of plastic or coated materials to ultraviolet (UV) radiation. Never bypass the UV safety interlock that only allows the UV light to work when the sash is closed.

When surface disinfecting the biosafety cabinet:

- Avoid splashing the disinfecting solution on skin or clothing.
- Ensure adequate ventilation.
- Carefully follow the disinfectant's safety instructions.
- Always dispose of disinfecting solutions in accordance with local and national laws.
- DO NOT allow disinfectants with high concentrations of free chlorine to contact the ~~stainless steel~~stainless-steel components of the biosafety cabinet for a long period of time. Free chlorine will corrode stainless steel after extended contact.
- Biosafety cabinets should be decontaminated for any of the following reasons:
    - Before maintenance work requiring entry into contaminated areas.

- Before HEPA filter changes.
- Before performing certification tests requiring entry into contaminated areas.
- Before relocating the cabinet.
- Before changing research programs.
- After the gross spill of biohazardous material or toxic chemicals

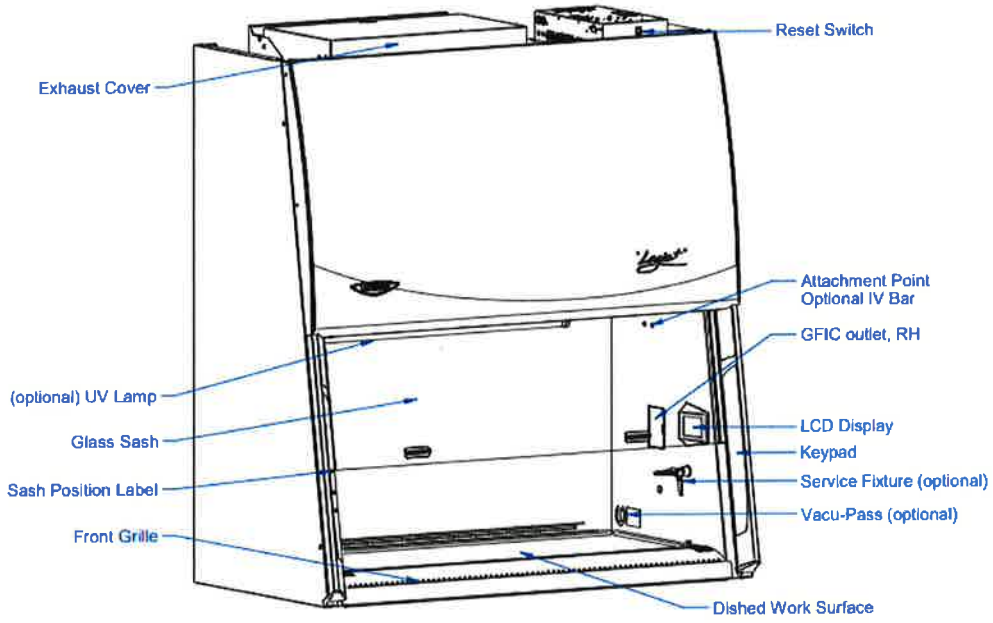
PROCEDURE

Overview:

Feature Overview

Figure 7-1 illustrates key features and components of the product.

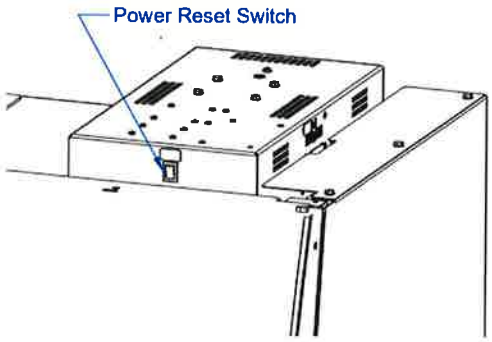
Figure 7-1



System Reset Switch

The system reset switch removes power from the control board and microprocessor. It is located on the front side of the electrical box on the top, right side of the product. See Figure 7-2. This switch will NOT remove all electrical power from the product. For service operations, always disconnect the main electrical connection prior to removing service panels.

Figure 7-2



Keypad

The keypad of the cabinet is shown in Figure 7-3. Take a moment to familiarize yourself with the buttons, their locations and functions. Also familiarize yourself with the display located on the right side wall. The display will report system functions, such as filter capacity, timer displays, alarm or error messages, as well as icons that illuminate when cabinet functions such as the light and blower are operational.

[BLOWER] – Starts or stops the cabinet blower. When the blower is in automatic (SmartStart) mode, opening the sash from from the closed position turns the blower on automatically. The cabinet can also be configured so that when the sash is closed, the motor slows to maintain air cleanliness in the work area (NightSmart). When the sash is reopened, the blower resumes normal operation. Pressing the blower button at any time overrides the automatic operation.

LIGHT] – Turns the LED lamps on or off. Closing the sash automatically turns the lights off. When the lights are in automatic (SmartStart) mode, raising the sash turns the lights on automatically. Pressing the light button at any time overrides the automatic operation.

[OUTLETS] – Turns on/off electrical outlets in the work area.

[UV LIGHT] – Turns on/off the UV lamp (when installed). When the UV lamp is in automatic mode, closing the sash turns the UV light on automatically. When the sash is raised, the UV light turns off automatically.

Figure 7-3



[TIMER] – Allows you to select either a repeating interval timer, or an elapsed timer (stopwatch).

[OK/MUTE] – Mutes all audible alarms for approximately 5 minutes, unless there is a system error alarm. When in any Menu, this button is used to select an option.

[MENU] – From the Home Screen, this button accesses the Main Menu. When in any menu screen, pressing this button returns you to the previous menu level.

[UP] and [DOWN] – Moves between selectable options or change numerical fields in menu screens.

Sash Operation

The counterbalanced, anti-racking sash mechanism requires only a few pounds of force to move the sash up or down. You can open or close the sash smoothly with one or two hands positioned on either handle. The sash position alarm and safety interlock system senses the sash position and acts appropriately. The cabinet has been programmed to operate at an 8-inch (203 mm) or 10-inch (254 mm) sash opening, depending on the model. Raising the sash above or below its operating height will activate the audible and visual alarms. The audible alarm can be temporarily muted for approximately five minutes by pressing the [OK/MUTE] button on the Keypad. Moving the sash back to its operating position will reset the alarm. The safety interlock system senses when the sash is closed and allows the optional UV lamp to operate only when the sash is closed, to protect the operator from irradiation.

Blower Operation

The Logic+ Type A2 biosafety cabinet can be configured to automatically turn on the internal blower. If this feature is enabled, raising the sash from closed to operating height will automatically turn on the blower. If this feature is not enabled, raise the sash to operating height, and press

[BLOWER]. Either method will start the blower, and the Blower Starting screen will appear for approximately 1 minute.

If the product is configured to operate with an optional canopy connection, and the building's exhaust system is not pulling the required volume of exhaust air through the canopy, the internal blower will start while Blower Starting appears on the display. If the building exhaust system does not reach the required minimum volume of airflow within 90 seconds, an alarm will occur.

Light Operation
The Logic+ Type A2 biosafety cabinet provides dual LED lamps for illuminating the work surface. The cabinet can be configured to automatically turn on the LED lighting. If this feature is enabled, raising the sash from closed to operating height will automatically turn on the LED lighting. If this feature is not enabled, raise the sash to operating height, and press [LIGHT]. Either method will illuminate the LED lighting.

Outlet Operation
The Logic+ Type A2 biosafety cabinet provides two GFIC outlets with a maximum total amperage draw of 5A (100-115v models) or 3A (230v models). Power to the outlets 51 can be activated or deactivated from the Keypad. To activate or deactivate power to the outlets, press [OUTLET].

PROCEDURE

Working in the Cabinet
Working in the Logic+ Type A2 biosafety cabinet requires preparation, planning, and an understanding of aseptic technique to work safely. The steps below represent the minimum requirements before, during, and after working in a biosafety cabinet.

Planning

1. Thoroughly understand procedures and equipment required before beginning work.
2. Arrange for minimal disruptions, such as room traffic or entry into the room while the cabinet is in use.

Cabinet Start-up

1. Turn off UV light (if included on your cabinet).
2. Slowly raise the sash until the bottom of the sash aligns with the sash indicator decal located on the left side of the work area (See Figure 7-1).
3. Turn on the light and cabinet blower if the automatic features have not been enabled.
4. Check the air grilles for obstructions.
5. Allow the cabinet to operate until the Home Screen is shown.

Figure 7-5



6. Wash hands and arms thoroughly with germicidal soap.
7. Wear appropriate personnel protective equipment (PPE).

Wipe Down

1. Raise the sash to its full open position (approximately 22.5 inches or 571 mm). Mute the alarm by pressing [OK/MUTE].
2. Wipe down the interior surfaces of the cabinet with 70% ethanol, or a suitable disinfectant, and allowed to dry.

Loading Materials and Equipment

1. Only load the materials required for the procedure. Do not overload the cabinet.
2. Do not obstruct the front, side, or rear return air grilles.
3. Large objects should not be placed close together.
4. Slowly close the sash until it is in the correct operating position.
5. After loading the cabinet, wait two to three minutes to purge airborne contaminants from the work area.

Work Techniques

- Keep all materials at least 4 inches (100 mm) inside from the sash, and perform all contaminated operations as far to the rear of the work area as possible.
- Segregate all clean and contaminated materials in the work area.
- Arrange items to minimize movement of contaminated materials into clean areas.
- Keep all discarded contaminated material to the rear of the work area.
- Avoid moving materials or the operator's hands and arms through the front access opening during use.
- Avoid the use of an open flame. Use disposable labware or an electric incinerator as alternatives.
- Use proper aseptic technique.
- Avoid techniques or procedures that disrupt the airflow patterns of the cabinet.

- If there is a spill or splatter during use, all objects in the cabinet should be surface decontaminated before removal. Thoroughly disinfect the working area of the cabinet WHILE IT IS STILL IN OPERATION, to prevent the release of contaminants from the cabinet.

Final Purging

• Upon completion of work, the cabinet should be allowed to operate for two to three minutes undisturbed, to purge airborne contaminants from the work area.

Unloading Materials and Equipment

• Objects in contact with contaminated material should be surface decontaminated before removal from the cabinet.
• All open trays or containers should be covered prior to removal from the cabinet.

Wipe Down

1. Wipe down the interior surfaces of the cabinet with a suitable disinfectant, or 70% ethanol, and allowed to dry.
2. Periodically lift the work surface and wipe down the area beneath it.
3. Inspect and clean the towel catch located at the rear of the work area, beneath the work surface.
4. Dispose of rubber gloves appropriately, and have lab coat laundered properly.
5. Wash hands and arms thoroughly with germicidal soap.

Shutdown

• Lower the sash and turn off the light and cabinet blower. Activate the UV light, if installed

Recommended Maintenance Schedule

Activity	Maintenance Frequency		
	Weekly	Monthly	Annually
Disinfect interior surfaces (with suitable chemical disinfectant)	•	•	•
Wipe down interior surfaces after contact time elapsed with 70% alcohol solution	•	•	•
Clean sash glass and UV lamp with suitable glass cleaner	•	•	•
Operate cabinet blower, noting Filter Life percentage in log	•	•	•
Using 70% alcohol solution, wipe down cabinet exterior		•	•
Disinfect and lift work surface. Surface disinfect the area beneath with suitable chemical disinfectant		•	•
Wipe down area beneath work surface after contact time elapsed with 70% alcohol solution		•	•
Check all service valves (if equipped) for proper operation		•	•
Check the UV Lamp Hourmeter, noting in log		•	•
Have the cabinet recertified by a qualified technician			•

REFERENCES:

Labconco User's Manual; Logic+ ® Type A2 Biosafety Cabinets PuriCare® Procedure Stations Labconco Corporation, Kansas City, MO

ATTACHMENTS:

None

REFERENCE	7500.23	EFFECTIVE 2/2016
SUBJECT:	7500.23 MICROBIOLOGY PLATING PROTOCOL	REVISED 5/2023
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to the plating cultures performed in the Microbiology department ~~at Modoc Medical Center (MMC)~~.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center (MMC) that staff will adhere to the rules described herein ~~with regard to~~regarding the policies and procedures in the microbiology department.

PRINCIPLE

The following media, incubation conditions, and special handling will be used for initial plating of all microbiology specimens:

Specimen Source	Special Treatment	Media	Incubation
Aerobic Cultures			35° C, 2 days
Body Fluids: Pleural, abdominal, peritoneal	Sterile pipette - 2 drops per plate/Thio. Streak for isolation. Cytocentrifuge Gram stain.	BAP, CHOC MAC, Thio	CO_2 Aerobic
Body Fluid: Synovial	Sterile pipette - 2 drops per plate/Thio. Streak for isolation. Cytocentrifuge Gram stain.	BAP, CHOC MAC, Thio	CO_2 Aerobic
Bone marrow	Gram stain required.	BAP, CHOC MAC, Thio	CO_2 Aerobic
Catheter Tip (CVPs)	Roll tip across surface of BAP 4 to 5 times w/ sterile forceps.	BAP	CO_2

Specimen Source	Special Treatment	Media	Incubation
CSF	Sterile pipette - 2 drops per plate/Thio. Streak for isolation - Gram stain required.	BAP, CHOC MAC, Thio	CO_2 Aerobic
Ear/Eye	Add "A" & "P" discs to BAP – 1ST & 2ND dilution. Add B10 disc to CHOC – 2nd dilution.	BAP, CHOC MAC	CO_2 Aerobic
Respiratory Tract: Sputum, Bronchial wash, Trachea, Nasopharynx	Add "A" & "P" discs to BAP – 1ST & 2ND dilution. Add B10 disc to CHOC – 2nd dilution. Slide QA before Plating.	BAP, CHOC MAC	CO_2 Aerobic
Respiratory Tract: Throat, Nose, Mouth	Add "A" & "P" discs to BAP – 1ST & 2ND quadrant. Add B10 disc to CHOC – 2nd quadrant.	BAP, CHOC MAC	CO_2 Aerobic
Tissue	Transfer by sterile technique. Plate on Choc, BAP, Mac, and BRU if growth observed.	Thio 24 hrs., look for growth. Plate on Choc, BAP, Mac, and BRU if growth observed.	Aerobic
Urine	Streak with calibrated 1:1,000 loop (1µL).	BAP MAC/CNA Biplate Choc if Yeast in UA	Aerobic

Specimen Source	Special Treatment	Media	Incubation
Urogenital Tract: Vagina, Cervix, Urethra, Bartholin, Prostrate, Uterus		BAP, V, CHOC, TM, MAC	CO_2 Aerobic
Wounds, Abscess, Pus, Drainage, Exudate	Gram Stain required.	BAP, CNA, CHOC, MAC, Thio	CO_2 Aerobic
Anaerobic Cultures:	Specimens must come from a potentially anaerobic source and be collected in a gel type culturette (Bactiswab).	***Set up same as aerobic plus:*** BAP, ANA BAP (BRU) Thio	Anaerobic Pak @ 35 C
Blood Cultures:	Gram stain positives. Run BCID if not a likely contaminant. Do not run if no organisms are seen. Subculture and reload bottle.	BAP, MAC, Choc, Thio. Brucella if anaerobic bottle	Aerobic Anaerobic
Culture Screens:			
Throat (for beta strep only)	Add "A" disc.	BAP, STREP A AGAR	CO2
Urogenital Tract (for GC only)	Gram stain required.	TM, CHOC	CO2
Group B strep Screen (Genital)	Add "A" disc.	BAP	CO2

REFERENCE	7500.23	EFFECTIVE 2/2016
SUBJECT:	7500.23 MICROBIOLOGY PLATING PROTOCOL	REVISED 5/2023
DEPARTMENT:	LABORATORY	

REFERENCES

None

ATTACHMENTS

None

REFERENCE	7500.23	EFFECTIVE 2/2016
SUBJECT:	7500.23 MICROBIOLOGY PLATING PROTOCOL	REVISED 5/2023
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to the plating cultures performed in the Microbiology department ~~at Modoc Medical Center (MMC)~~.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center (MMC) that staff will adhere to the rules described herein ~~with regard to~~regarding the policies and procedures in the microbiology department.

PRINCIPLE

The following media, incubation conditions, and special handling will be used for initial plating of all microbiology specimens:

Specimen Source	Special Treatment	Media	Incubation
Aerobic Cultures			35° C, 2 days
Body Fluids: Pleural, abdominal, peritoneal	Sterile pipette - 2 drops per plate/Thio. Streak for isolation. Cytocentrifuge Gram stain.	BAP, CHOC MAC, Thio	CO_2 Aerobic
Body Fluid: Synovial	Sterile pipette - 2 drops per plate/Thio. Streak for isolation. Cytocentrifuge Gram stain.	BAP, CHOC MAC, Thio	CO_2 Aerobic
Bone marrow	Gram stain required.	BAP, CHOC MAC, Thio	CO_2 Aerobic
Catheter Tip (CVPs)	Roll tip across surface of BAP 4 to 5 times w/ sterile forceps.	BAP	CO_2

Specimen Source	Special Treatment	Media	Incubation
CSF	Sterile pipette - 2 drops per plate/Thio. Streak for isolation - Gram stain required.	BAP, CHOC MAC, Thio	CO_2 Aerobic
Ear/Eye	Add "A" & "P" discs to BAP – 1ST & 2ND dilution. Add B10 disc to CHOC – 2nd dilution.	BAP, CHOC MAC	CO_2 Aerobic
Respiratory Tract: Sputum, Bronchial wash, Trachea, Nasopharynx	Add "A" & "P" discs to BAP – 1ST & 2ND dilution. Add B10 disc to CHOC – 2nd dilution. Slide QA before Plating.	BAP, CHOC MAC	CO_2 Aerobic
Respiratory Tract: Throat, Nose, Mouth	Add "A" & "P" discs to BAP – 1ST & 2ND quadrant. Add B10 disc to CHOC – 2nd quadrant.	BAP, CHOC MAC	CO_2 Aerobic
Tissue	Transfer by sterile technique. Plate on Choc, BAP, Mac, and BRU if growth observed.	Thio 24 hrs., look for growth. Plate on Choc, BAP, Mac, and BRU if growth observed.	Aerobic
Urine	Streak with calibrated 1:1,000 loop (1µL).	BAP MAC/CNA Biplate Choc if Yeast in UA	Aerobic

Specimen Source	Special Treatment	Media	Incubation
Urogenital Tract: Vagina, Cervix, Urethra, Bartholin, Prostrate, Uterus		BAP, V, CHOC, TM, MAC	CO_2 Aerobic
Wounds, Abscess, Pus, Drainage, Exudate	Gram Stain required.	BAP, CNA, CHOC, MAC, Thio	CO_2 Aerobic
Anaerobic Cultures:	Specimens must come from a potentially anaerobic source and be collected in a gel type culturette (Bactiswab).	***Set up same as aerobic plus:*** BAP, ANA BAP (BRU) Thio	Anaerobic Pak @ 35 C
Blood Cultures:	Gram stain positives. Run BCID if not a likely contaminant. Do not run if no organisms are seen. Subculture and reload bottle.	BAP, MAC, Choc, Thio. Brucella if anaerobic bottle	Aerobic Anaerobic
Culture Screens:			
Throat (for beta strep only)	Add "A" disc.	BAP, STREP A AGAR	CO2
Urogenital Tract (for GC only)	Gram stain required.	TM, CHOC	CO2
Group B strep Screen (Genital)	Add "A" disc.	BAP	CO2

REFERENCE	7500.23	EFFECTIVE 2/2016
SUBJECT:	7500.23 MICROBIOLOGY PLATING PROTOCOL	REVISED 5/2023
DEPARTMENT:	LABORATORY	

REFERENCES

None

ATTACHMENTS

None

REFERENCE # 7500.23	EFFECTIVE 3/2023
SUBJECT: 7500.23 MONTHLY AUTOCLAVE QC	REVISED
DEPARTMENT: LABORATORY	

I have read and acknowledged this procedure:

Name	Signature	Date

REFERENCE #	7500.23	EFFECTIVE 3/2023
SUBJECT:	7500.23 MONTHLY AUTOCLAVE QC	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this procedure is to provide guidelines on how to process and result the monthly autoclave QC specimens obtained from surgery and the clinic.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center (MMC) that the laboratory microbiology staff will adhere to the guidelines for properly processing and resulting the 3M Attest Biological Indicators obtained from surgery and from the clinic to ensure the autoclave processes are properly sterilizing equipment.

PRINCIPLE

Product Description The 3M™ Attest™ 1262 Biological Indicator (brown cap) is designed for monitoring steam sterilization processes. The presence of Geobacillus stearothermophilus spores is detected by a visual color change (media turns yellow). The yellow color change indicates a sterilization process failure. The final readout of a negative result (media remains purple) is made after 48 hours of incubation.

Warnings:

- There is a glass ampoule inside the plastic vial of the biological indicator.
- Crushing or excessive handling of the biological indicator before cooling may cause the glass ampule to burst.
- Wear safety glasses and gloves when removing the biological indicator from the sterilizer.
- Wear safety glasses when crushing the biological indicator.
- Handle the biological indicator by the cap when crushing.
- Do not use your fingers to crush the glass ampule.

A color change from rose to brown/black confirms that the biological indicator has been exposed to the steam sterilization process. This color change does not indicate that the process was sufficient to achieve sterility. If the chemical indicator is unchanged, check the sterilization process.

PROCEDURE

Ordering the Samples

REFERENCE # 7500.23	EFFECTIVE 3/2023
SUBJECT: 7500.23 MONTHLY AUTOCLAVE QC	REVISED
DEPARTMENT: LABORATORY	

Order the Autoclave Spore Check for the correct location: Clinic or Surgery before proceeding.

Activating and Incubating the Samples:

1. While wearing safety glasses, crush and incubate the biological indicator at 56 ± 2°C (133 ± 3°F). Attest™ Incubator 120 volt (North American Usage) Attest™ Incubator 240 volt (International Usage) Model 116 (14 indicators) Model 118 (14 indicators).
    a. *Refer to the 3M Attest Biological Indicator Product Insert for pictures.
    b. While wearing safety glasses, position indicator in metal block.
    c. Place bottom of the indicator into the incubator's metal heating block so that the indicator is at an angle of approximately 45°.
    d. Push the indicator straight back. This crushes the media ampule and activates the indicator. Be sure that the cap will remain above the metal block when the indicator is pushed back.
    e. Push the activated indicator down to seat it in the metal heating block.
    f. Be sure that the cap remains above the metal block when seated in the incubator.
2. Incubate at least one unprocessed Attest™ biological indicator (positive control) each day a processed indicator is incubated. The positive control indicator should be from the same lot code as the processed indicator in the incubator.
    a. Write a "C" and a date on the label of the positive control indicator. Crush and incubate the control at 56 ± 2°C (133 ± 3°F).
    b. The purpose of the positive control is to ensure: • correct incubation conditions • viability of indicators (incorrect storage conditions could adversely affect even those indicators which are within their stated shelf life) • capability of media to promote rapid growth .
3. Incubate processed and control biological indicators for 48 hours at 56 ± 2°C (133 ± 3°F). Incubation Times: Preliminary Read at 24 hours and Final Detection 48 hours.

Interpretation and Recording of Results:

1. The appearance of a yellow color (positive) in the processed indicator demonstrates bacterial growth and a sterilization process failure.
2. No color change (purple—negative) indicates an adequate sterilization process.
3. The positive control indicator should show a yellow color change for the processed indicator results to be valid.
4. Record the results on the Autoclave QC Log in the Microbiology QC binder, and finalize the result in the LIS, ensuring a printout goes to the proper location.
    a. **Note:** Report any positive test as soon as the first evidence of growth is noted! That location will need to retest the sterilizer and must not use the sterilizer until the subsequent biological indicator results are negative.

REFERENCES:

3M Healthcare, St. Paul, MN: https://multimedia.3m.com/mws/media/497755O/attest-bi-for-steam-1262-package-insert-english.pdf

REFERENCE #	7500.23	EFFECTIVE 3/2023
SUBJECT:	7500.23 MONTHLY AUTOCLAVE QC	REVISED
DEPARTMENT:	LABORATORY	

ATTACHMENTS:

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None

REFERENCE #	7500.23	EFFECTIVE 5/2023
SUBJECT:	7500.23 RESPIRATORY CULTURES-IDENTIFYING AND REPORTING	REVISED 4/2016
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to respiratory cultures performed in the Microbiology department at Modoc Medical Center (MMC).

AUDIENCE

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Department Wide

TERMS AND DEFINITIONS

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None

POLICY

It is the policy of MMC ~~The policy is~~ that staff will adhere to the rules described herein with regard to policies and procedures in the ~~MMC~~ Microbiology Department.

PRINCIPLE:

The respiratory tract in healthy humans contains normal flora, some of which may cause disease under certain circumstances. Certain organisms are considered to be pathogenic if they are present in any numbers in the respiratory tract.

PROCEDURE

SPECIMEN:

1. Throat Swab (Collected with Remel Bactiswab).
2. Sputum. If the sample appears to be saliva only a recollection should be requested.
3. Bronchial Washings.

GRAM STAIN/QUALITY ASSESSMENT

1. The quality of sputum samples is determined by the minimum number of squamous epithelial cells and polymorphonuclear leukocytes per low power field. An acceptable specimen has more than 25 leukocytes (+1) and fewer than 10 epithelial cells per low power field.
2. Perform a gram stain on the specimen and assess the sample quality. If quality is adequate, proceed to plating.

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REFERENCE #	7500.23	EFFECTIVE 5/2023
SUBJECT:	7500.23 RESPIRATORY CULTURES-IDENTIFYING AND REPORTING	
DEPARTMENT:	LABORATORY	REVISED 4/2016

MEDIA/INCUBATION:

1. Blood agar (BAP), MacConkey's agar (MAC), Chocolate agar (CHOC)
2. "A" "P" and "B10" disks
3. All plates are incubated at 35 degrees C +/- 22 degrees.
4. BAP and CHOC plates are incubated in CO2 pouches.

PLATING/READING PLATES:

1. Plate specimens. See Plating Protocol for Clinical Microbiology Specimens policy.
   a. Place B10 disks on the 1st and 2nd quadrant of the streaked Chocolate agar
   b. Place A disk in 1st quadrant of the of streaked BAP, and a P disk on the 2nd quadrant.
2. Culture media is examined at roughly 24 and 48 hour incubation.
3. Negative cultures are finalized after the 48 hour reading.
4. Positive cultures may take an additional 2 days to complete.

IDENTIFICATION, SUSCEPTABILITY TESTING, AND REPORTING:

Identify and report the following as potential pathogens:

1. Strep. pyogenes (group A Strep): Beta on BAP – no growth around A disc - GPC – Cat Neg.
2. Streptococcus pneumoniae (predominant) - Alpha on BAP - > 14mm zone for P disc – GPC – Cat Neg
3. Staphylococcus aureus (predominant) - Beta on BAP – No zone for A or P disc – GPC clusters - Cat Pos – Coag Pos
4. Staphylococcus lugdunensis (predominant) - Beta on BAP – No zone for A or P disc – GPC clusters - Cat Pos – Coag may be Pos or Neg
5. Coagulase Negative Staph (predominant) – Gamma on BAP – GPC clusters – Cat Pos – Coag Neg.
6. Yeast (predominant) - White and creamy on CHOC – minimal growth on BAP/MAC - yeast on gram stain.
7. Enterobacteriaceae (predominant) - Beta on BAP – Growth on MAC – GNR – Do Oxidase on NLFGNR.
8. Pseudomonas – Beta on BAP – fruity odor – GNR – Oxidase Pos.
9. Enterococcus (predominant) - Gamma on BAP - Cat Neg – GPC chains.
10. Neisseria gonorrohoea - NG on BAP - Tan on CHOC – GN Diplo.
11. Niesseria menengitidis - NG on BAP - Tan on CHOC – GN Diplo
12. Moraxella catarrhalis (predominant) - NG on BAP - Tan on CHOC – small GNR.
13. Haemophilus sp. (predominant and if under five [5] years old) - NG on BAP - Tan on CHOC not inhibited by B10 disc – small GNR.
14. Strep agalactiae (newborns only) - Beta on BAP – Growth around A disc – Cat Neg – GPC chains.

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Perform Panel ID and Sensitivities on the following:

1. Enterobacteriaceae
2. Pseudomonas
3. Staph aureus
4. Enterococci
5. Strep pneumonia
6. Staph aureus
7. Strep agalactiae: no sensitivities are provided as strep are generally sensitive to penicillin

Perform HNID ID and beta lactamase on the following:

1. Haemophilus sp.
2. Neisseria sp.
3. Moraxella

Send out predominant yeast for ID if requested by provider.

Any other organisms that are predominant and possible respiratory pathogens that cannot be identified by methods above are sent out for ID and sensitivity.

NOTES:

1. Beta Strep Screens: Only Group A Strep will be identified - Taxo A disc sensitive.
2. Plates may be discarded after the 48 hour reading and workup are completed.

REPORTING:

1. Refer to the procedure for reporting Microbiology in the LIS Microbiology Module.

REFERENCES:

1. Patricia M. Tille PhD, MLS(ASCP), Bailey and Scott's *Diagnostic Microbiology*, Elsevier, 13th Edition.
2. CLIA Regulations.
3. California Title 17 regulations
4. NCCLS Procedure Guidelines

ATTACHMENTS:

None

4.

Commented [BL1]: We can report the sensitivities on Group B strep from the PC33 plate. It is one of 3 strep species that is okay to report. (Enterococcus, Group B strep and Strep mitis)

Commented [AC1R2]: Generally it is not best practice to report sensitivities automatically on Beta strep as they are sensitive to penicillin. Usually they are done by request only. Are you guys performing sensis on every isolate?

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REFERENCE #	7500.23	EFFECTIVE 2/2016	
SUBJECT:	7500.23 STREAK PLATE TECHNIQUE	REVISED 5/2023	
DEPARTMENT:	LABORATORY		

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~~PRINCIPLE:~~
PURPOSE:

It is the purpose of this policy that ~~T~~the streak plate method is used to spread the specimen over the surface of the agar plate in a standard pattern, so the relative numbers of organisms in the original specimen can be estimated based on the extent of growth of colonies past the original inoculation area. When streaking urine specimens with a calibrated loop, the inoculum is spread out more evenly over the entire plate to enable colonies to be isolated and counted.

AUDIENCE: Formatted: Font: Bold

Department Wide

TERMS AND DEFINITIONS Formatted: Font: Bold

None

POLICY: Formatted: Font: Bold

It is the policy of Modoc Medical Center (MMC) that the following procedure will be followed:

EQUIPMENT:

- Yellow Inoculating loop
- Calibrated loop 1µL Blue loop (1:1,000) - for urine only

PROCEDURE:

A. Routine Cultures:

1. Plates should always be inoculated and streaked from least selective to most selective
2. Inoculate plate with specimen using culturette swab or sterile cotton-tipped applicator in the first quadrant. For fluid specimens (except urines), inoculate each plate with a drop of specimen using a sterile pipette. Using side of loop, streak into second quadrant, then into 3rd. The final unused side of the loop can be used in the 4th quadrant to further distribute the streak. See Streak plate technique diagram.

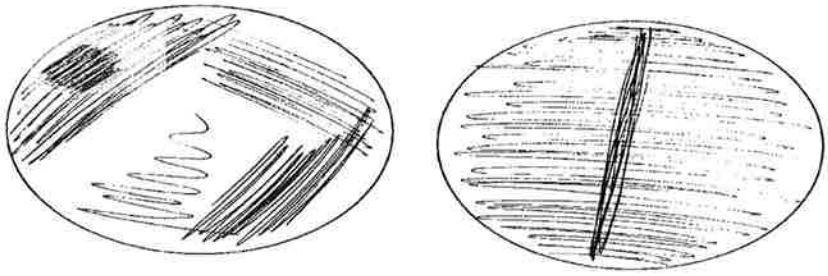
3. Plastic yellow disposable inoculating loops are used.

B. Urine Cultures: (Colony Counts)

REFERENCE #	7500.23	EFFECTIVE 2/2016	
SUBJECT:	7500.23 STREAK PLATE TECHNIQUE		
DEPARTMENT:	LABORATORY	REVISED 5/2023	

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1. Using calibrated 1µL Blue loop, inoculate and streak plate as shown in the following diagram. Initial streak down the middle, then using the loop to spread side to side on the plate.
2. The loop should be dipped for each plate streaked to ~~insure~~ensure consistency of colony counts.



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STREAK PLATE TECHNIQUE

Routine cultures

Urine Colony Count

Initial Inoculum

REFERENCE:

Finegold, S. and Baron, E., Bailey and Scott's *Diagnostic Microbiology*, C.V. Mosby Co., St. Louis, Missouri, 7th Edition

ATTACHMENTS

REFERENCE #	7500.23	EFFECTIVE 2/2016
SUBJECT:	7500.23 STREAK PLATE TECHNIQUE	REVISED 5/2023
DEPARTMENT:	LABORATORY	

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None

REFERENCE #	7500.23	EFFECTIVE
SUBJECT:	7500.23 URINE CULTURES-IDENTIFYING AND REPORTING	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE:

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to the test procedures performed in the Microbiology department at Modoc Medical Center (MMC).

AUDIENCE:

Department Wide

TERMS AND DEFINITIONS:

None

POLICY:

It is the ~~The~~ policy of MMC ~~is~~ that staff will adhere to the rules described herein with regard to policies and procedures in respect to processing, identifying and reporting urine cultures in the ~~MMC~~ Microbiology Department.

PRINCIPLE:

Urinary tract infections (UTI) are one of the ~~most commonly encountered~~most encountered acute infectious diseases. Most UTIs occur because of bacteria ascending the urethra and entering the urinary bladder.

Bacteria from the order Enterobacterales including *Escherichia coli, Klebsiella species, Proteus mirabilis, and Pseudomonas aeruginosa* cause infection. Gram positive organisms such as *Staphylococcus saprophyticus, enterococci, S. pneumoniae, A. urinae* and others may also be isolated.

Corynebacterium urealyticum and *Group B Streptococcus* are markers of colonization in pregnant women.

Urine is generally sterile, however, contamination via the distal urethra and unclean conditions frequently occurs. A clean catch, mid-stream collection is extremely important to the integrity of the sample. Urinalysis samples with an excess of squamous epithelial cells seen in the microscopic analysis ~~indicates~~indicate a poor collection, and recollection of a clean catch urine should be requested for processing of culture when indicated.

PROCEDURE

SPECIMEN:

1. Clean Catch Mid-stream urine sample
2. Cath urine specimen

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3. Suprapubic Urine sample.

STABILITY

1. Urine should be plated within 2 hours of collection to prevent bacterial overgrowth.
2. Specimens are stable for 24 hours if refrigerated.
3. If unable to refrigerate, the sample can be transferred to ~~gray~~a gray top urine tube containing boric acid for delayed processing.
4. Samples that are very low volume or appear contaminated on urinalysis should be recollected.

MEDIA/INCUBATION:

1. Blood agar, MacConkey's agar, Columbia nalidixic acid (CNA), and Chocolate agar only if yeast is seen on Urinalysis.
2. Plates are incubated at 35 degrees C +/- 2 degrees.
3. CO_2 atmosphere is not required.

PLATING/READING PLATES:

1. Plate specimens. See Plating Protocol for Clinical Microbiology Specimens policy.
2. 1.0 µl blue loop is used to inoculate plates. 1 colony is equivalent to 1x 10^3 cfu/mL.
3. Culture media is examined at roughly ~~24 and 48 hour~~24- and 48-hour incubation.
4. Negative cultures are finalized after the ~~48 hour~~48-hour reading.
5. Positive cultures may take an additional 2 days to complete.

COLONY COUNT AND SUBSEQUENT WORKUPS:

1. > 100,000 cfu/ml one organism – Report preliminary and workup further.
2. 25,000 – 100,000 cfu/ml one organism – Report preliminary and workup further.
3. 25,000 – 100,000 cfu/ml multiple organisms – Report as mixed flora.
4. < 25,000 cfu/ml one or multiple organisms – Report as mixed flora.

IDENTIFICATION, SUSCEPTABILITY TESTING, AND REPORTING:

Identify and report the following as potential pathogens if predominant and > 50,000 cfu:

1. Strep. pyogenes (report even rare growth of this organism): Beta on BAP – no growth around A disc - GPC – Cat Neg.
2. Staphylococcus aureus - Beta on BAP - GPC clusters - Cat Pos – Coag Pos
3. Staphylococcus lugdunensis – Beta on BAP – GPC clusters – Cat Pos – Coag can be Pos or Neg
4. Coagulase negative Staph - Gamma on BAP – GPC clusters – Cat Pos – Coag Neg.
5. Staph saprophyticus - Gamma on BAP – GPC clusters – Cat Pos – Coag Neg
6. Yeast - White and creamy on CHOC – minimal growth on BAP/MAC - yeast on gram stain.

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7. Enterobacteraciae – Generally Beta on BAP – Growth on MAC – GNR – Do Oxidase on NLFGNR.
8. Enterococcus - Gamma on BAP - Cat Neg – GPC chains.
9. Other strep sp. - Gamma on BAP - Cat Neg – GPC chains.Pseudomonas – Beta on BAP – fruity odor – GNR – Oxidase Pos.
10. Strep agalactiae - Beta on BAP – Growth around a disc – Cat Neg – GPC chains.
11. Any pure culture should be ~~identified~~identified, and sensitivities performed if possible.

Perform Panel ID and Sensitivities on the following:

1. Enterobacteraciae.
2. Staph aureus or coagulase positive Staph
3. Coagulase negative Staph.
4. Enterococci
5. Other strep sp.
6. Pseudomonas.
7. Strep pneumonia
8. Strep agalactiae: ID, MICs by request as beta strep are routinely sensitive to Penicillin.

Perform HNID ID and beta lactamase on the following:

1. Haemophilus sp.
2. Neisseria sp.

Send out predominant yeast for ID if requested by provider.

NOTES:

1. Plates may be discarded after the ~~48-hour~~48-hour reading and workup are completed unless a very unusual organism was isolated.

REPORTING:

1. Refer to the procedure for reporting Microbiology in LIS Microbiology Module.

REFERENCES:

1. Patricia M. Tille PhD, MLS(ASCP), Bailey and Scott's *Diagnostic Microbiology*, Elsevier, 13th Edition.
2. CLIA Regulations.
3. California Title 17 regulations
4. NCCLS Procedure Guidelines
5. Department of Microbiology - Clinical Laboratory Manual — Mount Sinai Hospital - Toronto. (2019). Mountsinai.on.ca. https://www.mountsinai.on.ca/education/staff-professionals/microbiology

Commented [AC1]: Isolates of GBS that are not susceptible to penicillin are very rare8 and CLSI only lists susceptible breakpoints for ampicillin, penicillin, and ceftriaxone. In addition, CLSI notes that routine susceptibility testing of β-hemolytic streptococci with ampicillin and penicillin is not needed although many laboratories routinely test isolates of GBS from sterile sites.

Commented [BL1R2]: We can change this to "Panel ID" only

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REFERENCE #	7500.23	EFFECTIVE
SUBJECT:	7500.23 URINE CULTURES-IDENTIFYING AND REPORTING	
DEPARTMENT:	LABORATORY	REVISED

ATTACHMENTS:

None

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REFERENCE #	7500.24	EFFECTIVE 8/2024
SUBJECT:	7500.24 BOOD AGAR INSTRUCTIONS FOR USE	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic guidelines for using Hardy Diagnostics Blood Agar in the Microbiology Department at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS & DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the guidelines described herein with regard to setting up cultures using Hardy Diagnostics Blood Agar.

SUMMARY

Hardy Diagnostics Blood Agar products are recommended for use as general purpose growth media for the isolation, cultivation, and differentiation of a wide variety of microorganisms.

Tryptic Soy Agar is the basal medium for the Blood Agar products. Sheep blood has been added, in various concentrations, to facilitate the growth of some organisms, and for the observation of hemolytic reactions. The absence of reducing sugars and carbohydrates allows the hemolysis to occur without hindrance.

STORAGE AND SHELF LIFE

Storage: Upon receipt store at 2-8°C. away from direct light. Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), hemolysis, contamination, or if the expiration date has passed. Product is light and temperature sensitive; protect from light, excessive heat, moisture, and freezing.

The expiration date on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended incubation times as stated below.

Blood Agar products should appear opaque, and cherry red in color.

QUALITY CONTROL/QUALITY ASSURANCE (QC/QA)

Blood Agar is exempt from external QC per the Internal Quality Control Plan (IQCP) at Modoc Medical Center.

Continued QA of media is required and should be documented upon receipt in the Media QC Log located in the Microbiology QC binder:

- Document the Date Received, Lot Number, Expiration Date, and whether 10% of the plates passed inspection as described in the Log.
- Examine each unit of media for physical defects.
- Once the media is in use, examine each unit of media that has been inoculated/incubated for possible contamination before resulting samples.

Refer to the Microbiology Quality Control and Reporting Procedure for more information.

PROCEDURE

Specimen Collection: Infectious material should be submitted directly to the laboratory without delay and protected from excessive heat and cold. If there is to be a delay in processing, the specimen should be inoculated onto an appropriate transport media and refrigerated until inoculation.

Prepared media should be inoculated, incubated, and results recorded according to Modoc Medical Center's Microbiology plating and resulting procedures.

LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification of bacteria and/or fungi.

REFERENCES

1. Anderson, N.L., et al. Cumitech 3B; Quality Systems in the Clinical Microbiology Laboratory, Coordinating ed., A.S. Weissfeld. American Society for Microbiology, Washington, D.C.

2. Jorgensen., et al. Manual of Clinical Microbiology, American Society for Microbiology, Washington, D.C.

3. Tille, P., et al. Bailey and Scott's Diagnostic Microbiology, C.V. Mosby Company, St. Louis, MO.

4. Isenberg, H.D. Clinical Microbiology Procedures Handbook, Vol. I, II & III. American Society for Microbiology, Washington, D.C.

