COMPLETION OF MICROBIOLOGY LABORATORY EQUIPMENT MAINTENANCE FORMS:

Autoclave, Biological Safety Cabinets, Centrifuge, Daily Bench Maintenance, Microscopes, Incubators, Refrigeration

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November 2025

General Information

- This is a review of standard forms for the documentation of equipment maintenance.
- Standard form format lists the frequency and schedule of the maintenance, requires recording of a value or initialing the form when maintenance is performed. NIU (Not In Use) is entered on the first row of the form for a date when the equipment is not in use.
- Equipment maintenance must be performed, assessed for acceptability and documented before the use of equipment for assurance of staff safety or the performance of patient diagnostic testing.
- **All record fields must be completed unless otherwise instructed.**

Key Steps In the Performance of Equipment Maintenance

- Gather all necessary supplies, parts and other equipment prior to the start of equipment maintenance.
- Review the maintenance log for any prior omissions, trends, issues, corrective actions, or maintenance due dates.
- Notify the manager/supervisor of any maintenance issues, omissions, critical due dates, or required service.
- Contact the appropriate hospital engineering department and submit a work order if vendor service is required (Clinical Engineering or Plant Operations.)
- Remove the equipment from use if it poses a safety risk or diagnostic testing error risk.
- Use the Quality Assurance form to document the issue, investigation and corrective action.

Autoclave

- The autoclave always should be ready for use because we do not know what special requests or specimens requiring special handling will be submitted.
- The gauge above the autoclave is an indication of the water pressure flow to the autoclave from the facilities water source. Immediately notify Plant Operations if the autoclave fails to build steam.
- Immediately document the run status and parameters from the autoclave screen or from the printed tape once the cycle is complete.

HOLY CROSS HEALTH
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Medical Laboratory – *Microbiology*

MONTH:_____

AUTOCLAVE MAINTENANCE LOG #SS

LOCATION: Microbiology Laboratory

DAILY MAINTENANCE (Initial when performed):
1. Check equipment status: Drain strainer clean and in place, and valves (steam/water supply) are in the 'ON' position.
2. Check for spills and the cleanliness of the chamber.
3. Check data recorder status.(Paper, print readable).
4. Record temperature, chamber pressure, timing of a run.

BI-WEEKLY MAINTENANCE (Initial when performed):
1. Clean sediment and debris from the drain strainer.
2. Perform a sterility check using a biological indicator or spore strip.

MONTHLY MAINTENANCE (Initial when performed):
1. Check chamber seals for cracks and breaks.
2. Check the data recorder and recorder paper; change as needed.

Please record unacceptable results or equipment problems on the laboratory QA/PI form.

NIU = Sterilizer Not In Use

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Daily Maintenance																															
Temperature																															
Chamber Pressure																															
Timing																															
Growth Control = Positive (Y/N)																															
Sterility Control = Negative (Y/N)																															
Bi-Weekly Maintenance																															
Monthly Maintenance																															

CORRECTIVE ACTION:

REVIEWED:

Biological Safety Cabinet (Hood)

- Remove items from the biological safety cabinet and wipe down the interior surface with a fresh 1:10 dilution of household bleach or a bleach wipe. Let dry for 2 – 3 minutes.
- Use sterile water, 70% ethanol or a designate alcohol wipe to remove the bleach residue to prevent corrosion of the stainless steel.
- Avoid blocking interior airflow vents when placing items in the cabinet.
- Interior clean zone to dirty zone flows from left to right and from back to front.
- Record the airflow at least once each day but check the airflow with each use during the day before use.
- Contact Plant Operations for problems with the exhaust system or if vendor service is needed.

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Medical Laboratory – *Microbiology*

MONTH:_____

INCOMING BIOLOGICAL SAFETY CABINET (Nuaire NU-600)

LOCATION: Microbiology Lab

DAILY MAINTENANCE (Initial when performed): 1. Wipe down BSC interior with the recommended disinfectant. 2. Record biological safety cabinet airflow. 3. Check slide warmer thermometer integrity and record the slide warmer temperature. 4. Check for proper functioning of BSC electrical outlets and switches. **MONTHLY MAINTENANCE(Initial when performed):** Check for proper functioning of BSC alarms.	**Biological Safety Cabinet#** SSME0000486 **Slide Warmer#** SS0018344 **Slide Warmer Temperature:** ≥65°C **Magnehelic Gauge Airflow Reading:** 0.2 – 0.6 **NIU = Not In Use**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Slide Warmer Temperature (Record Value)																															
Magnehelic Gauge Reading (Record Value)																															
Daily Maintenance																															
Monthly Maintenance																															

CORRECTIVE ACTION: (**Discontinue use and contact Plant Maintenance if airflow is out of range**)

REVIEWED:

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Medical Laboratory – *Microbiology*

MONTH:_____

AFB BIOLOGICAL SAFETY CABINET (Nuaire NU-600) & EQUIPMENT MAINTENANCE

LOCATION: AFB Room

DAILY MAINTENANCE (Initial when performed): 1. Wipe down BSC interior, countertops, computer exterior and keyboard with recommended disinfectant. Check proper functioning of the computer. 2. Record biological safety cabinet airflow. 3. Record room temperature and relative humidity. 4. Check slide warmer thermometer column for breaks and record the slide warmer temperature. 5. Check for proper functioning of BSC electrical outlets and switches. **MONTHLY MAINTENANCE(Initial when performed):** Check for proper functioning of BSC alarms and the functioning of the refrigerated centrifuge.	**Biological Safety Cabinet#** SSME0000492 **Slide Warmer#** **Slide Warmer Temperature:** ≥65°C **Room Temperature Range:** 22 - 29°C **Relative Room Humidity Range:** 30% - 80% **Magnehelic Gauge Airflow Reading:** 0.2 – 0.6 **NIU = Not In Use**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Room Temperature																															
Room Relative Humidity%																															
Slide Warmer Temperature (Record Value)																															
Magnehelic Gauge Reading (Record Value)																															
Daily Maintenance																															
Monthly Maintenance																															

CORRECTIVE ACTION: (**Discontinue use and contact Plant Maintenance if airflow is out of range**)

REVIEWED:

Centrifuges

- Maintenance must be performed and documented once per day.
- Check accessibility and availability of necessary supplies at the start of each shift.
- Clinical Engineering performs speed (RPM) checks and as needed calibration at least once per year.
- Contact Clinical Engineering if the centrifuge requires vendor service.

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Medical Laboratory – *Microbiology*

MONTH/YEAR:_____

CENTRIFUGE MAINTENANCE LOG

LOCATION: Main Microbiology

DAILY MAINTENANCE (Initial when performed):
1. Check for cleanliness of the chamber and clean all spills.
2. Wipe the interior and the exterior with the recommended disinfectant.
3. Check for rubber cushions and centrifuge tubes (where appropriate).
4. Check for vibration and side play of the rotator head.

Please record unacceptable results or equipment problems on the laboratory QA/PI form.

LOCATION: **Incoming** EQUIPMENT NUMBER: **SS0025516**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Tech																															

LOCATION: **Main Microbiology** EQUIPMENT NUMBER: **SS0034899**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Tech																															

LOCATION: **Incoming** EQUIPMENT NUMBER: **SS0022183 Cytocentrifuge**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Tech																															

CORRECTIVE ACTION:

REVIEWED:

Daily Bench Assignment & Maintenance

- Initialing to document performance of the assignment includes the documentation of the following tasks:
  - Bench Cleaning, packaging biohazard waste for removal, and sharps container maintenance
  - Stocking of bench supplies
  - Computer maintenance and assessment of acceptable functionality
  - Performance of the assigned patient service workload
- Duties are considered shared if the associated bench patient service workload Is split between more than one team member.

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Medical Laboratory – Microbiology

DAILY BENCH ASSIGNMENT AND MAINTENANCE LOG

MONTH/YEAR:_____
REVIEWED:

Initialing this record documents the performance of related bench cleaning/stocking, computer maintenance, and the assigned patient service workload.

	ASSIGNMENTS													ADDITIONAL TASKS					
DAY	INCOMING	SEROLOGY/ RAPID TESTS	NEW URINES	OLD URINES	NEW WOUNDS/ MISCELLANEOUS	OLD WOUNDS/ MISCELLANEOUS	BLOOD CULTURES	CSF BODY FLUIDS	RESPIRATORY	GENITALS/STOOL MRSA/GBS	MOLECULAR	MICROSCAN	REFERENCE LAB/ SENDOUTS & REPORTING	MEDIA/SUPPLIES	INVENTORY	QUALITY CONTROL TESTING	QUALITY CONTROL RESULTS REVIEW	CHARGE TECHNOLOGIST
1																		
2																		
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1500 Forest Glen Road
Silver Spring, Maryland 20910

Microscopes

- Maintenance must be performed and documented once per day.
- Check accessibility and availability of necessary maintenance supplies at the start of each shift.
- Lens paper should be used to remove oil from the oil objective after each slide reviewed.
- Contact Clinical Engineering if the microscope requires vendor service.
- Vendor microscope maintenance and calibration service is performed at least annually.

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Medical Laboratory – *Microbiology*

MONTH/YEAR:_____

MICROSCOPE MAINTENANCE LOG

LOCATION: Main Microbiology

DAILY MAINTENANCE (Initial when performed):
1. Clean the objectives, condenser, and eye pieces after each use with lens paper.
2. Verify function of the illumination system.
3. Check the height adjustment.