5. Koneman, E.W., et al. Color Atlas and Textbook of Diagnostic Microbiology, J.B. Lippincott Company, Philadelphia, PA.

6. Hardydiagnostics.com BLOOD AGAR Instructions for Use IFU-10072[D]

ATTACHMENTS

None

REFERENCE #	7500.24	EFFECTIVE 5/2015
SUBJECT:	7500.24 GRAM STAIN PROCEDURE	REVISED 6/2024
DEPARTMENT:	LABORATORY	

PURPOSE:

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to performing the gram stain procedure at Modoc Medical Center Laboratory (MMC).

AUDIENCE:

Department Wide

TERMS AND DEFINITIONS:

None

POLICY:

It is the policy of MMC that staff will adhere to the rules described herein with regard to policies and procedures in the Microbiology department.

PRINCIPLE:

The gram stain is one of the most basic of all bacteriological tests and allows bacteria to be grouped according to their staining reaction, an invaluable aid in bacterial identification. The difference in staining reaction between gram-positive and gram-negative bacteria is attributed to the distinctive chemical and physical structure of the cell walls of these organisms.

Crystal violet is taken up equally well by both gram positive and negative bacterial cell walls. A crystal violet iodine complex is formed within the cell wall of each type of bacteria upon the addition of iodine. When a decolorizer is applied, lipids are extracted from the cell walls of gram-negative bacteria. Lipid extraction causes an increase in cell wall permeability and results in the loss of the dye complex. The effect of decolorizer on gram positive bacteria is dehydration. This decreases the cell wall permeability and increases the retention of the crystal violet iodine complex. The result is gram positive bacteria appearing violet due to the retention of the crystal violet iodine complex and gram negative bacteria appearing pink red due to the staining from the safranin counterstain.

REAGENTS:

Remel Gram Crystal Violet – R40052
Hardy Diagnostics Gram Iodine (Stabilized) – 1008 (Used due to CA limitation on imports of iodine >8 fl oz.)
Remel Gram Decolorizer – R40054
Remel Gram Safranin – R40058

REFERENCE # 7500.24	EFFECTIVE 5/2015
SUBJECT: 7500.24 GRAM STAIN PROCEDURE	REVISED 6/2024
DEPARTMENT: LABORATORY	

Absolute Methanol

SPECIMEN PREPARATION:

All slides must be labelled with the patient's name, date, and last 4 digits of the accession number.

1. Direct swab or fluid samples from clinical sites:
    a. Swabs: if from a wound site, two swabs are required to perform a culture and a gram stain. Gently roll one of the swabs on the slide and allow to air dry.
    b. Sputum: Obtain some sample on a clean cotton tipped applicator (it need not be sterile) and gently roll on the slide and allow to air dry.
    c. Body Fluid: place a small amount of the fluid on a slide and allow to air dry. These samples should not be centrifuged.
    d. CSF: After inoculating the plates and Thio, centrifuge the tube to obtain a cell button. Decant the supernatant leaving a small amount of fluid on the button. Re-suspend the button and place a drop on the slide with a sterile transfer pipette.
2. Organism Isolates or gram stain controls:
    a. Place a very small drop of blood bank saline on the slide. Using an inoculating loop place a very small amount of the organism in the saline and mix. Allow to air dry.
3. Blood Culture subs:
    a. Inoculate the slide as instructed in the blood culture processing procedure using a TB syringe to obtain and place the sample from the actual blood culture bottle, not the top reservoir. Allow to air dry or heat fix.

PROCEDURE:

1. **Fixation:**
    a. Allow The slide to air-dry completely or use a slide warmer. Slide can be fixed by passing flood the smear with methanol and allowing it to evaporate.
2. **Staining:**
    a. Place the slide on a staining rack and overlay with Gram Crystal Violet for
    b. 1 minute.
    c. Wash thoroughly with water and overlay with Gram Iodine mordant for 1minute.
    d. Flood with Gram Decolorizer until the solvent flows colorless from the slide (10-30 seconds) and rinse thoroughly with water
    e. Rinse with water and overlay with Gram Safranin for 30 seconds. Rinse with water and allow to dry.

NOTES:

1. Some components of the Gram stain are poisonous and may be harmful or fatal if swallowed. Refer to the SDS before handling.
2. Acetone and alcohol are flammable so keep away from flame.

3. Gram stain slides are retained for at least one month.

Commented [AC1]: Is this the case? Can we dump all the slides or should we hang on to them for a couple months?

QUALITY CONTROL:

- Lot numbers and expiration dates of all reagents used are maintained in the Microbiology Quality Control Binder.
- Staining of quality control organisms must be performed daily and meet acceptable expectations.
  - Staph aureus - ATCC 25923 – Gram positive cocci.
  - E. coli – Gram negative rods.
- The results of the quality control staining are documented by the performing CLS in the Microbiology Quality Control Binder.

INTERPRETATION OF RESULTS:

- Gram stain results will be reported in terms of the gram stain color, the observed cellular morphology. In the case of gram-positive cocci, it should be reported whether they are present as clumps or chains if that is clearly observed.
- When reporting Gram Stain results and enumerating cells from direct smears, ASM recommends the following magnifications to be used:
  - Bacteria: HPF (100x)
    - Grade bacteria on gram stains as the following:
      - (Note that blood culture gram stains will NOT have a grading system: result those as "Growth of xyz" ex. "Growth of Gram Positive Cocci")
      - For all other gram stains, grade as noted below:
        - No Organisms Seen
        - Few
        - Moderate
        - Many
  - Leukocytes: LPF (10x)
    - Grade Leukocytes as the following:
      - WBCs absent
      - 1+ for <1 WBC per LPF
      - 2+ for 1-9 WBC per LPF
      - 3+ for 10-25 WBC per LPF
      - 4+ for >25 WBC per LPF
  - Epithelial Cells: LPF (10x) (Record this on all Sputum Gram Stains)
    - Grade epithelial cells as the following:
      - None Seen
      - Few
      - Moderate

- Many

LIMITATIONS:

1. The gram stain may not detect organisms that exist within host cells (Chlamydia), organisms with no cell wall (Mycoplasma), thin cell wall (Spirochetes)and organisms too small to be seen by light microscopy.
2. Mycobacteria usually will not stain.
3. Gram negative bacteria that stain poorly with safranin include Campylobacter, Legionella, Bacteroides, Fusobacterium and Brucella.
4. Certain conditions are known to damage the cell wall causing gram positive bacteria to appear gram negative or gram variable. These include antibiotics, isolates older than 48 hours, autolytic enzymes produced by some organisms (Strep pneumoniae), and inflammatory responses in the host.
5. The procedural techniques must be carefully followed to avoid unreliable results.

REFERENCES:

1. Remel Gram stain procedure. (See insert for details)
2. Hardy Diagnostics Gram stain procedure. (See insert for details).
3. American Society for Microbiology. Smith, Ann C. and Hussey, Marise A. *Gram Stain Protocols.* September 30, 2005.
4. CLIA regulations.

ATTACHMENTS:

None

REFERENCE #	7500.24	EFFECTIVE 7/2024
SUBJECT:	7500.24 GROUP A BETA STREP AGAR INSTRUCTIONS FOR USE	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic guidelines for using Hardy Diagnostics Group A Beta Strep Agar in the Microbiology Department at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS & DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the guidelines described herein ~~with regard to~~regarding setting up Strep Screening cultures using Hardy Diagnostics Group A Beta Strep Agar.

SUMMARY

Hardy Diagnostics Group A Beta Strep Agar is an enriched media for the selective isolation of group A streptococci (*Streptococcus pyogenes*) from clinical specimens, especially respiratory specimens.

Group A Beta Strep Agar is a selective media for the isolation of group A streptococci (GAS) from respiratory sources. Group A streptococci are virulent pathogens, and timely detection, reporting, and antibiotic treatment decreases the risk of non-suppurative sequela.

The recovery of group A beta-hemolytic streptococci from throat swabs is a widely applied and well-accepted method. However, problems can occur with routine cultures because the overgrowth of normal upper respiratory tract flora will obscure the presence of GAS and result in false-negative results. Additionally, delays in reporting can be caused by attempting to re-isolate the organism. Other formulations using selective agents resulted in inhibition and slow growth rate of the group A streptococci. By utilizing a nutritive growth medium as the base, the inhibitory effects of the selective agents on group A streptococci are almost entirely eliminated.

Tryptic Soy Agar is the basal medium for Selective Strep Agar. Organic nitrogen, particularly amino acids and long-chained peptides, are supplied by the combination of casein and soy peptones. This combination renders the medium highly nutritious. Osmotic equilibrium is maintained by sodium chloride. Sheep blood (5%) has been added to facilitate growth and to detect hemolytic activity. Selective agents are added to inhibit most other normal respiratory flora, including *Neisseria spp.*, most *Enterobacteriaceae*, diptheroids, *Pseudomonas* species, and *Streptococcus mitis*. *Streptococcus pneumoniae* and streptococci groups C, F, and G are also inhibited.

STORAGE AND SHELF LIFE

Storage: Upon receipt, store at 2-8°C and away from direct light. Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), hemolysis, contamination, or if the expiration date has passed. The product is light and temperature sensitive; protect it from light, excessive heat, moisture, and freezing.

The expiration date on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended incubation times as listed in the laboratory procedure manual for Streptococcus screening cultures.

Group A Beta Strep Agar should appear opaque, and cherry red in color.

QUALITY CONTROL/QUALITY ASSURANCE (QC/QA)

Group A Beta Strep Agar is exempt from external QC per the Internal Quality Control Plan (IQCP) at Modoc Medical Center.

Continued QA of media is required and should be documented upon receipt in the Media QC Log located in the Microbiology QC binder:

- Document the Date Received, Lot Number, Expiration Date, and whether 10% of the plates passed inspection as described in the Log.
- Examine each unit of media for physical defects.
- Once the media is in use, examine each unit of media that has been inoculated/incubated for possible contamination before resulting samples.

Refer to the Microbiology Quality Control and Reporting Procedure for more information.

PROCEDURE

Specimen Collection: Infectious material should be submitted directly to the laboratory without delay and protected from excessive heat and cold. If there is to be a delay in processing, specimens should be inoculated into an appropriate transport media and refrigerated until inoculation.

Method of Use: Prior to inoculation, the medium should be brought to room temperature. Inoculate media with specimen and streak for isolation using four-quadrant technique. For testing an isolated organism, touch the top of a colony with a sterile wire loop and streak for isolation. Stab the medium several times with the inoculating loop in the area of heavy inoculation in order to create anaerobic conditions to stimulate maximum expression of beta-hemolysis. Incubate aerobically at 35°C for 24-48 hours. Plates may also be incubated in 5-10% CO_2 or anaerobically for better development of hemolytic reactions. Examine the plate for growth and typical colony morphology and hemolysis.

Typical colonies of group A streptococci appear small, white, and convex, surrounded by a zone of beta-hemolysis after 24-48 hours of incubation.

LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification of bacteria and/or fungi.

Unless a provision is made to reduce oxygen tension, approximately 2% of group A streptococci may be missed if incubated aerobically. It is recommended that several stabs be made into the medium upon inoculation (1). Incubation in increased CO_2 or anaerobically is recommended.

REFERENCES

1. Versalovic, J., et al. Manual of Clinical Microbiology. American Society for Microbiology, Washington, D.C.
2. Tille, P., et al. Bailey and Scott's Diagnostic Microbiology, C.V. Mosby Company, St. Louis, MO.
3. Anderson, N.L., et al. Cumitech 3B; Quality Systems in the Clinical Microbiology Laboratory, Coordinating ed., A.S. Weissfeld. American Society for Microbiology, Washington, D.C.
4. Quality Assurance for Commercially Prepared Microbiological Culture Media, M22. Clinical and Laboratory Standards Institute (CLSI - formerly NCCLS), Wayne, PA.
5. Hardydiagnostics.com GROUP A BETA STREP AGAR Instructions for Use 2020.

ATTACHMENTS

None

REFERENCE #	7500.24	EFFECTIVE 8/2024
SUBJECT:	7500.24 MACCONKEY AGAR INSTRUCTIONS FOR USE	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic guidelines for using Hardy Diagnostics MacConkey Agar in the Microbiology Department at Modoc Medical Center (MMC).

AUDIENCE

Department wide

TERMS & DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the guidelines described herein ~~with regard to~~regarding setting up cultures using Hardy Diagnostics MacConkey Agar.

SUMMARY

Hardy Diagnostics MacConkey Agar is recommended for use as a selective and differential medium for the isolation of gram-negative bacilli (including coliform organisms and enteric pathogens), on the basis of lactose fermentation.

MacConkey Agar is a modification of Neutral Red Bile Salt Agar developed by MacConkey. It was one of the earliest culture media for the cultivation and identification of enteric organisms. (5) It has also been used in the isolation of pathogens from foods and coliforms in water samples. (8,9) The MacConkey Agar formulation presently in use is a modification of the original. In addition to containing sodium chloride, the modified formula has a lowered agar content, and an adjusted concentration of bile salts and neutral red. Differentiation of enteric microorganisms is achieved by the combination of the neutral red indicator and lactose. Lactose-fermenting organisms form pink colonies surrounded by a zone of bile salt precipitation. Color change is due to the production of acid which changes the neutral red pH indicator from colorless to red. Acid production is also responsible for the formation of bile salt precipitation.

Non-lactose-fermenters (Salmonella spp. and Shigella spp.) develop into transparent, colorless colonies with no precipitated zone.

Peptones are incorporated into MacConkey Agar to provide amino acids and nitrogenous compounds. Sodium chloride is present to maintain osmotic equilibrium. Lactose is added as a possible carbon source for energy, and the acids produced from this activity precipitate out the bile salts. Bile salts and crystal violet are added to inhibit the growth of most gram-positive organisms.

STORAGE AND SHELF LIFE

Storage: Upon receipt, store at 2-8°C. away from direct light (Cat. no. Q63 may be stored at 2-30°C). Media should not be used if there are any signs of deterioration (shrinking, cracking, or discoloration), contamination, or if the expiration date has passed. Product is light and temperature sensitive; protect it from light, excessive heat, moisture, and freezing.

The expiration date on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended incubation times as stated in Modoc Medical Center's Microbiology Procedure Manual.

MacConkey Agar should appear transparent, slightly opalescent, and pink in color.

QUALITY CONTROL/QUALITY ASSURANCE (QC/QA)

Hardy Diagnostics MacConkey Agar is exempt from external QC per the Internal Quality Control Plan (IQCP) at Modoc Medical Center.

Continued QA of media is required and should be documented upon receipt in the Media QC Log located in the Microbiology QC binder:

- Document the Date Received, Lot Number, Expiration Date, and whether 10% of the plates passed inspection as described in the Log.
- Examine each unit of media for physical defects.
- Once the media is in use, examine each unit of media that has been inoculated/incubated for possible contamination before resulting samples.

Refer to the Microbiology Quality Control and Reporting Procedure for more information.

PROCEDURE

Specimen Collection: Consult listed references for information on specimen collection. (1-4) Infectious material should be submitted directly to the laboratory without delay and protected from excessive heat and cold. If there is to be a delay in processing, the specimen should be inoculated onto an appropriate transport media and refrigerated until inoculation.

Method of Use: Allow plates to warm to room temperature. The agar surface should be dry before inoculating. Inoculate and streak the specimen as soon as possible after collection. If the specimen to be cultured is on a swab, roll the swab over a small area of the agar surface. Streak for isolation with a sterile loop. Incubate plates aerobically at 35- 37°C. for 18-24 hours. Protect from light. Examine plates for colonial morphology.

INTERPRETATION OF RESULTS

Following incubation, the MacConkey Agar is examined for typical colonial morphology. Well isolated colonies of lactose-fermenting bacteria appear pink to red in color and are surrounded by a zone of bile salt precipitation. Non-lactose-fermenting colonies, such as Shigella spp. and Salmonella spp., appear transparent and colorless, with no zone of bile salt precipitation.

LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification of bacteria and/or fungi.

The concentration of bile salts in MacConkey Agar is relatively low in comparison with other enteric plating media. The parallel use of more selective media for gram-negative enterics, such as HE (Cat. no. G63) or XLD (Cat. no. G65) is recommended ~~in order to~~to increase the chances of pathogen isolation.

Some strains of Proteus may swarm on this medium.

Serial inoculation may be required to ~~assure~~ensure adequate isolation of mixed flora samples.

REFERENCES

1. Anderson, N.L., et al. Cumitech 3B; Quality Systems in the Clinical Microbiology Laboratory, Coordinating ed., A.S. Weissfeld. American Society for Microbiology, Washington, D.C.

2. Versalovic, J., et al. Manual of Clinical Microbiology. American Society for Microbiology, Washington, D.C.

3. Tille, P., et al. Bailey and Scott's Diagnostic Microbiology, C.V. Mosby Company, St. Louis, MO.

4. Isenberg, H.D. Clinical Microbiology Procedures Handbook, Vol. I, II & III. American Society for Microbiology, Washington, D.C.

5. MacConkey, A.T. 1905. Lactose-fermenting bacteria in faeces. J. Hyg.; 5:333-379.

6. MacFaddin, J.F. Biochemical Tests for Identification of Medical Bacteria, Lipincott Williams & Wilkins, Philadelphia, PA.

7. Quality Assurance for Commercially Prepared Microbiological Culture Media, M22. Clinical and Laboratory Standards Institute (CLSI - formerly NCCLS), Wayne, PA.

8. American Public Health Association. Standard Methods for the Examination of Dairy Products, APHA, Washington, D.C.

9. American Public Health Association. Standard Methods for the Examination of Water and Wastewater, APHA, Washington, D.C

10. Hardydiagnostics.com IFU-10545[C]

ATTACHMENTS

None

REFERENCE #	7500.24	EFFECTIVE 7/2024
SUBJECT:	7500.24 THIOGLYCOLLATE MEDIA INSTRUCTIONS FOR USE	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic guidelines for using Hardy Diagnostics Thioglycollate Media in the Microbiology Department at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS & DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the guidelines described herein ~~with regard to~~regarding setting up cultures using Thioglycollate media from patient specimens ~~in order to~~to visualize the presence of aerobic and possible anaerobic bacteria. Hardy Diagnostics Thioglycollate Media is recommended for the cultivation of aerobic, microaerophilic, and anaerobic microorganisms

SUMMARY

The addition of a small amount of agar in a Thioglycollate Medium aid in the initiation and growth of small inocula and anaerobes by impeding the diffusion of oxygen into the medium. It also retards the dispersion of CO_2 and the reducing substance from the microenvironment surrounding the inoculum. Sodium Thioglycollate is a reducing agent that maintains a low oxygen tension by removing molecular oxygen from the environment. Peroxides, which may be lethal to many anaerobic organisms, are not formed under this condition. Cystine and casein supply carbon and nitrogenous compounds, dextrose is added as another energy source, and sodium chloride maintains osmotic equilibrium.

Certain additives are incorporated into the Thioglycollate Medium as desired. Resazurin is an oxidation-reduction indicator that turns pink when increased oxidation ~~has occurred~~occurs. Yeast extract or papaic digest of soybean meal are added as growth enhancers. Hemin is incorporated to supply the X-factor for the stimulated growth of many fastidious organisms and vitamin K because it is a growth requirement for some gram-positive spore-formers and Bacteroides species. The calcium carbonate chip is added to act as a buffer for the medium and prevents a buildup of toxic acid.

STORAGE AND SHELF LIFE

Storage: Upon receipt, store at 2-30°C, away from direct light. Media should not be used if there are any signs of deterioration, discoloration, contamination, or if the expiration date has passed. The product is light and temperature-sensitive; protect it from light, excessive heat, moisture, and freezing.

The expiration date on the product label applies to the product in its intact packaging when stored as directed. The product may be used and tested up to the expiration date on the product label and incubated for the recommended incubation times as determined by the laboratory protocol for each culture type.

QUALITY CONTROL/QUALITY ASSURANCE (QC/QA)

Thioglycollate Medium is exempt from external QC per the Internal Quality Control Plan (IQCP) at Modoc Medical Center.

Continued QA of media is required and should be documented upon receipt in the Media QC Log located in the Microbiology QC binder:

- Document the Date Received, Lot Number, Expiration Date, and whether 10% of the plates passed inspection as described in the Log.
- Examine each unit of media for physical defects.
- Once the media is in use, examine each unit of media that has been inoculated/incubated for possible contamination before resulting samples.

Refer to the Microbiology Quality Control and Reporting Procedure for more information.

PROCEDURE

Infectious material should be submitted directly to the laboratory without delay and protected from excessive heat and cold. If there is a delay in processing, the specimen should be inoculated onto an appropriate transport media and refrigerated until inoculation.

In some tubes, the media may become oxidized within the tube during shipment. Resazurin, an oxidation-reduction indicator, causes the entire medium to turn pink when oxidation occurs. These tubes may be restored to their proper condition by bringing the media up to 100°C in a boiling water bath. Loosen screw caps slightly before heating and tighten during cooling to room temperature. The boiling serves to reduce media intended for the culture of anaerobic organisms. Method of Use: Consult the listed references for the appropriate cultivation techniques using this medium (1-3,6). It is recommended that liquid media for anaerobic incubation should be reduced prior to inoculation by placing tubes (with loosened caps) under anaerobic conditions for 18-24 hours. Alternatively, the boiling method described above may be used.

Thioglycollate Medium should be incubated at 35-37°C., checking daily, as needed. Growth or turbidity should be confirmed by gram stain and subculture onto an appropriate growth medium.

Note: Thioglycollate with Indicator Media contains a resazurin indicator, which will cause the upper layer of this broth to be pink due to ~~the exposure~~exposure to oxygen. Containers that have been agitated recently (as during shipping) will turn pink throughout. This can be reversed by allowing the container to stand still for a few hours or by putting the containers in a boiling water bath with loosened caps for 10 minutes. The caps are then tightened firmly before the media cools. Also, note that it is common for a whitish precipitate to form in this medium due to the agar content. This does not affect the performance of this medium.

LIMITATIONS

It is recommended that biochemical, immunological, molecular, or mass spectrometry testing be performed on colonies from pure culture for complete identification of bacteria and/or fungi. In test samples, the proper surface to volume ratio of the Thioglycollate Medium must be maintained to avoid oxidation of the medium, making it unsuitable for microaerophilic and anaerobic growth. A slight turbidity or haziness may be present due to the small amount of agar in the medium. When the media has been boiled, it appears clear. Do not boil media more than once, as frequent boiling may lead to toxic products forming in the medium (7). If the medium is suspected to have more than 30% oxidation after boiling, it should be discarded.

REFERENCES

1. Anderson, N.L., et al. Cumitech 3B; Quality Systems in the Clinical Microbiology Laboratory, Coordinating ed., A.S. Weissfeld. American Society for Microbiology, Washington, D.C.
2. Jorgensen., et al. Manual of Clinical Microbiology, American Society for Microbiology, Washington, D.C.
3. Tille, P., et al. Bailey and Scott's Diagnostic Microbiology, C.V. Mosby Company, St. Louis, MO.
4. Brewer, J.H. 1940. J. Amer. Med. Assoc.; 115:598.
5. Federal Security Agency, Food and Drug Administration, Compilation of Regulations for Test and Methods of Assay and Certification of Antibiotic Drugs.
6. Isenberg, H.D. Clinical Microbiology Procedures Handbook, Vol. I, II & III. American Society for Microbiology, Washington, D.C.
7. MacFaddin, J.F. 1985. Media for Isolation, Cultivation, Identification, Maintenance of Bacteria, Vol. I. Williams & Wilkins, Baltimore, MD.
8. National Formulary, 9th ed. p.768, 1950.
9. National Institutes of Health Circular: Culture Media for the Sterility Test, 2nd rev. Feb. 5, 1946.
10. Quality Assurance for Commercially Prepared Microbiological Culture Media, M22. Clinical and Laboratory Standards Institute (CLSI - formerly NCCLS), Wayne, PA.
11. Hardydiagnostics.com THIOGLYCOLLATE MEDIA Instructions for Use 2020.

ATTACHMENTS

None

REFERENCE #	7500.24	EFFECTIVE 7/2024
SUBJECT:	7500.24 THIOGLYCOLLATE MEDIA INSTRUCTIONS FOR USE	REVISED
DEPARTMENT:	LABORATORY	

REFERENCE #	7500.24	EFFECTIVE 7/2020
SUBJECT:	7500.24 USE AND INTERPRETATION OF BACITRACIN A DISC	REVISED 8/2024
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to describe the use of the BD BBL Taxo A disc to aid in detection of Group A streptococcus in cultures performed in the Modoc Medical Center (MMC) Microbiology Lab.

AUDIENCE

Department Wide

TERMS & DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the guidelines described herein ~~with regard to~~regarding setting up respiratory and throat cultures using the BD BBL Taxo A disc.

PRINCIPLE

BD BBL™ Taxo™ A Discs are impregnated with a low level of bacitracin.

According to the work of Maxted, of Levinson and Frank, and others, the group A streptococci may be differentiated from the other Lancefield groups of hemolytic streptococci by the formation of a zone of inhibition around the disc.[1-6] Maxted reported a rapid diagnostic agent for the presumptive identification and differentiation of group A streptococci from other beta-hemolytic streptococci.(1) He tested over 3,0000 strains and found group A streptococci to be more sensitive to bacitracin than other beta-hemolytic strains. His findings showed that 99.0% of group A streptococci were inhibited and 95.3% of non-group A beta-hemolytic streptococci were not inhibited. (1)

Group A beta-hemolytic streptococci are sensitive to small amounts of bacitracin, while beta-hemolytic streptococci of other serologic groups are more resistant. The BD BBL Taxo A Disc on a blood agar plate can be used for presumptive identification of group A beta-hemolytic streptococci after overnight incubation.

MATERIALS

BD BBL Taxo A disc ref 231552

PROCEDURE

1. **Hemolytic isolates obtained from routine throat cultures:**

a. Using a loop or swab, select 3-4 well isolated colonies of suspect beta-hemolytic organism from an 18–24-hour old culture and streak to the surface of a Blood Agar, 5% (Cat. no. A10) plate to obtain confluent growth.

b. Aseptically apply a BBL Taxo A Bacitracin Differentiation Disk in the center of the area containing the heavy inoculum.

c. Incubate inoculated media for 18-24 hours at 35°C. in 5-10% CO2. Observe for a zone of inhibition around the disk.

2. Direct inoculation (primary plating):

a. For early detection of S. pyogenes from throat cultures and other specimen types; it is acceptable to aseptically place a BBL Taxo A Bacitracin Differentiation Disk directly on the primary plating of the specimen on the first quadrant. Blood Agar, 5% (Cat. no. A10) or Group A Beta Strep Agar (Cat. no. A72) plates may be used for this procedure.

b. Incubate inoculated media for 18-24 hours at 35°C. in 5-10% CO2. Observe for a zone of inhibition around the disk.

INTERPRETATION

A zone of inhibition is formed around the BD BBL Taxo A Disc if the organism is a group A streptococcus. It is recommended that any zone of inhibition, regardless of diameter, be reported as "beta-hemolytic Streptococcus, presumptively group A by bacitracin." No zone of inhibition (growth up to the edge of the disc) is reported as "beta-hemolytic Streptococcus, presumptively not group A by bacitracin."

Once the organism is identified as Group A strep, no further workup is needed. Report the identification only as sensitivities are generally not needed due to susceptibility to penicillin but are available by request.

LIMITATIONS

The BD BBL Taxo A Disc test is presumptive, and a positive result should be followed with more specific physiological and/or serological tests.

It should be noted that an excessive inoculum concentration may result in the absence of a zone of inhibition (false-negative) with some group A streptococci.

It has been reported that 6% of group B and 7.5% of groups C and G streptococci may produce zones of inhibition (false-positive result).[10] Also, some streptococci may fail to grow in the absence of CO2 .

QUALITY CONTROL

Check performance with pure cultures of stable control organisms producing known desired reactions. The use of Streptococcus pyogenes ATCC® 12384 is recommended to demonstrate zone of inhibition formation. S. agalactiae is currently used as a negative control with no zone of inhibition.

QC is currently done weekly and with every new lot received and recorded in the microbiology quality control log.

REFERENCES

1. Refer to the multiple references listed on the BBL Taxo A disc package insert.
2. Patricia M. Tille PhD, MLS(ASCP), Bailey and Scott's *Diagnostic Microbiology*, Elsevier, 14th Edition.
3. CLIA Regulations.
4. California Title 17 regulations.
5. NCCLS Procedure Guidelines.

ATTACHMENTS

None

REFERENCE # 7500.25	EFFECTIVE: 04/2025
SUBJECT: 7500.25 BODY FLUID CULTURES	REVISED
DEPARTMENT: LABORATORY	

PURPOSE:
The purpose of this policy is to establish basic rules for the policies and procedures as they relate to processing, identifying and reporting body fluid cultures in the Microbiology department at Modoc Medical Center (MMC).

Body fluids include the following sources:

- Pleural fluid
- Pericardial fluid
- Amniotic fluid
- Peritoneal/Ascites fluid
- Synovial fluid
- Cerebral Spinal Fluid (CSF)

Body Fluids may be infected by many types of aerobic and anaerobic bacteria. Any pure culture in any quantity is significant and must be fully processed. Some body fluid sources can harbor multiple organisms at the same time; ~~therefore~~therefore, any isolated organisms are important and will be ~~identified~~identified, and susceptibility testing ~~performed~~is performed if available.

AUDIENCE:
Department Staff

TERMS & DEFINITIONS:

None

POLICY:
The policy is that staff will adhere to the rules described herein with ~~regard~~regard to policies and procedures in the MMC microbiology department.

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PROCEDURE:
SPECIMEN:

- Specimens should be collected in a sterile container.
- Specimens should be inoculated and plated to media as soon as possible, but generally specimens are acceptable for 24 hours refrigerated.

MEDIA/INCUBATION:

- Blood agar (BAP), MacConkey's agar (MAC), Chocolate agar (CHOC), Thioglycolate Broth (THIO), and 1 ml into a Pediatric Blood Culture bottle (only if there is enough volume of sample),
- A Gram Stain is always included
- If the body fluid site is appropriate for anaerobic growth: Pre-reduced Brucella H+K agar is added.
- All plates/Thio are incubated at 35 degrees C +/- 2 degrees.

- BAP and CHOC plates are incubated in a CO2 pouch.
- Anaerobic BAP plates are incubated in an anaerobic pouch.
- The inoculated Pediatric Blood Culture bottle is incubated at 35 degrees C +/- 2 degrees in the BacTec analyzer.
- Refer to the Microbiology Plating Protocol for special instructions.

PLATING/READING PLATES:

1. Plate specimens. See Plating Protocol for Clinical Microbiology Specimens policy.
2. Culture media is examined at roughly 24- and 48-hour incubation.
3. Negative cultures are finalized after the 5-day incubation of the pediatric blood culture bottle reading.
4. Positive cultures may take an additional 2 days to complete. If culture for fastidious organisms is requested, a longer incubation time may be necessary.
5. If the blood culture bottle becomes positive, subculture it to BAP, CHOC, MAC, THIO and gram stain.
    a. Work up growth the same as the plated specimens.
    b. If the organism is the same as the plated specimens, you do not have to perform a separate MIC.
    c. DO NOT set up a Blood Culture Identification Panel (BCID).

IDENTIFICATION, SUSCEPTABILITY TESTING, AND REPORTING:

Identify all isolated organisms as potential pathogens:

1. *Strep. pyogenes* (group A Strep): Beta on BAP - GPC – Cat Neg
2. *Streptococcus pneumoniae* - Alpha on BAP - GPC – Cat Neg
3. *Staphylococcus aureus* - Beta on BAP – GPC clusters - Cat Pos – Coagulase (Coag) Pos
4. *Staphylococcus lugdunensis*- Beta on BAP – GPC clusters – Cat Pos – Coag may be Pos or Neg
5. *Coagulase Negative Staph* – Gamma on BAP – GPC clusters – Cat Pos – Coag Neg.
6. *Yeast* - White and creamy on CHOC often with spider-like projections – minimal growth on BAP/MAC - yeast on gram stain.
7. *Enterobacteraciae* - Beta on BAP – Growth on MAC – GNR – Do Oxidase on NLFGNR.
8. *Enterococcus* - Gamma on BAP - Cat Neg – GPC chains. PYR Positive.
9. *Pseudomonas* – Beta on BAP – fruity odor – GNR – Oxidase Pos.
10. *Neisseria gonorrhoeae* - NG on BAP - Tan on CHOC – GN Diplococci.
11. *Niesseria menengitidis* - NG on BAP - Tan on CHOC – GN Diplococci.
12. *Moraxella catarrhalis* - NG on BAP - Tan on CHOC, Hockey puck test positive – small GNR.
13. *Listeria monocytogenes* – Beta on BAP – GPR (no spores) – Cat Pos – OX Pos - ID on Pos Panel.
14. *Haemophilus sp.* - NG on BAP - Tan on CHOC – small GNR.
15. *Strep agalactiae* - Beta on BAP – Growth around A disc – Cat Neg – GPC chains.
16. *Pasturella:* particularly in animal bite-gram-negative cocobacilli (safety pin staining)-clinical isolates cat pos, oxidase pos, often no growth on MAC.

17. Any pure culture should be ~~identified~~identified, and sensitivities ~~performed~~are performed if possible.

Perform Panel ID and Sensitivities on all isolates.

Other organisms

- Beta strep ~~are~~is identified using strep latex agglutination. They are generally sensitive to penicillin but can be sent out for MIC with provider request.
- *Streptococcus pneumoniae* yields poor ID on microscan and is identified using p disk.
- All other poor ID organisms using the above methods are sent out for identification and sensitivity.
- Diphtheroid may be considered possible pathogens. Report as Gram positive rods.

Potential Anaerobic growth:

1. Growth is potentially anaerobic if:
    a. There is discordant growth ~~in~~at the bottom of the Thio broth vial.
    b. Growth is initially present on the plates incubated under anaerobic conditions and not aerobic conditions
    c. If growth is present on the anaerobically incubated ~~plates~~plates, that does not conform to the growth on the aerobically incubated plates.
2. Potential anaerobic colonies are gram stained and examined for atypical anaerobe morphology and the presence of spores.
3. Suspect anaerobe colonies are sub-cultured to BAP plates and incubated aerobically and anaerobically.
4. If growth is present anaerobically but not ~~aerobically~~aerobically, the organism is reported as a potential anaerobe and sent under anaerobic conditions as a pure subculture to LabCorp for identification.

LIMITATIONS OF PROCEDURE

Note that the growth rates of strict anaerobes vary considerably: While Bacteroides fragilis will grow well after 24 hours, Mobiluncus or strains of Porphyromonas need 4 to 5 days, and Actinomyces may need 1 to 3 weeks to produce well visible colonies. If cultures are negative after 2 or 3 days of incubation, re-incubate anaerobically for an additional 2 to 3 days. If Actinomyces is suspected, dedicated culture plates of this and other media (e.g., BD Columbia Agar with 5% Sheep Blood) should be inoculated that are inspected after 1, 2 and eventually 3 weeks of incubation. All anaerobic isolates are sent to LabCorp for identification and susceptibility testing.

NOTES:

1. On the culture worksheet, record date, culture findings, tests and/or subcultures done and results of tests done on each day culture is read. Record CLS initials every day.

2. Plates may be discarded after the 72-hour reading, but do not finalize until the Pediatric blood culture bottle is completed.
3. Quantitate growth of each organism as 1+ (first quadrant), 2+(2nd quadrant), 3+ (3rd quadrant) and 4+ (4th quadrant).

REPORTING:

1. Negative: "No growth at 5 days"
2. Positive report: Quantitate all isolates with appropriate susceptibilities.
3. Refer to the procedure for reporting Microbiology in LIS Microbiology Module.

REFERENCE:

- Patricia M. Tille PhD, MLS(ASCP), Bailey and Scott's *Diagnostic Microbiology*, Elsevier, 13th Edition.
- CLIA Regulations.
- California Title 17 regulations.
- NCCLS Procedure Guidelines

ATTACHMENTS:

None

REFERENCE #	7500.25	EFFECTIVE: 11/18/2025
SUBJECT:	7500.25 Xpert® CoV-2/Flu/RSV Plus Testing	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE:
The purpose of this policy is to establish basic guidelines for using the Cepheid Xpert® CoV-2/Flu/RSV Plus test for *in vitro* qualitative detection and differentiation of severe acute respiratory syndrome coronavirus (SARS-CoV-2), influenza A (Flu A), influenza B (Flu B), and/or respiratory syncytial virus (RSV) viral RNA in nasopharyngeal swab and anterior nasal swab specimens collected from individuals with signs and symptoms of respiratory tract infection.

AUDIENCE:
Department Staff

POLICY:
It is the policy of Modoc Medical Center (MMC) that staff will adhere to the guidelines described herein with regard to setting up samples from nasopharyngeal swabs and anterior nasal swabs on the GeneXpert® Instrument using the Xpert CT/NG test to aid in the diagnosis of respiratory tract infections with SARS-CoV-2, Flu, and/or RSV.

PRINCIPLE:
Xpert® **Xpress** CoV-2/Flu/RSV ***plus*** test, performed on the GeneXpert System with Touchscreen, is an automated multiplexed real-time reverse transcriptase polymerase chain reaction (RT-PCR) test intended for use in the simultaneous *in vitro* qualitative detection and differentiation of severe acute respiratory syndrome coronavirus (SARS-CoV-2), influenza A, influenza B, and/or respiratory syncytial virus (RSV) viral RNA in nasopharyngeal swab and anterior nasal swab specimens collected from individuals with signs and symptoms of respiratory tract infection. Clinical signs and symptoms of respiratory tract infection due to SARS-CoV-2, influenza A, influenza B, and RSV can be similar.

Positive results are indicative of the presence of the identified virus, but do not rule out bacterial infection or co-infection with other pathogens not detected by the test. The agent(s) detected by the Xpert Xpress CoV-2/Flu/RSV *plus* test may not be the definite cause of disease.

Negative results do not preclude SARS-CoV-2, influenza A, influenza ~~B and~~B, and/or RSV infection. The results of this test should not be used as the sole basis for diagnosis, treatment, or other patient management decisions.

The Xpert Xpress CoV-2/Flu/RSV *plus* test includes reagents for the detection of SARS-CoV-2, Flu A, Flu ~~B and~~B, and RSV viral RNA in either nasopharyngeal swab or anterior nasal swab specimens. A Sample Processing Control (SPC) and a Probe Check Control (PCC) are also included in the cartridge utilized by the GeneXpert instrument. The SPC is present to control for adequate processing of the sample and to monitor for the presence of potential inhibitor(s) in the RT-PCR reaction. The SPC also ensures that the RT-PCR reaction conditions (temperature and time) are appropriate for the amplification reaction and that the RT-PCR reagents are functional. The PCC verifies reagent rehydration, PCR tube filling, and confirms that all reaction components are present in the cartridge including monitoring for probe integrity and dye stability.

The specimen is collected and placed into a transport tube containing 3 mL of viral transport medium (VTM)/Universal Transport Medium (UTM) or 2 mL of eNATR. The specimen is briefly mixed by rapidly inverting the collection tube 5 times. Using the supplied transfer pipette, the sample is transferred to the sample chamber of the Xpert Xpress CoV-2/Flu/RSV *plus* cartridge. The GeneXpert cartridge is loaded onto the GeneXpert instrument, which performs hands-off, automated sample processing, and real-time RT-PCR for detection of viral RNA.

PROCEDURE:

Materials Provided

The Xpert Xpress CoV-2/Flu/RSV *plus* kit contains sufficient reagents to process 10 specimens or quality control samples. The kit contains the following:

- Xpert Xpress CoV-2/Flu/RSV *plus* Cartridges with Integrated Reaction Tubes 10
- Bead 1, Bead 2, and Bead 3 (freeze-dried): 1 of each per cartridge
- Lysis Reagent: 1.0 mL per cartridge
- Binding Reagent: 1.0 mL per cartridge
- Elution Reagent: 3.0 mL per cartridge
- Wash Reagent: 0.4 mL per cartridge
- Disposable Transfer Pipettes: 12 per kit

Materials Required but Not Provided

- Sample Collection Swabs and Transport Media
    - Nylon flocked swabs, viral transport medium (VTM), Universal Transport Medium (UTM) and eNATR Molecular Transport Medium are compatible for use with the Xpert Xpress CoV-2/Flu/RSV *plus* test.
    - The following materials are examples of those that are compatible with the Xpert Xpress CoV-2/Flu/RSV *plus* test:
        - *Copan UTMR 3C057N (Flexible Minitip Flocked Swab with UTM Medium)*
        - *Copan eNAT Molecular Collection and Preservation Medium P/N 6U074S01 (Flexible Minitip Flocked Swab with eNAT Medium)*
        - *BD Becton Dickinson Universal Viral Transport Kit P/N 220531 (Flexible Minitip Flocked Swab with UVT Medium)*
        - *Copan UTM 3C064N (Regular Flocked Swab with UTM Medium)*
        - *Copan eNAT Molecular Collection and Preservation Medium P/N 6U073S01 (Regular Flocked Swab with eNAT Medium)*
        - *Nylon flocked swab (Copan P/N 502CS01, 503CS01)*
        - *Viral transport medium, 3 mL (Copan P/N 3C047N, Remel M4RT or Remel M5)*

Assay/Reagent Storage and Handling:

- Store the Xpert Xpress CoV-2/Flu/RSV *plus* cartridges at 2–28 °C.
- Do not open the Xpert Xpress CoV-2/Flu/RSV *plus* cartridge lid except when adding specimen.
- Do not use a cartridge that has been dropped after removing it from the packaging.
- Do not shake the cartridge. Shaking or dropping the cartridge after opening the cartridge lid may yield nondeterminate results.
- Do not place the sample ID label on the cartridge lid or on the barcode label on the cartridge.
- Do not use a cartridge with a damaged barcode label.
- Do not use a cartridge that has a damaged reaction tube.
- Do not use reagents beyond their expiry date.
- Each single-use Xpert Xpress CoV-2/Flu/RSV *plus* cartridge is used to process one test. Do not reuse processed cartridges.
- Each single-use disposable pipette is used to transfer one specimen. Do not reuse disposable pipettes.
- Do not use a cartridge if it appears wet or if the lid seal appears to have been broken.
- Wear clean lab coats and gloves. Change gloves between the handling of each specimen.
- In the event of a spill of specimens collected in UTM/VTM or controls, wear gloves and absorb the spill with paper towels. Then, thoroughly clean the contaminated area with a 10% freshly prepared household chlorine bleach. Allow a minimum of two minutes of contact time. Ensure the work area is dry before using 70% denatured ethanol to remove bleach residue. Allow ~~surface~~the surface to dry completely before proceeding. ~~Or,~~Or follow your institution's standard procedures for a contamination or spill event. For equipment, follow the manufacturer's recommendations for decontamination of equipment.

Specimen Collection, Transport, and Storage

Proper specimen collection, storage, and transport are critical to the performance of this test. Inadequate specimen collection, improper specimen handling and/or transport may yield a false result.

Nasopharyngeal and anterior nasal swab specimens can be stored at room temperature (15–30 °C) for up to 48 hours in VTM/UTM or eNAT until testing is performed on the GeneXpert Instrument Systems. Alternatively, nasopharyngeal and anterior nasal swab specimens can be stored refrigerated (2–8 °C) up to seven days in viral transport medium and up to six days in eNAT until testing is performed on the GeneXpert Instrument Systems.

Nasopharyngeal and anterior nasal swab specimens collected in VTM/UTM or eNAT can be frozen at -20 °C or -80 °C and undergo 1 freeze/thaw cycle.

PROCEDURE

Preparing the Cartridge

**Important: Start the test within 30 minutes of adding the sample to the cartridge.

1. Remove ~~a cartridge~~the cartridge from the package.

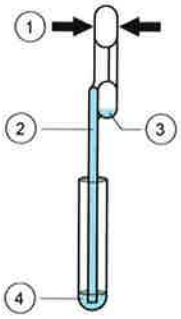
2. Check the specimen transport tube is closed.

3. Mix specimen by rapidly inverting the specimen transport tube 5 times. Open the cap on the specimen transport tube.

4. Open the cartridge lid.

5. Remove the transfer pipette from the wrapper.

6. Squeeze the top bulb of the transfer pipette **completely until the top bulb is fully flat**. While continuing to hold the bulb fully flat, place the pipette tip in the specimen transport tube (see Figure 1).



Number	Description
1	Squeeze here
2	Pipette
3	Overflow Reservoir Bulb
4	Sample

Figure 1 Transfer Pipette

7. Keeping the pipette below the surface of the liquid, release the top bulb of the pipette slowly to fill the pipette with sample before removing from the tube. It is okay if liquid goes into the overflow reservoir (see Figure 1). Check that the pipette does not contain bubbles.

8. To transfer the sample to the cartridge, squeeze the top bulb of the pipette completely again until it is fully flat to empty the contents of the pipette (300 µL) into the large opening (Sample Chamber) of the cartridge shown in Figure 2. Some liquid may remain in the overflow reservoir. Dispose of the used pipette.



Figure 2 Xpert Xpress CoV-2/Flu/RSV plus Cartridge

Note Take care to dispense the entire volume of liquid into the Sample Chamber. False negative results may occur if insufficient sample volume is added to the cartridge.

9. Close the cartridge lid.

Starting the Test: GeneXpert System

1. Turn on GeneXpert system with touchscreen.
2. Log on to system software using your username and password.
3. On the Modules tab, touch **Create Test**.
4. Follow onscreen prompts to create new test and enter patient and sample information.
5. Scan or manually input the cartridge serial number. If scanning, hold the cartridge about 1-3 inches (3-7 cm) away from the scanner. The scanner projects a green crosshair, which you center on the barcode. Scanning is complete when you hear an audible beep. Touch **Continue**.
6. Ensure the correct test is populated.
7. Click **Start Test**
8. Enter your **login** information
9. Open the module door under flashing green light and insert the cartridge.
10. Close ~~cartridge~~the cartridge module door completely by pressing until it latches. The test starts.
11. When the test completes, the Results Summary screen appears. Open the module door and remove cartridge.
12. Dispose of used cartridge in appropriate waste container according to your institution's standard practices.

Viewing Results: GeneXpert System
The GeneXpert System with Touchscreen results screen will automatically interpret test results for you and clearly show them in the View Results window.
1. Click on the **View Results** icon.
2. Click on the **View Results** submenu
3. Click on **View Test**
4. Choose the correct test
5. Click **OK.**
6. Then **View Result>Report>Preview PDF>Print**

Internal Controls

Each Xpert Xpress CoV-2/Flu/RSV *plus* cartridge includes two internal controls: a Sample Processing Control (SPC) and Probe Check Control (PCC).

- Sample Processing Control (SPC) - Ensures that the sample was processed correctly. The SPC verifies that sample processing is adequate. Additionally, this control detects sample-associated inhibition of the real-time PCR assay, ensures that the PCR reaction conditions (temperature and time) are appropriate for the amplification reaction, and that the PCR reagents are functional. The SPC should be positive in a negative sample and can be negative or positive in a positive sample. The SPC passes if it meets the validated acceptance criteria.
- Probe Check Control (PCC) - Before the start of the PCR reaction, the GeneXpert system measures the fluorescence signal from the probes to monitor bead rehydration, reaction tube filling, probe integrity, and dye stability. The PCC passes if it meets the validated acceptance criteria.

External Controls

External controls may be used in accordance with local, state, federal accrediting organizations, as applicable. Per the IQCP (Internal Quality Control Plan at MMC, External Controls will be performed monthly for one year, with an assessment done after twelve months to evaluate whether QC can be performed at a reduced schedule as follows: After monitoring passing QC for 12 consecutive months, MMC can opt to switch to external QC once for each new shipment/new lot and, as well as after system maintenance (including module replacement) and software upgrades.

- **Positive:** ZeptoMetrix NATtrol FLU/RSV/SARS-CoV-2 External Run Control REF NATFRC-ERC
- **Negative:** ZeptoMetrix NATtrol FLU/RSV negative control REF NATCXVA9-

To run a control using the Xpert Xpress CoV-2/Flu/RSV *plus* test, perform the following steps:

1. Mix control by rapidly inverting the external control tube 5 times. Open the cap on ~~external~~the external control tube.
2. Open the cartridge lid.
3. Using a clean transfer pipette, transfer one draw of the external control sample (300 µL) into the large opening (Sample Chamber) in the cartridge shown in Figure 2.
4. Close cartridge lid.

Interpretation of Results

The results are interpreted automatically by the GeneXpert Instrument Systems and are shown in the View Results window. See ~~above~~the above on how to view and print the results.

Reasons to Repeat the Test

1. If any of the test results mentioned below occur, repeat the test once according to instructions in Retest Procedure.

- An INVALID result indicates that the control SPC failed. The sample was not properly processed, PCR is inhibited, or the sample was not properly collected. Alternatively, other assay analysis settings intended to produce a valid test result were not met.
- An ERROR result could be due to, but not limited to, Probe Check Control failure, system component failure, no sample added, or the maximum pressure limits were exceeded.
- A NO RESULT indicates that insufficient data were collected. For example, cartridge failed integrity test, the operator stopped a test that was in progress, or a power failure occurred.

2. If an External Control fails to perform as expected, repeat external control test and/or contact Cepheid Technical Support for assistance.

3. Because of the incidence of co-infection with three or more viruses (Influenza A, Influenza B, RSV and SARS-CoV-2) is low, it is recommended that specimens undergo repeat testing if nucleic acids from three or more viruses are detected in a single specimen. Repeat testing according to the instructions in Retest Procedure.

Retest Procedure

To retest a non-determinate result (INVALID, NO RESULT, or ERROR), use a new cartridge.

Use the leftover sample from the original specimen transport medium tube or new external control tube.

1. Put on a clean pair of gloves. Obtain a new Xpert Xpress CoV-2/Flu/RSV *plus* cartridge and a new transfer pipette.
2. Check the specimen transport tube or external control tube is closed.
3. Mix the sample by rapidly inverting the specimen transport medium tube or external control tube 5 times. Open the cap on the specimen transport tube or external control tube.
4. Open the cartridge lid.
5. Using a clean transfer pipette (supplied), transfer sample (one draw) to the sample chamber with the large opening in the cartridge. Close the cartridge lid.
6. Program the sample as usual.
7. If the same error happens again, DO NOT retest a 3rd time. Instead, contact Tech Support for further troubleshooting steps.

Limitations of the Procedure

- Performance of the Xpert Xpress CoV-2/Flu/RSV *plus* test has only been established in nasopharyngeal swab and anterior nasal swab specimens. Use of the Xpert Xpress CoV-2/Flu/RSV *plus* test with other specimen types has not been ~~assessed~~assessed, and performance characteristics are unknown.
- The performance of the Xpert Xpress CoV-2/Flu/RSV *plus* test has not been specifically evaluated for nasopharyngeal swab and anterior nasal swab specimens from immunocompromised individuals.
- The clinical performance has not been established for all circulating variants of SARS-CoV-2 but is anticipated to be reflective of the prevalent variants in circulation at the time and location of the clinical evaluation. Performance at the time of testing may vary depending on the variants circulating, including newly emerging strains of SARS-CoV-2 and their prevalence, which change over time.
- Performance characteristics for influenza A were established when influenza A/H3 and influenza A/H1-2009 were the predominate influenza strains. When other influenza A viruses are emerging, performance characteristics may differ.
- As with any molecular test, mutations within the target regions of the Xpert Xpress CoV-2/Flu/RSV *plus* test could affect primer and/or probe binding resulting in failure to detect the presence of target viruses or newly emerging variants.
- Positive and negative predictive values are highly dependent on prevalence. The likelihood of a negative result being false is higher during peak activity when prevalence of disease is high. The likelihood of a positive result being false is higher during periods when prevalence is moderate to low.
- This test cannot rule out diseases caused by non-target bacterial or viral pathogens.
- The performance of this test was validated using the procedures provided in this package insert only. Modifications to these procedures may alter the performance of the test.
- Erroneous test results might occur from improper specimen collection; failure to follow the recommended sample collection, handling, and storage procedures; technical error; or sample mix-up. Careful compliance with the instructions in this insert is necessary to avoid erroneous results.

- When using the Xpert Xpress CoV-2/Flu/RSV *plus* test in the Flu Only mode, in the event of a mixed Flu A and Flu B infection where one target crosses the cycle threshold >5 cycles prior to the other target, the target with the higher titer of the two infections will be reported as POSITIVE and the lower titer target will be reported as NEGATIVE.
- False negative results may occur if on-panel viruses are present at levels below the analytical limit of detection.
- Negative results do not preclude SARS-CoV-2, influenza A, influenza B, or RSV infections and should not be used as the sole basis for diagnosis, treatment, or other patient management decisions.
- Use of this test is limited to personnel who are trained in the procedure. Failure to follow these instructions may result in erroneous results. Results from the Xpert Xpress CoV-2/Flu/RSV *plus* test should be correlated with the clinical history, epidemiological data, and other data available to the clinician evaluating the patient.
- Viral nucleic acid may persist *in vivo*, independent of virus infectivity. Detection of analyte target(s) does not imply that the corresponding virus(es) are infectious or are the causative agents for clinical symptoms.
- This test has been evaluated for use with human specimen material only.

- The Xpert Xpress CoV-2/Flu/RSV *plus* test is a qualitative test that reports Ct values for individuals that test positive for SARS-CoV-2, influenza A, influenza B, and/or RSV. These Ct values should not be interpreted as a measure of viral levels.
- The performance of this test has not been established for monitoring treatment of infection with any of the on-panel organisms. The performance of this test has not been established with postmortem specimens.
- The Xpert Xpress CoV-2/Flu/RSV *plus* test has not been validated for the testing of pooled specimens or the screening of specimens from asymptomatic individuals that do not have signs and symptoms of respiratory infection.
- The performance of this test has not been established in screening of blood or blood products.
- Anterior nasal swab and nasopharyngeal swab specimens collected in 2 mL Copan eNAT, Remel M4RT, and Remel M5 are compatible for use with the Xpert Xpress CoV-2/Flu/RSV *plus* test. Performance of the Xpert Xpress CoV-2/Flu/RSV *plus* test with specimens collected in Copan eNAT, Remel M4RT and Remel M5 has been established in analytical studies~~, however~~. However, clinical performance of the assay in these media types was not established.
- The effect of interfering substances has only been evaluated for those listed within the labeling. Interference by substances other than those described may lead to erroneous results.
- FluMist was shown to interfere with detection of low levels of SARS-CoV-2 and RSV B at concentrations >6.7x10-**6** % (v/v) and was shown to interfere with detection of low levels of RSV A at concentrations >6.7x10-**7** % (v/v).
- Recent patient exposure to FluMist® or other live attenuated influenza vaccines may cause inaccurate positive influenza results.
- Human peripheral blood mononuclear cells (PBMC) at concentrations > 2.5 x 10**5** cells/mL were shown to interfere with detection of low levels of influenza B.
- Snuff at > 0.25% (w/v) was shown to interfere with the detection of low levels of influenza A and at > 0.1% (w/v) with the detection of low levels of influenza B.
- Zicam at 15% (w/v) was shown to interfere with the detection of low levels of influenza A, influenza B and RSV A.
- Results from analytical studies with contrived co-infected samples showed potential for competitive interference of influenza B or RSV A at low concentrations (~3x LoD) when influenza A concentration is >1.7e5 RNA copies/mL or 1.7e6 RNA copies/mL, respectively. In addition, there is potential for competitive interference of influenza B at low concentration (~3x LoD) when SARS-CoV-2 concentration is >1e5 RNA copies/mL.
- Cross-reactivity with respiratory tract organisms other than those described herein may lead to erroneous results.
- As the Xpert Xpress CoV-2/Flu/RSV *plus* test does not differentiate between the N, RdRP and E gene targets, the presence of other coronaviruses in the B lineage, *Betacoronavirus* genus, including SARS-CoV and bat coronaviruses may cause a false positive result. None of these other coronaviruses are known to currently circulate in the human population.
- The RSV A primers and probes have a high degree of identity to Pangolin RSV A sequences and therefore may cross-react with Pangolin RSV A if the organism is circulating in a human population and present in a sample tested with the Xpert Xpress CoV-2/Flu/RSV *plus* test. None of these Pangolin RSV A strains are

known to currently circulate in the human population.

- This test is not intended to differentiate RSV subgroups (i.e., A or B), influenza A subtypes (i.e., H1N1, H3N2) or influenza B lineages (i.e., Yamagata, Victoria). If differentiation of specific RSV or influenza subtypes and strains is needed, additional testing, in consultation with state or local public health departments, is required.
- In some samples with very high SARS-CoV-2 viral concentrations, analysis settings intended to reduce the risks of false positive results caused by non-specific or irregular fluorescence detection may trigger an **INVALID** test ~~result~~results.

REFERENCES:

1. **XPERTR XPRESS COV-2/FLU/RSV PLUS IFU | 303-1854 | REV. C | 2025-05**

ATTACHMENTS:

None

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SUBJECT:	CEPHEID GENEXPERT IQCP AND RISK ASSESSMENT	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE:
The purpose of this risk assessment is to establish an Internal Quality Control Plan (IQCP) for frequency of Quality Control (QC) using the Cepheid GeneXpert® Instrument in the Modoc Medical Center (MMC) Lab to ensure regulatory compliance. The Risk Assessment is an evaluation of potential failures in the pre-analytical, analytical, and post-analytical phases of testing to establish measures to mitigate potential errors. The Quality Control Plan developed will describe the practices, procedures, and resources implemented to control risks identified during the Risk Assessment. It ensures the accuracy and reliability of test results, tailored to the MMC's specific test system, specimens, environment, and personnel. A Quality Assessment Phase will be established to monitor the effectiveness of the plan.

AUDIENCE:
Department Staff

POLICY:
It is the policy of MMC that staff will adhere to the guidelines described herein with regard to the frequency of setting up QC samples and how ~~mitigate~~to mitigate potential errors when using the Cepheid GeneXpert® Instrument. The tests included in this assessment are as follows: Xpert Xpress Strep A, Xpert MRSA NxG, Xpert Xpress CoV-2/Flu/RSV plus, Xpert Xpress MVP, Xpert CT/NG.

PROCEDURE:
Test System:
The Cepheid GeneXpert® Instrument was installed at MMC on November 18th, 2025. The individual tests will be validated by recommended testing from the manufacturer prior to patient testing. Refer to the validation testing documentation for each test.

Cepheid Tests:
- Xpert Xpress Strep A
- Xpert MRSA NxG
- Xpert Xpress CoV-2/Flu/RSV plus
- Xpert Xpress MVP
- Xpert CT/NG

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MMC Test System Procedures include:

- Cepheid Xpert Xpress Strep A testing
- Cepheid Xpert MRSA NxG Testing
- Cepheid Xpert CoV2 Flu RSV Testing
- Cepheid Xpert Xpress MVP Testing
- Cepheid Xpert CT NG Testing

Commercially Prepared External QC materials used at MMC for each test are as follows:

- Xpert Xpress Strep A
  - Positive: ZeptoMetrix NATtrol Strep A Positive Control REF NATSPY-6MC
  - Negative: ZeptoMetrix NATtrol Strep A Negative Control REF NATSDG-6MC
- Xpert MRSA NxG
  - Positive: ZeptoMetrix NATtrol (MRSA) Positive Control REF NATMRSA-6MC
  - Negative: ZeptoMetrix NATtrol (MRSA) Negative Control REF NATMSSE-6MC
- Xpert Xpress CoV-2/Flu/RSV plus
  - Positive: ZeptoMetrix NATtrol FLU/RSV/SARS-CoV-2 External Run Control REF NATFRC-ERC
  - Negative: ZeptoMetrix NATtrol FLU/RSV negative control REF NATCXVA9-6C
- Xpert Xpress MVP
  - Positive: ZeptoMetrix NATtrol Vaginal Positive Control REF NATVPOS-6C
  - Negative: ZeptoMetrix NATtrol Vaginal Negative Control REF NATVNEG-6C
- Xpert CT/NG
  - Positive: ZeptoMetrix NATtrol Chlamydia trachomatis Positive Control REF NATCT (434)-6MC
  - Positive: Zeptometrix NATtrol Neisseria gonorrhoeae Positive Control NATNG-6MC
  - Negative: ZeptoMetrix NATtrol CT/NG Negative Control REF NATCT/NGVEG-6MC

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Information Used to Conduct Risk Assessment

Regulatory and Accreditation Requirements:
Method verification: • The GeneXpert Xpress Strep A Bundle includes Zeptometrix QC and a Zeptometrix Strep Verification Panel • The GeneXpert MRSA NxG Bundle includes Zeptometrix QC and a Zeptometrix MRSA Verification Panel • The GeneXpert Xpress CoV-2/Flu/RSV validation includes QC samples and spiked samples per validation protocol set up ~~in-house~~in-house. • The GeneXpert Xpress MVP validation uses the Zeptometrix NATtrol Vaginal Mini Bundle, which includes QC, and a Microbiologics Vaginal Verification Panel, which includes QC organisms • The GeneXpert CT/NG Bundle includes Zeptometrix QC and a Zeptometrix CT/NG Verification Panel
Training of Personnel: Completion of training documented in Clinical Laboratory Competency binder.
Competency Assessment: New employees 6 months and 12 months after initial training and annually thereafter. Documentation filed in Clinical Laboratory Competency binder.
Proficiency Testing: Rotate personnel; all personnel review results as they are available. Proficiency testing records filed in API proficiency test binder.
IFU (Instructions For Use) Each test has an IFU from the manufacturer and a package insert for each reagent that must be followed in addition to the MMC procedures written from the IFU.

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QC:

Internal controls: Each test cartridge includes a Sample Processing Control (SPC) and Probe Check Control (PCC). These ensure the sample was correctly processed and that before the start of the PCR reaction, the fluorescence signal from the probes to monitor bead hydration, reaction-tube filling, probe integrity and fluorophore stability meet the assigned acceptance criteria, respectively.

External controls: There are no recommended frequencies from the manufacturer except that controls for each assay are to be used in accordance with local, state, federal accrediting organizations, as applicable. QC is run according to Cepheid guidelines which are for daily for 7 days and followed by weekly for three weeks and then monthly for one year. After monitoring QC for one year, if all pass, switch to external QC once for each new shipment/new lot and, as well as after system maintenance (including module replacement) and software upgrades. Monthly review of the records is performed at MMC and signed off by the medical director.

Temperature Monitoring:

Temperature monitoring records for refrigerators, freezers, and ambient range are performed twice daily and corrective action is taken as per the LAB ENVIRONMENTAL MONITORING procedure. Temperature logs are on file in Lab Temperature Logs binder.

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Risk Assessment and Determination of Risk Level

Frequency of occurrence:	**Severity of harm to patient:**
Improbable (once ever)	Negligible (temporary discomfort)
Unlikely (once every 2-3 years)	Minor (temporary injury; not requiring medical intervention)
Occasional (once per year)	Serious (impairment requiring medical intervention)
Probable (once per month)	Critical (life threatening consequences)
Frequent (once a week)	Catastrophic (Life ending)

Risk Level:
Risk level for any Risk Factor that is "Not Acceptable" must be addressed in the IQCP.
Risk level for any Risk Factor that is "Acceptable" may be included in the IQCP at the discretion of the Laboratory Director.

Note: Patient response plays a significant role in addition to AST results in guiding antimicrobial therapy and provides a limited safeguard for preventing harm in patients for which erroneous AST results are reported or results are delayed.

	Severity of Harm				
Probability of Harm	**Negligible**	**Minor**	**Serious**	**Critical**	**Catastrophic**
Frequent	unacceptable	unacceptable	unacceptable	unacceptable	unacceptable
Probable	acceptable	unacceptable	unacceptable	unacceptable	unacceptable
Occasional	acceptable	acceptable	acceptable	unacceptable	unacceptable
Remote	acceptable	acceptable	acceptable	acceptable	unacceptable
Improbable	acceptable	acceptable	acceptable	acceptable	acceptable

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Risk Assessment table

Possible Source of Error	Potential Failure	Phase	Severity	Probability	Risk Index Before	Solutions to Minimize Risk	Risk Index After
Specimen							
Test is performed in incorrect patient population	Inaccurate result	Pre-analytical	Serious	Occasional	Acceptable	*Package insert and training *Establish training for specimen collectors *Establish sample rejection criteria	Acceptable
Wrong specimen type collected	No result or inaccurate result	Pre-analytical	Serious	Occasional	Acceptable	*Establish training for specimen collectors *Establish sample rejection criteria	Acceptable
Wrong collection device used	No result or inaccurate result	Pre-analytical	Serious	Occasional	Acceptable	*Package insert and training; Manufacture recommends appropriate collection device *Establish sample rejection criteria	Acceptable
Specimen not collected correctly	No result or inaccurate result	Pre-analytical	Serious	Occasional	Acceptable	*Package insert and specimen collection guides *Establish training for specimen collectors *Follow manufacturer's instructions	Acceptable
Improper specimen storage or transit	No result or inaccurate result	Pre-analytical	Serious	Occasional	Acceptable	*Package Insert *Establish training for specimen collectors on proper shipping and handling	Acceptable

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						*Follow manufacturer's instructions	
Target/Analyte recovery low	Potential false negative result	Analytical	Serious	Remote	Acceptable	*Extraction is automated *Specimen Processing Control *Repeat test according to retest procedure *Adhere to proper specimen collection	Acceptable
Specimen volume insufficient for retest	No result	Analytical	Serious	Occasional	Acceptable	*Package insert and training *Collect additional specimen per labeling (as applicable)	Acceptable
Testing Personnel							
Cartridge knocked over/dropped after reagents added	No result	Pre-analytical	Serious	Occasional	Acceptable	*Training *Annual competency assessment	Acceptable
Wrong cartridge used for test	No result or inaccurate result	Pre-analytical	Serious	Occasional	Acceptable	*Package insert and training *Verify cartridge matches test ordered	Acceptable
Incorrect assay selection from menu	Alternate/unexpected result	Pre-analytical	Serious	Occasional	Acceptable	*Package insert and training *Establish training for operators	Acceptable
Incorrect barcode label placement on cartridge	Mechanical failure No result	Pre-analytical or analytical	Serious	Occasional	Acceptable	*Training *Remove or reposition label *Retest with new cartridge if applicable	Acceptable
Too much specimen added to cartridge	No result or inaccurate result	Analytical	Serious	Remote	Acceptable	*Package insert, training and Internal Controls	Acceptable

						*Review test result *Follow instructions for retesting procedure	
Too little specimen added to cartridge	No result or inaccurate result Potential false negative	Analytical	Serious	Occasional	Acceptable	*Package insert, training and cartridge preparation cards *Adhere to package insert procedure	Acceptable
Sample omitted	Potential false negative	Analytical	Serious	Remote	Acceptable	*Package insert, training and cartridge preparation cards *Visually inspect cartridge to ensure sample addition	Acceptable
Specimen added to wrong place in cartridge	No result or inaccurate result	Analytical	Serious	Improbable	Acceptable	*Package insert, training and cartridge preparation cards *Follow manufacturer's instructions *Establish annual competency assessment	Acceptable
Incorrect result read/reported by operator	Inaccurate result	Post-analytical	Serious	Occasional	Acceptable	*Easy to read test result print out *Ability to connect to LIS *Training on Manual Result Reading	Acceptable
Reagents							
Improper cartridge and reagent storage or shipping conditions	No result or inaccurate result	Pre-analytical	Serious	Remote	Acceptable	*Internal controls and Probe Check Control *Monitor storage/shipping temperatures when possible	Acceptable

						*Implement QA processes to monitor appropriate shipping and/or storage conditions *Test new lot/shipment with external controls	
Reagents added incorrectly/omitted	No result or inaccurate result	Pre-analytical	Serious	Occasional	Acceptable	*Internal controls, on-board reagents, training, cartridge preparation cards *Visually verify presence of on-board reagents *Follow manufacturer's instructions	Acceptable
Cartridge or reagent defects	No result or inaccurate result	Pre-analytical	Serious	Remote	Acceptable	*Verify appropriate packaging *Training *Internal controls *Visually inspect for source of defects *Follow manufacturer's instructions; retest	Acceptable
Reagents not reconstituted properly	No result	Analytical	Serious	Remote	Acceptable	*Internal controls *Follow manufacturer's instruction; retest	Acceptable
Inhibition of PCR	No result	Analytical	Serious	Remote	Acceptable	*Internal controls *Follow manufacturer's instruction; retest	Acceptable

						*Establish specimen collection training	
Expired reagents	No result or inaccurate result	Analytical	Serious	Remote	Acceptable	*System will not allow cartridge to be run if expired *Extended product shelf life only if verified by manufacturer *Visually verify expiration date; discard expired cartridges immediately	Acceptable
Environment							
Ambient temperature not optimal	No result	Analytical	Serious	Occasional	Acceptable	*Use Fans *Call Maintenance *Follow manufacturer's maintenance procedure	Acceptable
Specimen contaminated with target/analyte carry-over	Potential False Positive	Analytical	Serious	Occasional	Acceptable	*Change gloves when handling different specimens *Process samples individually	Acceptable
Work area contaminated with target/analyte	Potential False Positive	Post-analytical	Serious	Occasional	Acceptable	*Closed test system *Follow manufacturer's maintenance procedure	Acceptable
Test System							
Untrained personnel access system	No result or inaccurate result	Pre-analytical or analytical	Serious	Improbable	Acceptable	*Ability to create unique user log-in and timed operator lockout *Define user IDs *Establish training for operators	Acceptable

Pressure too high or too low	No result	Analytical	Serious	Remote	Acceptable	*System checks and internal controls *Follow manufacturer's maintenance procedure	Acceptable
Cartridge not inserted correctly into instrument	No result	Analytical	Serious	Improbable	Acceptable	*Module door will not shut *Adjust appropriately and restart	Acceptable
Test stopped and restarted by operator	No result	Analytical	Serious	Occasional	Acceptable	*System software will not retest duplicate cartridge serial number *Repeat test with new cartridge	Acceptable
PCR contamination within system	Potential False Positive	Analytical	Serious	Remote	Acceptable	*Closed test system *Cleaning procedure detailed in ~~operators~~operator's manual *Establish training for operators *Change gloves frequently and appropriately *Discard used cartridges *Follow manufacturer's maintenance procedure	Acceptable
Air bubbles in reaction tube	No result	Analytical	Serious	Remote	Acceptable	*Internal and probe check controls *Follow proper specimen addition procedure	Acceptable

						*Contact facilities to confirm clean and uninterrupted power *Contact manufacturer to report observation as appropriate	
Power failure	No result	Analytical	Serious	Occasional	Acceptable	*Built-in fuse *Connect system to UPS *Contact manufacturer if power failures do not resolve	Acceptable
Thermocycler temperature out of range	No result	Analytical	Serious	Remote	Acceptable	*System control check status: system control checks temperature, optics and mechanical integrity of each cartridge *XpertCheck *Follow manufacturer's maintenance procedure	Acceptable
Optical signal error	No result	Analytical	Serious	Remote	Acceptable	*System control check status: system control checks temperature, optics and mechanical integrity of each cartridge *XpertCheck *Follow manufacturer's maintenance procedure	Acceptable
Incorrect result communicated to laboratory LIS - automated data transfer	No result or inaccurate result	Post-analytical	Serious	Improbable	Acceptable	*Verify host test communication settings in GeneXpert and LIS	Acceptable

REFERENCE #	Click or tap here to enter text.	EFFECTIVE: Dec 2025
SUBJECT:	CEPHEID GENEXPERT IQCP AND RISK ASSESSMENT	REVISED
DEPARTMENT:	LABORATORY	

Final Quality Control Plan (QCP) for Cepheid Tests

Based on our Risk Assessment and Quality Assessment, the QCP for Cepheid tests will be as follows:

Per test: QC shall be run daily for 7 days, followed by weekly for three weeks and then monthly for one year. After monitoring QC for one year, if all pass, switch to external QC once for each new shipment/new lot and, as well as after system maintenance (including module replacement) and software upgrades. Monthly review of the records is performed at MMC and signed off by the medical director.

Records of the QC will be kept in a QC binder for the Cepheid and will be reviewed monthly by the lab manager.

REFERENCES:

Cepheid Document D29738 REV. A, APPENDIX B SEPTEMBER 2017

REFERENCE #	7500.25	EFFECTIVE 5/2023
SUBJECT:	7500.25 MICROBIOLOGY QUALITY CONTROL	REVISED 1/2025
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to Quality control of media, accessory reagents, Microbial identification systems, and antibiotic sensitivities in the Microbiology department at Modoc Medical Center (MMC).

AUDIENCE

Department wide

TERMS & DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the rules described herein with regard to policies and procedures in the MMC Microbiology Department.

PRINCIPLE:

On January 1, 2016, the Centers for Medicare and Medicaid Services (CMS) established new guidelines for quality control (QC) testing. QC requirements follow CMS/Clinical Laboratory Improvement Amendments (CLIA) default requirements. Alternatively, labs will need to implement an Individual Quality Control Plan (IQCP) in accordance with applicable regulations and/or accreditation requirements. For media end users should maintain Certificates of Analysis (CofA) for each lot as part of their records of manufacturer quality control testing. Refer to CLSI M22-A3 for a list of CLSI-exempt media.

PROCEDURE

MEDIA RECIPT and INSPECTION: (See table below)

Process	Instructions	Satisfactory	Unsatisfactory
Media Arrival	Record the amount of media received, the arrival date (optional), lot numbers, and expiration dates in the QC records. Sequester the lot(s) pending QC testing. Label boxes with the received date.	Boxes properly labeled. Dates, lot numbers, and amount received are recorded in QC records. Media are stored at 2-8 °C.	Boxes unlabeled. Required information not recorded in QC records. Failure to store media at recommended temperatures.
Visual Inspection	Remove media packages from outer boxes. Examine the packages for obvious damage. For every 10-20 plates in the lot, remove 1 plate. Perform visual inspection. Record results.	1. Intact petri dish 2. Agar attached to bottom of dish 3. Blood containing medium is opaque 4. Medium is appropriate color 5. Minimal moisture in package 6. Not frozen or desiccated 7. No visible contamination 8. Agar has even depth of at least 3 mm 9. Smooth agar surface 10. No precipitates	1. Cracked/damaged petri dish 2. Agar dislodged or loose 3. Hemolysis of blood in medium 4. Color differs from characteristic appearance 5. Excessive accumulation of moisture 6. Evidence of freezing or medium desiccated 7. Gross contamination 8. Uneven or underfilled plates/agar desiccation 9. Excessive bubbles/rough surface 10. Presence of precipitates
Sterility Check (optional)	Incubate the plates removed for examination during the Visual Inspection (see above) and incubate at 35 °C for ≤72 hours. Record results.	No bacterial or fungal growth	Bacterial or fungal growth detected

If any problems are noticed in the visual inspection, immediately notify the Technical Support Department at (800) 266-2222 ext. 5598, or on our website, or Email: TechnicalServices@HardyDiagnostics.com

The certificates of analysis are maintained for each lot and ~~shipment, and~~shipment and signed after 10% of the media has been inspected for the above criteria. Found here: https://hardydiagnostics.com/searchdocuments/coa/search

Continued QA of media:

- Examine each unit of media for physical defects or contamination as described in the table above immediately before inoculation with patient specimens or organisms.
- Examine each unit of media that has been inoculated/incubated for possible contamination or other defect by observing for: 1) growth outside the primary streak (plated media); 2) growth on only one unit of media inconsistent with growth on other units when multiple units are inoculated with the same specimen; 3) unexplainable results (e.g., fungus growing on the same lot of blood agar plates from several patient's CSF specimens).

QC of Media Table:

Manufacturer/Media	Ref #	Positive QC	Negative QC	Positive Result	Negative Result	Incubation
Hardy Blood Agar	A10	*Exempt				
Hardy Brucella with H+K	AG301	*Exempt				
Hardy Chocolate Agar	H25	*Exempt				
Hardy CNA Agar	A50	*Exempt				
Hardy CNA/MAC	J32	*Exempt				
Selective Strep Agar	A70	*Exempt				
HardyCHROM MRSA	G307	S. aureus 43300	S. aureus 29213	Pink	Inhibited	35°C Aerobic
Hardy MacConkey (MAC)	G35	*Exempt				
Hardy Modefied Thayer Martin (MTM)	E32	*Exempt				
Hardy R2A Agar	G54	*Not Used for PT testing				
Hardy Thioglycolate broth	K24	*Exempt				
Hardy V agar (Only performed for troubleshooting purposes)	A80	*G. vaginalis ATCC 14018*	S. agalactiae 12386	Growth; pinpoint w/ hazy B-hemolysis	Growth larger colonies; B-hemolysis	CO2 for G. vag, aerobic for S. agal

*End users of commercially prepared culture media should perform QC testing in accordance with applicable government regulatory agencies, and in compliance with accreditation requirements. Hardy Diagnostics recommends end users check for signs of contamination and deterioration and, if dictated by laboratory quality control procedures or regulation, perform quality control testing to demonstrate growth or a positive reaction and to demonstrate inhibition or a negative reaction, if applicable. Hardy Diagnostics quality control testing is documented on the certificates of analysis (CofA) available from Hardy Diagnostics Certificates of Analysis website. In addition, refer to the following document "Finished Product Quality Control Procedures," for more information on QC or see reference(s) for more specific information.

ACCESSORY REAGENTS

Reagent	Ref #	Positive QC	Negative QC	Positive Result	Negative Result	Frequency
A Disk	231041	S. pyogenes 12384	S. agalactiae	Zone	No Zone	New Lot
B10 Disk	231268	H. influenzae	S. epidermidis	No Zone	Zone	New Lot
BD GasPak Anaerobe	260683	**Exempt, ~~however~~however, confirm that the Oxygen indicator in the sachet has not turned color to ~~insure~~ensure anaerobic conditions in each bag used.**				
Catalase	Z62	S. aureus 29213	E. Faecalis	Bubbles	No Bubbles	Weekly
Cefinase	231650	S. aureus 29213	H.influenzae 10211	Yellow/Red	No change	Weekly Reactions can take up to 1 hr
Coagulase	ST200	Positive Ctl (included)	Negative Ctl (included)	Clumping	No Clumping	Weekly
Gram stain	In house produced	S. aureus 29213	E. Coli 25922	Purple cocci	Pink Rods	Weekly
Oxidase	261181	P.aeruginosa 27853	E. coli 25922	Purple	Colorless/Pink	Weekly
P disk	231047	S. pneumoniae 6305	S. pyogenes 12384	>14 mm	No zone	New Lot
StrepPro	PL030HD	Positive Ctl (included)	Negative (extraction reagent)	Agglutination	No Agglutination	Weekly

Refer to the IFU for more information on how to perform QC. QC should be performed whenever switching to a new lot/Shipment.

Log results on Microbiology Reagent Quality Control Log

MICROSCAN PC45 QC

1. Fresh subcultures are made of each QC organism the day prior to panel inoculation for optimal performance.
2. Verify performance of turbidity meter with 0.5 Mcfarland standard daily and record on Micro QC log. Expected turbidity reading is 0.08 with a margin of error of 0.02.

3. MIC susceptibility and/or ID testing for Quality Control is performed weekly and with each new lot of panels as indicated in the chart below. Only use the specific ATCC strains specified for these panels:

	Frequency	Used For
E. faecalis 29212	**Weekly**	ID and MIC Test Battery (and Reagent QC NIT -, and PYR +)
S. aureus 29213*	**Weekly**	ID and MIC Test Battery And Reagent QC NIT (+)
S. Aureus 43300	**Weekly**	MIC only
E. coli 35218	**Weekly**	MIC only
E. faecalis 51299	**Weekly**	MIC only
S. aureus BAA-977	**Weekly**	MIC only
M. luteus 49732	New Lot	ID only
S. gallolyticus 49147	New Lot	ID only, plus (ARA -) And Reagent QC PYR (-)
S. gallinarum 49148	New Lot	ID only, plus (PGR +)
S. saprophyticus 49907	New Lot	ID only, plus (NOV +)
E. raffinosus 49464	New Lot	ID only, plus (ARA +)
S. pneumoniae 49136	New Lot	ID only, plus (OPT -) (BAC -)

*Done by Turbidity inoculation for gentamycin

4. Inoculate the panels with the RENOK system, final well concentration of 3-7x10^5 must be achieved. Purity plates are prepared by streaking inoculum to BAP and incubating at 35C non-CO_2. Incubate panels for 16-20 hours at 35°C ± 1°C in a non-CO2 incubator.
5. After incubation, wipe the bottom of panel with lint-free tissue after calibration/start up procedures.
6. QC results must be in range in order to report patient results. Corrective action is required anytime QC results are out of limits.
7. QC records printed out from the Autoscan-4 are kept in a binder and reviewed monthly by the lab manager and lab director.
8. The acceptability of the identification media and antimicrobial agents should be checked by testing organisms with known reactions and MIC ranges.
9. The Quality Control (QC) Table is a comprehensive table which includes MIC ranges to cover all dilutions on the MicroScan® Dried Panels; read after 16-20 hours incubation. You may need to extrapolate from the QC Table, based on the panel type. Panel specific QC information can also be found in the LabPro Information Manager, and in the procedures related to the panels.