Please record unacceptable results or equipment problems on the laboratory QA/PI form.

LOCATION: **Incoming Bench** EQUIPMENT NUMBER: **SS0016949**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Tech																															

LOCATION: **Wound Bench** EQUIPMENT NUMBER: **SS006768**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Tech																															

CORRECTIVE ACTION:

REVIEWED:

Incubators

- The temperature, condition and atmosphere of the incubator must be checked and documented each day to ensure conditions suitable for the culture and isolation of infectious pathogens.
- CO2 incubators must be assessed for the proper level of gas by use of a fastidious capnophilic organism culture in case the electronic display value is not accurate.
- The interior of the incubator should be wiped down with an approved disinfectant at least monthly. Water or alcohol must be used to remove residues if bleach is used as the disinfectant.
- As necessary, the water reservoir should be drained and cleaned.
- Contact Clinical Engineering if vendor service is needed.

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Medical Laboratory – *Microbiology*

MONTH:_____

35°C AIR INCUBATOR MAINTENANCE LOG # SS0022706
LOCATION: Microbiology Laboratory (Main Laboratory)

TEMPERATURE RANGE: 33 - 37°C
(Optimal Temperature Range: 35 -36°C)
ATMOSPHERE: Air

` DAILY MAINTENANCE (Initial when performed):	**MONTHLY MAINTENANCE (Initial when performed):**
1. Check for cleanliness of the chamber and clean all spills. 2. Record environmental readings (i.e. temperature, atmosphere, etc.). 3. Check thermometer column for breaks.	Wipe the interior with disinfectant (i.e.10% bleach).

NIU = not in use **Humidity = No value to record/System will alarm: Record "W" when water is added.**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Temperature																															
Daily Maintenance																															
Monthly Maintenance																															

CORRECTIVE ACTION:

REVIEWED:

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Medical Laboratory – *Microbiology*

MONTH:_____

35°C MAIN CO_2 INCUBATOR MAINTENANCE LOG # SS004125
LOCATION: Microbiology Laboratory (Main Laboratory)

TEMPERATURE RANGE: 33 - 37°C
(Optimal Temperature Range: 35 -36°C)
ATMOSPHERE: 5 – 10% CO_2

DAILY MAINTENANCE (Initial when performed):	**MONTHLY MAINTENANCE (Initial when performed):**
1. Check for cleanliness of the chamber and clean all spills. 2. Record environmental readings (i.e. temperature, atmosphere, etc.). 3. Check thermometer column for breaks. 4. Check for visible *N. gonorrhoeae* isolate growth at 24 hours (checks for an acceptable continuous CO2 level)	Wipe the interior with disinfectant (i.e.10% bleach).

NIU = not in use

Humidity = No value to record/System will alarm: Record "W" when water is added.

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Temperature																															
CO2 %																															
Humidity																															
Neisseria gonorrhoeae Growth = Acceptable (Y / N)																															
Daily Maintenance																															
Monthly Maintenance																															

CORRECTIVE ACTION:

REVIEWED:

Refrigerators/Freezer

- The temperature and condition of the refrigerator or freezer must be checked and documented each day to ensure conditions suitable for the storage of supplies, cultures and patient specimens.
- Freezers must be checked for frost levels and defrosted as needed.
- The interior of the refrigerator should be wiped down periodically with an approved disinfectant
- Items under storage should be placed in a manner to allow for sufficient air circulation within the refrigerator/freezer to maintain acceptable temperature. The temperature may rise above the acceptable range if items are packed too tightly.
- Immediately contact Plant Operations if temperatures persist outside the acceptable range or if vendor service is needed.

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MONTH:_____

REFRIGERATOR - FREEZER MAINTENANCE LOG
LOCATION: Microbiology Laboratory (Molecular Wall)

REFRIGERATOR TEMPERATURE RANGE: 2 - 8°C
FREEZER TEMPERATURE: -20°C TO -30°C

DAILY MAINTENANCE (Initial when performed):
1. Check for cleanliness of the exterior/interior and clean all spills.
2. Record the temperature and check thermometer column for breaks.
3. Discard specimens as specified by the specimen retention policy.

WEEKLY MAINTENANCE (Initial when performed):
Check dating/expiration of materials in storage.

MONTHLY MAINTENANCE (Initial when performed):
1. Wipe the interior with disinfectant (i.e.10% bleach).
2. Check freezer frost level and defrost as needed. Record 'D' in the Freezer Temperature column when defrosted.

NIU = not in use **Freezer = Record 'D' in the Freezer Temperature column when defrosted.**

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Top Refrigerator Temperature																															
Bottom Refrigerator Temperature																															
Freezer Temperature																															
Daily Maintenance																															
Weekly Maintenance																															
Monthly Maintenance																															

CORRECTIVE ACTION:

REVIEWED:

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