Quality Control Organism	Abbr.	QC Table Endpoint	Dilution(s) on Panel	Extrapolated Quality Control Ranges
E. faecalis ATCC 29212	Gm	4->8	1-4, 6	4, 6->6
E. faecalis ATCC 29212	Ox	4->4	0.5-2	>2
E. faecalis ATCC 29212	Tim	8/2->8/2	8/2	≤8/2->8/2
S. aureus ATCC 29213	P/T	≤1/4-2/4	4/4-8/4	≤4/4

1. **Dried Gram Pos Antimicrobic Quality Control Table**

Antimicrobial Agent	Abbr.	*E. faecalis*[1] ATCC 29212 MIC Range[2]	*S. aureus* ATCC 29213 MIC Range	*E. faecalis* ATCC 51299 MIC Range	*E. coli* ATCC 35218 MIC Range	*S. aureus* ATCC 43300 MIC Range	*S. aureus* ATCC BAA-977 MIC Range
Amoxicillin/K Clavulanate	Aug	≤2/1	≤2/1	N/A	4/2-16/8	N/A	N/A
Ampicillin	Am	0.25-1	≥0.5	N/A	N/A	N/A	N/A
Ampicillin/Sulbactam	A/S	≤4/2	≤4/2	N/A	≤4/2->16/8	N/A	N/A
Azithromycin	Azi	N/A	≤2	N/A	N/A	N/A	N/A
Cefazolin	Cfz	N/A	≤2	N/A	N/A	N/A	N/A
Cefepime	Cpe	16->16	≤2-4	N/A	N/A	N/A	N/A
Cefotaxime	Cft	N/A	≤4	N/A	N/A	N/A	N/A
Cefoxitin Screen	CfxS	N/A	≤4	N/A	N/A	>4	N/A
Ceftriaxone	Cax	N/A	≤4	N/A	N/A	N/A	N/A
Cephalothin	Cf	N/A	≤2	N/A	N/A	N/A	N/A
Chloramphenicol	C	4-8	4-16	N/A	N/A	N/A	N/A
Ciprofloxacin	Cp	≤1	≤0.25-0.5	N/A	N/A	N/A	N/A
Clindamycin	Cd	>2	≤0.25-0.5	N/A	N/A	N/A	N/A
Daptomycin	Dap	1-4	≤0.25-1	N/A	N/A	N/A	N/A
Ertapenem	Etp	4->4	≤2	N/A	N/A	N/A	N/A
Erythromycin	E	1-4	≤0.25-1	N/A	N/A	N/A	N/A
Gatifloxacin	Gat	≤0.5-1	≥0.5[3]	N/A	N/A	N/A	N/A
Gentamicin	Gm	4->8	≤1[4]	N/A	N/A	N/A	N/A
Gentamicin Synergy Screen	GmS	≤500	N/A	>500	N/A	N/A	N/A
Imipenem	Imp	≤1-2	≤1	N/A	N/A	N/A	N/A
Inducible Clindamycin Test	ICd	N/A	≤4/0.5	N/A	N/A	N/A	>4/0.5
Levofloxacin	Lvx	≤0.5-2	≤0.5	N/A	N/A	N/A	N/A
Linezolid	Lzd	1-4	1-4	N/A	N/A	N/A	N/A
Meropenem	Mer	2-8	≤1	N/A	N/A	N/A	N/A
Moxifloxacin	Mxf	≤0.5	≤0.5	N/A	N/A	N/A	N/A
Nitrofurantoin	Fd	≤32	≤32	N/A	N/A	N/A	N/A
Norfloxacin	Nxn	≤4	≤4	N/A	N/A	N/A	N/A
Ofloxacin	Ofl	≤2-4	≤2	N/A	N/A	N/A	N/A
Oxacillin	Ox	>2	≤0.25-0.5	N/A	N/A	N/A	N/A
Penicillin	P	0.5-2	≥0.25	N/A	N/A	N/A	N/A
Piperacillin/ Tazobactam	P/T	≤1/4-4/4	≤1/4-2/4	N/A	N/A	N/A	N/A
Rifampin	Rif	≤1	≤1	N/A	N/A	N/A	N/A
Streptomycin Synergy Screen	StS	≤1,000	N/A	>1,000	N/A	N/A	N/A
Synercid	Syn	2->2	≤0.25-1	N/A	N/A	N/A	N/A
Tetracycline	Te	4-8, 128	≤1	N/A	N/A	N/A	N/A
Trimethoprim/ Sulfamethoxazole	T/S	≤0.5/9.5	≤0.5/9.5	N/A	N/A	N/A	N/A
Vancomycin	Va	1-4	0.5-2	N/A	N/A	N/A	N/A

1. The range for some antimicrobics do not agree with the Acceptable Control Ranges listed in the CLSI M100 Document.
Missing Translation for glossary ID
2. Range = Expected value (µg/mL)
3. Results out of range high when using the Prompt Inoculation System could indicate too high of an inoculum concentration. Repeat by carefully controlling the inoculum density.
4. For Turbidity inoculation method only. Gentamicin should be considered in control with the Prompt Inoculation System if gentamicin MIC is ≤1-2.

2. **Dried Gram Pos Identification Substrate Quality Control Table**

	S. aureus ATCC[2] 29213	*E. faecalis* ATCC 29212	*S. gallolyticus* ATCC 49147	*M. luteus*[1] ATCC 49732
CV	-	+	N/A	N/A
MS	+	+	+	-
NIT	+	-	-	N/A
NOV[3]	-	N/A	-	N/A
PGR[3]	-	-	-	N/A
IDX	+	N/A	N/A	-
VP	+	+	+	-
OPT[3]	+	+	+	N/A
PHO	+	N/A	-	N/A
BE	-	+	+	N/A
PYR	N/A	+	-	N/A
ARG	+	+	-	N/A
PGT	+	+	+	-
URE	+[4]	-	-	N/A
MAN	+	+	+	-
LAC	+	N/A	+	-
TRE	N/A	+	+	-
MNS	N/A	+	+	-
NACL	N/A	+	-	N/A
SOR	N/A	+	-	N/A
ARA[3]	N/A	-	-	N/A
RBS	N/A	+	-	N/A
INU	N/A	-	+	N/A
RAF	N/A	-	+	N/A
BAC[3]	N/A	+	+	N/A
PRV	N/A	+	-	N/A
TFG	+	+	+	N/A

1. *M. luteus* ATCC 49732 read on MicroScan instrumentation at 16-18 hrs may show an N/A on the MIC section of the QC report. This has no impact on identification substrate Quality Control results at any read time.
2. American Type Culture Collection, Manassas, VA USA.
3. Refer to Additional Test Table for additional positive or negative reactions as needed for each biochemical.
4. May require 24 hour incubation.

N/A = Not Applicable

NOTE: Quality Control organisms are selected to provide positive/negative reactions for all identification substrates. As a result of this, the organism identifications may vary from that stated in the QC chart. The acceptability of product performance should be determined by comparison of test results, not identification.

Additional Test Table

Organism	Substrate	Expected Result
S. saprophyticus ATCC 49907	NOV	+
S. gallinarum ATCC 49148	PGR	+
S. pneumoniae ATCC 49136	OPT	-
	BAC	-
E. raffinosus ATCC 49464	ARA	+

3. **Dried Gram Pos Identification - Streamlined ID QC***

QC Organism	ATCC Number	Key Indicator Substrate	Expected Result	Out-of-Specification Result	Labile Substrate
S. gallolyticus	49147	ARA	-	+	Yes

* Key indicators for Quality Control are provided for streamlined QC per CLSI document M50-A.[31] Before implementing the streamlined QC program, refer to the M50-A document for details and check with applicable regulatory agencies and inspecting groups to confirm acceptance.

MICROSCAN NUC102 QC

1. Fresh subcultures are made of each QC organism the day prior to panel inoculation for optimal performance.
2. MIC susceptibility and/or ID testing for Quality Control is performed weekly and with each new lot of panels as indicated in the chart below. Only use the specific ATCC strains specified for these panels.
3. Reagent QC is also performed weekly or with new lot of reagents opened as indicated in the chart below.

NUC102 Organism	Frequency	Used For
E. coli 25922	Weekly	ID and MIC Test Battery (and reagent QC VP -, IND +, and TDA -)
P. aeruginosa 27853	Weekly	ID and MIC Test Battery (and reagent QC IND -)
E. coli 35218	Weekly	MIC only
K. pneumoniae 700603	Weekly	MIC only
K. oxytoca 49131	Bi-Weekly with VP reconstitution	ID only (and reagent QC VP +)
P. vulgaris 49132	Monthly/New Lot	ID only (and reagent QC TDA +)
P. stuartii 49809	New Lot	ID only (and URE +)
P. putida 49128	New Lot	ID only (and TAR +, NIT-, K4-)
R. insidosa 49129	New Lot	ID only (and and To4 +)
S. haliotis 49138	New Lot	ID only (and OF/G -)
E. faecalis 29212	New Lot	ID only (and P4 -)
S. aureus 29213	New Lot	ID only (and Cf8 -)

4. Inoculate the panels with the RENOK system, final well concentration of $5x10^5$ must be achieved. Purity plates are prepared by streaking inoculum to BAP and incubating at 35C non-CO_2. Incubate panels for 16-20 hours at 35°C ± 1°C in a non-CO2 incubator.
5. After incubation, wipe the bottom of panel with lint-free tissue after calibration/start up procedures.
6. QC results must be in range in order to report patient results. Corrective action is required anytime QC results are out of limits.
7. QC records printed out from the Autoscan-4 are kept in a binder and reviewed monthly by the lab manager and lab director.
8. The acceptability of the identification media and antimicrobial agents should be checked by testing organisms with known reactions and MIC ranges.
9. The Quality Control (QC) Table is a comprehensive table which includes MIC ranges to cover all dilutions on the MicroScan® Dried Panels; read after 16-20 hours incubation. You may need to extrapolate from the QC Table, based on the panel type. Panel specific QC information can also be found in the LabPro Information Manager, and in the procedures related to the panels.
10. Quality control Acceptability is seen below:

Quality Control Organism	Abbr.	QC Table Endpoint	Dilution(s) on Panel	Extrapolated QC Range
E. coli ATCC 25922	Ak	≤2-8	2, 8-32	≤2-8
E. coli ATCC 25922	A/S	1/0.5-4/2	8/4-16/8	≤8/4
P. aeruginosa ATCC 27853	Te	8, 128	1-8	8->8
P. aeruginosa ATCC 27853	Tim	≤8/2-32/2	16/2, 64/2	≤16/2, 64/2

Dried Gram-Negative Quality Control Table

Antimicrobial Agents	Abbr.	*E. coli*[1] ATCC 25922 MIC Range[2]	*P. aeruginosa*[1] ATCC 27853 MIC Range	*E. coli*[1] ATCC 35218 MIC Range	*K. pneumoniae*[1] ATCC 700603 MIC Range
Amikacin	Ak	≤2-8	≤2-8	N/A	N/A
Amoxicillin/K Clavulanate	Aug	2/1-8/4	N/A	4/2-16/8	N/A
Ampicillin	Am	2-8	>128	N/A	N/A
Ampicillin/Sulbactam	A/S	≤1/0.5-4/2	>32/16	8/4-32/16	N/A
Aztreonam[3]	Azt	≤1	2-8	N/A	≥2
Cefazolin	Cfz	≤2-4	>16	N/A	N/A
Cefepime	Cpe	≤1	≤1-4	N/A	N/A
Cefixime	Cfe	≤1	>2	N/A	N/A
Cefotaxime[3,4,5]	Cft	≤2	8-32	N/A	≥2
CftE (Cefotaxime)[3]	CftE	≤1	N/A	N/A	>1
Cefotaxime/K Clavulanate[4,5]	Cft/CA	N/A	N/A	N/A	N/A
Cefotetan	Ctn	≤4	>32	N/A	N/A
Cefoxitin	Cfx	≤2-4	>16	N/A	N/A

Antimicrobial Agents	Abbr.	*E. coli*[1] ATCC 25922 MIC Range[2]	*P. aeruginosa*[1] ATCC 27853 MIC Range	*E. coli*[1] ATCC 35218 MIC Range	*K. pneumoniae*[1] ATCC 700603 MIC Range
Cefpodoxime[3]	Cpd	≤2	N/A	N/A	>4
Ceftazidime[3,4,5]	Caz	≤1	≤1-4	N/A	≥2
Ceftazidime/K Clavulanate[4,5]	Caz/CA	N/A	N/A	N/A	N/A
Ceftizoxime	Cz	≤2	16->32	N/A	N/A
Ceftriaxone[3]	Cax	0.03-0.12	8-64	N/A	≥2
Cefuroxime	Crm	≤2-8	>16	N/A	N/A
Cephalothin	Cf	4-16	>16	N/A	N/A
Chloramphenicol	C	≤2-8	>16	N/A	N/A
Ciprofloxacin	Cp	≤0.25	≤0.25-1	N/A	N/A
Doripenem	Dor	0.015-0.06	0.12-0.5	N/A	N/A
Ertapenem	Etp	0.004-0.016	2-8[6]	N/A	N/A
ESBL-a (Cefpodoxime)[3]	ESa	≤4	>4	N/A	>4
ESBL-b (Ceftazidime)[3]	ESb	≤1	≤1->1	N/A	>1
Gentamicin	Gm	≤0.5-2	1-4	N/A	N/A
Imipenem	Imp	≤0.5	1-4	N/A	N/A
Levofloxacin	Lvx	≤0.25	0.5-4	N/A	N/A
Meropenem	Mer	≤0.5	≤0.5-1	N/A	N/A
Moxifloxacin	Mxf	0.008-0.06	1-8[6]	N/A	N/A
Nitrofurantoin	Fd	≤32	>64	N/A	N/A
Norfloxacin	Nxn	≤2	≤2-4	N/A	N/A
Piperacillin	Pi	≤8	≤8	N/A	N/A
Piperacillin/Tazobactam	P/T	1/4-4/4	1/4-8/4	0.5/4-2/4	N/A
Tetracycline	Te	≤0.5-2	8, 128	N/A	N/A
Ticarcillin/K Clavulanate	Tim	≤8/2	≤8/2-32/2	≤8/2-16/2	N/A
Tigecycline	Tgc	≤1	N/A	N/A	N/A
Tobramycin	To	≤0.5-2	≤0.5-1	N/A	N/A
Trimethoprim	T	≤8	>8	N/A	N/A
Trimethoprim/Sulfamethoxazole	T/S	≤0.5/9.5	8/152->8/152	N/A	N/A

1. The range of some antimicrobics do not agree with the Acceptable Quality Control Ranges listed in the CLSI M100 Document.
2. Range = Expected value (µg/mL). FDA and CLSI recommended QC ranges; can be extrapolated to match panel dilutions.
3. When using the ESBL screening function, this additional endpoint may be obtained with *K. pneumoniae* ATCC 700603.
4. When using the ESBL confirmation function, a ≥ 3 twofold concentration decrease in an MIC for **both** antimicrobial agents tested in combination with K. Clavulanate versus its MIC when tested alone may be obtained with *K. pneumoniae* ATCC 700603. Actual QC ranges for ceftazidime or cefotaxime with K. Clavulanate have not been established.
5. When using the ESBL confirmation function, a <3 twofold concentration decrease in an MIC for **both** antimicrobial agents tested in combination with K. Clavulanate versus its MIC when tested alone may be obtained with *E. coli* ATCC 25922. Actual QC ranges for ceftazidime or cefotaxime with K. Clavulanate have not been established.
6. Organism intended for Quality Control testing only.

Dried Gram-Negative Quality Control Identification Media

	E. coli ATCC 25922[1]	*P. aeruginosa* ATCC 27853	*K. oxytoca* ATCC 49131	*P. vulgaris* ATCC 49132
GLU	+	-	+	+
SUC	-	-	+	+
SOR	V	-	+	-
RAF	-	-	+	-
RHA	+	-	+	-
ARA	+	-	+	-
INO	-	-	+	-
ADO	-	-	+	-
MEL	V	-	+	-
URE[2]	-	V	V	V
H_2S	-	-	-	+
IND	+	-	+	+
LYS	+	-	+	-
ARG	-	+	-	-
ORN	+	-	-	-
TDA	-	-	-	+
ESC	-	-	+	V
VP	-	-[3]	+	V
CIT	-	+	+	V
MAL	-	+	+	-
ONPG	+	-	+	-
TAR[2]	-[4]	V	V	V
ACE	-	+[5]	-	V
CET	-	+	-	-

	E. coli ATCC 25922[1]	*P. aeruginosa* ATCC 27853	*K. oxytoca* ATCC 49131	*P. vulgaris* ATCC 49132
OF/G[2]	+	V	+	+
OF/B	Blue, Blue-Green, Green	Blue, Blue-Green	Blue, Blue-Green, Green	Blue, Blue-Green, Green
P_4[2]	+	+	+	V
NIT[2]	+	V	+	+
DCB	Gray to Yellow	Gray to Yellow-Gray	Yellow	N/A
Cl_4	-	-	-	+
Fd_{64}	-	+	-	N/A
Cf_8[2]	V	+	V	V
K_4[2]	V	+	V	N/A
To_4[2]	-	-	-	N/A

1. American Type Culture Collection, Manassas, VA USA
2. Refer to the Dried Gram-Negative Additional Test Table for additional positive or negative reactions as needed for each biochemical.
3. *P. aeruginosa* ATCC 27853 may produce a pale pink color in VP after 18 hours of incubation which should be interpreted as negative.
4. A weak positive reaction may be obtained with *E. coli* ATCC 25922 if panels are incubated longer than 18 hours.
5. May require 48 hours incubation.

N/A = Not Applicable

NOTE: Quality Control organisms are selected to provide positive/negative reactions for all identification substrates. As a result, the organism identifications may vary from that stated in the QC chart. The acceptability of product performance should be determined by comparison of test results, not identification.

Dried Gram-Negative Additional Test Table

Organism	Substrate	Expected Result
P. stuartii ATCC 49809	URE	+
P. putida ATCC 49128	TAR	+
	NIT	-
	K_4	-
S. haliotis ATCC 49138	OF/G	-
E. faecalis ATCC 29212	P_4	-
S. aureus ATCC 29213	Cf_8	-
R. insidiosa ATCC 49129	To_4	+

Dried Gram Neg Identification - Streamlined ID QC[1]					
QC Organism	ATCC Number	Key Indicator Substrate	Expected Result	Out-of-Specification Result	Labile Substrate
E. coli	25922	ONPG	+	-	Yes
E. coli	25922	ARA	+	-	Yes

1. Key indicators for Quality Control are provided for streamlined QC per CLSI document M50-A.[26] Before implementing the streamlined QC program, refer to the M50-A document for details and check with applicable regulatory agencies and inspecting groups to confirm acceptance.

HNID

1. On the first day with a potential HNID: Isolate organism and do a lawn inoculum of the pure culture to ensure you will have enough to run the HNID.
2. Start the 4 QC organisms from Kwik sticks on **chocolate** plates at the **same time** you do the patient isolate: (These are found in the bottom of the blood bank refrigerator. Make a lawn inoculum and put these in **CO2** pouches.)
    a. N. lactamica
    b. M. catarrhalis
    c. H. influenza
    d. A. aphropolis (parainfluenza)
3. After incubation of organisms: Pull out 5 HNID plates and 5 HNID inoculum broths from the micro fridge (1 for the patient 1 for each QC organism) and let come to room temp.

4. Prepare a **3 McFarland equivilant** of each sample by inoculating the HNID broth with organism and vortexing to mix. For *Neisseria sp.* A **4 Mcfarland turbidity** is desired. (The McFarland tubes to compare your inoculum to are in the rack in the micro hood. Mix the tube by inversion to ensure homogeneity before comparing.)
5. Pipette 50µL, into each of the 21 wells of the HNID plate for each organism. Prepare purity plate from extra drop of inoculum broth.
6. Add oil (2-3 drops) to the URE well.
7. Cover the plates and incubate for 4 hours.
8. After 4 hours, read the plates as described in the procedure manual. Each well will need to be manually interpreted as positive or negative based on the reactions listed in the IFU. Some wells need reagents added, but don't do that until you have read the wells that it tells you to read first to avoid misinterpretation.
    a. PRO, NGL, ZAR get 1 drop of peptidase reagent with 3-5 minute incubation.
    b. No3, NO2 get 1 drop of 0.8 Sulfanilic acid, and 1 drop of 0.5% N, N-Dimethyl-α-Naphthylamine with a 3-5 minute incubation period.
    c. IND gets 1-2 drops, color should develop immediately.
9. The Biotype Lookup Program in the LabPro Information Manager and on the Beckman Coulter website is used for the identification of unknown test organisms. The program lists the organism identification and the relative probabilities, in the order of the highest probability, up to a cumulative total of 99.9%.
10. Should a biotype number occur that results in a "Very Rare Biotype", consult the LabPro Software (Utilities>System>Biotype Lookup), the Biotype Lookup Program on the Beckman Coulter website, or your Beckman Coulter Representative or Distributor.
11. Expected QC results are visualized below, failures need to be troubleshooted before reporting identifications.

Quality Control Chart

	N. lactamica ATCC 49142[1]	*H. influenzae* ATCC 49144	*A. aphrophilus* ATCC 49146	*M. catarrhalis* ATCC 49143
IDX	-	+	+	-
NO_3	-	+	+	V
NO_2[2]	V	V	-	V
GLU	+	+	+	-
SUC	-	-	+	-
MAL	+	-	+	-
FRU	-	V	+	-
LAC	+	-	+	-
GAL	+	-	+	-
URE	-	+	-	-
ORN	-	+	-	-
IND	-	+	-	-
PRO	+	V	-	V
NGL	-	-	+	-
ZAR[3]	-	-	-	-
AGL[4]	-	-	V	-
STA[4]	-	-	-	-
BL	-	+	-	-

1. American Type Culture Collection, Manassas, VA USA.
2. A positive result may be obtained with *Neisseria mucosa* ATCC 49233.
3. A positive result may be obtained with *Stenotrophomonas maltophilia* ATCC 49130.
4. A positive result may be obtained with *Gardnerella vaginalis* ATCC 49145.

Notes: Occasionally, some strains of N. meningitidis do not produce acid from maltose. These strains may give an incorrect identification of N. gonorrhoeae if NGL is also negative. Confirmation of Neisseria gonorrhoeae by an alternate method is recommended for specimens with legal and/or medical implications. Please refer to the footnotes listed in the LabPro software or the Microbiologics Information Manual.

REFERENCES:

- FINISHED PRODUCT QUALITY CONTROL. (n.d.). Retrieved May 31, 2023, from https://hardydiagnostics.com/pub/media/assets/product/documents/FinishedProductQC.pdf
- Quality Control for Commercially Prepared Microbiological Culture Media, M22, Clinical and Laboratory Standards Institute (CLSI - formerly NCCLS), Wayne, PA
- M50A: QC of Commercial Microbial Identification Systems. (n.d.). Clinical & Laboratory Standards Institute. Retrieved August 17, 2023, from https://clsi.org/standards/products/microbiology/documents/m50/
- Microscan HNID Procedure Manual. Retrieved June 6, 2023 from https://www.beckmancoulter.com/en/search?query=*&index=0&size=25&languages=English&type=tech-docs

ATTACHMENTS

None

REFERENCE #	7500.25	EFFECTIVE 6/2014
SUBJECT:	7500.25 URINALYSIS-COMPLETE	REVISED 9/2025
DEPARTMENT:	LABORATORY	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to performing a dipstick chemical analysis on the Clinitek Status analyzer, or in an emergency, visually, at Modoc Medical Center (MMC) ~~L~~laboratory. This procedure also describes microscopic urine examination and criteria for setting up urine cultures based on urinalysis observations. Microscopic examinations are performed on all complete urinalysis samples and are not based on specific criteria.

AUDIENCE

Department Wide

TERMS & DEFINITIONS

None

POLICY

It is the Policy of Modoc Medical Center MMC that ~~The policy is that~~ staff will adhere to the rules described herein with regard policies and procedures in the Urinalysis Department

PRINCIPLE – DIPSTICK CHEMISTRY:

Urinalysis Reagent Strips (Urine) are for the qualitative and semi-quantitative detection of the following analytes in urine: Glucose, Bilirubin, Ketone (Acetoacetic acid), Specific Gravity, Blood, pH, Protein, Urobilinogen, Nitrite, and Leukocytes. The strips are intended for use in screening patients to assist diagnosis in the following areas: kidney function, urinary tract infections, carbohydrate metabolism (e.g. diabetes mellitus), liver function, acid-base ~~balance~~balance, and urine concentration. The results can be used along with other diagnostic information to rule out certain disease states and to determine if microscopic analysis is needed. ~~The Urinalysis~~Urinalysis Reagent Strips (Urine) can be read visually and on Clinitek Status Urine Analyzers.

Glucose: This test is based on the enzymatic reaction that occurs between glucose oxidase, ~~peroxidase~~peroxidase, and chromogen. Glucose is first oxidized to produce gluconic acid and hydrogen peroxide in the presence of glucose oxidase. The hydrogen peroxide reacts with potassium iodide chromogen in the presence of peroxidase. The extent to which the chromogen is oxidized determines the color, which is produced, ranging from green to brown. Glucose should not be detected in normal urine. Small amounts of glucose may be excreted by the kidney. Glucose concentrations as low as 100 mg/dL may be considered abnormal if results are consistent.

Bilirubin: This test is based on azo-coupling reaction of bilirubin with diazotized dichloroaniline in a strongly acidic medium. Varying bilirubin levels will produce a pinkish-tan color proportional to its concentration in urine. In normal urine, no bilirubin is detectable by even the most sensitive methods. Even trace amounts of bilirubin require further investigation. Atypical results (colors different from the negative or positive color blocks shown on the color chart) may indicate that bilirubin-derived bile pigments are present in the urine specimen and are possibly masking the bilirubin reaction.

Ketone~~: This~~: This test is based on ketones reacting with nitroprusside and acetoacetic acid to produce a color change ranging from light pink for negative results to a darker pink or purple color for positive results. Ketones are normally not present in ~~urine~~the urine. Detectable ketone levels may occur in urine during physiological stress conditions such as fasting, ~~pregnancy~~pregnancy, and frequent strenuous exercise. In starvation diets, or in other abnormal carbohydrate metabolism situations, ketones appear in the urine in excessively high concentration before serum ketones are elevated.

Specific Gravity: This test is based on the apparent pKA change of certain pretreated polyelectrolytes in relation to ionic concentration. In the presence of an indicator, colors range from deep blue green in urine of low ionic concentration to green and yellow green in urine of increasing ionic concentration. Randomly collected urine may vary in specific gravity from 1.003-1.035. Twenty-four-hour urine from healthy adults with normal diets and fluid intake will have a specific gravity of 1.016-1.022. In cases of severe renal damage, the specific gravity is fixed at 1.010, the value of the glomerular filtrate.

Blood~~: This~~: This test is based on the peroxidase-like activity of hemoglobin which catalyzes the reaction of diisopropylbenzene dihydroperoxide and 3,3',5,5'-tetramethylbenzidine. The resulting color ranges from orange to green to dark blue. Any green spots or green color development on the reagent area within 60 seconds is ~~significant~~significant, and the urine should be examined further. Blood is often, but not invariably, found in the urine of menstruating females. The significance of a trace reading varies among ~~patients~~patients, and clinical judgment is required in these specimens.

pH: This test is based on a double indicator system which gives a broad range of colors covering the entire urinary pH range. Colors range from orange to yellow and green to blue. The expected range for normal urine specimens from newborns is pH 5.0-7.0. The expected range for other normal urine specimens is pH 4.5-8.0, with an average result of 6.0.

Protein~~: This~~: This reaction is based on the phenomenon known as the "protein error" of pH indicators where an indicator that is highly buffered will change color in the presence of proteins (anions) as the indicator releases hydrogen ions to the protein. At a constant pH, the development of any green color is due to the presence of protein. Colors range from yellow to yellow-green for negative results and green to green blue for positive results. One to fourteen mg/dL of protein may be excreted by a normal kidney. A color matching any block greater than trace indicates significant proteinuria. Clinical judgment is required to evaluate the significance of trace results.

Urobilinogen: This test is based on a modified Ehrlich reaction between p-diethylaminobenzaldehyde and urobilinogen in ~~strongly~~a strongly acidic medium to produce a pink color. Urobilinogen is one of the major compounds produced in heme synthesis and is a normal substance in urine. The expected range for normal urine with this test is 0.2-1.0 mg/dL. A result of 2.0 mg/dL may be of clinical significance, and the ~~patient~~patient's specimen should be further evaluated.

Nitrite: This test depends upon the conversion of nitrate to nitrite by the action of Gram-negative bacteria in the urine. In an acidic medium, nitrite in the urine reacts with p-arsanillic acid to form a diazonium compound. The diazonium compound in turn couples with 1 N-(1-napthyl)-ethylenediamine to produce a pink color. Nitrite is not detectable in normal urine. The nitrite area will be positive in some cases of infection, depending on how long the urine specimens were retained in the bladder prior to collection. Retrieval of positive cases with the nitrite test ranges from as low as 40% in cases where little bladder incubation occurred, to as high as approximately 80% in cases where bladder incubation took place for at least 4 hours.

Leukocytes: This test reveals the presence of granulocyte esterase. The esterases cleave a derivatized pyrazole amino acid ester to liberate derivatized hydroxypyraxole. This pyrazole then reacts with a diazonium salt to produce a beige pink to purple color. Normal urine specimens generally yield negative results. Trace results may be of questionable clinical significance. When trace results occur, it is recommended to retest using a fresh specimen from the same patient. Repeated trace and positive results are of clinical significance.

REAGENTS AND PERFORMANCE CHARACTERISTICS

Based on the dry weight at the time of impregnation, the concentrations given may vary within manufacturing tolerances. The following table below indicates read times and performance characteristics for each parameter.

Reagent	Read Time	Composition	Description
Glucose	30 seconds	Glucose oxidase, peroxidase;potassium iodide, buffer, non-reactive ingredients.	Detect glucose as low as 50-100 mg/dL.
Bilirubin	30 seconds	2, 4-dichloroanilline diazonium salt, buffter and non-reactive ingredients.	Detect bilirubin as low as 0.4-1.0 mg/dL.
Specific Gravity	45 seconds	Bromthymol blue indicator and non-reactive ingredients; poly (methyl vinyl ether/maleic anhydride); sodium hydroxide	Determines urine specific gravity between 1.000 and 1.030. Results correlate with values obtained by refractive index method within ± 0.005.
Blood	60 seconds	3,3',5,5'-tetramethylbenzidine (TMB); diisopropylbenzene dihydroperoxide; buffer and non-reactive ingredients.	Detects free hemoglobin as low as 0.018-0.60 mg/dL or 5-10 RBC's/in urine specimens with ascorbic acid <50 mg/dL.
pH	60 seconds	Methyl red sodium salt; bromithymol blue; non-reactive ingredients.	Permits the quantitative differentiation of pH values within the range of 5-9.
Protein	60 seconds	Tetrabromophenol blue; buffer and non-reactive ingredients.	Detects albumin as low as 7.5-15 mg/dL.
Urobilinogen	60 seconds	p-diethylaminobenzaldehyde; buffer and non-reactive ingredients.	Detects urobilinogen as low as 0.2-1.0 mg/dL.
Leukocytes	120 seconds	Derivatized pyrrole amino acid ester; diazonium salt; buffer, and non-reactive ingredients.	Detects leukocytes as low as 9-15 white blood cells.

The performance characteristics of the Multistix Urinalysis Reagent Strips (Urine) have been determined in both laboratory and clinical areas. Parameters of importance to the user are sensitivity, specificity, accuracy, and precision. Generally, this test has been developed to be specific for the parameters to be measured with the exception of the interferences listed in the Package Insert. Interpretation of visual results is dependent on several factors; the variability of color perception, the presence or absence of inhibitory factors, and the lighting conditions when the strip is read. Each color block on the chart corresponds to a range of analyte concentrations.

PRECAUTIONS

- For in-vitro diagnostic use only. Do not ~~use~~use it after the expiration date.
- The strip should remain in the closed canister until use.
- Do not touch the reagent areas of the strip.
- Discard any discolored strips that may have deteriorated.
- All specimens should be considered potentially hazardous and handled in the same manner as an infectious agent.
- The used strip should be discarded according to local regulations after testing.

STORAGE AND STABILITY

Store as packaged in the closed canister either at room temperature or refrigerated (2-30°C). Keep out of direct sunlight. The strip is stable through the expiration date printed on the canister label. Do not remove the desiccant. Remove only enough strips for immediate use. Replace cap immediately and tightly. **DO NOT FREEZE.** Do not use it beyond the expiration date.
Note: Once the canister has been opened, the remaining strips are stable for up to 3 months. Stability may be reduced in high humidity conditions.

SPECIMEN COLLECTION AND PREPARATION

A urine specimen must be collected in a clean and dry container and tested within 2 hours if stored at room temperature, and 6 hours if refrigerated. Do not centrifuge. The use of urine preservatives is not recommended. Allow the urine to return to room temperature before testing. Prolonged storage of unpreserved urine at room temperature may result in microbial proliferation with resultant changes in pH. A shift to alkaline pH may cause false positive results with the protein test area. Urine containing glucose may decrease in pH as organisms metabolize the glucose.

Contamination of the urine specimen with skin cleansers containing chlorhexidine may affect protein (and to a lesser extent, specific gravity and bilirubin) test results.

DIRECTIONS FOR USE

Allow the strip, urine specimen, and/or controls to reach room temperature (15-30°C) prior to testing.

PATIENT TESTING PROCEDURE:

1. Prior to performing the testing, be sure the sample has a bar-code label to indicate that it has been ordered in the LIS.
2. Test the sample on the Clinitek as follows:
    a. Scan in the sample ID from the barcode.
    b. Press the "Start" button.
    c. Dip the strip in the urine briefly then tap the side of the strip against an absorbent paper towel to remove excess urine.
    d. Place the strip on the instrument strip holder.
3. After the results have printed ~~out~~out, the data must be reviewed in the LIS.
4. Approve the transmission from the "From Instrument" screen.
5. Select "Review Results".
6. If the data ~~passed~~passes the interface correctly, select "Final Report".

Visual Strip Reading (Emergency only):

1. Remove the strip from the closed canister and use it as soon as possible.
2. Immediately close the canister tightly after removing the required number of strip(s).
3. Completely immerse the reagent areas of the strip in fresh, well-mixed urine and immediately remove the strip to avoid dissolving the reagents.
4. While removing the strip from the urine, run the edge of the strip against the rim of the urine containers to remove the excess urine. Hold the strip in a horizontal position and bring the edge of the strip in contact with an absorbent material (e.g. a paper towel) to avoid mixing chemicals from adjacent reagent areas and /or soiling hands with urine.
5. Compare the reagent areas to the corresponding color blocks on the canister label at the specified times.
6. Hold the strip close to the color blocks and match carefully.
7. Note: Results may be read up to 2 minutes after the specified times.

INTERPRETATION OF RESULTS

When read manually, results are obtained by direct comparison of the color blocks printed on the canister label. The color blocks represent nominal values; actual values will vary close to the nominal values. In the event of unexpected or questionable results, the following steps are recommended: confirm that the strips have been tested within the expiration date printed on the canister label, compare results with known positive and negative controls and repeat the test using a new strip. If ~~problema~~ problem persists, discontinue using the strip immediately and contact Diagnostic Test Group.

When tested on the Clinitek Status ~~analyzer~~analyzer, the color blocks are read by the instrument at precise times.

QUALITY CONTROL:

Performance of reagent strips is confirmed by testing known positive and negative specimens/controls whenever a new canister is first opened at the beginning of each new day of testing, or if test results seem inaccurate.

QC PROCEDURE:

1. Test the controls on the Clinitek as follows:
    a. Enter the control lot numbers and expiration dates.
    b. Clean the platen with a damp kim-wipe between each test.
    c. Press the "Start" button.
    d. Dip the strip in the urine briefly then tap the side of the strip against an absorbent paper towel to remove excess urine.
    e. Place the strip on the instrument strip holder within 15 seconds.

LIMITATIONS AND INTERFERRING SUBSTANCES:

Note: As with all laboratory tests, diagnostic and therapeutic decisions should not be based on any single result or method and must be considered with other clinical information available to the physician. The Multistix 10 SG Strips (Urine) may be affected by substances that cause abnormal urine color such as drugs containing pyridium, nitrofurantoin, and riboflavin. The

color development of the test pad may be masked, or a color reaction may be produced that could be interpreted as false results.

Glucose: The reagent area does not react with lactose, galactose, fructose or other metabolic substances, or with reducing metabolites of drugs. Sensitivity may be decreased in specimens with high specific gravity and with **ascorbic acid concentrations of ≥25 mg/dl**. High **ketone levels ≥ 100 mg/dl** may cause **false negative** for specimens containing small amounts of glucose (50-100 mg/dl).

Bilirubin: Bilirubin is absent in normal urine, so any positive result, including trace positive, indicates an underlying pathological condition and requires further investigation. Reactions may occur with urine containing large dosages of **chlorpromazine or rifampin that might be mistaken for positive bilirubin**. The presence of bilirubin-derived bile pigments may mask the bilirubin reaction. This phenomenon is characterized by color development on the test patch that does not correlate with the color chart. Large concentrations of ascorbic acid may decrease sensitivity.

Ketone: The test **does not react with acetone or β-hydroxybutyrate**. Urine specimens of high pigment, and other substances containing sulfydryl groups occasionally give reactions up to and including trace (±).
Specific Gravity: Ketoacidosis or protein higher than 300 mg/dL may cause elevated results. Results are not affected by non-ionic urine components such as glucose. If the urine has a pH of 7 or greater, add 0.005 to the specific gravity reading indicated on the color chart.

Blood: A uniform blue color indicates the presence of myoglobin, hemoglobin or hemolyzed erythrocytes. Scattered or compacted blue spots indicate intact erythrocytes. To enhance accuracy, separate color scales are provided for hemoglobin and for erythrocytes. Positive results with this test are often seen with urine from menstruating females. It has been reported that urine of **high pH reduces sensitivity**, while moderate to high concentration of **ascorbic acid may inhibit color formation**. **Microbial peroxidase**, associated with urinary tract infection, may cause a **false positive reaction**. The test is slightly more sensitive to free hemoglobin and myoglobin than to intact erythrocytes.

pH: If the procedure is not followed and excess urine remains on the strip, a phenomenon known as "runover" may occur, in which the acid buffer from the protein reagent will run onto the pH area, causing the **pH result to appear artificially low.** pH readings are not affected by variations in urinary buffer concentration.

Protein: Any green color indicates the presence of protein in the urine. This test is highly sensitive for albumin, and less sensitive to hemoglobin, ~~globulin~~globulin, and mucoprotein. A negative result does not rule out the presence of these other proteins. **False positive results may be obtained with highly buffered or alkaline urine**. Contamination of urine specimens with quaternary ammonium compounds or skin cleansers containing chlorhexidine may produce false positive results. The urine specimens with **high specific gravity may give false negative results**.

Urobilinogen: All results lower than 1 mg/dL urobilinogen should be interpreted as normal. A negative result does not at any time preclude the absence of urobilinogen. The reagent area may react with interfering substances known to react to Erlich's reagent, such as **p-aminosalicylic acid and sulfonamides. False negative** results may be obtained if **formalin** is present. The test cannot be used to detect porphobilinogen.

Nitrite: The test is specific for nitrite and will not react with any other substance normally excreted in urine. Any degree of uniform pink to red color should be interpreted as a positive result, suggesting the presence of nitrite. Color intensity is not proportional to the number of bacteria present in the urine specimen. Pink spots or pink edges should not be interpreted as a positive result. Comparing the reacted reagent area on a white background may aid in the detection of low nitrite levels, which might otherwise be missed.

Ascorbic acid above 30 mg/dL may cause false negatives in urine containing less than 0.05mg/dL of nitrite ions. The sensitivity of this test is reduced for urine specimens with highly buffered alkaline urine or with high specific gravity. A negative result does not at any time preclude the possibility of bacteriuria. Negative results may occur in urinary tract infections from organisms that do not contain reductase to convert nitrate to nitrite; when urine has **not been retained** in the bladder for a sufficient length of time **(at least 4 hours)** for reduction of nitrate to nitrite to occur; when receiving antibiotic therapy **or when dietary nitrite is absent.**

Leukocytes: The result should not be read between 60-120 seconds to allow for complete color development. The intensity of the color that develops is proportional to the number of leukocytes present in the urine specimen. **High specific gravity or elevated glucose concentrations** (≥2000 mg/dL) may cause test results to be **artificially low.** The presence of **cephalexin, cephalothin, or high concentrations of oxalic acid** may also cause test results to be artificially. **Tetracycline** may cause decreased ~~reactivity~~reactivity, and high levels of the drug may cause a **false negative reaction.** High urinary protein may diminish the intensity of the reaction color. This test will not react with erythrocytes or bacteria common in urine.

Extremely bloody specimen handling: Prior to performing dipstick testing on very blood specimens the sample should be centrifuged as for a routine microscopic and the supernatant should be used for the dipstick testing. **Unspun urine should be used for the microscopic examination and the results multiplied by 10.**

Dark orange urine due to pyridium~~: None~~: None of the dipstick reactions will be valid when the sample is dark orange from pyridium. The results for all the dipstick tests will receive a comment ***"Specimen contains interfering substance – Unable to report urinalysis chemical reactions."***

URINE MICROSCOPIC EXAM:

With the Cerner implementation:
Microscopic examination will be performed on all "UA w/ Micro" orders (Urinalysis with Microscopic).

Microscopic **Reflex examination** will be performed on all "UA w Mico if Ind & Cult if Ind" (Urinalysis with reflex to microscopic exam if indicated and culture if indicated) if any of the following are true: Cloudy appearance or above, Trace Leukocytes or above, Positive Nitrites.

Cultures will be set up automatically if certain criteria are met (see Reflex Culture below).

Microscopic examination should be performed within two (2) hours after collection if at room temperature, and six (6) hours if refrigerated. Prolonged testing delay may result in WBC degradation, cast dissolution, RBC crenation or bursting, increased bacteria, and crystals dissolution

Pour 10 - 12 ml of well mixed specimen into a conical urinalysis tube and label the tube with the LIS specimen label.

If the total specimen volume is 0.50 mL or less, do not pour the sample into a tube. Perform the microscopic from the specimen cup and add the appropriate comment below.

Testing

1. Centrifuge at 2000 rpm for 10 minutes. Decant and discard the supernatant while retaining the sediment pellet with around 1.0 ml of supernatant. The object is to obtain an approximate 10-fold concentration of sediment components.
2. Use a transfer pipette to aspirate sample from the well mixed button.
3. Place one (1) drop of the sediment on a clean slide and add a 22 x 22 coverslip.
4. Place the slide under the microscope with the low power objective (10X lens) and observe the sediment for the presence of casts. Observe at least ten (10) fields and take the average number of casts seen for each type.
5. Switch to high power objective (40X Phase lens) to observe the sediment for the presence of epithelial cells, WBCs, RBCs, bacteria, crystals, yeast, trichomonas, mucus, and spermatozoa. Scan approximately 8-10 fields and take the average per field for each type of sediment.
6. QNS specimens - report the following canned comments as applicable:
    a. If the volume was <10 mL but > 0.5 mL, enter - ***Minimum specimen volume is 10 mL urine sediment results may be falsely decreased due to a submitted sample volume less than 10 mL's.***
    b. If the volume was <0.5 mL, enter] - ***Testing performed on un-centrifuged urine due to a submitted volume less than 0.5 mL minimum required specimen volume is 10 ml. ~~Urine~~. Urine sediment results may be falsely decreased.***

Enter all results in the LIS. Do not finalize any results until all urinalysis testing ordered on the ~~patient~~patient's sample is complete.

Urine samples are retained at 2-8° C for 48 hours in the Hematology refrigerator.

REPORTING:

1. The following **bolded analytes** require a result entry during the microscopic results even if they are not seen during the microscopic exam. Report "none" or 0-1 or 0-2 as indicated. All other analytes are optional entries if seen during the microscopic exam.

Analyte	Expected results for: ALL AGES	Reportable Range:
HYALINE CASTS	0-1	0-1, 1-3, 3-5, 5-10, 10-25, 25-50, or greater than (>) 50/ LPF. Quantify each cast type separately
Granular Cast	None	
Cellular Cast (RBC, WBC, etc)	None	
Waxy Cast	None	
EPITHELIAL CELLS	0-2	0-2, 2-5, 5-10, 10-25, 25-50, or greater than (>) 50/ HPF
LEUKOCYTES (WHITE BLOOD CELLS)	0-2	0-2, 2-5, 5-10, 10-25, 25-50, or greater than (>) 50/ HPF
RED BLOOD CELLS	0-2	0-2, 2-5, 5-10, 10-25, 25-50, or greater than (>) 50/ HPF
BACTERIA	None - Few	None, Few, Trace, Moderate or Many
MUCUS	None - Light	Light, Moderate or Heavy
Crystals	None	Few, Moderate or Many for each crystal type.
Spermatozoa	Males only: Few	Few, Moderate, or Many.
Yeast	None	Light, Moderate or Many. Report any budding yeast or hyphae seen using comments as noted below.
Trichomonas	None	Few, Moderate or Many. May only be reported if motile.

The presence of sperm in the urine of a female child under 16 years old represents a special situation. Supervisor confirmation is required before reporting any suspected sperm to the physician. The physician must be notified. The urine must be retained at 2-10°C until the patient's physician and laboratory director authorizes disposal. In no instance will the urine be destroyed until duly authorized.

Compare the results obtained on the microscopic with the multi-parameter reagent strip with the following facts in mind:

1. Urine with RBCs seen on the microscopic exam should have a positive occult blood on the reagent strip.
2. Urine with casts should have elevated specific gravity and positive protein.
3. Urine with crystals should have elevated specific gravity.
4. Urine with positive ~~nitrite~~nitrites should have bacteria on ~~the microscopie~~microscopic.

PROCEDURAL NOTES – Normal values:

Microscopic Sediment:

RBCs: Normally 0-2 RBCs/HPF may be seen in urine from males and non-menstruating females. Increased numbers may indicate renal hematuria.

WBCs: Normally 0-5 WBCs/HPF may be seen in urine of normal males with slightly higher ranges in females. Increased numbers may indicate renal disease or acute infection.

Epithelial cells: A few epithelial cells are normal and indicate normal sloughing off of aging cells. Increased numbers may indicate renal disease, urinary tract infection, or poor technique in specimen collection.

Casts: 0-1 hyaline cast/LPF is found in normal urine. Increased numbers or more advanced types indicate proteinuria.

Bacteria: Even moderate bacteria are frequently seen due to poor technique in collection of the specimen. When properly collected, increased numbers may indicate kidney, bladder, or urinary tract infection.

Crystals: The following crystals may be seen in normal or abnormal urine as noted below. Use urine pH and solubility information (appendix 7) to aid in identification, as needed. Also use appropriate image and literature resources to assist with identification.

Normal		Abnormal	
Acidic Urine	**Alkaline Urine**	**Acidic Urine**	**Alkaline Urine**
Amorphous Urates	Amorphous Phosphates	Cystine	None
Uric Acid	Triple Phosphates	Tyrosine	
Calcium Oxalate	Ammonium Biurates	Leucine	
	Calcium Phosphates	Sulfonamide (Sulfadiazine)	
	Calcium Carbonates		

Mucus: Light mucus is normally found in urine and can sometimes be confused with hyaline casts.

Spermatozoa: A few are normally found in urine from normal males. Increased numbers are found in prostatic disease.

Trichomonas: Normally not found in urine. The presence of trichomonas is abnormal and may indicate infection.

Yeast: 0-1/HPF or few per high power field are normal in females. Increased numbers indicate infection.

PROCEDURAL NOTES - Casts:

Casts are classified according to their matrix, inclusions, ~~pigments~~pigments, and cells present.

Cast matrices:

a. **Hyaline casts:** Are translucent cylindrical structures composed of mucoprotein. Increased numbers are seen with renal diseases and transiently with exercise, fever, congestive heart failure, and diuretic therapy.
b. **Waxy casts:** These differ from hyaline casts in that they are easily visualized because of their high refractive index. Waxy casts are homogeneously smooth in appearance. Their margins are sharp, their ends are blunt, and cracks or convolutions are frequently seen along the lateral margins. Waxy casts are commonly associated with tubular inflammation and chronic renal failure. They are also found during acute or chronic renal allograft rejection.

Cast Inclusions:

a. **Granular casts** are semitransparent cylinders containing small (fine) or large (coarse) granules. These granules represent plasma protein aggregates. Granular casts appear with glomerular or tubular diseases.
b. **Fatty casts:** Are semitransparent or granular cylinders containing ~~large~~large, highly refractive vacuoles or droplets. Visible fat droplets are triglycerides or cholesterol esters. These are commonly seen when there is heavy proteinuria and are a feature of the nephrotic syndrome.
c. **Crystal Casts:** Crystalline inclusion in a semitransparent or granular cylinder. These casts indicate disposition of crystals in the tubule or collecting duct.

Cast Pigments:

a. Hemoglobin (Blood) casts: Appears yellow to red; sometimes the color is very pale and difficult to interpret. These casts are associated with glomerular disease.
b. Myoglobin casts: These cast are red brown in color and occur with myoglobinuria following acute muscle damage.

c. **Bilirubin and other drug casts:** Bilirubin is seen in urine when there is obstructive jaundice and will color casts as deep yellow brown. Drugs such as phenazopyridine (Pyridium) cause a bright yellow to orange color in acid urine and will color casts and cells.

Cellular Casts:

a. **Erythrocyte (Red Blood Cell) casts:** Semitransparent or granular cylinders containing distinct erythrocyte. Disorders reflected in the presence of erythrocyte casts in the sediment may include acute glomerulonephritis, IgA nephropathy, lupus nephritis, subacute bacterial endocarditis, and renal infarction.
b. **Leukocyte (White Blood Cell) Casts:** Semitransparent or granular cylinders containing leukocytes. They may be seen pyelonephritis, glomerular diseases, interstitial nephritis, lupus nephritis, and nephrotic syndrome.

REFLEX CULTURE:

Observe the microscopic results for WBC and Epithelial Cells. **Judgment must be applied**, but in general, tech will order a routine urine culture on the specimen if any one of the following criteria is present:

1. Positive nitrite on reagent strip
2. Positive leukocyte esterase on reagent strip
3. >5 WBC/hpf on urinalysis microscopic examination
4. ≥Moderate bacteria on urinalysis microscopic examination

- Large numbers of epithelial cells without large numbers or WBCs and bacteria generally indicate ~~contamination~~contamination, and a culture should **not** be set up.
- Large numbers of epithelial cells may also result in a positive leucocyte esterase reaction, and a culture should **not** be set up.

If in doubt, contact the physician for instructions.

A physician order to set up a culture always supersedes these criteria.

REFERENCE:

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2. Haber, Meryl H., Urinary Sediment: A Textbook Atlas, American Society of Clinical Pathologist Book Publisher, 1994.
3. Ringsrud, K.M. and Linne, J.J. 1995, Urinalysis and Body Fluids, a Color text and Atlas. P.57-59 and 100-103.
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5. Siemens 10 SG Package insert. (2017). Retrieved March 3, 2023, from https://cdn0.scrvt.com/39b415fb07de4d9656c7b516d8e2d907/1800000005983607/1e305b3e888e/10336425_Multistix_10_and_Family_US_Instructions_for_Use_Rev_A_2017-07_1800000005983607.pdf
6. Clinitest is a test for reducing substances like galactose. (n.d.). Www.clinlabnavigator.com. http://www.clinlabnavigator.com/has-clinitest-become-obsolete.html

Inserts:

Appendix A: Package insert for Urinalysis Dipstick.
Appendix B: Operator Manual for Urinalysis Dipstick reader (CLIA Waved)

ATTACHMENTS:

None

REFERENCE #	7500.26	EFFECTIVE: 06/15/2025
SUBJECT:	~~NEONATAL RBC TRANSFUSION~~7500.26 NEONATAL RBC TRANSFUSION	REVISED
DEPARTMENT:	LABORATORY	

PURPOSE:

The purpose of this policy is to define the processes for the preparation and release of blood for transfusions on neonates <120 days old from the ~~m~~Modoc ~~m~~Medical ~~c~~Center (~~mmc~~MMC) transfusion services department.

AUDIENCE:
Department Wide

TERMS/DEFINITION:

1. **AABB**: Association for the Advancement of Blood & Biotherapies (Previously known as American Association of Blood Banks, with name change in 2005)
2. **Neonate:** A baby less than four weeks past their normal gestational age. According to AABB the special considerations of ~~neonate's~~neonate transfusion include babies until the age of 4 months (120 days).
3. **2,3-DPG**: 2,3- diphosphoglycerate is an intermediate product of glycolysis, found in red blood cells that reduces the affinity of hemoglobin for oxygen, shifting the curve to the right.
4. **DAT**: Direct Anti-globulin test. A test useful in the detection of hemolytic disease of the newborn caused by incompatibility between blood types of a mother and a baby.
5. **Pedi-Packs**: Satellite units from ~~a~~an RBC unit that ~~has~~have been divided into smaller components for transfusion.

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POLICY:

It is the policy of MMC that Neonatal transfusion practices are substantially different from adult and pediatric transfusion practices due to the unique physiological characteristics of neonates. First, the prenatal transfer of maternal antibodies to the immunologically immature neonate results in unique hematologic compatibility patterns different from those of other age groups. Second, immature organ function exposes the neonates to metabolic complications and to infectious and immunologic complications, such as transfusion-transmitted cytomegalovirus (TT-CMV) infection and transfusion-associated graft-versus-host disease (TA-GVHD). Third, neonates are at a higher risk of hemodynamic instability because of a small blood volume and the limited capacity to increase the blood volume relative to rapid growth [2]. These problems should be considered while performing transfusion therapy in neonates.

Hypoglycemia, hyperkalemia, and hypocalcemia are the most common metabolic complications associated with transfusion in neonates. Hypoglycemia can often result from decreased glucose infusion rates during transfusion in combination with impaired glycogenolysis and gluconeogenesis in preterm infants. The risk of hyperkalemia is entirely associated with the amount of K^+ load delivered with RBC transfusion. Irradiation may damage the RBC membranes, also causing hyperkalemia. Hyperkalemia and hypocalcemia are particularly of concern in neonates receiving exchange or massive (>20 mL/kg of RBCs) transfusions. Small volume transfusions have shown to have little impact on potassium levels.

In neonates, immunologic complications include hemolytic transfusion reactions, allergic reactions, febrile nonhemolytic reactions, immune-mediated platelet destruction, transfusion related acute lung injury

(TRALI), T-antigen activation, and TA-GVHD. Neonates, especially preterm infants, are at risk for TA-GVHD. Pretransfusion gamma irradiation of cellular blood products can inactivate donor T lymphocytes and consequently reduce the risk of TA-GVHD [6].

Specific methods to decrease the risks of transfusion therapy in neonates

1. Leukocyte reduction
   - Leuko-reduced blood cells should be used in all neonates, primarily to reduce TT-CMV infection.
2. Irradiation of cellular blood products
   - Irradiation of cellular blood products reduces the incidence of TA-GVHD in susceptible recipients. However, irradiation increases potassium leakage from stored RBCs, which is a concern with *large* volume (>20ml/kg of RBCs) transfusions. Irradiation of blood products does not prevent TT-CMV infection
3. In line Blood Warmers should be used to reduce Cold Stress
   - For large volume transfusions, using an in-line blood warmer can combat ~~effects~~the effects of hypothermia. Never use a radiant heater to warm the blood, as it can cause hemolysis.
4. Fresh blood, collected <14 days ago
   - For *large* volume transfusions such as exchange transfusions, fresh blood collections should be used since the 2,3-DPG is not ~~depleted~~depleted, and potassium has not leaked out of the cells in excess. Blood depleted of 2,3 DPG can shift the hemoglobin oxygen dissociation curve, reducing oxygen availability to the tissues. Small volume transfusions generally do not require fresh blood.
5. Using "pediatric bags" or "satellite bags" from a divided RBC unit reduces waste and reduces exposure to multiple donors.

Recommended Transfusion Thresholds:

Table 1: Recommended transfusion thresholds for neonates with clinical **instability**

- Preterm Neonates <35 weeks Hemoglobin
  - 0-7 days <11 g/dL
  - 8-14 days <10 g/dL
  - >= 15 days <8 g/dL
- Neonates >= 35 Weeks Hemoglobin
  - 0-7 days <11 g/dL
  - >= 8 days <7 g/dL

Table 2: Recommended transfusion thresholds for **stable** neonates

- Preterm Neonates <35 weeks Hemoglobin
  - 0-7 days <10 g/dL
  - 8-14 days <8 g/dL
  - >= 15 days <7 g/dL
- Neonates >= 35 Weeks Hemoglobin

- 0-7 days <10 g/dL
- >= 8 days <7 g/dL

Dose and administration of RBC transfusions
Generally, neonates receive RBC transfusions at a dose of 10 to 15 mL/kg (a maximum of 20 mL/kg) for 1 to 2 ~~hours~~hours, and the transfusion should be completed within 4 hours. It is estimated that the hemoglobin level of the newborn increases by about 2 to 3 g/dL at this dose.

PROCEDURE:

- **ABO/RH AND DAT MUST BE DONE ON THE NEONATE'S BLOOD**
  1. The initial sample from the neonate shall be used to determine ABO group, Rh type, and DAT. Only the forward typing is performed on neonates, as they do not have antibodies of their own yet. If the neonate is Rh negative, perform Du (Weak D) testing.
     a. Perform ABO retype if needed.
     b. Refer to the ABO/Rh and DAT procedures for details.
- **ANTIBODY SCREENING AND CROSSMATCH CAN BE DONE ON EITHER THE NEONATE'S OR THE MOTHER'S PLASMA**
  2. The antibody screening for the neonate shall be performed using either the neonate's **or** the mother's plasma for determination of unexpected antibodies from mother origin.
     a. Refer to the Antibody Screen procedure for details.
     b. If the initial antibody screen testing result is **negative,** it is valid until the patient is discharged from the hospital or until the neonate reaches 4 ~~months~~months old (120 days), whichever happens first.
        i. This is different from the normal ~~72 hour~~72-hour expiration because the baby does not have antibodies of its own and cannot ~~cannot~~ develop antibodies at this early age due to immature immunologic status.
        ii. However, if the neonate is discharged and comes back under a new admission, all testing must be repeated.
     c. If the initial antibody screen testing is **positive**, ~~sendout~~send out testing to Vitalant using the **mother's** blood must be done to identify the antibody so that antigen negative units can be ordered.
        i. Refer to the Antibody Screen procedure for details on how to send out positive screens.
  3. Crossmatch testing can be done using either the neonate's **or** the mother's plasma since the neonate does not have antibodies of its own. If the mother and the baby have **different** blood types, choose group O blood to transfuse.
     a. If the provider insists on type specific blood, follow this protocol: if a non-group-O neonate is to receive non-group-O red blood cells that are **not** compatible with the maternal ABO group, the neonate's serum or plasma should be tested for anti-A or anti-B

by doing a reverse type on the neonate's plasma or serum. If anti-A or anti-B is detected, red blood cells lacking the corresponding ABO antigen should be transfused.

b. Refer to the Crossmatch procedure for details.

- **ORDERING AND UTILIZING PEDI-PACKS OF RBCS**

4. Crossmatch testing should be done using a Divided RBC unit that has been divided into "pedi-packs", also known as "satellite ~~bags~~bags," to reduce waste and to limit donor exposure to the neonate.
   a. Order Pedi-packs from Vitalant by ordering RBCs>make the quantity of RBCs as the number of pedi-packs (satellite bags) needed>add the modifier DIVIDED, ANTI-CMV NEG>add the comment to specify the minimum volume of each pedi-pack. For example: 4 x 80 ml pedi bags, or 5 x 60 ml. This volume will come from the provider, as they will determine how much blood they will give based on the weight of the neonate and the hemoglobin result. You can request a maximum of 6 pedi-packs (satellite units) from one unit of RBCs. Call Vitalant to ensure the order is correct. The unit will come from the Sacramento location. Call the Redding location to coordinate the order if it is during normal business hours, even though the unit will be coming from Sacramento. Call the Sacramento location after business hours. The order will need to be entered into the online portal.
   b. When the units arrive, log them into Cerner and document the retype of the unit so that they are available for crossmatch in the LIS. The retype only needs to be done from ONE satellite bag. Label EACH satellite bag with the retype date/tech stickers and also document it in the worksheet in the QC binder.
   c. Crossmatch testing only needs to be done ONCE for the first satellite unit given, provided the neonate had not been discharged and has not ~~reach~~reached the age of 120 days.
   d. Ensure the proper satellite "part" is chosen for each issue dispensed and include the part number when issuing the blood to the nursing staff. For example, part AO vs BO vs CO. ~~The~~ The "part" is listed on the lower ~~left-hand~~left-hand side of the label.

REFERENCES:

1. Kim dh. Transfusion ~~p~~Practice in ~~n~~Neonates. Korean ~~j~~J ~~p~~Pediatr. 2018 sep;61(9):265-270. Doi: 10.3345/kjp.2018.06849. Epub 2018 sep 6. Pmid: 30185018; pmcid: pmc6172519.

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3. Cohn, c. S. (2020). Technical ~~m~~Manual (aabb) (20th ed.). American ~~a~~Association of ~~b~~Blood **B~~b~~anks.**

~~3.~~

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REFERENCE #	7500.26	EFFECTIVE: 06/15/2025
SUBJECT:	~~NEONATAL RBC TRANSFUSION~~7500.26 NEONATAL RBC TRANSFUSION	REVISED
DEPARTMENT:	LABORATORY	

ATTACHMENTS:

TRANSFUSION

REFERENCE #	7500-T.23	EFFECTIVE 6/2013
SUBJECT:	7500-T.23 ABO RH TYPING (34690	REVISED 3/2023
DEPARTMENT:	SOCIAL SERVICES LABORATORY	

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PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to ABO and Rh (blood typing) testing in the Modoc Medical Center (MMC) Laboratory.

AUDIENCE

Department Wide

TERMS & DEFINITIONS
None

POLICY

It is the policy of MMC~~The policy is~~ that staff will adhere to the rules described herein ~~with regard to~~regarding policies and procedures in the Transfusion Service manual.

Principle

The ABO system is the most clinically significant blood group system for transfusion practice, because it is the only blood group system in which antibodies are consistently and predictably present in the serum of normal individuals whose red cells lack the antigen. ABO compatibility between donor and recipient is the foundation upon which all other pre-transfusion testing rests.

The D(Rho) antigen is, after A and B, the most important red cell antigen in transfusion practice due to its potent antigenicity. Unlike the ABO system, however, individuals who lack the D antigen do not consistently and predictably have anti-D in their serum.

The ABO and Rh ~~is~~are determined for all patients who are candidates for transfusion, for all blood donors, for all prenatal patients, and for all potential organ recipients and donors.

Sample

3.0 ml EDTA is the preferred sample. ABO forward grouping may also be done on a sample from a segment on a donor unit. Manufacturer's directions state clotted and EDTA samples may be tested up to 7 days after collection. Segments from donor units may be tested up to the expiration date of the unit.

Quality Control

- Immucor CorQC testing must be performed each day of patient testing prior to testing patient samples.

Regents, Equipment, and Supplies

- Reagent Anti-A, Anti-B

- Reagent A1 and B cells.
- Reagent Anti-D.
- Rh (D) control.
- 12 x 75 mm tubes.
- Test tube rack.
- Marking pen.
- Plastic transfer pipettes.
- Blood bank saline.
- Serofuge
- Lighted agglutination viewer.

PROCEDURE

1. Verify that patient information on the sample matches information on the order and Recipient Record.
2. Centrifuge the sample for 10 minutes at 3200 RPM and remove the plasma to a labeled plastic tube.
3. Label 7 tubes with the first 3 or 4 letters of the patient's last name/or last 3 or 4 numbers of accession number and line them up in this manner in your test tube rack.
4. Label the same tubes: Patient name, Ac, Bc, A, B, C, D.
5. Add 2-3 drops of the patient's cells to the P tube and prepare a washed 3% suspension with blood bank saline.
6. Add 2 drops of patient serum to both the Ac and Bc tubes. This will be used for reverse grouping or back-typing.
7. Add one drop of reagent anti-A to the A tube, one drop of reagent anti-B to the B tube.
8. Add one drop reagent anti-D to the D tube, and one drop Rh control to the C tube.
9. Add one drop of washed patient cells to:
   a. A tube.
   b. B tube.
   c. C tube.
   d. D tube.
10. Add one drop reagent A1 cells to Ac tube, and one drop B cells to the Bc tube.
11. Shake all the tubes gently to mix.
12. Centrifuge tubes in the serofuge for the calibrated time (20 seconds).

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13. Gently re-suspend each cell button individually and examine for hemolysis or agglutination with the aid of the lighted agglutination viewer. Grade results neg to 4+. (See GRADING REACTIONS.) A mixed field (MF) may also be reported.
14. Immediately record the results in the appropriate spaces on the Recipient Record card or Unit re-type Log.
15. If the Rh test is negative, add a second drop of anti-D, then centrifuge and read again.

Notes and Precautions

- To correct any errors, draw a single line through the error, and write the corrected result in above or below the error, along with your initials.
- Use the recommended strength of cell suspension - a too heavy or too light suspension may result in a false negative.
- Cord blood samples must be washed at least 3 times prior to ABO Rh testing.
- Do not warm the ABO reagents before performing the test. Warming may reverse weak agglutination and cause a false negative.

Ac	Bc	A	B	C	D	INTERPRETATION
+	+	0	0	0	+	O Positive
+	+	0	0	0	0	O Negative
0	+	+	0	0	+	A Positive
0	+	+	0	0	0	A Negative
+	0	0	+	0	+	B Positive
+	0	0	+	0	0	B Negative
0	0	+	+	0	+	AB Positive
0	0	+	+	0	0	AB Negative

- Do not attempt to reverse typing on newborns. Refer to Infant Cord Blood Testing for details.

Commented [GU1]: Maybe rather than including these notes on cord blood/newborn testing we should just make a comment about referring to the "infant cord blood" procedure. -Hall

Commented [BL1R2]: I made the change

Interpretation - ABO Grouping

Note that if hemolysis is present instead of agglutination, this is also considered a positive result.

The results must match one of the above patterns. Any deviation from the pattern constitutes an ABO discrepancy and must be resolved before the results can be reported. If the discrepancy cannot be resolved, the blood type must be reported as UNKNOWN and possibly sent to Vitalant for further testing. (See American Association of Blood Bank [AABB] manual for resolving ABO discrepancies).

Interpretation - Rh Typing

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Agglutination in the D tube with no agglutination in the C tube is reported as Rh positive. It is possible the agglutination may not be seen until after the 37°C incubation. Lack of agglutination after a 37°C incubation is reported as Rh negative. True Rh-positive results should be at least 2+.

There must be no agglutination in the C tube for the Rh test to be valid.

Du Testing

Testing for Du is not routinely performed on Rh negative samples unless they meet the following criteria:

- Prenatal women.
- RhoGam candidates.
- Newborns.
- Pregnant women who are undergoing invasive procedures or have been subjected to abdominal trauma.

The procedure for Du testing is as follows:

1. After reading the D and C tubes, mix, and incubate for 15 minutes at 37°C.
2. Wash 3 times with blood bank saline. Spin time is 60 seconds per wash.
3. Add 2 drops of IgG Coombs, spin for 20 seconds and read macroscopically.
4. Add one drop of Coombs check cells to any negative reaction tubes, spin for 20 seconds and read macroscopically.
5. Positive: Any degree of agglutination in the D tube and no agglutination in the C tube.
6. Negative: No agglutination in either tube.
7. Coombs control check cells must be positive for the test to be valid.
8. Record all reactions and interpretations on the Recipient Record.

Discard all materials in the sharps trash containers.

REFERENCES

1. Clinical Laboratory Improvement Amendments (CLIA).
2. Cohn, C. S. (2020). Technical Manual (Aabb) (20th ed.). American Association of Blood Banks.

Commented [AC2]: Peg would be 15 min incubation and no 37 read. Think we should leave this as is for now. Not sure what Dr. James said to

Commented [BL2R2]: I'm updating it all to PeG since Dr James gave us the Go-Ahead for PeG validation

Commented [BL2R3]: Oops! Du testing does not use a potentiator. I will fix it

REFERENCE #	7500-T.23	EFFECTIVE 6/2013
SUBJECT:	7500-T.23 ABO RH TYPING (34690	REVISED 3/2023
DEPARTMENT:	SOCIAL SERVICES LABORATORY	

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ATTACHMENTS

None

REFERENCE #	7500-T.23	EFFECTIVE 6/13
SUBJECT:	500-T ANTIBODY SCREEN-3 CELL	REVISED 3/23
DEPARTMENT:	TRANSFUSION	

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PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to performing Antibody Screening in the blood bank.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center (MMC) ~~The policy is~~ that staff will adhere to the rules described herein ~~with regard~~regarding policies and procedures in the Transfusion Service.

PRINCIPLE

Immunoglobulins are the antibodies formed as a result of immune stimulus (exposure to foreign antigen). In Blood Bank, we are referring to those antibodies that will attach to blood cells. We are most concerned about those antibodies that are known to cause transfusion reactions and hemolytic disease of the newborn. Except for anti-A, anti-B, and anti-AB, these are usually IgG immunoglobulins.

The antibody screening cells are used to detect unexpected antibodies. In most cases, these are alloantibodies, which are formed to foreign antigens on cells from other individuals within the same species. Therefore, for an individual to make an alloantibody they would lack the antigen for which they made a specific antibody due to its foreignness to the individual.

Autoantibodies can also be detected with the antibody screening procedure. These antibodies are ones a person makes toward their own antigens. These are not normal occurrences and may indicate autoimmune hemolytic anemia. When utilized, the auto-control tube within the antibody screening will detect this type of antibody and other causes of a positive direct antiglobulin test.

Clinically significant antibodies are those antibodies known to cause transfusion reactions and hemolytic diseases of the newborn. Other AB antibodies, which are saline agglutinins and IgM, most clinically significant antibodies are IgG antibodies that are warm-acting and may only be demonstrated at the antiglobulin stage of testing. Antibodies that show up at the immediate spin phase are most likely nuisance antibodies that won't cause transfusion reactions. These would also be referred to as saline agglutinins since they are antibody capable of causing direct agglutination of antigens suspended in a saline medium without requiring any enhancement

techniques. Most clinically significant antibodies are warm antibodies whose optimal temperature of reactivity is greater than 35°C.

1. Uses

Antibody screening is used to test:

1. Donor plasma to make sure no unexpected antibodies will be transfused. Since a unit of blood is usually divided into various components (red cells, fresh frozen plasma, and platelets), blood centers need to make sure none of these unexpected antibodies are present in the fresh frozen plasma. If these antibodies are present, they could attach to the recipient's cells, cause a positive direct antiglobulin test, and potentially a transfusion reaction.
2. Patient serum before transfusion to make sure the patient has no unexpected antibodies to react with donor cells. In this case, we do not want the recipient's antibodies to attach to the donor cells causing a transfusion reaction.
3. Maternal serum to make sure pregnant mothers have no antibodies to react with fetal cells. Hemolytic disease of the newborn is caused by the mother's IgG antibodies crossing the placenta and attaching to the baby's red blood cells. The physician wants to know as early as possible whether HDN can be a possibility. This is also necessary if the mother is Rh negative and would be a candidate for Rh_oImmune Globulin. Rh_oImmune Globulin is anti-D sera given to the Rh-negative mothers who do not already have anti-D, so we need to rule out the presence of anti-D already.

Screening Cells Characteristics

Screening cells are cells from two or three individual donors. These cells are **Group O** and in order to be licensed by the FDA must contain the following antigens: D, C, E, c, e, M, N, S, s, P_1, Le^a, Le^b, K, k, Fy^a, Fy^b, Jk^a, Jk^b. The most common clinically significant antigens must be present in order to detect clinically significant antibodies. It is preferred that as many antigens as possible be homozygous on the red cells because a double dose of the antigen results in stronger reactions and therefore can detect weaker antibodies. Screening cells outdate every 4 weeks. Each new lot number of screening cells will vary related to antigen typings. Always consult package insert to determine which cells have the specific antigens. Below is an example of a package insert.

	Rh					MNSs				P	Lewis		Kell				Duffy		Kidd		Sex-linked		37° C	A GT	CC C
	D	C	E	c	e	M	N	S	s	P_1	Le^a	Le^b	K	k	$K p^a$	$J s^a$	Fy^a	Fy^b	Jk^a	Jk^b	Xg^a	Sex			
1	+	+	0	0	+	+	0	+	+	+	+	0	0	+	0	0	+	0	+	+	+	/			
2	+	0	+	+	0	+	0	+	+	+	0	+	0	+	0	0	+	+	+	0	+	/			
3	0	0	0	+	+	+	+	0	+	+	0	+	+	+	0	0	0	+	0	+	+	/			

REFERENCE #	7500-T.23	EFFECTIVE 6/13	
SUBJECT:	500-T ANTIBODY SCREEN-3 CELL	REVISED 3/23	
DEPARTMENT:	TRANSFUSION		

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SPECIMEN

~~2.~~ 1. 3.0 or 7.0 ml purple or pink EDTA vacutainer tube is required.
~~3.~~2. The sample is centrifuged for 10 minutes. All blood bank samples must be collected and labelled in accordance with the MMC blood bank sample labelling policy.
~~4.~~3. Refrigerated samples are acceptable for antibody screening and crossmatching for 72 hours after collection.
~~5.~~4. Samples are retained in the blood bank refrigerator for 7 days.
~~6.~~5. Antibody screen negative samples are acceptable for crossmatching for up to 7 days ~~as long as~~if the patient has not been transfused within 3 months and is not pregnant.
~~7.~~6. If a patient has been transfused within the last 3 months, the sample is only acceptable for testing for 72 hours. Actively bleeding and transfused patients will need to be redrawn and re-banded every 72 hours.

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QUALITY CONTROL

The Immucor CorQC testing must be performed, and the results must be ~~acceptable~~acceptable on the same day as patient testing, and before patient samples are tested.

SUPPIES AND MATERIALS

- Immucor Panoscreen Antibody screening cell suspensions
- Immucor Enhancement Medium (PeG)
- Immucor Green IgG AHG sera.
- Immucor Coombs Check Cells.
- 12 x 75 mm tubes
- test tube rack
- marking pen
- plastic transfer pipettes
- Blood Bank saline
- Serofuge

lighted agglutination viewer

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PROCEDURE

Antibody Screening will involve various phases to allow for antibody-antigen agglutination.

Phase 1: Immediate Spin:

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~~Immediate~~The immediate spin phase provides information as to whether the reaction is due to an IgM antibody instead of IgG or complement activation.

- 3 tubes – 2 drops of recipient plasma plus one drop Screening Cell I, Screening Cell II, and Screening Cell III.
- Centrifuge these three tubes for 20 seconds and read for agglutination. Record reactions on the Recipient Record.
- Detects IgM antibodies (usually considered "nuisance" antibodies)

Commented [AC2]: Specify which indicated

Phase 2: 37°C Incubation and wash:

37°C phase is **required** since IgG clinically significant antibodies are warm-acting antibodies.

Enhancement media is used at Modoc Medical Center (PeG).

- PeG is polyethylene glycol. These solutions speed up antigen-antibody reaction but unfortunately can enhance "nuisance" antibodies, so add after immediate spin step.

2 drops of additive- PeG are added to the three immediate spin tubes, -and incubated for 15 minutes at 37C.

After the 15-minute incubation, wash 3x in saline using 60 second spins. Make sure to fully decant saline after washes.

Proceed to the Coombs (AHG) phase.

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Phase 3: Coombs phase (AHG)

The Coombs phase (AHG) is **required** since a number of these clinically significant antibodies may only show up at this phase. The following steps are part of this third phase.

1. Add 2 drops of green IgG AHG sera to washed screening cell tubes.
2. Mix and centrifuge for 20 seconds.
3. Read for agglutination. Record results.
4. To all negative tubes, add 1 drop of Coombs Control Cells, spin for 20 seconds, and record results. All Coombs Control check cell results must be positive (at least 2+ reaction) or the testing is invalid.

REFERENCE #	7500-T.23	EFFECTIVE 6/13
SUBJECT:	500-T ANTIBODY SCREEN-3 CELL	REVISED 3/23
DEPARTMENT:	TRANSFUSION	

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This phase detects IgG antibodies, most of which are considered clinically significant and capable of causing Hemolytic Disease of the Newborn or Hemolytic Transfusion Reactions.

POSITIVE ANTIBODY SCREEN

1. If an unexpected antibody is detected, samples must be sent to Vitalant for ~~a~~ complete antibody identification. Special SVC010 Reference Lab Request forms are in the QC binder in blood bank that must accompany the requested samples.
2. Draw at least one red top tube and 4 EDTA tubes (pink or purple) for the sendout. Do not use gel separator tubes.
3. Call Vitalant to arrange for sample pickup. Our samples will be sent to the Sacramento location. Fax a copy of the completed Reference Lab Request Form.
4. Phone 916-453-3642
5. Fax 916-366-2524
6. 4. Once the antibody status is determined, Vitalant will be instructed to screen units for antigen negative units and ship acceptable units to MMC for crossmatch. Vitalant does not perform ~~in~~ the crossmatch. The crossmatch MUST be done at MMC.
7. The physician will be notified immediately about the presence of the antibody, and crossmatching will not proceed until antigen negative units are received. The pathologist will be notified of the antibody upon the monthly review. Once units negative for the antibody arrive at MMC, a full AGH tube crossmatch will be performed, using LISS or PeG enhancement.
8. Note: When antibody screens are negative, only an initial spin crossmatch is needed, but not when a warm alloantibody has been detected.
1. Enter all blood bank results into the LIS.

REFERENCES

CLIA
Cohn, C. S. (2020). Technical Manual (Aabb) (20th ed.). American Association of Blood Banks.

ATTACHMENTS

None

REFERENCE #	7500-T.23	EFFECTIVE 6/13
SUBJECT:	500-T ANTIBODY SCREEN-3 CELL	
DEPARTMENT:	TRANSFUSION	REVISED 3/23

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REFERENCE #	7500-T.23	EFFECTIVE 6/2013
SUBJECT:	7500-T.23 CROSSMATCH	REVISED 2/2023
DEPARTMENT:	TRANSFUSION	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to crossmatching units of blood for transfusion at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of MMC~~The policy is~~ that staff will adhere to the rules described herein with regard to policies and procedures in the Transfusion Service at MMC.

PRINCIPLE

The patient's ABO and Rh type is determined, and the serum is screened for the presence of clinically significant alloantibodies. If the antibody screen is negative, and there is no record of such antibodies having been detected in the past, the compatibility test may be abbreviated to include only the immediate spin phase, which demonstrates ABO incompatibility.

The complete crossmatch with a 37°C additive Polyethylenge Glycol (PeG) enhanced antiglobulin phase MUST be performed on all patients whose antibody screen is positive at the Anti-Human Globulin (AHG) Coombs phase, or whose records show a previously detected clinically significant antibody, even though it may not be currently detectable.

The complete crossmatch should also be done on patients whose Immediate Spin crossmatch is positive and there is no question of having selected the wrong ABO donor unit.

SPECIMEN

1. 3.0 or 7.0 ml purple or pink EDTA vacutainer tube is required.
2. The sample is centrifuged for 10 minutes, and the plasma separated into a labelled plastic tube.
3. All blood bank samples must be collected and labelled in accordance with the MMC blood bank sample labelling policy.

Commented [AC1]: Dr. James would like us to perform a mini validation, running QC for a week and then testing API samples. These 2 have separate steps so it is best not to leave it open ended. We can get this one approved when we have finished the validation.

Commented [1R2]: Sounds good! Heather and I can both run QC this weekend so we both havens opportunity to use it. Thanks!

4. Refrigerated samples are acceptable for antibody screening and crossmatching for 72 hours after collection.
5. Samples are retained in the blood bank refrigerator for 7 days.
6. Unit segments are retained refrigerated for 7 days.
7. Antibody screening negative samples are acceptable for crossmatching for pre-op patients ONLY up to 7 days as long as the patient has not been transfused within 3 months and is not pregnant.
8. If a patient has been transfused within the last 3 months the sample is only acceptable for testing for 72 hours. Actively bleeding and transfused patients will need to be redrawn and re-banded every 72 hours.

Commented [GU2]: This contradicts #4 - do we have a policy for extending crossmatches? Step 7 makes it sound as if we automatically extend crossmatches if that criteria is met - let me know if this is something we do! In other places I've worked we only extend crossmatches if a patient is getting a T&S done for a surgery that will be >3 days from collection. However that works - it might pattern to combine #4, 7, or 8 with this except on if it applies -HME

Commented [BL2R2]: I think this is only for pre-op patients. I updated it to say "For Pre-Op patients only" - what are your thoughts??

QUALITY CONTROL

The Immucor CorQC testing must be performed, and the results must be acceptable the same day as patient testing, and before patient samples are tested.

SUPPLIES AND MATERIALS

- Polyethylene Glycol (PeG)
- Immucor Green Anti-IgG (aka AHG) sera.
- Immucor Coombs Check Cells.
- 12 x 75 mm tubes
- test tube rack
- marking pen
- plastic transfer pipettes
- Blood Bank saline
- serofuge
- lighted agglutination viewer

PROCEDURE

1. Select the requested number of donor red cells units of the appropriate ABO/Rh. In general, select units that will outdate soonest.
2. All units will be visually inspected at the time the crossmatch is performed. The units should be examined for: visible clots, gross hemoloysis, breaks in the bag, cloudiness, bacterial colonies, and the presence of gas. If any of these abnormalities are present, DO NOT use the unit, and return it to Vitalant.

3. Arrange the units in order of outdate and enter the unit numbers in the appropriate place on the Blood Bank Worksheet log, oldest units first. Labels directly off the units work best for this.
4. Label a 12 x 75 mm tube for each donor unit, using the labels from the units.
5. Use a Hematype® segment device to puncture a segment from each donor unit and allow a drop of blood to run into the appropriate tube.
6. Prepare a 3% suspension of each donor unit. All units should have been re-typed when received into the blood bank, but, if necessary, re-check the ABO/Rh of each donor unit. No units may be released under any circumstances until the ABO/Rh has been verified by re-type.
7. Record donor blood typing results in the appropriate spot on the Blood Bank Worksheet log if not already recorded on the Unit Retype Log.
    1. Note: Always record the donor unit type and expiration date next to the unit number on the Blood Bank Worksheet log.
8. Label a second tube for xm of each donor unit, using the last 3 digits of the unit number
9. Place two drops of patient plasma into each tube.
10. Place one drop of washed 3% donor cells into the appropriate tube, shake to mix, and centrifuge the length of time for the saline calibration of the serofuge (20 seconds).
11. Gently resuspend and examine macroscopically for agglutination. Record results under the Immediate Spin (IS) column of the Recipient Record.
12. If the crossmatch results are negative, save the crossmatch tubes and donor cell suspensions until the antibody screen is complete and the records have been checked. The units may be reported as compatible at this point if the patient has no current or previous antibodies.
13. If the patient has an antibody or a record of an antibody, the crossmatch must be carried through the AHG phase, and the donor units typed for the corresponding antigen.
    1. Note that antigen typing is done through Vitalant. See the Antibody Screening procedure for details.
14. To carry the crossmatch through AHG Coombs, add two drops additive PeG to each donor tube after the immediate spin reading, incubate 15 minutes at 37 C

Commented [GU3]: last this procedure assuming the antibody screen is already complete? -RME

Commented [BL3R2]: Crossmatches are usually set up at the same time as the antibody screen. Since the antibody screen takes longer than the IS Crossmatch I think it should be stated to hold the result until after that is complete

15. Wash 3 times in saline using 60 second spins, decanting the saline entirely after each wash.

16. Add 2 drops green Anti-IgG (AHG) to each tube. Spin for 20 seconds, Read, and record results on the Blood Bank Worksheet log.

INTERPRETATION

COMPATIBLE IMMEDIATE SPIN CROSSMATCH, NO ANTIBODIES

- The crossmatch is considered compatible if the immediate spin reading is negative, the antibody screen is negative, and the patient has no record of clinically significant antibodies in the past
- Indicate on the Blood Bank Worksheet log that the units are "compatible", and sign your name, date, and the time the crossmatch was completed.
- Complete the Transfusion Report Form and attach it to the blood unit as the "blood tag".
    - Note that nursing will use the top page of the Transfusion Report Form to record patient vitals during transfusion. The bottom page (the thicker card stock copy) must stay attached to the blood unit at all times as the blood tag.

HISTORY OF AN ANTIBODY (BUT ANTIBODY SCREEN IS NEGATIVE)

1. Frequently a patient may have developed an antibody in the past, which is recorded in his file, but the titer may have dropped, and it is no longer detectable in the antibody screen.
2. If this is the case, it is not necessary to perform an antibody identification. Carry the crossmatch through the PeG/AHG phase and record that the antibody screen is negative, but the patient has a history of an antibody. Order antigen negative units from Vitalant based on the previous history. The donor units must be negative for the antigen before they can be reported as compatible for the patient.
3. Label the donor unit with the results of the antigen typing and also record the results on the Blood Bank Worksheet log.
4. Complete the Transfusion Report Form and attach it to the blood unit as the "blood tag".

a. Note that nursing will use the top page of the Transfusion Report Form to record patient vitals during transfusion.

b. The bottom page (the thicker card stock copy) must stay attached to the blood unit at all times as the blood tag.

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CURRENT ANTIBODY (ANTIBODY SCREEN IS POSITIVE)

1. Refer samples to Vitalant for an antibody identification workup. Paperwork is in the blood bank QC binder. See the procedure for Antibody Screen for more details.
2. Specify how many units are needed and instruct them to send antigen negative units for crossmatch. Vitalant does not perform in the crossmatch. The crossmatch MUST be done here at MMC.
3. When the units are received, perform a complete PeG- AHG crossmatch. Record results.
4. If the crossmatch is compatible, label the donor unit with the results of the antigen typing, and also record the results on the Blood Bank Worksheet log
5. Complete the Transfusion Report Form and attach it to the blood unit as the "blood tag".
    a. Note that nursing will use the top page of the Transfusion Report Form to record patient vitals during transfusion. The bottom page (the thicker card stock copy) must stay attached to the blood unit at all times as the blood tag.

NO ANTIBODIES, INCOMPATIBLE IMMEDIATE SPIN CROSSMATCH

If the immediate spin crossmatch results are positive, double-check the ABO types of both patient and donor. If they are incompatible, select donor units of the proper ABO type. If they subsequently are compatible, continue with the PeG/AHG phase of the crossmatch.

If the crossmatch is compatible in Coombs, report the units as compatible.

Record all blood bank results into the LIS.

NOTES

1. If multiple antibodies are present, the donor units must be typed for all corresponding antigens.
2. It is not necessary to do the complete crossmatch when the cause of an Immediate Spin reaction is rouleaux if the reaction can be made negative with the saline replacement technique.
3. Incompatible blood is never transfused without the express authorization of the Laboratory Director.

REFERENCES

CLIA
Cohn, C. S. (2020). Technical Manual (Aabb) (20th ed.). American Association of Blood Banks.

ATTACHMENTS

None

REFERENCE #	7500-T.23	EFFECTIVE 12/2013
SUBJECT:	7500-T.23 DIRECT COOMBS DAT	REVISED3/2023
DEPARTMENT:	TRANSFUSION	

PURPOSE

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The purpose of this policy is to establish basic guidelines and rules for the policies and procedures as they relate to Direct Antiglobulin (DAT) testing in the Modoc Medical Center (MMC) Laboratory.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the Policy of Modoc Medical Center (MMC) to only perform the Monospecific Anti-IgG portion of a DAT. MMC does not perform a full DAT with anti-C3d and polyspecific Anti-IgG. DAT testing at MMC is most often performed on newborns to assess ABO incompatibility with the mother as a possible cause for respiratory distress at birth.

PRINCIPLE: The Direct Antiglobulin Test (DAT), also known as the direct coombs test, is useful in the detection of red cell coating antibodies. The test detects in vivo sensitization of the RBC by circulating autoantibody. This is useful in the diagnosis of hemolytic disease of the newborn and autoimmune hemolytic anemia The test relies on the principle of agglutination.

~~Modoc Medical Center only performs the Monospecific Anti-IgG portion of a DAT. MMC does not perform a full DAT with anti-C3d and polyspecific Anti-IgG. DAT testing at MMC is most often performed on newborns to assess ABO incompatibility with the mother as a possible cause for respiratory distress at birth.~~

SPECIMEN:

Specimen Type: a pink or purple top EDTA tube is the preferred specimen although clotted whole blood from a red top tube may be used.

Specimen Handling Conditions: The specimen should be tested as soon as possible after collection. If there is a delay the sample should be stored at 2°-8°C for up to **48** hours.

REAGENTS/MATERIALS:

1. Test tubes 12x75mm
2. Pasteur pipettes
3. centrifuge
4. Buffered isotonic blood bank saline
5. Monoclonal Anti-IgG
6. Coombs control cells.

7. 22% Bovine Serum Albumin (BSA)

Reagent Storage Requirements: All reagents should be stored at 2°-8°C

PROCEDURE:

1. Label one tube with the patient identifier and a control tube
2. Add one drop of a 2-4% saline suspension of cells to each tube.
3. Wash a minimum of 3 times manually (60 second spins). Decant final wash completely.
4. After washing, immediately add two drops of Anti-IgG to patient tube, and 2 drops of 22% BSA to control tube and spin both for 20 seconds.
5. Examine the cells for agglutination. Grade and record the reaction.
6. Confirm the validity of negative results as indicated by the manufacturer (eg, add IgG-coated "check cells" to tests containing anti-IgG).
7. Centrifuge for 20 seconds
8. Examine the cells for agglutination and record the reaction.

INTERPRETATION

1. The DAT result is positive when agglutination is observed either after immediate centrifugation or after the centrifugation that followed room-temperature incubation. IgG-coated red cells usually give immediate reactions. Monospecific AHG reagents are needed to confirm which globulins are present.
2. The DAT result is negative when no agglutination is observed at either test phase and the IgG-coated cells added in Step 7 are agglutinated. If the IgG-coated cells are not agglutinated, the negative DAT result is considered invalid, and the test must be repeated. Anti-IgG reagents detect 150 to 500 molecules of IgG per cell, but patients may still experience autoimmune hemolytic anemia when IgG coating is below this level.
3. No interpretation can be made if the control reagent is reactive. This may indicate the presence of a strong cold autoagglutinin or spontaneous agglutination due to warm-reactive IgM or IgG antibodies. Warming the red cells to 37 C and/or washing with warm (37 C) saline should resolve reactivity due to cold autoagglutinins.
4. Steps 2 through 5 should be performed without interruption.

QUALITY CONTROL:

Blood Bank Daily QC using corQC reagents must be performed.

See the Blood Bank Daily QC procedure for details.

REFERENCES

1. Klein HG, Anstee DJ. Mollison's blood transfusion in clinical medicine. 12th ed. Oxford: Wiley-Blackwell, 2014.
2. Petz LD, Garratty G. Immune hemolytic anemia. Philadelphia: Churchill-Livingstone, 2004.
3. Borge PD Jr, Mansfield PM. The positive direct antiglobulin test and immune-mediated hemolysis. In: Cohn C, Delaney M, Johnson S, Katz L, eds. technical manual. 20th ed. Bethesda, MD: AABB, 2020:429-55.

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REFERENCES

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REFERENCE # 7500-T.23	EFFECTIVE 12/2013
SUBJECT: 7500-T 23 DIRECT COOMBS DAT	REVISED3/2023
DEPARTMENT: TRANSFUSION	

~~3.~~ None

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REFERENCE #	7500-T.23	EFFECTIVE 6/2013
SUBJECT:	7500-T.23 EMERGENCY RELEASE OF UNCROSSMATCHED BLOOD	REVISED 3/2023
DEPARTMENT:	TRANSFUSION	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to the processing and issuance of un-crossmatched blood products at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of MMC that staff will adhere to the rules described herein with regard to policies and procedures in the Transfusion Service at MMC.

PROCEDURE

No blood components will be issued for transfusion before completion of processing or crossmatching unless the attending physician has requested an Emergency Release from the Blood Bank.

No units of blood will be released uncrossmatched unless the ABO of the donor unit has been confirmed. For this reason, all units are re-typed immediately upon arrival in the blood bank.

The Blood Bank Emergency Release Form must be signed by the physician and sent to the Blood Bank as soon as possible.

Prior to release of uncrossmatched blood an EDTA specimen must be collected from the patient.

If the patient's ABO Type has not been performed (even if the patient has history of a previous type):

The attending physician must judge blood transfusion to be necessary in a life-threatening emergency.

If a CLS is available, Type O negative packed Cells may be released once the emergency release form has been completed. Save the segments/segment labels for follow-up crossmatch. Crossmatch will always be performed after release of uncrossmatched blood.

Since a CLS is not always on site, the physician may send an RN to the blood bank to pick up O negative packed cells prior to the arrival of the CLS. In that case the RN must provide an EDTA specimen prior to transfusion, and no paperwork is necessary at that time. All paperwork will be completed as soon as possible in the interest of patient survival. The CLS may need to retrieve the empty units in order to obtain segments.

Once crossmatching is completed the usual paperwork will be filled out by the involved parties.

Subsequent transfusions should be with type specific blood or selected from the list below.

If transfusion of multiple units of O negative blood is completed prior to obtaining a blood sample from the patient do not attempt to switch to another blood type on the basis of a post transfusion blood type. In that case, transfusion of O positive packed cells is preferred when the patient is male, and if available, O negative units should be transfused if the patient is a female of child bearing age (<55 years old). O Positive packed cells are acceptable if O negative blood is not available in an emergency.

If the patient's blood type is known, but blood of that type is not available select blood (RBC) as delineated below in the order listed:

Recipient: O Pos.
Donor: O Neg.

Recipient: O Neg.
Donor: O Pos.

Recipient: A Pos.
Donor: A Neg, O Pos, O Neg.

Recipient: A Neg.
Donor: A Pos, O Pos, ONeg.

Recipient: B Pos
Donor: B Neg, O Neg, O Pos.

Recipient: B Neg.
Donor: B Pos, O Neg, O Pos.

Recipient: AB Pos.
Donor: AB Neg, A Pos, A Neg, B Pos, B Neg, O Pos, O Neg.

Recipient: AB Neg.
Donor: AB Pos, A Neg, B Neg, O Neg, O Pos, A Pos, B Pos.

This order of blood selection applies whenever the blood is not available for a recipient with a known type, and the situation is an emergency. It is always preferable to wait for ABO/Rh matching blood whenever time allows.

Although rare, it is possible that follow-up antibody screening and crossmatching may indicate the presence of a specific antibody, and subsequent unit incompatibility. Should that occur the pathologist and ordering physician must be notified immediately.

Call Vitalant and order the blood STAT and/or call Surprise Valley Hospital. The Highway Patrol will bring the blood STAT from SVH. Call 911 to arrange pickup and transport from Surprise Valley Hospital to Modoc Medical Center.

REFERENCES

CLIA
Cohn, C. S. (2020). Technical Manual (Aabb) (20th ed.). American Association of Blood Banks.

ATTACHMENTS

None

REFERENCE #	7500-T.23	EFFECTIVE 6/2013
SUBJECT:	7500-T.23 GENERAL TRANSFUSION SERVICES POLICY AND QUALITY ASSURANCE	REVISED 3/2023
DEPARTMENT:	TRANSFUSION	

PURPOSE

The purpose of this policy is to establish basic rules used at Modoc Medical Center (MMC) Laboratory for the proper and safe performance of Transfusion service duties and procedures.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the ~~The~~ policy of MMC~~is~~ that staff will adhere to the rules described herein at all times.

PROCEDURE

PATIENT IDENTIFICATION

When a transfusion is ordered, the patient must be positively identified with 2 identifiers, and a special red numbered blood bank arm band must be placed on the wrist or ankle. This special red numbered blood bank armband **must be handwritten** (no pre-printed patient labels will be accepted on the blood bank arm band), and must include at least 2 identifiers, the phlebotomist's initials and the date and time of collection, per the Medical Director at MMC and AABB ~~standards..~~standards. In most ~~eases~~cases, the positive identifiers are obtained by asking the patient to state their name and date of birth and comparing their responses to the information on the requisition. The medical record number is also an acceptable identifier.

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In addition, the information on the crossmatch order must also match with at least 2 identifiers. This applies to patient blood collected by nursing or ambulance personnel. Unlabeled or improperly labelled blood tubes will not be accepted. Refer to the procedure for proper specimen collection and labeling.

If the patient has had a previous ABO/Rh done at ~~MMC~~MMC, only one collection will be necessary. If not, a second sample must be collected and tested for Re-type to confirm. The second sample must be collected by a different person at a different time than the initial specimen. It is not satisfactory to collect one sample and simply have two scientists perform the ABO/RH on that same sample.

In some cases, such as with infants or patients in the Skilled Nursing Facility (SNF) ~~it~~, it is not possible for the patient to respond. An infant's parents may identify them. One of the caregivers at the SNF must verify the patient's identity. Comatose patients in the ER will be identified as John Doe with a unique Medical Record Number; all reports will use that identification.

When a crossmatch is ~~ordered~~ordered, a Type and Screen will be ~~performed~~performed, and the patient's history file must be checked for previous ABO/Rh, antibody history, and previous transfusions. In the case of a positive antibody ~~screen~~screen, the crossmatch process will be continued but the blood will not be transfused without written authorization from the physician and pathologist even if the crossmatch is compatible. The blood specimen will be referred to Vitalant for antibody identification and selection of antigen negative blood units and shipped to MMC for crossmatch testing.

The blood checkout procedure is described in another section of this manual. Blood that has been taken out of the laboratory is not returnable for infusion unless it is returned within 20 minutes of ~~issue~~issue, and the blood unit bag must have not been entered. The Emergency blood release procedure is discussed in a separate policy, which includes a written authorization from the ordering physician.

INFORMED CONSENT

Informed consent shall be obtained for all patients in non-emergent situations, whether there is a high potential of the necessity of blood transfusion or not. In the event that the patient needs blood at any time during their ~~admission~~admission, the Informed consent will be in place with the exception of *Emergency Transfusions* (see Emergency Transfusion Policy).

Commented [GU1]: Maybe we should include in this section that it is nursing's responsibility to obtain the consent (not lab)? -HME

In non-emergent ~~situations~~situations, the physician MUST discuss this matter with the patient beforehand and obtain the patient's Informed Consent. This discussion will include ~~risks~~the risks and benefits of transfusion, the alternatives to ~~the transfusion~~transfusion, when this is feasible and available. It is the physician's responsibility to provide the patient with a copy of this brochure, **"If You Need Blood: A Patient's Guide To Blood Transfusions".**

Commented [AC2]: @Brenda Lewis is this supposed to be the guide below?

The Paul Gann Blood Safety Act (Health and Safety Code Section 1645) imposes specific obligations upon physicians to provide information concerning transfusions of "autologous blood" (which is defined to include, without being limited to, pre-donation, intraoperative autologous transfusion, plasmapheresis and hemodilution) to a patient when there is a reasonable possibility that a blood transfusion may be necessary as a result of medical or surgical or procedure.

The physician must use the standardized written summary developed by state Department of Health Services (DHS) to inform patients of the positive and negative aspects of receiving autologous blood and directed or non-directed homologous blood from volunteers. Physicians

must use this summary. No other information will satisfy the physician's obligation under the law . This summary is entitled: **"If You Need Blood: A Patients Guide To Blood Transfusions"**.

Commented [AC3]: A Patient's Guide to Blood Transfusion | MBC (ca.gov)

The physician must document in the patient's medical record that the standardized written summary was given to the patient. The nursing staff is to verify that this documentation is in the patient's medical record.

The law requires that a physician allow adequate time before surgery for the patient to arrange for pre-donation, unless there is a life -threatening emergency, there are medical contraindications, or the patient waives the right of pre-donation.

To enable a patient to make an informed decision as to whether to consent to a procedure or not, California law imposes a duty on the patient's physician to explain to the patient the nature of the proposed treatment, its expected benefits and effects, it's possible risks and complications, any alternative forms of treatment and their benefits, associated risks and complications, and any potential conflicting interests that a reasonable person would need to make an informed consent.

In the case of a medical emergency, treatment may proceed without the patient's consent. The physician must document the emergency situation in the medical record. The **Transfusion Information and Consent** form should be marked "Emergent use of blood per (Name of Physician)".

If the patient refuses blood, the physician is to be notified to discuss the risks and alternatives or refusal and document this discussion. The Nurse is to provide the patient with a **Refusal To Permit Blood Transfusion** form and ask that it be signed. A white **"NO BLOOD"** arm band designating that the patient has refused blood will be placed on the patient's wrist.

Any individual who administers blood or blood components during the patient's hospitalization shall be responsible for checking the patient's medical record to confirm that the Informed consent has been obtained. Modoc Medical Center's Blood Bank personnel will file a copy of the consent form for the patient in the Blood Bank QC Binder.

A Physician's Blood Order including the Transfusion Information must be obtained before the blood bank releases any unit of blood for non--emergent purposes. The CLS releasing the blood should ask the nurse for a copy of the signed consent form.

NOTE: *The blood bank will not release any blood/or blood product without* a *Copy of the Physician's Order, and a Copy of the signed Consent Form*

LOGS, REAGENTS and DAILY BLOOD BANK DUTIES

1. Blood Bank QC log shall be filled out each day that blood bank testing is performed
    a. See the Blood Bank QC procedure for details
2. Inspect the Blood Bank Reagent expiration dates and change out the reagents and saline when needed.
3. Documents daily temperatures on the Temperature log
4. Inspect blood products daily for acceptable quantities of stock and to check the acceptability and expiration dates of the units.
5. The blood bank serofuge should have optimum spin times determined annually. See separate procedure for details.
6. The lab manager or lead CLS must inspect the Blood Bank Worksheet ~~log book~~logbook for accuracy at least once per month
7. Ensure transfusion paperwork is filed in the Blood Bank QC binder:
    a. Transfusion Request form
    b. Copy of Informed Consent form
    c. Transfusion Report forms for each unit issued
8. Ensure Blood Bank history cards have been updated for each transaction in the Blood Bank Worksheet ~~Log book~~Logbook
9. Change out Blood Bank temperature charts weekly, and file in the Blood Bank QC binder

BLOOD BANK RECORD RETENTION

1. Blood bank history cards will be retained for 5 years unless ~~patient~~the patient has expired.
2. Blood bank history cards with atypical antibodies will be retained indefinitely unless the patient has expired.
3. ~~Log books~~Logbooks will be retained indefinitely
4. Completed Transfusion Request Forms will be retained in the blood bank file from January to December of each year, with retention for 5 years.
5. Quality Control records and temperatures will be retained for 5 years.
6. All records of equipment maintenance and calibration will be retained for the life of the instrument.

7. All transfusion reaction forms will be retained in the Blood Bank indefinitely.

REVIEW OF POLICIES AND PROCEDURES

Modoc Medical Center's Blood Bank Services are in compliance with CLIA standards and standards from the most current edition of the American Association of Blood Banks' (AABB) Standards for Blood Banks and Transfusion Services.

The Blood Bank's policy and procedure manual is readily available to all staff.

The Laboratory Medical Director, Laboratory Manager, and Blood Bank staff develop, revise and review policies and procedures annually and as needed.

The Blood Bank's policy and procedure manual shall be reviewed by the laboratory director on a yearly basis.

REFRENCES

1. CLIA Regulations
2. Cohn, C. S. (2020). Technical Manual (Aabb) (20th ed.). American Association of Blood Banks.
3. Paul Gann Blood Safety Act (Health and Safety Code Section 1645)
4. A Patient's Guide to Blood Transfusion | MBC (ca.gov)

ATTACHMENTS

None

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REFERENCE #	7500-T.23	EFFECTIVE 6/1/2013
SUBJECT:	7500-T.23 GRADING AGGLUTINATION REACTIONS	REVISED 3/1/2023
DEPARTMENT:	TRANSFUSION	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to the grading of agglutination reactions in the blood bank at Modoc Medical Center (MMC).

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy ~~The policy isof~~ MMC that staff will adhere to the rules described herein with regard to policies and procedures in ~~the~~ Transfusion Service ~~at MMC~~.

PROCEDURE

GRADING REACTIONS

Grading agglutination reactions gives an indication of the relative amount of antigen or antibody present. All tubes tests should be graded. The technique used in the re-suspension of the cells will affect the grading of the reaction. The correct procedure for re-suspending and grading reactions follows:

1. Re-suspension Procedure:

- use lighted agglutination viewer
- read only one tube at a time
- hold tube upright
- position cell button so it is facing you in the mirror
- very gently shake the tube and observe how the cells come off the cell button



2. Grading Reactions
    - swirling off = negative

- coming off in chunks = positive
- continue shaking till all cells resuspended
- tilt tube, read and grade reaction

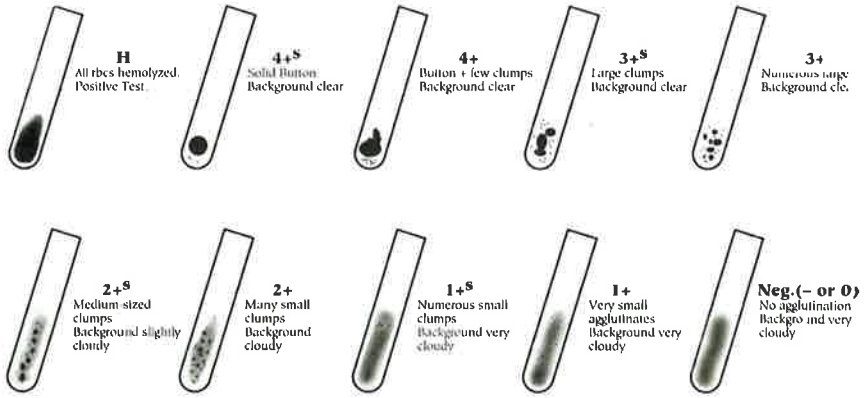
3. Grading system:
   - 4+ = solid clump
   - 3+ = several large clumps
   - 2+ = small to medium sized clumps; clear background
   - 1+ = small clumps; cloudy background
   - +w = tiny aggregates; cloudy background
   - + micro = positive upon microscopic examination only
   - MF = mixed field. Small clumps amidst many unagglutinated cells. Can be confused with 1+
   - hem = hemolyzed (a positive reaction)
   - neg = negative, no agglutination (Never use - for negative; either write neg or 0)

REFERENCE #	7500-T.23	EFFECTIVE 6/1/2013
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DEPARTMENT:	TRANSFUSION	

GRADING ANTIGEN-ANTIBODY REACTIONS

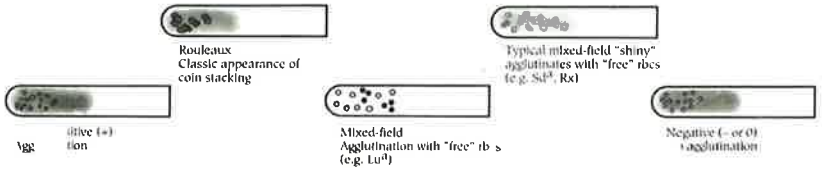
MACROSCOPIC READING

Resuspend rbc button by gentle shaking



MICROSCOPIC READING

Roll tube gently in tube holder



REFERENCES

CLIA

Cohn, C. S. (2020). Technical Manual (Aabb) (20th ed.). American Association of Blood Banks.

ATTACHMENTS

None

REFERENCE #	7500-T.23	EFFECTIVE 6/1/2013
SUBJECT:	7500-T.23 GRADING AGGLUTINATION REACTIONS	
DEPARTMENT:	TRANSFUSION	REVISED 3/1/2023

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REFERENCE #	7500-T.23	EFFECTIVE 1/1/2023
SUBJECT:	7500-T.23 INFANT BLOOD TESTING	REVISED
DEPARTMENT:	TRANSFUSION	

PURPOSE

The purpose of this policy is to establish consistent guidelines and procedures related to the collection and testing of cord blood samples obtained during the birthing process in order to minimize the need for collection of additional blood directly from the infant immediately following delivery.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

Cord blood refers to a sample of blood collected from the umbilical cord when a baby is born. The umbilical cord is the cord connecting the baby to the mother's womb.

Commented [AV1]: @Walter Dimarucut This needs to be moved to "Terms/Definitions"

None

POLICY

~~The~~It is the policy at Modoc Medical Center (MMC) ~~is~~ that staff will adhere to the guidelines described herein regarding the procedures in the Blood Bank/Transfusion Services Department of ~~Modoc Medical Center~~ (MMC) in order to properly collect, process, and test cord blood samples for ABO/Rh blood typing and Direct Anti-Globulin Testing (DAT).

PRINCIPLE

~~**Cord blood** refers to a sample of blood collected from the umbilical cord when a baby is born. The umbilical cord is the cord connecting the baby to the mother's womb.~~

Commented [AV2]: @Walter Dimarucut This needs to be moved to "Terms/Definitions"

Cord blood testing can be done to evaluate a newborn's health without having to draw additional blood directly from the newborn immediately following delivery. Appropriate tests on cord blood include blood gases, blood chemistries (especially glucose and bilirubin), hematology, and some blood banking procedures, including ABO/Rh and DAT testing. This policy will focus only on the Blood Bank Procedures performed here at MMC.

It is appropriate to perform a direct antiglobulin test (DAT) on cord blood using only anti-IgG because hemolytic disease of the newborn (HDN) results from fetal cells sensitized by maternally derived IgG antibody (approximately 2% become sensitized at first delivery), and complement activation rarely occurs. If the mother's blood type is unknown, obtain a specimen for a Type and Screen on the mother, as it can help interpret a positive DAT on the infant and a blood type on the mother is necessary to evaluate whether she is a Rhogam candidate.

A positive DAT on the infant indicates that IgG antibody is coating the infant's red blood ~~cells, but~~cells but does not indicate the cause. The strength of the reaction does not correlate well with the severity of the disease. Infants may have a positive DAT test without evidence of HDN---for example, associated with Rhogam given in the 3rd trimester. Generally, an elution of DAT-positive neonatal cells is not indicated unless the cause is unknown and clinically important. MMC does not perform antibody elutions or antibody IDs and must be sent out to ~~reference~~a reference lab for further workup.

There has been increased interest in donating or saving umbilical cord blood as a source of hematopoietic stem cells (HSCs) for transplantation. MMC does NOT have a blood banking source to perform the collection, processing, transport or storage of cord blood for these purposes.

RISK AND SAFETY

1. All Body fluids should be treated as potentially infectious, and proper PPE should be used at all times. Refer to OSHA Bloodborne Pathogens.
2. Discard all sharps in sharps container, and biohazard appropriately.

SPECIMEN COLLECTION AND HANDLING

Specimen requirements

1. Minimum volume: 1 mL
2. Stability: 24 hrs room temp or 7 days refrigerated
3. Acceptable tubes: Potassium EDTA purple top or pink top tube
4.

Collection

1. Immediately after delivery, the umbilical cord site must be clamped off in two parts, 8-10 inches apart. In between the clamped off sections where the blood will be drawn should be disinfected with 70% isopropyl alcohol prior to blood collection. If blood cultures are needed, the site needs to be cleaned with povidone iodine or other blood culture prep ~~solution~~solutions.
5. A syringe with ~~needle~~needles should be used for the collection to avoid contamination with Wharton's jelly.
6. Transfer the blood to the appropriate tubes needed for testing, with Blood culture bottles filled first, followed by a green top for blood gases/chemistries, purple top for hematology, and pink top for blood bank. Mix 8-10 times by inversion.
7. Label the tubes with the Baby's information, NOT the ~~mother~~'smothers.
8. The umbilical cord can then be cut as normal.
9. Normally the placenta is discarded as medical waste. If there is a chance that it may need to be sent to pathology, place the placenta into a biohazard bucket and label it with the mother's information.
10. Clots may be present. Clots are removed, and testing ~~performed~~is performed on unclotted ~~portion~~portions.

REFERENCE #	7500-T.23	EFFECTIVE 1/1/2023
SUBJECT:	7500-T.23 INFANT BLOOD TESTING	REVISED
DEPARTMENT:	TRANSFUSION	

PROCEDURE: Infant ABO and Rh Typing (forward type only)

REAGENTS, EQUIPMENT, AND SUPPLIES:

- Reagent Anti-A, Anti-B
- Reagent Anti-D
- Rh (D) control
- 12 x 75 mm tubes
- Test tube rack
- Marking pen
- Plastic transfer pipettes
- Blood bank 0.85% buffered saline
- Serofuge
- Lighted agglutination viewer

Commented [GU3]: 0.85% Buffered saline

PROCEDURE

- Verify that patient information on the sample matches information on the order and Recipient Record.
- Centrifuge the sample for 10 ~~minutes, and~~minutes and transfer several drops of cord blood to a labeled tube.
- Wash the cord blood red cells 3 times with saline using validated spin times (60sec) to minimize contamination with Wharton's jelly before performing testing.
- Label 5 tubes with the first 3 letters of the patient's last name/or last 3 numbers of accession # and line them up in this manner in your test tube rack:
- Label the same tubes: Patient name, A, B, C, D.
- Add 2-3 drops of the patient's cells to the Patient ~~tube, and~~tube and prepare a 3% suspension with blood bank saline.
- Add one drop of reagent anti-A to the A tube; one drop of reagent anti-B to the B tube.
- Add one drop reagent anti-D to the D tube, and one drop Monoclonal control to the C tube.
- Add one drop of washed patient cord blood cells to:
  - A tube
  - B tube
  - C tube
  - D tube
- Shake all the tubes gently to mix.
- Centrifuge tubes in the serofuge for the calibrated time for saline suspended cells (20 secs).

Commented [AC4]: Describe why we may want to save this

- Gently re-suspend each cell button individually and examine for hemolysis or agglutination with the aid of the lighted agglutination viewer. Grade results neg to 4+. (See GRADING AGGLUTINATION REACTIONS SOP.) A mixed field (MF) may also be reported.
- If the Rh test is negative, proceed to the weak D (Du) testing procedure below.

A	B	C	D	INTERPRETATION
0	0	0	+	O Positive
0	0	0	0	O Negative
+	0	0	+	A Positive
+	0	0	0	A Negative
0	+	0	+	B Positive
0	+	0	0	B Negative
+	+	0	+	AB Positive
+	+	0	0	AB Negative

- Immediately record the results in the appropriate spaces on the Recipient Record card or Unit re-type Log.

Interpretation:

NOTES AND PRECAUTIONS

- To correct any errors, draw a single line through the error, and write the corrected result in above or below the error, along with your initials.
- Use the recommended strength of cell suspension - a too heavy or too light suspension may result in a false negative.
- Cord blood samples must be washed at least 3 times prior to ABO Rh testing.
- Do not warm up the ABO reagents before performing the test. Warming may reverse weak agglutination and cause a false negative.
- Do not attempt reverse typing on newborns, except those who type as AB. These should be reverse typed to rule out poly-agglutination due to a strong positive DAT or Wharton's Jelly from a cord sample.

Du TESTING

Testing for Du is not routinely performed on **Rh negative samples,** but it is required on newborns

1. After reading the D and C tubes incubate for 15 minutes at 37C.
2. Wash 3 times with blood bank saline. Spin time is 60 seconds/wash.
3. Add 2 drops of Anit-IgG Coombs and spin for 20 seconds and read macroscopically.
   a. Positive: Any degree of agglutination in the D tube and no agglutination in the C tube.
   b. Negative: No agglutination in either tube.

4. If negative, add one drop of Coombs reagent, spin for 20 seconds, and read macroscopically.
5. Coombs control cells must be positive for the test to be valid.
6. Record all reactions and interpretations on the Recipient Record.

INTERPRETATION - Rh TYPING

Commented [AC5]: Can we make this more specific? Referencing another SOP? Did that we have?

Commented [AC6]: [redacted] shouldn't we be doing a weak D here instead of this?

Commented [BL6R2]: Yes, do a weak D if Rh is negative

- Agglutination in the D tube with no agglutination in the C tube is reported as Rh positive. It is possible that the agglutination may not be seen until after the 37C incubation. Lack of agglutination after a 37 C incubation is reported as Rh negative. True Rh-positive results should be at least 2+.
- There must be no agglutination in the C (Rh Control) tube for the Rh test to be valid.
- A positive weak D is only considered valid in the presence of a negative DAT.
-

PROCEDURE: Infant Direct Coombs (DAT) Testing

ReagentsRegents and Materials:

- 12 x 75 mm tubes
- Test tube rack
- Marking pen
- Plastic transfer pipettes
- Blood Bank 0.85% Buffered Saline
- Serofuge
- Lighted agglutination viewer
- AHG (monoclonal Anti-IgG)
- Coombs control cells (check cells)
- 22% Bovine serum albumin (BSA)

Infant DAT Testing Procedure:

1. Label one tube with the patient's name and one tube Neg control
2. Add 1 drop of washed 3% cord cells to each tube.
3. Add two drops of monoclonal Anti-IgG to the tube labeled with the patient's name and DAT and add 2 drops 22% BSA to negative control tube.
4. Mix both gently and centrifuge for 20 seconds in the serofuge.
5. Resuspend and read for agglutination using the lighted agglutination viewer.
6. Grade and record any reactions.
7. Add one drop of Coombs Control cells if the patient gives negative test, centrifuge for 20 seconds, and read for agglutination. Any tests which do not demonstrate agglutination at this step must be repeated. Any tests in which the negative control is positive is ~~invalid, and~~invalid and may indicate cells require additional wash steps.

Commented [AC7]: These cells should already be washed going into ABO. Necessary to wash again? Washing too many times can result in false negativity

Commented [AC7R2]: 4x wash should be sufficient. Thoughts?

Interpretation:

Agglutination of RBCs in the presence of Anti-IgG (AHG) is a positive test which indicates the presence of IgG on the infant's red blood cells, which could cause hemolytic disease of the newborn. Positive results must be called to the ~~providerphysician, NA, PA~~ immediately. Absence of agglutination is a negative test, indicating there is no detectable IgG coating for the RBCs. When incompatibility cannot be explained due to ABO discrepancy or RH/Rhogam status, it is appropriate to send an aliquot of Cord blood out for elution. See the Antibody Screen Procedure regarding the Reference Laboratory Request form from Vitalant for more information.

Commented [AC8]: Criteria for when eluate is appropriate. ABO incompatibility can explain positive DAT. Eluates performed when + DAT not explained?

QUALITY CONTROL

Immucor CorQC testing must be performed each day of patient testing prior to testing patient samples.

INTERFERING SUBSTANCES/LIMITATIONS

- Cord blood used for blood bank testing must be washed well with saline. Cord blood may be contaminated with Wharton's jelly, creating the need for additional washing of cells.
- ABO typing includes the forward grouping only, as the ABO antibodies are all maternal. The D type on cord blood may be falsely negative if the cells are heavily coated with anti-D ("blocked D"). A neonatal D type may also be falsely negative due to repeated intrauterine transfusions of D-negative red cells.
- Use the recommended strength of cell suspension - a too heavy or too light suspension may result in a false negative.

Commented [AC9]: Could put these in the "limitations" section

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REFERENCES:

CLIA;

1. Roback, John et al AABB Technical Manual, 17th edition
2. *Cord Blood.* (2020, October 7). ucsfhealth.org. Retrieved October 6, 2022, from https://www.ucsfhealth.org/medical-tests/cord-blood-testing
3. Laboratory use of umbilical cord blood for critically ill infants. (n.d.). Retrieved October 6, 2022, from https://acutecaretesting.org/en/articles/laboratory-use-of-umbilical-cord-blood-for-critically-ill-infants
4. Reference Laboratory Request Form- Vitalant Microsoft Word - BS 313.doc (vitalant.org)
5. *Joint Statement on Phasing-In RHD Genotyping for Pregnant Women and Other Females of Childbearing Potential with a Serologic Weak D Phenotype Background.* (n.d.). https://www.aabb.org/docs/default-source/default-document-library/positions/statement150722.pdf?sfvrsn=f4f44c30_6
6. Cohn, C. S. (2020). Technical Manual (Aabb) (20th ed.). American Association of Blood Banks.

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ATTACHMENTS

None

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REFERENCE #	7500-T.23	EFFECTIVE 1/1/2023
SUBJECT:	7500-T.23 INFANT BLOOD TESTING	REVISED
DEPARTMENT:	TRANSFUSION	

REFERENCE #	7500-T.23	EFFECTIVE 3/2023
SUBJECT:	7500-T.23 Operation and Use of the Helmer DH2 Plasma Thawer	REVISED
DEPARTMENT:	TRANSFUSION	

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I have read and acknowledged this procedure:

Name	Signature	Date

REFERENCE #	7500-T.23	EFFECTIVE 3/2023	
SUBJECT:	7500-T.23 Operation and Use of the Helmer DH2 Plasma Thawer	REVISED	
DEPARTMENT:	TRANSFUSION		

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PURPOSE

The purpose of this procedure is to provide guidelines on how to safely and accurately use the plasma thawer to thaw frozen blood products and how to properly maintain the thawer.

AUDIENCE

Department Wide

TERMS AND DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center (MMC) that ~~The policy is that~~ the staff will adhere to the guidelines for usage of the plasma thawer to thaw Fresh Frozen Plasma (FFP) or Cryoprecipitate for blood banking purposes and that they will perform the scheduled maintenance duties to ensure optimal performance.

PRINCIPLE

Fresh Frozen Plasma (FFP) and Cryoprecipitate (Cryo) can be used to treat patients with blood clotting disorders in various situations.

When FFP or Cryo is ordered, it needs to be thoroughly thawed in a manner that reduces the potential for bag breakage while protecting the product from potential water-borne contaminants. Using the Helmer DH2 Plasma Thawer helps to make the process of thawing plasma consistent to reduce errors and contamination.

PROCEDURE:~~:~~
General Use (Plasma thawer filled with water):

1. Allow plasma thawer to come to room temperature before switching power on.
2. During initial startup, low temperature alarm may sound while plasma thawer reaches operating temperature.
3. Allow chamber temperature to stabilize at the setpoint before thawing frozen product.

Initial Start Up~~:~~

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1. Plug the power cord into a grounded outlet that meets the electrical requirements on the product specification label.
2. Press the AC ON/OFF button to power the plasma thawer ON.
   NOTE: High temperature alarm activates quickly when chamber is empty.

Filling the Chamber:

1. Fill the Chamber with tap water, ensuring the chamber and drain are free of debris and ensure that the drain tube is not connected.
   a. Note: Do not use deionized water

Two fill lines are marked on the rear wall of the chamber. The lines indicate the maximum water level for the following applications:

- Upper line: maximum level for thawing random bags
- Lower line: maximum level for thawing apheresis bags
- Add bacterial growth inhibitor, such as Helmer CleanBath.

Before Draining the Chamber:

1. CAUTION: Disconnect the plasma thawer from AC power before draining the chamber.
2. Do not move the plasma thawer when the chamber is filled or if the plasma thawer is connected to AC power.
3. The plasma thawer has a drain port to drain water from the chamber. The drain valve is integrated into the drain fitting on the side of the plasma thawer. The drain valve remains closed until the drain tube is connected to the valve. When the drain tube is connected, the chamber begins to drain immediately.
   a. The drain coupling must be installed on the drain tube before the drain tube can be connected to the drain valve. The 90° elbow may be installed in the drain tube to facilitate convenient routing of the drain tube.

To Drain water from the chamber: (Should be performed weekly)

Commented [GU1]: Does the water need to be drained/replaced at a certain frequency? - HME

Commented [BLTR2]: Yes . I forgot to add the weekly/monthly maintenance procedure. I will do that now. BLT

1. Press the AC ON/OFF button to power the plasma thawer OFF.
2. Disconnect the power cord from AC power.
3. Place the open end of the drain tube into a waste container or sanitary drain.
4. On the opposite end of the drain tube, push the coupling valve into the drain port. The coupling valve will click when it is properly seated.
5. Water immediately begins to drain from the chamber.
6. After the water has drained from the chamber, release the drain tube:
7. Press down on the release button on the coupling valve.
8. Pull the coupling valve out of the drain port.

Determine the Correct Thaw Time:

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DEPARTMENT:	TRANSFUSION		

Thaw time varies by bag type and how the bags were manipulated when frozen (flat or folded). The table below indicates median thaw times for bags previously stored at -30 °C.

Plasma Bag (Size and Type)	Manner Frozen	Median Thaw Time (Minutes)
10 mL to 15 mL cryoprecipitate	Folded	5
250 mL standard	Flat	10
250 mL thick plastic	Flat	16
250 mL standard	Folded	17
300 mL standard	Flat	14
500 mL (jumbo) apheresis	Flat	18

Please Note Before Loading Bags:

1. CAUTION: Do not manually lift the baskets out of the chamber. Manually lifting baskets will
~~2.~~ damage the system. Press the LIFT OUT button to raise the baskets. Formatted: Indent: Left: 0.5", No bullets or numbering
~~3.~~2. Press the LIFT OUT button **only** if the baskets are installed. The basket must be
~~4.~~ installed for the lift out system to operate correctly. Formatted: Indent: Left: 0.5", No bullets or numbering
~~5.~~3. DH2 basket holds 2 standard bags.
~~6.~~4. When thawing a plasma bag (of any type or size), a plasma overwrap bag must be used. The plasma
~~7.~~ bag is placed inside the overwrap bag, and the overwrap bag is attached to the basket. Formatted: Indent: Left: 0.5", No bullets or numbering
   a. Overwrap bags provide the following benefits:
      i. Secure the plasma bag to the basket
      ii. Protect the plasma bag from water-borne contaminants
      iii. If the plasma bag breaks, the contents will not contaminate the water bath
~~8.~~5. Use only 1 overwrap bag, of the appropriate size, per plasma bag.
~~9.~~6. The following recommendations will aid in thawing plasma bags:
   a. Use security snaps on smaller bags that tend to float
   b. Load plasma bags together that require the same thaw time

Load the bag(s):

1. Insert plasma bag into appropriate size overwrap bag.
2. On control panel, press the LIFT OUT button to raise and open basket.
3. Place overwrapped plasma bag in basket. Hook the slot at the top of the overwrap bag over the tab
~~4.~~ on the basket. For large overwraps, ensure both slots are hooked over the tabs. Formatted: Indent: Left: 0.5", No bullets or numbering
~~5.~~4. Insert a security snap through top set of holes on the basket compartment. Push the snap toward the basket until it snaps against the overwrap bag.

REFERENCE #	7500-T.23	EFFECTIVE 3/2023	
SUBJECT:	7500-T.23 Operation and Use of the Helmer DH2 Plasma Thawer	REVISED	
DEPARTMENT:	TRANSFUSION		

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Thaw Cycle Functions:

1. CAUTION: Keep fingers and clothing away from the basket(s) while in motion.
2. If a temperature alarm is active, a thaw cycle cannot be initiated until the alarm condition is cleared.
3. Allow the water temperature to stabilize at the setpoint between thaw cycles.

Button Names and Their Function:

CYCLE TIME
- ► Set thaw cycle time (in minutes)
- ► Extend thaw cycle time
- ► Select the hold ("HO") setting

CYCLE START
- ► Start a thaw cycle

LIFT OUT
- ► Pause a thaw cycle in process (press to raise the basket)
- ► Resume a paused thaw cycle (press to lower the basket)
- ► Stop a thaw cycle

To Start a Thaw Cycle

When the thaw cycle is started, the lift out system closes the basket and lowers it into the chamber. If agitation motion is enabled, the basket begins to agitate after the basket reaches the bottom of its travel. The remaining cycle time (in minutes) is displayed on the cycle time indicator (located on the control panel). Programmed time settings of 0, 3, 5, 8, 10, 12, 14, 16, 18, 20, and 25 minutes, as well as a hold ("HO") setting, are pre-programmed into the timing system.

- ► Pressing the TIME SET button advances through each pre-programmed time setting.
- ► To indefinitely extend a thawing cycle that is already in progress, press the TIME SET button until the display reads "HO".
- ► Press the TIME SET button again and the cycle will finish its initial programmed time.

Start a Cycle:

1. Confirm the chamber has been filled to the appropriate level.
2. Confirm the water temperature stabilized at temperature setpoint.
3. Enable or disable agitation motion, depending on your specific needs.
4. Load overwrapped bags into basket(s), with security snap(s) as needed.
5. For each basket, press the CYCLE TIME button to select the desired time.

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6. Press the CYCLE START button to lower basket and start the thaw cycle.

Stop, Pause, or Resume a Thaw Cycle

When a thaw cycle is stopped or paused, the basket lifts out of the chamber before the thaw cycle is completed.

► Press the LIFT OUT button to raise the basket and temporarily pause the thaw cycle. The remaining time is displayed on the cycle time indicator.

► Press the LIFT OUT button again to resume the thaw cycle. The basket is lowered into the chamber and the agitation motion resumes.

► The hold ("HO") setting may be selected while the thaw cycle is paused (LIFT OUT button pressed).

Complete a Thaw Cycle

When a thaw cycle reaches the end of its programmed time setting, the basket stops agitating, lifts out, and opens. An audible alert sounds to indicate the thaw cycle has completed, and the cycle time indicator resets to the previously selected time setting.

Unload Bags

CAUTION: Remember: Do not manually lift the baskets out of the chamber. Manually lifting baskets will damage the system. Press the LIFT OUT button to raise the baskets.
Press the LIFT OUT button only if the baskets are installed. The basket must be installed for the lift out system to operate correctly.

1. On the control panel, press the LIFT OUT button to raise and open the basket.
2. Remove the security snap from the basket.
3. Unhook the slot at the top of the overwrap bag from the tab on the basket.
4. Remove the overwrap bag from the basket.
5. Remove the plasma bag from the overwrap bag. Discard the overwrap bag.

Labelling Thawed FFP Units

- For the 1st 24 hours after thawing, the unit is considered FFP, and the expiration date must be modified on both the unit and the unit tag to expire 24 hours after thawing. The expiration date must include the hour in which it expires.
- If the unit has not been transfused by the end of 24 hours, the unit must be re-labeled as Thawed Plasma, which expires 5 days from the date it was originally thawed, and it can be used for transfusion in all instances except when FFP is ordered specifically for factor replacement or in some cases of DIC.
- Complete the Transfusion Report Form as it relates to the above criteria and attach it to the unit to serve as the blood product tag. Then, place the unit in the Blood Bank refrigerator at 1-6°C until the nurse checks it out for transfusion.

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Labelling Thawed Cryo Units

- Complete the Transfusion Report Form and attach it to the unit to serve as the blood product tag, ~~and~~then place the unit in the Blood Bank refrigerator at 1-6°C until the nurse checks it out for transfusion.

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Maintenance Schedule:

Task	Weekly	Quarterly	Annually	As Needed
Drain and clean the chamber and basket	X			
Clean the Exterior				X
Lubricate Moving Parts and Clean the Fan		X		
Check Temperature Calibration; Recalibrate if necessary		X		
Test the High Temp Alarm		X		
Check the bearings on each basket for wear; Replace if necessary			X	

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Enable or Disable Agitation Motion

Default is enabled. Agitation reduces thaw time. It is controlled with the switch located at the rear of thawer.

Mute an Audible Alarm

Audible alarms can be muted. The temperature controller will ~~still~~ continue to flash an alarm message if the alarm has been muted.

► To mute an audible alarm, press the MUTE button.

When an alarm is muted, the duration is indefinite. Muting is cleared under the following conditions:

► The condition that triggered the alarm is resolved

► AC power to the plasma thawer is switched off

Temperature Monitor Setpoints

Do not change any other temperature controller parameter unless instructed by Helmer Technical Service. The default chamber temperature setpoint is 36.5 °C. If the chamber temperature falls below the setpoint, the temperature controller activates the chamber heater until the setpoint is reached. The chamber heater and sensor are located underneath the chamber.

Change the setpoint:

1. Determine setpoint, if other than default.
2. The chamber temperature appears on the display.
   a. NOTE The displayed temperature may differ from the setpoint, especially if chamber temperature has not stabilized at the setpoint.
3. Press and hold the * button.
4. The setpoint value is displayed.
5. Press the UP or DOWN buttons to change the setpoint value.
   a. The setpoint value is adjusted up or down in increments of 0.1 °C.
6. Release all buttons to exit the setpoint value adjustment. New setting is saved.

View or Change Temperature Alarm Setpoints

1. NOTE ▶Changing parameter values affects plasma thawer operation. Do not change values unless instructed by Helmer Technical Service.
2. By default, the low temperature alarm is not enabled. If the Low Temperature alarm is enabled, follow regulations for your organization to determine the appropriate temperature setting.
3. Ensure the Low Temperature alarm setting is no higher than 30.0 °C.

The monitoring and control system has alarms which activate if the temperature is too high or too low (if the Low Temperature alarm is enabled). The setpoints for these alarms may be viewed and/or changed using the temperature controller.

The High Temperature alarm setpoint (AL.Hi) specifies the temperature at which the High Temperature alarm should activate. If the temperature detected by the temperature control sensor is greater than or equal to this value, the alarm activates.

The Low Temperature alarm setpoint (AL.Lo) specifies the temperature at which the Low Temperature alarm should activate. If the temperature detected by the temperature control sensor is less than or equal to this value, the alarm activates.

REFERENCES:

Helmer Scientific, *Plasma Thawing System Operation Manual*, Noblesville, IN

ATTACHMENTS

None

REFERENCE #	7500-T.23	EFFECTIVE 3/2023
SUBJECT:	7500-T.23 Operation and Use of the Helmer DH2 Plasma Thawer	REVISED
DEPARTMENT:	TRANSFUSION	

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REFERENCE #	7500-T.26	EFFECTIVE 01/2024
SUBJECT:	7500-T.26 NEWBORNE SPECIMENS AND ORDER SETS	REVISED
DEPARTMENT:	TRANSFUSION	

PURPOSE

The purpose of this policy is to establish basic rules for the policies and procedures as they relate to the collection of specimens from newborns immediately following birth.

AUDIENCE

Department Wide

TERMS & DEFINITIONS

None

POLICY

It is the policy of Modoc Medical Center (MMC) that staff will adhere to the rules described herein with regard to obtaining specimens from newborns immediately following birth for testing in, but not limited to, transfusion services, chemistry, reference lab, and pathology to standardize testing as much as possible to provide the most complete care possible for the patient.

PROCEDURE

When a baby is born at Modoc Medical Center, we must obtain the following specimens:

- **A pink top EDTA** tube from the cord blood (for blood bank testing…. ABO/Rh and DAT)
- **A purple top EDTA** tube from the cord blood (for chemistry testing and possible send out testing for drug screening, which requires whole blood)
- **A green top lithium heparin** tube from the cord blood for a VBG (if ordered) and for other chemistries (if ordered)
- **A PKU test** (only if the infant is >12 hours old)
    - If the infant is transferred **before** they are 12 hours old, please send the pink copy of the filled out NBS-NO (Hospital Report of Newborn Screening Specimen Not Obtained) Form to the receiving hospital so that they are properly notified that the PKU collection still needs to take place
    - The PKU forms and the NBS-NO forms are located in the phlebotomy room in the NEWBORN SCREENING binder
- **The umbilical cord** – at least a 6-inch section
    - This can be sent for Drug Screen Testing

- The umbilical cord must be drained of any excess blood and rinsed with normal saline or sterile water. Pat the cord dry and place the cord in a container for transport
    - Use a separate "placenta" container for the umbilical cord. Do not pack it with the placenta.
    - Refrigerate the umbilical cord. (7 days stability refrigerated, or 14 days frozen)
    - The umbilical cord will be sent to LabCorp

- **The placenta**
    - All placentas will be sent to the facility where the mother is going to be transferred to. Send the placenta with the transport team that will be taking the mother and baby. Place the placenta in a properly labeled placenta transport container (there are some in the lab in the blood bank, and there are some in surgery).
        - Do NOT add formalin or anything else to the container. Just send it as is. If there is a label on the container stating that it contains formalin, take it off and discard it. They are prelabeled for general surgery specimens.
        - If the mother is not transferred for some reason, keep the placenta in the refrigerator in the laboratory in case we need to send it for testing. Retain the placenta for at least one week.

Cord blood refers to a sample of blood collected from the umbilical cord when a baby is born. The umbilical cord is the cord connecting the baby to the mother's womb.

Cord blood testing can be done to evaluate a newborn's health without having to draw additional blood directly from the newborn immediately following delivery. Appropriate tests on cord blood include blood gases, blood chemistries (especially glucose and bilirubin), hematology, and some blood banking procedures, including ABO/Rh and DAT testing.

Refer to the procedure in the Transfusion Services Procedure Manual called INFANT CORD BLOOD TESTING: ABO/Rh and DAT for detailed procedures on how to do the blood type and DAT on the infant.

The Transfusion Services Procedure Manual will also detail what testing is needed from the mother, including how to do a Rhogam workup, if necessary, in the Rhogam Workup and Administration procedure.

Child Protective Services (CPS)

In the case of a baby born where CPS is involved, we will usually need a urine drug screen on the **mother,** with confirmatory testing for any positives sent out to LabCorp, which requires a refrigerated urine specimen.

In these cases, the baby's cord blood AND the umbilical cord will usually be sent out for drug screen testing to LabCorp. The cord blood will be sent in a refrigerated EDTA purple top tube, and the umbilical cord will be sent in a refrigerated placenta container. These are sensitive situations and may require additional testing. Work with the physician to ensure all testing is accounted for.

Collection of Cord Blood:

1. Immediately after delivery, the umbilical cord site must be clamped off in two parts, 8-10 inches apart. In between the clamped off sections where the blood will be drawn should be disinfected with 70% isopropyl alcohol prior to blood collection. If blood cultures are needed, the site needs to be cleaned with povidone iodine or other blood culture prep solution.
1. A syringe with needle should be used for the collection to avoid contamination with Wharton's jelly.
2. Transfer the blood to the appropriate tubes needed for testing, with Blood culture bottles filled first, followed by a green top for blood gases/chemistries, purple top for hematology/LabCorp drug screen, and pink top for blood bank. Mix 8-10 times by inversion.
3. Label the tubes with the Baby's information, NOT the mothers.
4. The umbilical cord can then be cut as normal, sectioning off a 6 inch or larger portion for possible additional testing.

REFERENCES

1. *Cord Blood.* (2020, October 7). ucsfhealth.org. Retrieved October 6, 2022, from https://www.ucsfhealth.org/medical-tests/cord-blood-testing
2. Laboratory use of umbilical cord blood for critically ill infants. (n.d.). Retrieved October 6, 2022, from https://acutecaretesting.org/en/articles/laboratory-use-of-umbilical-cord-blood-for-critically-ill-infants

ATTACHMENTS

None

LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT E

Departmental Manuals

Consideration and Action

Presented by E. Johnson

YEARLY MEMO/SIGNATURE PAGES

MODOC MEDICAL CENTER
A Public Entity
Healing Hands Close To Home
Last Frontier Healthcare District

MEMORANDUM

DATE: 8/28/2026
TO: LAST FRONTIER HEALTHCARE DISTRICT BOARD OF DIRECTORS
FROM: SHELLY BAILEY
SUBJECT: ANNUAL RADIOLOGY, GENERAL, IR, MRI, ULTRASOUND AND X-RAY POLICY MANUAL REVIEW

I have completed the manual review for all Radiology Policy and Procedures.

The manual is in good shape and it is my recommendation that the Board approve the manual as is. I went through my policy manual extensively in 2024 and 2025. It was updated and many new policies were created, presented and approved by the Board over the past year.

Should updates or new policies be necessary, I will process them through the Board as soon as possible.

Respectfully Submitted,

Shelly Bailey

SHELLY BAILEY
RADIOLOGY DEPARTMET MANAGER

SB/sab

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Last Frontier Healthcare District

RADIOLOGY POLICY MANUAL
2026

SNF-Activities Policy Manual has been reviewed and is approved for use at Modoc Medical Center.

Radiology Manager — Date: 8/28/2026

Chief Executive Officer — Date

Chair, Board of Directors — Date

MODOC MEDICAL CENTER
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MEMORANDUM

DATE: 8/24/2026
TO: LAST FRONTIER HEALTHCARE DISTRICT BOARD OF DIRECTORS
FROM: KAYLA WOOD SNF Social Services
SUBJECT: ANNUAL MANUAL REVIEW

I have completed the review for the SNF-Social Services Manual Review.

The Manual is in good shape and it is my recommendation that the Board approve the manual at this time. I do not have any updated or new polices pending.

Thank you for your attention to the above.

Respectfully Submitted,
Kayla Wood | SSM

KAYLA WOOD
SNF Social Services Manager
KW/sab

SNF-SOCIAL SERVICES POLICY MANUAL
2026

SNF-SOCIAL SERVICES Policy Manual has been reviewed and is approved for use at Modoc Medical Center.

Kayla Wardlow — 8/25/26

SNF-SOCIAL SERVICES MANAGER — Date

Chief Executive Officer — Date

Board of Directors — Date

MODOC MEDICAL CENTER
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MEMORANDUM

DATE: 8/12/2026
TO: LAST FRONTIER HEALTHCARE DISTRICT BOARD OF DIRECTORS
FROM: CAROLYN LOUGHRY SNF-Activities
SUBJECT: ANNUAL MANUAL REVIEW

Gentlepersons:

I have completed the review for the SNF-Activities Policy Manual Review.

There are no archived or revised policies.

The Manual is in good shape and it is my recommendation that the Board approve the manual at this time.

Thank you for your attention to the above.

Respectfully Submitted,

CAROLYN LOUGHRY
SNF-Activities Manager
CL/sab

SNF-ACTIVITIES POLICY MANUAL
2026

SNF-ACTIVITIES Policy Manual has been reviewed and is approved for use at Modoc Medical Center.

SNF-ACTIVITIES MANAGER	8-21-26 Date
Chief Executive Officer	Date
Board of Directors	Date

MODOC MEDICAL CENTER
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Last Frontier Healthcare District

MEMORANDUM

DATE: 8/8/2026
TO: LAST FRONTIER HEALTHCARE DISTRICT BOARD OF DIRECTORS
FROM: JON CRNKOVIC
SUBJECT: ANNUAL POLICY MANUAL REVIEW

I have completed the manual review for the MODOC MEDICAL CLINIC POLICY Manual.

The Manual is in good shape and it is my recommendation that the Board approve it at this time.

The attached revising/archived list is accurate, and any revision will be completed within 120 days of the date of this Memorandum.

Thank you for your attention to the above.

Respectfully Submitted,

JON CRNKOVIC
CLINIC MANAGER
MODOC MEDICAL CLINIC
JC/sab

Enc.

Alturas Clinic

REVISING LIST

Appointment no-show late cancellation

Emergency Vaccine Storage

Facility Operations

ARCHIVED/REMOVED

none

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ALTURAS CLINIC POLICY & PROCEDURE MANUAL
2026

The Alturas Clinic Manual has been reviewed and is approved for use at Modoc Medical Center.

Jon Crnkovic Alturas Clinic Manager — Date: 8/21/26

Chief Executive Officer — Date

Board of Directors — Date

SPREADSHEET

Susan Sauerheber	6170.26 Seizure Management Standard of Care Policy.docx	Amber Vucina
Susan Sauerheber	6170.26 Shaving A Patient Standard of Care Policy.docx	Amber Vucina
Susan Sauerheber	6170.26 Suctioning Through A Tracheostomy Policy.docx	Amber Vucina
Susan Sauerheber	6170.26 Suture Removal.docx	Amber Vucina
Susan Sauerheber	6170.26 Telemetry Monitoring Policy.docx	Amber Vucina
Susan Sauerheber	6170.26 Thoracentesis Assisting Provider Policy.docx	Amber Vucina
Walter Dimarucut	7500.22 BLOOD CULTURES-PROCESSING AND REPORTING-BACTEC.docx	Kevin Kramer
Walter Dimarucut	7500.23 BONE MARROW CULTURE AND SIDE PREP.docx	Mallory Morgan
Walter Dimarucut	7500.23 APTT (Siemens) Procedure.docx	Kevin Kramer
Walter Dimarucut	7500.23 Environmental cultures-identifying and reporting.docx	Edward Johnson
Walter Dimarucut	7500.23 Labconco Biological Safety Cabinet Usage.docx	Amber Vucina
Walter Dimarucut	7500.23 MICROBIOLOGY PLATING PROTOCOL.docx	Mallory Morgan
Walter Dimarucut	7500.23 MONTHLY AUTOCLAVE.docx	Mallory Morgan
Walter Dimarucut	7500.23 Respiratory cultures-identifying and reporting.docx	Kevin Kramer
Walter Dimarucut	7500.23 STREAK PLATE TECHNIQUE.docx	Edward Johnson
Walter Dimarucut	7500.23 URINE CULTURES-IDENTIFYING AND REPORTING.docx	Alicia Doss
Walter Dimarucut	7500.24 Blood Agar Instructions for Use.docx	Kevin Kramer
Walter Dimarucut	7500.24 Gram Stain Procedure.docx	Alicia Doss
Walter Dimarucut	7500.24 GROUP A BETA STREP AGAR Instructions on Use.docx	Alex Cole
Walter Dimarucut	7500.24 MacConkey Agar.docx	Alex Cole
Walter Dimarucut	7500.24 Thioglycolate Media Instructions on Use.docx	Alex Cole
Walter Dimarucut	7500.24 Use and Interpretation of Bacitracin A Disc.docx	Alex Cole
Walter Dimarucut	7500.25 BODY FLUID CULTURES.docx	Edward Johnson
Walter Dimarucut	7500.25 Cepheid Xpert CoV2 Flu RSV Testing.docx	Edward Johnson
Walter Dimarucut	7500.25 GeneXpert IQCP Risk Assessment.docx	Edward Johnson
Walter Dimarucut	7500.25 Microbiology Quality Control updated 12.2024.docx	Edward Johnson
Walter Dimarucut	7500.25 URINALYSIS - COMPLETE.docx	Edward Johnson
Walter Dimarucut	7500.26 NEONATAL TRANSFUSION.docx	Edward Johnson
Walter Dimarucut	7500-T.23 ABO RH TYPING 3469.docx	Alex Cole
Walter Dimarucut	7500-T.23 ANTIBODY SCREEN-3 CELL.docx	Alex Cole
Walter Dimarucut	7500-T.23 CROSSMATCH.docx	Kevin Kramer
Walter Dimarucut	7500-T.23 DIRECT COOMBS DATE .docx	Kevin Kramer
Walter Dimarucut	7500-T.23 EMERGENCY RELEASE OF UNCROSSMATCHED BLOOD.docx	Kevin Kramer

Contact	Name	Tech Reader Approv
Delinda Gover	7420.26 ANESTHESIA PERSONNEL.docx	Mallory Morgan
Delinda Gover	7420;.26 Pre Anesthetic requirements.docx	Alex Cole
Edward Johnson	6580.26 Documentation - Risk Event Reporting (4254).docx	Alex Cole
Edward Johnson	6580.26 415 Resident Rights - Pharmaceutical service (4376).docx	Alex Cole
Edward Johnson	6580.26 Documentation - Montioring Residents with Special Needs.docx	Alex Cole
Edward Johnson	6580.26 Monitoring Residents Weight.docx	Alicia Doss
Jeremy Murray	8345.26 GUEST TRAY (7215).docx	Edward Johnson
Jeremy Murray	8345.26 HOURS OF OPERATION.docx	Kevin Kramer
Jeremy Murray	8345.26 MEAL TIMES AND FREQUENCY.docx	Amber Vucina
Jeremy Murray	8345.26 TEMPERATURES.docx	Alex Cole
Susan Sauerheber	6170.26 Administration of Enteral Nutrition Using Kangaroo Feeding Pump Poli	Edward Johnson
Susan Sauerheber	6170.26 Care and Accommodation of Spiritual Needs in Patient Care.docx	Kevin Kramer
Susan Sauerheber	6170.26 Care Planning Policy.docx	Alicia Doss
Susan Sauerheber	6170.26 DECUBITUS ULCER PREVENTION AND CARE.docx	Amber Vucina
Susan Sauerheber	6170.26 Denture Cleaning and Care.docx	Alex Cole
Susan Sauerheber	6170.26 Dying Patient Standard of Care for Inpatient.docx	Mallory Morgan
Susan Sauerheber	6170.26 Enema Administration Policy.docx	Mallory Morgan
Susan Sauerheber	6170.26 Enteral (Tube) Feeding Administration Policy.docx	Mallory Morgan
Susan Sauerheber	6170.26 EYE COMPRESS APPLICATION POLICY.docx	Mallory Morgan
Susan Sauerheber	6170.26 INFORMED CONSENT-INPATIENT.docx	Amber Vucina
Susan Sauerheber	6170.26 Initial Patient Assessment and Reassessment.docx	Edward Johnson
Susan Sauerheber	6170.26 Injection- Intramuscular Administration.docx	Edward Johnson
Susan Sauerheber	6170.26 Injection- Subcutaneous Administration.docx	Kevin Kramer
Susan Sauerheber	6170.26 Injections- Administration and Management.docx	Kevin Kramer
Susan Sauerheber	6170.26 Intravenous Therapy- Changing a Gown with Continuous Infusion.doc	Amber Vucina
Susan Sauerheber	6170.26 Intravenous Therapy Complications and Management Policy.docx	Amber Vucina
Susan Sauerheber	6170.26 Intravenous Therapy- Discontinuing A Peripheral Line.docx	Kevin Kramer
Susan Sauerheber	6170.26 Rectal Tube Insertion Policy.docx	Mallory Morgan
Susan Sauerheber	6170.26 Release of Deceased Patient Policy.docx	Alicia Doss
Susan Sauerheber	6170.26 Reporting Equipment Malfunction Policy.docx	Mallory Morgan
Susan Sauerheber	6170.26 Routine Night Shift Nursing Responsibilities Policy.docx	Mallory Morgan
Susan Sauerheber	6170.26 Safe Medical Devices Policy.docx	Alicia Doss

Walter Dimarucut	7500-T.23 GENERAL TRANFUSION SERVICES POLICY AND QUALITY ASSURAN(	Edward Johnson
Walter Dimarucut	7500-T.23 GRADING AGGLUTINATION REACTIONS.docx	Edward Johnson
Walter Dimarucut	7500-T.23 INFANT BLOOD TESTING.docx	Amber Vucina
Walter Dimarucut	7500-T.23 OPERATION AND USE OF THE HELMER DH2 PLASMA THAWER.docx	Alex Cole
Walter Dimarucut	7500-T.26 Newborn Specimens and Order Sets.docx	Alex Cole

DATED:_____

BOARD OF DIRECTORS_____

LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT F

LFHD Financial Statement

September 2026 • Unaudited

Consideration and Action

Presented by J. Lin

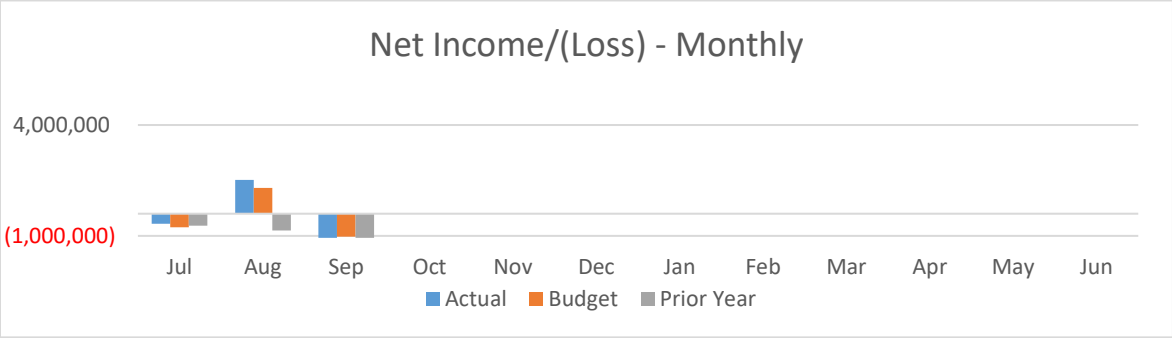


Modoc Medical Center
Financial Narrative
For the Month of September 2026

Prepared by Jin Lin, Finance Director

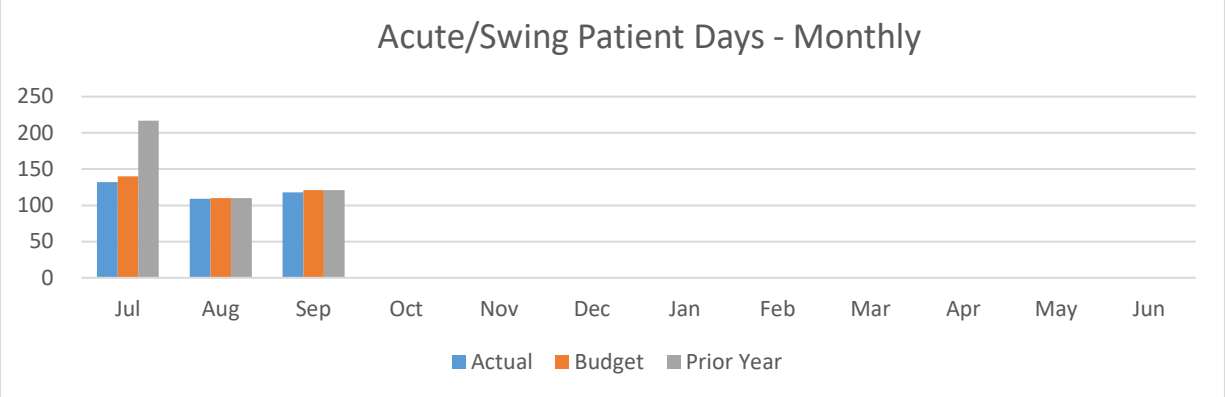
Summary

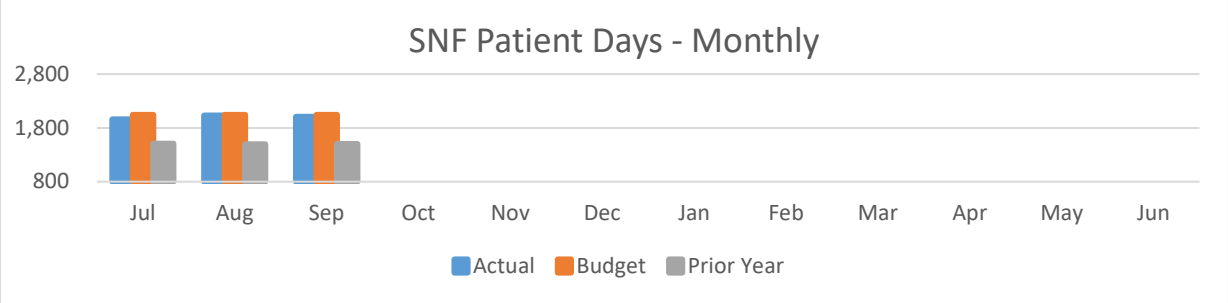
During the month of September, Modoc Medical Center reported a loss from operations of $1.06 million, underperforming the budget that anticipated an operating loss of $1.01 million. Inpatient revenue was below the budget by $11K. Outpatient revenue was above budget by $162K for the month. Total patient revenue was $5.58 million, above budget of $151K. Modoc Medical Center shows a net loss of $1.30 million that was $269K unfavorable to budget.



Patient Volumes

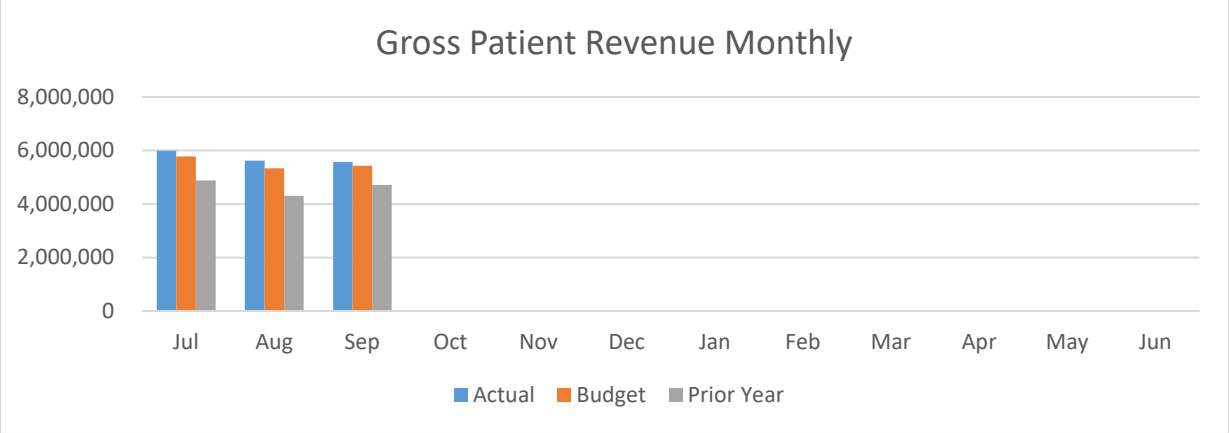
Combined Acute Days were 118, in line with the budget for the month. SNF Patient Days were 2,009 for the month. Overall Inpatient and SNF Days were below budget by 34 days (2,127 actual vs. 2,161 budget). Most outpatient visits were above budget; however, Ambulance runs and Ultrasounds were below budget.

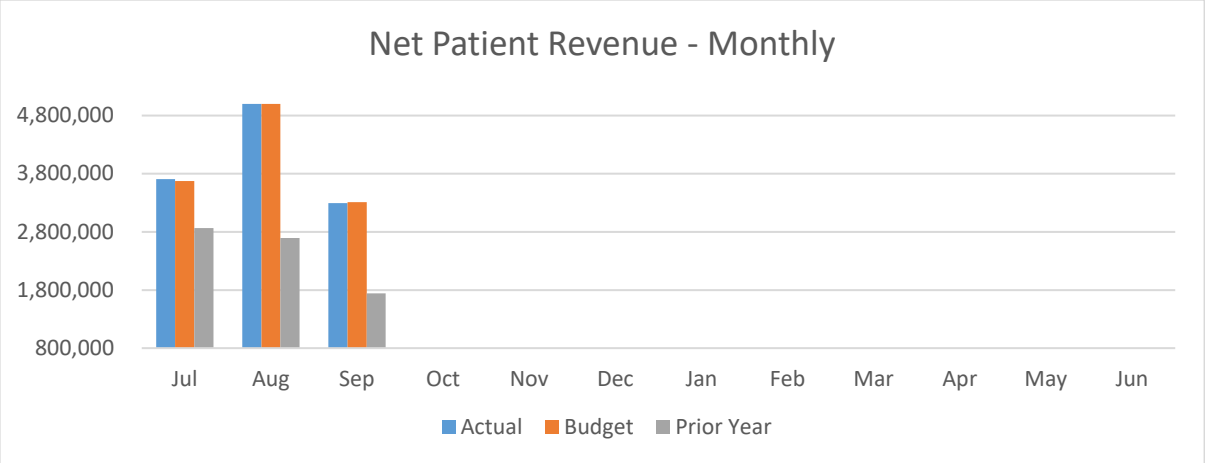




Revenues

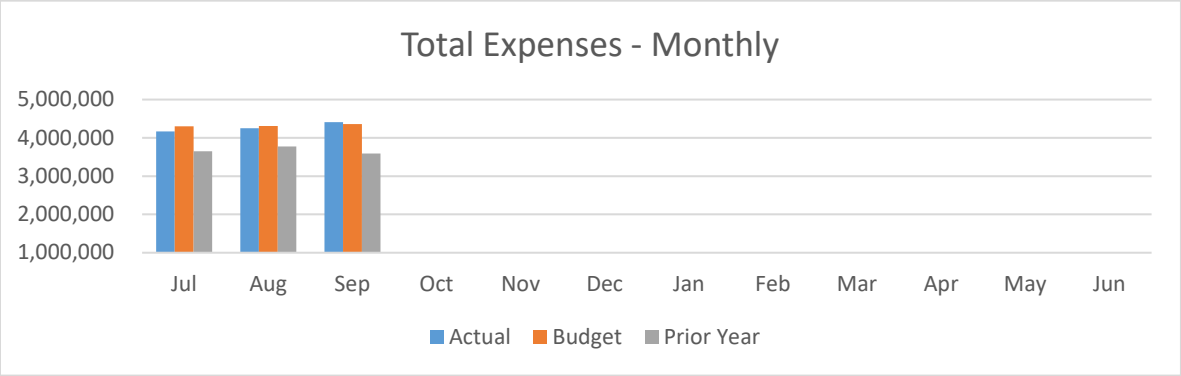
During the month of September, gross revenue (total patient revenue plus other revenue) exceeded budget by $172K. Net revenue was above budget by $6K. Gross Patient Revenue was $5.58 million vs $5.43 million budgeted. Inpatient Revenue was $1.70 million vs $1.71 million budgeted; and Outpatient Revenue was $3.88 million vs $3.71 million budgeted. Total deductions from revenue were $2.28 million and unfavorable to the budget of $166K. Net patient Revenue was $3.30 million which was below budget by $15K.





Expenses

Total operating expenses were $4.41 million for the month and $57K finished unfavorable to the expense budget.



Non-Operating Activity

Non-Operating activities for the month were as follows: Accrued Interest expense from USDA Loan was $160K. Interest income of $14K was earned from Money Market. Accrued Interest of $47K from Cambridge Investment Account was not included. The retail pharmacy showed a loss of $92K. District vouchers were $3K. Total non-operating net loss for the month was $242K vs net loss of $24K budgeted.

Balance Sheet

Cash for the month was 24.43 million. The total current liabilities were $4.57 million. Days in Cash totaled 176. Days in AP totaled 16. Days in AR totaled 58. The current ratio was 8.12. Net AR as a percentage of gross AR was 41.97%.



Modoc Medical Center
Income Statement
For the month of September 2026

	Month	Sep-26 Budget	Variance	Prior Year Month	2027 YTD	2027 YTD Budget	Variance	Prior Year YTD
Revenues								
Room & Board - Acute	516,695	493,277	23,418	467,429	1,693,691	1,762,671	(68,980)	1,682,326
Room & Board - SNF	1,184,271	1,219,075	(34,804)	878,216	3,614,562	3,657,225	(42,663)	2,613,023
Total Inpatient Revenue	1,700,966	1,712,352	(11,387)	1,345,645	5,308,252	5,419,896	(111,644)	4,295,348
Outpatient Revenue	3,875,329	3,713,159	162,170	3,369,321	11,874,344	11,112,328	762,016	9,599,871
Total Patient Revenue	5,576,295	5,425,511	150,783	4,714,967	17,182,596	16,532,223	650,373	13,895,219
Bad Debts (580000,580011,58010	206,245	103,980	102,265	192,942	411,613	316,840	94,773	378,719
Contractuals Adjs	2,007,161	1,894,197	112,964	1,894,197	3,950,333	3,375,076	575,256	5,294,593
Admin Adjs (5930002-593001,598	66,506	116,116	(49,611)	884,264	256,732	366,182	(109,451)	920,866
Total Revenue Deductions	2,279,912	2,114,293	165,619	2,971,403	4,618,678	4,058,099	560,579	6,594,179
Net Patient Revenue	3,296,383	3,311,218	(14,835)	1,743,564	12,563,918	12,474,124	89,794	7,301,040
% of Charges	*59.1%*	*61.0%*	*-1.9%*	*37.0%*	*73.1%*	*1*	*-2.3%*	*52.5%*
Other Revenue	55,249	34,509	20,740	34,509	149,695	87,757	61,937	86,755
Total Net Revenue	3,351,632	3,345,727	5,905	1,778,073	12,713,613	12,561,882	151,731	7,387,795
Expenses								
Salaries	1,940,149	1,922,166	17,983	1,684,758	5,666,561	5,763,765	(97,204)	5,160,531
Benefits and Taxes	501,793	404,040	97,753	340,699	1,410,960	1,211,800	199,159	1,100,692
Registry	245,284	329,734	(84,450)	199,454	903,385	989,202	(85,818)	669,084
Professional Fees	599,939	567,867	32,072	373,455	1,658,869	1,615,088	43,781	1,241,614
Purchased Services	156,340	144,198	12,142	118,558	527,648	432,563	95,085	387,177
Supplies	387,028	415,144	(28,117)	403,531	1,061,411	1,245,433	(184,022)	1,145,191
Repairs and Maint	46,522	38,455	8,067	55,206	139,081	116,808	22,273	168,338
Lease and Rental	7,724	5,069	2,655	2,205	15,375	13,792	1,583	6,280
Utilities	78,898	92,818	(13,920)	56,867	243,156	278,454	(35,298)	176,703
Insurance	43,696	41,020	2,676	43,413	115,211	123,060	(7,849)	130,936
Depreciation	265,162	311,193	(46,030)	177,432	811,678	933,579	(121,901)	545,149
Other	140,429	84,743	55,685	135,953	324,162	247,080	77,082	283,743
Total Operating Expenses	4,412,963	4,356,448	56,516	3,591,532	12,877,497	12,970,625	(93,127)	11,015,438
Income from Operations	(1,061,331)	(1,010,720)	(50,611)	(1,813,459)	(163,885)	(408,743)	244,858	(3,627,642)
Property Tax Revenue	0	0	0	0	58,273	0	58,273	61,179
Interest Income	13,508	80,263	(66,754)	43,952	69,155	240,788	(171,633)	362,390
Interest Expense	(160,360)	(148,978)	(11,383)	(81,291)	(478,267)	(452,166)	(26,101)	(246,979)
Gain/Loss on Asset Disposal/Forte	0	0	0	0	0	0	0	0
Retail Pharmacy Net Activity	(92,296)	50,994	(143,290)	40,127	256,703	152,982	103,721	369,601
DISTRICT VOUCHERS AND OTHER	(2,777)	(5,903)	3,127	(7,451)	(12,146)	(17,710)	5,564	(22,855)
Total Non-Operating Revenue	(241,924)	(23,624)	(218,300)	(4,663)	(106,282)	(76,106)	(30,176)	523,336
Net Income/(Loss)	(1,303,256)	(1,034,345)	(268,911)	(1,818,122)	(270,166)	(484,849)	214,683	(3,104,306)
EBIDA	(877,733)	(574,174)	(303,559)	(1,559,399)	1,019,778	900,896	118,883	(2,312,178)
Operating Margin %	-31.7%	-30.2%	-1.5%	-102.0%	-1.3%	-3.3%	2.0%	-49.1%
Net Margin %	-38.9%	-30.9%	-8.0%	-102.3%	-2.1%	-3.9%	1.7%	-42.0%
EBIDA Margin %	-26.2%	-17.2%	-9.0%	-87.7%	8.0%	7.2%	0.8%	-31.3%

Modoc Medical Center
Income Statement Trend

	FYE 2026 YTD July-Sept	Sep-25	FYE 2027 YTD July-Sept	Sep-26
Revenues				
Room & Board - Acute	1,682,326	467,429	1,693,691	516,695
Room & Board - SNF	2,613,023	878,216	3,614,562	1,184,271
	0		-	
Total Inpatient Revenue	4,295,348	1,345,645	5,308,252	1,700,966
Outpatient Revenue	9,599,871	3,369,321	11,874,344	3,875,329
Total Patient Revenue	13,895,219	4,714,967	17,182,596	5,576,295
Bad Debts	378,719	192,942	411,613	206,245
Contractual Adjs	5,294,593	1,894,197	3,950,333	2,007,161
Admin Ajds	920,866	884,264	256,732	66,506
Total Revenue Deductions	6,594,179	2,971,403	4,618,678	2,279,912
Net Patient Revenue	7,301,040	1,743,564	12,563,918	3,296,383
% of Charges	*52.5%*	*37.0%*	*73.1%*	*59.1%*
Other Revenue	86,755	34,509	149,695	55,249
Total Net Revenue	7,387,795	1,778,073	12,713,613	3,351,632
Expenses				
Salaries	5,160,531	1,684,758	5,666,561	1,940,149
Benefits and Taxes	1,100,692	340,699	1,410,960	501,793
Registry	669,084	199,454	903,385	245,284
Professional Fees	1,241,614	373,455	1,658,869	599,939
Purchased Services	387,177	118,558	527,648	156,340
Supplies	1,145,191	403,531	1,061,411	387,028
Repairs and Maint	168,338	55,206	139,081	46,522
Lease and Rental	6,280	2,205	15,375	7,724
Utilities	176,703	56,867	243,156	78,898
Insurance	130,936	43,413	115,211	43,696
Depreciation	545,149	177,432	811,678	265,162
Other	283,743	135,953	324,162	140,429
Total Operating Expenses	11,015,438	3,591,532	12,877,497	4,412,963
Income from Operations	(3,627,642)	(1,813,459)	(163,885)	(1,061,331)
Property Tax Revenue	61,179	0	58,273	0
Interest Income	362,390	43,952	69,155	13,508
Interest Expense	(246,979)	(81,291)	(478,267)	(160,360)
Gain/Loss on Asset Disposal/Forte	0	0	0	0
Retail Pharmacy Net Activity	369,601	40,127	256,703	(92,296)
DISTRICT VOUCHERS AND OTHER	(22,855)	(7,451)	(12,146)	(2,777)
Total Non-Operating Revenue	523,336	(4,663)	(106,282)	(241,924)

Modoc Medical Center
Balance Sheet
For the month of September 2026

	Unaudited 9/30/2026	Unaudited 8/31/2026	Unaudited 7/31/2026	Unaudited 6/30/2026
Cash	1,133,556	555,519	755,711	1,879,867
Investments	21,233,926	23,326,952	26,412,621	26,985,025
Designated Funds	2,064,134	2,057,622	2,050,688	2,044,269
Total Cash	24,431,616	25,940,092	29,219,019	30,909,161
Gross Patient AR (Patient AR-	10,471,730	10,718,330	11,346,763	10,708,215
Allowances	(6,077,192)	(6,188,493)	(6,222,498)	(5,969,738)
Net Patient AR	4,394,538	4,529,837	5,124,265	4,738,476
% of Gross	*42.0%*	*42.3%*	*45.2%*	*44.3%*
Third Party Receivable	5,817,028	5,778,589	147,637	119,517
Other AR	859,313	1,032,168	1,013,913	905,739
Inventory	653,330	615,732	621,732	600,312
Prepaids	1,004,591	929,396	888,634	808,023
Total Current Assets	37,160,416	38,825,814	37,015,201	38,081,228
Land (120000-120900)	713,540	713,540	713,540	713,540
Bldg & Improvements (12110	104,957,482	104,957,482	104,953,797	104,953,797
Equipment (124100-124204)	16,993,974	16,993,974	16,670,814	16,670,814
Construction In Progress (125	2,811,074	2,509,684	2,407,321	2,335,463
Fixed Assets	125,476,070	125,174,680	124,745,472	124,673,614
Accum Depreciation	(24,124,028)	(23,858,675)	(23,584,205)	(23,311,763)
Net Fixed Assets	101,352,042	101,316,005	101,161,267	101,361,851
Other Assets	0	0	0	0
Total Assets	138,512,458	140,141,819	138,176,468	139,443,079
Accounts Payable	1,974,615	1,648,645	1,405,465	1,447,470
Accrued Payroll	1,523,312	2,187,444	2,040,737	1,822,787
Patient Trust Accounts	11,755	11,755	11,890	11,890
Third Party Payables	554,000	554,000	554,000	554,000
Accrued Interest				
Current Portion Liabilities	263,132	263,132	263,132	263,132
Other Current Liabilities/Accr	247,231	172,564	95,407	481,903
Total Current Liabilities	4,574,043	4,837,539	4,370,630	4,581,181
Long Term Liabilities	54,659,280	54,686,470	54,713,576	55,312,597
Total Liabilities	59,233,323	59,524,010	59,084,206	59,893,778
Fund Balance	79,549,300	79,549,300	79,549,300	79,549,300
Current Year Income/(Loss)	(270,166)	1,068,509	(457,039)	
Total Equity	79,279,134	80,617,810	79,092,261	79,549,300
Total Liabilities and Equity	138,512,458	140,141,819	138,176,467	139,443,078
Days in Cash	176	188	217	241
Days in AR (Gross)	58	59	59	58
Days in AP	16	13	12	12
Current Ratio	8.12	8.03	8.47	8.31

STATEMENT OF CASH FLOWS

September-26

	CURRENT MONTH	FISCAL YEAR YTD
CASH FLOWS FROM OPERATING ACTIVITIES		
NET INCOME	(1,303,256)	(270,166)
ADJUSTMENTS TO RECONCILE NET INCOME TO NET CASH PROVIDED BY OPERATING ACTIVITIES		
DEPRECIATION EXPENSE	265,355	812,264
CHANGE IN PATIENT ACCOUNTS RECEIVABLE	135,299	343,938
CHANGE IN OTHER RECEIVABLES	134,417	-5,651,084
CHANGE IN INVENTORIES	-37,598	-53,018
CHANGE IN PREPAID EXPENSES	-75,195	-196,569
CHANGE IN ACCOUNTS PAYABLE	290,549	527,144
CHANGE IN ACCRUED SALARIES AND RELATED TAXES	-664,132	-299,475
CHANGE IN OTHER PAYABLES	0	0
NET CASH PROVIDED (USED) BY OPERATING ACTIVITIES	48,694	-4,516,800
CASH FLOWS FROM INVESTMENT ACTIVITIES		
PURCHASE OF EQUIPMENT/CIP	-301,390	-802,455
CUSTODIAL HOLDINGS	0	-135
NET CASH PROVIDED (USED) BY INVESTING ACTIVITIES	-301,390	-802,590
CASH FROM FINANCING ACTIVITIES		
Current Libility	74,667	-234,672
Long Term Liability	-27,190	-653,317
NET CASH PROVIDED (USED) BY FINANCING ACTIVITIES	47,477	-887,989
CASH AT BEGINNING OF PERIOD	25,940,092	30,909,161
NET INCREASE (DECREASE) IN CASH	-1,508,476	-6,477,546
CASH AT END OF PERIOD	24,431,616	24,431,616

MODOC MEDICAL CENTER

"KEY STATISTICS"

Twelve Months Ending September 30th, 2026

	Sep-26		Aug-26		Jul-26		Jun-26		May-26		Apr-26		Mar-26		Feb-26		Jan-26		Dec-25		Nov-25		Oct-25		FY 27 YTD	FY 26 YTD	12 Mos.
	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.	Act.	Bud.			
Patient-Days																											
Adults/Peds	61	*47*	50	*49*	71	*53*	61	*64*	40	*81*	53	*76*	45	*64*	89	*48*	49	*56*	69	*64*	56	*83*	52	*75*	182	149	696
Swing	57	*74*	59	*61*	61	*87*	54	*58*	20	*56*	59	*59*	87	*65*	98	*73*	54	*57*	124	*70*	92	*46*	38	*76*	177	299	803
SNF	2,009	*2,040*	2,030	*2,040*	1,958	*2,040*	1,922	*1,550*	1,923	*1,550*	1,811	*1,550*	1,768	*1,550*	1,487	*1,477*	1,598	*1,550*	1,615	*1,535*	1,536	*1,500*	1,546	*1,500*	5,997	4,502	21,203
Total "Patient Days"	*2,127*	*2,161*	*2,139*	*2,150*	*2,090*	*2,180*	*2,037*	*1,672*	*1,983*	*1,687*	*1,923*	*1,685*	*1,900*	*1,679*	*1,674*	*1,598*	*1,701*	*1,663*	*1,808*	*1,669*	*1,684*	*1,629*	*1,636*	*1,651*	6,356	4,950	22,702
ADC																											
Adults/Peds	2.03	1.52	1.61	1.58	2.29	1.71	2.03	2.06	1.29	2.61	1.77	2.45	1.45	2.06	3.18	1.55	1.58	1.81	2.23	2.06	1.87	2.68	1.68	2.42	1.98	1.62	1.91
Swing	1.90	2.39	1.90	1.97	1.97	2.81	1.80	1.87	0.65	1.81	1.97	1.90	2.81	2.10	3.50	2.35	1.74	1.84	4.00	2.26	3.07	1.48	1.23	2.45	1.92	3.25	2.20
SNF	66.97	65.81	65.48	65.81	63.16	65.81	64.07	50.00	62.03	50.00	60.37	50.00	57.03	50.00	53.11	47.65	51.55	50.00	52.10	49.52	51.20	48.39	49.87	48.39	65.18	48.93	58.09
Total "Average Daily Census"	*70.90*	*69.71*	*69.00*	*69.35*	*67.42*	*70.32*	*67.90*	*53.94*	*63.97*	*54.42*	*64.10*	*54.35*	*61.29*	*54.16*	*59.79*	*51.55*	*54.87*	*53.65*	*58.32*	*53.84*	*56.13*	*52.55*	*52.77*	*53.26*	69.09	53.80	62.20
ALOS																											
Adults/Peds	1.00		1.00		0.95		2.77		2.67		2.94		3.46		3.30		2.72		3.63		3.50		3.06		0.98	3.17	1.98
Swing	7.13		7.38		7.63		4.50		4.00		6.56		8.70		7.00		10.80		10.33		9.20		7.60		7.38	12.46	7.58
Admissions																											
Adults/Peds	61	16	50	14	75	17	22	14	15	17	18	20	13	20	27	17	18	17	19	19	16	8	17	20	186	47	351
Swing	8	5	8	7	8	12	12	8	5	10	9	4	10	11	14	6	5	6	12	9	10	10	5	5	24	24	106
SNF	4	-	2	1	2	5	4	3	6	4	7	1	10	2	3	-	2	2	-	2	5	2	-	2	8	6	45
Total "Admissions"	*73*	*21*	*60*	*22*	*85*	*34*	*38*	*25*	*26*	*31*	*34*	*25*	*33*	*33*	*44*	*23*	*25*	*25*	*31*	*30*	*31*	*20*	*22*	*27*	218	77	502
Discharges																											
SNF	6		1		2		4		3		7		3		1		1		2		1		1		9	3	32
																									-	-	-
Days in Period	30		31		31		30		31		30		31		28		31		31		30		31		92	92	365
																									-	-	-
Amulatory Service Statistics																									-	-	-
Emergency Visits	517	471	523	494	515	487	514	468	532	439	440	518	485	510	444	482	485	440	486	510	474	421	550	474	1,555	1,452	5,965
Ambulance Runs Visits	63	94	77	82	74	106	77	87	71	86	56	92	65	99	78	95	73	87	107	93	90	93	78	91	214	282	909
Clinic Visits	860	791	861	827	999	959	946	903	901	932	972	905	1,112	872	968	790	805	970	772	684	808	813	837	923	2,720	2,577	10,841
Canby Clinic Visits	272	210	354	248	293	312	321	208	293	227	276	257	216	872	220	243	222	290	290	251	202	264	233	268	919	770	3,192
Canby Dental	196	195	173	169	196	169	204	174	168	173	347	163	170	171	158	133	178	185	145	147	129	171	183	200	565	533	2,247
Observation Admits	8	-	3	1	3	2	6	5	6	5	6		1	3	4	2	7		1	5	5	4	2	2	14	3	52
Observation Care Hours	282.3	-	82.1	26	96.5	145	199.8	119	191.8	120	214.2	110	37.3	109	229.7	94	293.2	96	23.6	158	121.2	106	115.0	159	461	171	1,887
																									-	-	-
Ancillary Services Statistics																									-	-	-
Surgeries	4	50	2	3	2	2	-	2	2	11	5	2	8	3	4	4	4	10	3	11	4	2	3	3	8	15	41
Endoscopies	35	21	17	24	24	17	21	25	22	19	26	21	17	21	16	20	21	28	23	20	23	21	35	20	76	62	280
Surgery & Recovery Minutes	936	716	489	638	618	414	428	802	643	869	835	767	541	623	732	666	632	682	658	731	577	462	1,016	566	2,043	1,768	8,105
Anesthesia Minutes	1,427	1,089	729	1,014	976	667	654	1,404	998	1,392	1,333	864	786	960	1,013	1,020	904	1,058	912	1,326	933	745	1,427	898	3,132	2,770	12,092
Laboratory Tests	5,758	4,379	5,117	4,772	5,776	5,241	5,594	4,619	5,477	4,554	5,497	4,773	5,117	4,498	4,991	4,648	4,247	4,591	4,721	4,427	4,454	4,269	4,680	5,079	16,651	14,392	61,429
EKG Tests-Acute Proc																									-	-	-
EKG Tests-Clinic Proc																									-	-	-
Radiology-Diagnostic Proc	335	244	281	267	329	330	333	272	292	289	304	227	345	258	348	301		282	287	256	236	261	307	285	945	841	3,397
Ultrasounds Proc	101	112	111	114	125	156	143	89	98	86	135	92	127	75	96	105		92	126	86	73	53	138	106	337	382	1,273
CT Scans Proc	191	168	184	181	190	196	187	146	184	140	166	167	142	149	181	153		127	182	145	160	152	149	152	565	545	1,916
MRI Proc	39	38	41	38	42	38	47		49		38		38		39				45		21	15		-	122	-	399
Physical Therapy Sessions	777	660	796	660	880	660	840	613	709	627	497	763	873	745	409	517	469	569	545	429	450	542	582	552	2,453	3,050	7,827
Retail Pharmacy-Scripts	4,359	4,016	4,458	3,555		3,441	5,661	2,559	4,320	2,560	4,630	2,784	4,446	2,531	3,942	2,354	4,449	2,687	4,331	2,586	3,841	2,377	5,035	2,663	8,817	11,012	49,472

MODOC MEDICAL CENTER

"FULL TIME EQUIVALENT REPORT"

Twelve Months Ending: September 30th, 2026

Department	Sep-26	Aug-26	Jul-26	Jun-26	May-26	Apr-26	Mar-26	Feb-26	Jan-26	Dec-25	Nov-25	Oct-25	12 Mo Ave		
Med / Surg	16.94	16.66	17.19	16.65	16.55	16.98	18.32	19.24	18.35	16.90	17.36	15.63	17.23	0.28	0.02
Comm Disease Care													#DIV/0!	0.00	#DIV/0!
Swing Beds													#DIV/0!	0.00	#DIV/0!
Long Term - SNF	74.49	71.11	75.09	75.87	74.52	69.35	69.30	61.27	59.65	37.41	64.09	59.56	65.98	3.38	0.05
Mountainview - SNF	17.23	16.67	3.47	2.52	3.25	3.31	2.91	9.79	10.26	31.66			10.11	0.56	0.03
Emergency Dept	14.29	14.32	14.17	13.46	13.80	12.79	11.46	13.66	12.26	11.60	12.19	12.93	13.08	-0.03	(0.00)
Ambulance - Alturas	12.94	11.88	11.96	11.67	11.82	12.65	10.99	11.90	10.55	11.55	10.79	10.86	11.63	1.06	0.08
Clinic	20.80	20.61	21.84	22.33	19.97	21.74	21.85	20.74	17.92	17.28	19.78	19.45	20.36	0.19	0.01
Canby Clinic	11.16	11.78	11.31	11.49	11.37	11.31	9.29	9.48	9.04	10.54	11.49	12.06	10.86	-0.62	(0.06)
Canby Dental	3.93	3.96	3.98	3.77	3.89	3.94	4.59	4.60	4.43	4.66	5.11	4.75	4.30	-0.03	(0.01)
Surgery	4.33	3.95	3.78	3.64	3.90	3.97	4.10	4.45	3.67	4.33	5.05	4.12	4.11	0.38	0.09
IRR													#DIV/0!	0.00	#DIV/0!
Lab	8.81	8.93	8.46	8.68	8.20	8.94	8.29	8.32	8.65	8.51	8.90	8.94	8.64	-0.12	(0.01)
Radiology	5.73	5.46	5.25	5.73	5.49	5.77	5.56	6.49	6.05	6.86	7.13	5.37	5.91	0.27	0.05
MRI													#DIV/0!	0.00	#DIV/0!
Ultrasound	1.45	1.43	1.39	1.46	1.24	1.33	1.36	1.42	1.70	1.39	1.33	1.37	1.41	0.02	0.01
CT	1.38	1.14	1.24	1.54	1.18	1.24	1.31	1.58	1.34	1.51	1.81	1.29	1.38	0.24	0.17
Pharmacy	2.61	2.11	2.02	2.10	2.09	2.13	2.24	2.12	2.01	2.05	2.00	1.96	2.12	0.50	0.19
Physical Therapy	7.48	6.53	7.46	7.08	6.49	6.65	6.25	7.35	6.30	6.61	7.38	6.40	6.83	0.95	0.13
Other PT													#DIV/0!	0.00	#DIV/0!
Dietary	18.32	19.04	18.67	18.17	18.38	19.02	17.10	18.14	19.07	13.72	16.43	12.85	17.41	-0.72	(0.04)
Dietary - MV SNF	4.96	4.79	4.86	4.65	4.20	3.73	2.98	3.10	2.33	5.89			4.15	0.17	0.03
Dietary Acute	8.94	8.82	8.76	8.08	9.68	9.62	8.29	7.52	7.35	7.48	7.08	8.43	8.34	0.12	0.01
Laundry	1.01	1.00	1.07	1.01	1.06	1.05	1.01	1.02	1.01	1.00	1.10	1.00	1.03	0.01	0.01
Activities	5.89	6.18	5.71	5.58	5.14	5.59	5.75	5.87	5.21	5.11	5.72	5.67	5.62	-0.29	(0.05)
Social Services	4.83	3.60	3.89	3.97	4.00	3.07	2.77	1.96	2.16	1.79	1.97	2.02	3.00	1.23	0.25
Purchasing	3.11	3.00	2.96	3.03	2.98	3.01	2.99	2.98	3.01	3.01	3.01	2.92	3.00	0.11	0.04
Housekeeping	18.71	18.40	18.76	18.95	19.87	20.37	20.55	18.65	16.81	17.10	15.12	13.97	18.11	0.31	0.02
Maintenance	5.88	6.06	6.08	5.99	5.77	5.94	5.91	5.99	6.03	6.06	5.93	6.05	5.97	-0.18	(0.03)
Data Processing	4.71	4.75	4.49	4.68	4.72	4.41	4.11	4.21	4.16	4.07	4.87	4.68	4.49	-0.04	(0.01)
General Accounting	3.21	3.24	3.53	3.29	3.54	2.88	3.84	3.86	4.21	4.14	3.92	3.94	3.63	-0.03	(0.01)
Patient Accounting	6.93	7.93	7.84	8.73	8.97	9.08	9.34	8.45	9.48	9.13	9.30	8.46	8.64	-1.00	(0.14)
Administration	3.79	3.62	3.32	3.47	3.65	3.27	3.51	3.44	3.21	3.38	3.37	3.49	3.46	0.17	0.04
Human Resources	2.89	2.96	2.95	2.98	2.93	2.85	2.88	2.12	2.89	2.99	3.01	2.97	2.87	-0.07	(0.02)
Medical Records	8.62	8.55	8.72	8.70	8.65	8.75	8.74	8.81	8.52	8.58	8.70	7.76	8.59	0.07	0.01
Nurse Administration	2.96	3.23	3.00	3.02	3.16	3.02	3.11	2.77	2.93	2.91	2.78	3.07	3.00	-0.27	(0.09)
In-Service	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	-
Utilization Review	1.46	1.44	1.45	1.45	1.47	1.49	1.43	1.50	1.44	1.48	1.49	1.49	1.47	0.02	0.01
Quality Assurance	0.50	0.50	0.50	0.50	0.51	0.50	0.50	0.50	0.50	0.50	0.50	0.51	0.50	0.00	-
Infection Control	0.59	0.64	0.40	0.58	0.59	0.60	0.59	0.60	0.59	0.59	0.61	0.69	0.59	-0.05	(0.08)
Retail Pharmacy	5.41	6.41	6.94	5.63	6.60	6.43	6.16	6.41	7.15	6.41	6.39	6.67	6.38	-1.00	(0.18)
TOTAL	**317.29**	**311.70**	**303.51**	**301.45**	**300.63**	**297.78**	**290.38**	**291.31**	**281.24**	**279.20**	**276.71**	**262.33**	**290.57**	5.59	0.02

September thru Octover 3,449.86

LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT G

Regional Collaborative Agreement

Orthopedic Surgery

Consideration and Action

Presented by K. Kramer

REGIONAL COLLABORATIVE AGREEMENT

This Regional Collaborative Agreement for Orthopedic Services ("**Agreement**") is entered into as of [Effective Date], ("**The Effective Date**") by and between Seneca Healthcare District, a California Healthcare District (**"District**"), Plumas District Hospital, Modoc Medical Center, and Lassen Indian Health Center ("**Collaborator**"). District and Collaborating Facilities may be referred to individually as a "Party" and collectively as the "Parties."

The Parties enter into this Agreement to establish a regional healthcare partnership that supports expanded access to orthopedic specialty services, promotes rural healthcare access, and advances the local delivery of specialty care for residents of geographically isolated and medically underserved communities. Through this collaborative arrangement, the Parties seek to improve timely access to care, provide care closer to home, reduce patient travel burden, and support community-based orthopedic care through an integrated and sustainable service model. The Parties further acknowledge their shared commitment to health equity and access, community health improvement, and the long-term sustainability of orthopedic services within the region.

1. SERVICES

1.1 **Provision of Services**. District agrees to provide orthopedic medical services to Collaborator through [Mark Reis, M.D.], ("**Designated Provider**"), subject to the terms and conditions of this Agreement.

1.2 **Scope of Services.** The services provided under this Agreement ("Services") may include clinical and surgical orthopedic services, as described below.

1.2.1 **Clinical Services.** Clinical Services may include, but are not limited to:

- Evaluation, diagnosis, and treatment of orthopedic conditions;
- Outpatient clinic visits and follow-up appointments;
- Inpatient consultations and rounding;
- Pre-operative evaluations and post-operative follow-up care;
- Coordination of care with other healthcare providers;
- Supervision of assigned mid-level practitioners, when applicable; and
- Other orthopedic services within the Designated Provider's scope of practice and privileges.

Clinical Services are intended to support a patient-centered care model focused on clinical excellence, evidence-based orthopedic practice, and outcomes-focused treatment. Services shall emphasize care coordination and navigation, primary care integration, and seamless transitions of care across the continuum of care to improve patient outcomes, functional independence, and overall quality of life.

1.2.2 **Surgical Services.** Surgical Services may include orthopedic surgical procedures performed in inpatient and/or outpatient settings, subject to the Designated Provider's privileges and Client's facility capabilities. Surgical Services may include:

- Elective and non-elective orthopedic surgical procedures;
- Surgical consultations and treatment planning;
- Pre-operative and post-operative surgical management;
- Emergency orthopedic procedures, if requested and mutually agreed upon by the Parties; and
- Other surgical services within the Designated Provider's scope of practice and privileges.

Surgical Services shall support the delivery of comprehensive musculoskeletal care through best-practice orthopedic protocols, standardized care pathways, and quality-driven care delivery designed to improve patient outcomes and functional recovery while increasing local access to specialty surgical services

All Surgical Services shall be performed in accordance with Collaborator's medical staff bylaws, policies, credentialing and privileging requirements, and applicable laws and regulations. Collaborator shall provide appropriate facilities, operating room access, staffing, equipment, supplies, and support services necessary for the provision of Surgical Services.

1.3 **Designated Provider.** Services under this Agreement shall be performed exclusively by the Designated Provider unless otherwise agreed to in writing by both Parties.

2. SCHEDULING AND COVERAGE

2.1 **Flexible Scheduling.** Services, including clinical and surgical services, shall be provided on an as-needed basis in support of expanded access to orthopedic specialty services, timely access to care, and increased local service capacity for rural and medically underserved populations, for an unspecified number of days per week and/or month, as mutually agreed upon by the Parties.

2.2 **Scheduling Coordination.** District shall coordinate scheduling with Collaborator and the Designated Provider. Services may include:

- Outpatient clinic coverage
- Inpatient rounding and consultations
- Scheduled orthopedic surgical procedures
- Pre-operative and post-operative care

Collaborator shall make reasonable efforts to provide advance notice for scheduling needs and ensure availability of facilities and resources, including operating room access where applicable.

2.3 **Monthly Schedule.** District shall develop a monthly schedule ("Schedule") in advance, when reasonably practicable. The Designated Provider shall provide District with all known dates of unavailability in writing at least **sixty (60) days prior** to the applicable month. District will use reasonable efforts to accommodate such requests. The Schedule shall

be developed with the understanding that the Designated Provider's service obligations under this Agreement are limited to a maximum of forty-two (42) weeks per calendar year unless otherwise agreed in writing by the Parties.

2.4 **Shift Definition.** Each scheduled shift shall consist of **ten (10) hours**, which includes:

- Travel time to and from the Collaborator facility
- Clinical services
- Surgical services and related preparation or follow-up

2.5 **Professional Responsibilities During Shifts.** The Designated Provider shall:

- Provide care for patients treated under this Agreement
- Provide post-operative follow-up care
- Respond to calls from patients and clinical staff, as required by applicable policies
- Supervise mid-level practitioners, if assigned
- Comply with all applicable laws, regulations, and medical staff requirements
- Collaborate with Collaborator clinical staff to promote multidisciplinary collaboration, collaborative care planning, referral optimization, and seamless transitions of care throughout the patient care continuum.

2.6 **Shift Minimum and Maximum.** Collaborator will be responsible for monthly number of shifts as determined by Parties at a minimum of **[Shifts per month]** and a maximum of **[Shifts per month]**.

3. COMPENSATION

3.1 **Payment to District.** Collaborator agrees to compensate District for the time and services of the Designated Provider. Payment shall be made to District and not directly to the individual provider.

3.2 **Rate.** Collaborator shall pay District $3,400.00 per 10-hour shift, unless otherwise agreed in writing.

3.3 **Additional Time.** Any time exceeding ten (10) hours must be approved in advance and will be compensated at $340.00 per hour.

3.4 **Minimum Billing.** Each scheduled shift shall be billed as a full 10-hour shift regardless of patient volume or number of cases.

3.5 **Expenses.** Collaborator agrees to reimburse District for any pre-approved expenses, if applicable.

3.6 **Invoicing and Payment.** District shall invoice Collaborator on a [monthly/weekly] basis. Payment is due within thirty (30) days of receipt of invoice. District's invoice may

include the direct cost of services provided, together with any mutually agreed provider recruitment and retention costs allocated proportionately to the utilization of services under this Agreement. In addition, District may invoice Collaborator for mutually agreed wraparound services, including clinical support, administrative, care coordination, workforce development, telehealth, and other support services related to the provision of services under this Agreement. Such services shall be billed at District's actual cost or another mutually agreed rate.

3.7 **Cancellation.** Collaborator shall provide at least [X days] notice for cancellation of scheduled services. Failure to provide timely notice may result in full or partial shift charges.

4. DISTRICT RESPONSIBILITIES

District Shall:

- Ensure the Designated Provider meets credentialing and privileging requirements at Collaborator's facility
- Maintain a professional liability insurance program that includes coverage for the Designated Provider while performing services under this Agreement, subject to the terms and limitations of such policy
- Ensure services are coordinated in accordance with this Agreement
- Comply with applicable laws and regulations
- Recruit, retain, and support qualified orthopedic providers in furtherance of workforce stabilization, provider recruitment and retention, and the long-term sustainability of orthopedic services in rural communities. District shall use reasonable efforts to maintain provider coverage sufficient to support this Agreement and the Parties' shared goals of increasing patient access to specialty care and strengthening regional service capacity
- Support capacity building, service line development, and the advancement of a sustainable service model for orthopedic care delivery within the region.

5. COLLABORATOR RESPONSIBILITIES

Collaborator Shall:

- Provide appropriate facilities, equipment, staff, and support services
- Provide operating room access and surgical support when applicable
- Ensure timely credentialing and privileging of the Designated Provider
- Maintain a safe and compliant care environment
- Coordinate scheduling needs with District
- Participate in coordinated efforts that support an integrated care model, cross-specialty collaboration, and the efficient delivery of orthopedic services throughout the region

- Support initiatives that improve patient access points, reduce barriers to specialty care, and promote care closer to home whenever clinically appropriate.

6. INDEPENDENT CONTRACTOR STATUS

The Designated Provider is an independent contractor to District and is not an employee, agent, or representative of either District or Collaborator.

The Designated Provider shall be solely responsible for:

- Payment of all applicable taxes
- Maintenance of any required individual professional licenses
- Maintaining professional liability insurance as required by District or applicable law

Nothing in this Agreement shall be construed to create an employment, partnership, or joint venture relationship between the Designated Provider and Collaborator.

7. TERM AND TERMINATION

7.1 **Initial Term**. This Agreement shall become effective upon execution by both Parties and shall be dated as of the signature date of the last Party to execute this Agreement (the "Effective Date"). Unless earlier terminated in accordance with this Agreement, the initial term shall be four (4) years commencing on the Effective Date.

7.2 **Renewal Term**. This Agreement shall automatically renew for successive one (1) year terms upon each anniversary of the Commencement Date unless either Party provides written notice of its intent not to renew at least thirty (30) days prior to the expiration of the then-current term or unless this Agreement has otherwise been terminated in accordance with its terms.

7.3 **Non-Renewal**. A Party providing timely notice of non-renewal shall remain bound by the terms and conditions of this Agreement through the end of the then-current term. Upon expiration of such term, the Agreement shall automatically terminate with respect to that Party, and such Party shall have no further obligations under this Agreement except those provisions that expressly survive termination.

7.4 **Termination for Cause**. Either Party may terminate this Agreement upon written notice if the other Party materially breaches any provision of this Agreement and fails to cure such breach within forty-five (45) days after receiving written notice describing the breach.

7.5 **Effect of Termination**. Upon termination of this Agreement, Collaborator shall compensate District for all services performed and approved expenses incurred through the effective date of termination. The Parties shall cooperate to ensure an orderly transition of

patient care and completion of any required medical records, follow-up care obligations, and administrative matters.

7.6 **Provider Unavailability**. In the event the Designated Provider becomes unavailable due to death, disability, illness, retirement, resignation, loss of licensure, exclusion from participation in federal healthcare programs, or other circumstances beyond District's reasonable control, District may terminate this Agreement upon not less than thirty (30) days written notice to Collaborator, unless immediate termination is required by law. District may, but shall not be obligated to, provide a replacement provider.

8. QUALITY AND PERFORMANCE IMPROVEMENT

8.1 Quality Improvement and Care Coordination. The Parties acknowledge their mutual commitment to quality-driven care delivery, clinical excellence, and continuous improvement in orthopedic services. The Parties may collaborate on:

- Quality metrics and benchmarking;
- Performance improvement initiatives;
- Outcomes measurement and reporting;
- Standardized care pathways;
- Best-practice orthopedic protocols;
- Care coordination and navigation activities;
- Referral optimization efforts; and
- Initiatives designed to improve functional outcomes and patient satisfaction.

Nothing in this section shall require either Party to incur additional financial obligations unless otherwise agreed in writing.

9. LIABILITY INSURANCE

9.1 **Provider Insurance Responsibility.** The Designated Provider shall maintain individual professional liability insurance coverage in amounts consistent with industry standards and applicable legal requirements, unless otherwise approved by District or Collaborator. Designated Provider may be eligible to be placed on the District's or Collaborator's liability policy for a fee to be paid by the Designated Provider.

9.2 **Allocation of Liability.** Each Party shall be responsible for its own acts and omissions, including those of its officers, directors, employees, contractors, medical staff, and agents.

9.3 **No Assumption of Liability.** Nothing in this Agreement shall be construed as creating responsibility by one Party for the negligent acts or omissions of another Party. Each Party shall remain solely responsible for the operation of its facilities, personnel, equipment, and services.

10. CONFIDENTIALITY AND COMPLIANCE

Both Parties agree to comply with:

- HIPAA and all patient privacy laws
- All applicable federal and state healthcare regulations
- Medical staff bylaws and facility policies

11. MISCELLANEOUS

Governing Law: State of California

Entire Agreement: This Agreement constitutes the entire understanding between the Parties

Amendments: Must be in writing and signed by both Parties

Assignment: Requires prior written consent of both Parties

Community Benefit: The Parties acknowledge that this Agreement is intended to support community health improvement, population health management, improved quality of life, and enhanced access to specialty orthopedic services through a collaborative regional approach to healthcare delivery. The Parties further recognize the value of reducing avoidable patient travel, preventing unnecessary transfers, and increasing local healthcare capacity through sustainable regional partnerships.

[Signature page to follow]

SIGNATURES

Seneca Healthcare District

Shawn P. McKenzie, CEO

_____ / _____
Signature / Date

Seneca Healthcare District
130 Brentwood Drive
Chester, California 96020

Plumas District Hospital

JoDee Johnson, CEO

_____ / _____
Signature / Date

Plumas District Hospital
1065 Bucks Lake Road
Quincy, California 95971

Modoc Medical Center

Kevin Kramer, CEO

_____ / _____
Signature / Date

Modoc Medical Center
1111 N. Nagle Street
Alturas, California 96101

Lassen Indian Health Center

Lona Marioneaux Ibanitoru, CEO

_____ / _____
Signature / Date

Lassen Indian Health Center
750 Joaquin Street
Susanville, California 96130

EXHIBIT A

REGIONAL ORTHOPEDIC PROVIDER ALLOCATION AND COST SHARING AGREEMENT

This Exhibit A is incorporated into and made part of the Regional Collaborative Agreement for Orthopedic Services ("Agreement") between Seneca Healthcare District ("District") and the applicable Collaborating Facilities.

1. PURPOSE

The Parties acknowledge that the Designated Provider, Mark Reis, M.D. ("Designated Provider"), will provide orthopedic clinical and surgical services across a regional network of healthcare facilities in support of expanded access to orthopedic specialty services, rural healthcare access, and the long-term sustainability of orthopedic care delivery throughout the region.

2. COLLABORATING FACILITIES

The Designated Provider's services will be shared among the following participating facilities:

- Seneca Healthcare District
- Plumas District Hospital
- Modoc Medical Center
- Lassen Indian Health Center

The Parties shall work collaboratively and in good faith to ensure timely access to orthopedic clinical and surgical services, minimize delays in patient care, and support continuity of care for the communities served under this Agreement.

3. DESIGNATED PROVIDER ALLOCATION

The following allocation represents the anticipated monthly distribution of orthopedic services among the participating facilities:

Facility	Estimated Days Per Month
Seneca Healthcare District	6
Plumas District Hospital	6
Modoc Medical Center	4
Lassen Indian Health Center	9
TOTAL:	**25**

The Parties acknowledge that the allocation above is intended for planning purposes and may be modified by mutual agreement based on patient demand, surgical volume, provider availability, and operational needs.

4. ILLUSTRATIVE MONTHLY COVERAGE SCHEDULE

The following schedule is provided for illustrative purposes only and demonstrates the anticipated distribution of services among the participating facilities. It does not represent specific calendar dates.

Seneca Healthcare District *Surgery*	**Seneca Healthcare District** *Clinic*	**Plumas District Hospital** *Clinic*	**Plumas District Hospital** *Surgery*	**Lassen Indian Health Center** *Clinic*
Modoc Medical Center *Clinic*	**Modoc Medical Center** *Surgery*	**Lassen Indian Health Center** *Clinic*	**Lassen Indian Health Center** *Clinic*	**Lassen Indian Health Center** *Clinic*
Seneca Healthcare District *Surgery*	**Seneca Healthcare District** *Clinic*	**Plumas District Hospital** *Clinic*	**Plumas District Hospital** *Surgery*	**Lassen Indian Health Center** *Clinic*
Modoc Medical Center *Clinic*	**Modoc Medical Center** *Surgery*	**Lassen Indian Health Center** *Clinic*	**Lassen Indian Health Center** *Clinic*	**Lassen Indian Health Center** *Clinic*
Seneca Healthcare District *Surgery*	**Seneca Healthcare District** *Clinic*	**Plumas District Hospital** *Clinic*	**Plumas District Hospital** *Surgery*	**Lassen Indian Health Center** *Clinic*

5. PROVIDER AVAILABILITY

The Parties acknowledge that the Designated Provider's availability under the Agreement is limited to a maximum of forty-two (42) weeks per calendar year. The Designated Provider's remaining time may be allocated to vacation, continuing medical education, professional obligations, holidays, illness, or other periods of unavailability.

Accordingly, the allocation and illustrative schedule set forth in this Exhibit are intended for planning and resource allocation purposes only and do not constitute a guarantee of availability during any specific week or month.

6. SERVICES INCLUDED

Services provided under this allocation may include:

- Orthopedic clinic services
- Inpatient consultations and rounding
- Orthopedic surgical procedures
- Pre-operative and post-operative care
- Skilled Nursing Facility consultations and follow-up
- Care coordination and related wraparound services
- Other services within the Designated Provider's scope of practice and privileges

7. COST ALLOCATION

Each participating facility shall be responsible for payment of professional services provided by the Designated Provider in accordance with its respective utilization of services and the terms of its agreement with District.

The Parties acknowledge that District incurs costs associated with the recruitment, retention, support, and administration of the Regional Collaborative Orthopedic Services Program. In addition to professional service fees, Collaborating Facilities may share, on a proportionate basis, mutually agreed costs associated with provider recruitment, retention, continuing medical education, professional development, support services, and other programmatic expenses reasonably incurred to recruit, maintain, and support the Designated Provider and ensure the long-term sustainability of orthopedic services within the region.

The methodology for allocating such costs among participating facilities shall be determined by mutual agreement of the Parties and may be based on allocated coverage days, actual utilization, percentage of provider time, or another mutually agreed formula.

8. INSURANCE RESPONSILITY

Each participating facility shall maintain its own professional liability, general liability, and other applicable insurance coverage in amounts consistent with industry standards and applicable legal requirements. Nothing in this Exhibit shall be construed as requiring any participating facility to insure or indemnify another participating facility except as may be expressly agreed in writing.

9. SCHEDULE MODIFICATIONS

District shall coordinate scheduling with the participating facilities and the Designated Provider. The coverage schedule may be modified by mutual agreement of the affected Parties to accommodate operational needs, patient volume, provider availability, surgery schedules, or other circumstances affecting service delivery.

10. ACKNOWLEDGMENT

The Parties agree that this Exhibit A establishes the regional framework for sharing the Designated Provider and may be supplemented from time to time by written schedules approved by the participating facilities.

[Signature page to follow]

ACKNOWLEDGED AND AGREED
SIGNATURES

Seneca Healthcare District

Shawn P. McKenzie, CEO

_____ / _____
Signature / Date

Seneca Healthcare District
130 Brentwood Drive
Chester, California 96020

Plumas District Hospital

JoDee Johnson, CEO

_____ / _____
Signature / Date

Plumas District Hospital
1065 Bucks Lake Road
Quincy, California 95971

Modoc Medical Center

Kevin Kramer, CEO

_____ / _____
Signature / Date

Modoc Medical Center
1111 N. Nagle Street
Alturas, California 96101

Lassen Indian Health Center

Lona Marioneaux Ibanitoru, CEO

_____ / _____
Signature / Date

Lassen Indian Health Center
750 Joaquin Street
Susanville, California 96130

LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT H

Sexual Assault Response Team

Budget Amendment

Consideration and Action

Presented by K. Kramer

LAST FRONTIER HEALTHCARE DISTRICT
A Public Entity

Sexual Assault Response Team-Budget Amendment

In January 2026, the board approved a budget amendment for $100,000 annually to invest in building a team of nurses that could perform sexual assault examinations in our emergency room. Between then and now we have been trying to gather enough nurses to establish a sufficient enough base of nurses to be able to provide this service here, with very little luck. We have finally been able to establish a large enough pool of nurses to provide this service by offering a $15,000 per year stipend for those nurses that are willing to be available to conduct these exams. In addition to this stipend we have offered to pay them $1,000 per exam they conduct. On average we see about 10 of these cases come to the emergency room in a year.

Our current proposal is to have 8 nurses trained to do these exams. Those 8 nurses would be schedule to cover these exams in teams of 2, so that one nurse can perform the actual exam and the other can document the exam. The $15,000 stipend would compensate those nurses to be available 1 week out of every 4 weeks throughout the year and would be paid in lieu of on-call pay.

The structure that we have offered and been able to successfully promote with our nursing staff as outlined above is going to cost more than $100,000 annually. The estimated total annual cost of this program annually is going to be closer to $144,000 in additional annual wages in the form of stipends. There will also be a significant initial investment in training, estimated to be around $15,000 to get the entire pool of nurses certified as sexual assault nurse examiners.

The estimated costs of this proposal are significantly above the originally approved amount for this program, so that is why we are seeking board approval to implement this structure at this time. If approved by the Board, we will be providing these exams to adults only in our emergency room, as we have not yet been able to find sufficient nurses willing to do these exams for minors. Minors will continue to be transferred to other facilities for these exams. Thank you for your consideration of this proposal.

Submitted by: Kevin Kramer
Date: 10-29-2026

LAST FRONTIER HEALTHCARE DISTRICT

Board of Directors

October 29, 2026

ATTACHMENT I

Wage Increase Proposal

Consideration and Action

Presented by K. Kramer

LAST FRONTIER HEALTHCARE DISTRICT
A Public Entity

Wage Increase Proposal-10/29/2026

We have completed our wage analysis and would like to make some recommendations based on the data we were able to gather and analyze during that process. During the wage analysis we compared our wage scales for each position to the wage scales of other regional facilities for the same or similar positions to determine if we were competitive in our wages. During this analysis we calculated the average starting wage and the average ending wage for each position for which we were able to obtain information from other facilities in the northeastern region of California. We then compared our starting wage and our ending wage in our scales to this regional average for each position to determine which positions were potentially underpaid.

Based on the information we gathered and the financial impact to the organization, we are recommending that we focus wage raises on the positions that were paid at 10% or more below the average of the observed starting pay rates for each classification or job. In determining what amount should be given as an increase, we are proposing that we provide each employee a % increase to their wage that is half of the observed variance rounded to the nearest whole number percentage. This increase will be applied to all employees that work in jobs that are identified to start at a wage that is at least 10% below the average observed in other facilities in our region. Based on our analysis, and assuming that we would apply this same methodology to union and non-union employees we have identified 19 positions that would be eligible for an increase. The estimated cost of providing all the people working in those positions with raises as described above is $250,000 per year in additional wage expense.

In addition to providing the wage increases above, we are recommending that we provide an additional 1.5% increase to the current retention raises that employees receive the first payroll following their anniversary date. This will raise each employee's retention raise amount to a total of 2% per year served at Modoc Medical Center. We feel this is a critical step for us to take so that the employees that are loyal to Modoc Medical Center and stay longer periods of time with the organization realize commensurate increases in their pay and are rewarded appropriately for their time within the organization. This will also help to alleviate the compression we are experiencing in our scales between the top and bottom steps, as we apply the mandatory healthcare minimum wage increases annually on June 1 at a rate of 3.5%. The estimated annual cost of providing this increase in the retention raise amount is $350,000 in additional wage expense.

The total estimated additional wage expense per year based on these recommendations would be about $600,000. Financially we feel that we can absorb these expenses and continue to generate a profit/gain each year as an organization. We feel that this investment in our people will allow us to be more successful in retaining our employees and remain competitive with our wages.

Submitted by: Kevin Kramer
Date: 10-29-2026