

## TRAINING UPDATE

**Lab Location:** SGMC & WOMC  
**Department:** Core Lab

**Date Distributed:** 1/2/2020  
**Due Date:** 1/31/2020  
**Implementation:** 12/17/2019

### DESCRIPTION OF REVISION

**Name of procedure:**

**Media Quality Control      SGAH.M11 v5**

**Description of change(s):**

*The blood culture bottle manufacturer is no longer sending certificates in bottle shipments. The process to document visual inspection upon receipt had to be updated.*

**SOP:**

Header: Changed WAH to WOMC

Section 5: Edited instructions for blood culture media QC

Section 6: Added form AG.F471; removed AG.F183

**Forms:**

*Blood Culture Media Visual Inspection Log (AG.F471)* – this new form was created to record inspections

*The Blood Culture Media Visual Inspection Labels (AG.F183)* will be retired.

**This revised SOP & LOG were implemented December 17, 2019**

Document your compliance with this training update by taking the quiz in the MTS system.

Non-Technical SOP

<b>Title</b>	<b>Media Quality Control</b>	
<b>Prepared by</b>	Ron Master	Date: 7/30/2009
<b>Owner</b>	Ron Master	Date: 7/30/2009

<b>Laboratory Approval</b>		
Print Name and Title	Signature	Date
<i>Refer to the electronic signature page for approval and approval dates.</i>		
Local Effective Date:		

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**1. PURPOSE**

All media should be subjected to quality control testing to determine the adequacy of the media regarding sterility and performance. The quality control procedures performed by commercial suppliers with test organisms can be accepted for some types of media. The laboratory must maintain the media manufacturer’s documentation that QC practices conform to NCCLS specifications.

- All media should be stored according to the manufacturer’s recommendations and disposed of when outdated.
- All media is required to be tested prior to use.
- Results of controls must be verified for acceptability before patient results are released.
- Media is removed from use on the expiration date.
- All media that passes QC should be labeled with a departmental green sticker and signed with the date.
- All QC results should be documented on the appropriate QC sheet.

## 2. SCOPE

This SOP covers most aspects of Quality Control procedures and documentation for commercially prepared media.

## 3. RESPONSIBILITY

It is the responsibility of personnel assigned to Microbiology personnel to learn, understand and perform quality control procedures for all media as described in this SOP.

## 4. DEFINITIONS

Exempt media - includes commercial media documented to maintain consistent user performance with minimum variation and required minimum quality control. However, categorization of media as exempt does not preclude a laboratory from performing quality control on any manufactured medium type when deemed necessary.

Nonexempt media - Nonexempt media require complete user quality control including confirmation of satisfactory performance with recommended organisms.

## 5. PROCEDURE

### I. Receiving Media from the Manufacturer:

- A. Verify delivery of the ordered amount. Check medium type for multiple lot numbers and/or impending expiration dates. Report recurring problems to a Supervisor so that the manufacturer or distributor may be contacted.
- B. Record the lot number, expiration date, and the received date for each medium type, including blood culture media.
- C. Store the medium as specified by the manufacturer (usually 2-8°C) pending quality control. Separate exempt media from nonexempt media.

### II. Initial Examination of Media:

- A. Media from a commercial source should be submitted to the following:
  1. Examine individual packages for breakage, contamination, excessive moisture, and dehydration and for adequate appearance, evidence of overheating or freezing.
  2. Since sterility testing is routinely performed by manufacturers, commercially prepared media need not be rested for sterility by the end user. Instead, careful inspection for contamination should take place immediately before inoculation with patient specimens.

3. In addition, each shipment of purchased media must be inspected for the following:
  - cracked/damaged Petri dishes
  - unequal filling of plates
  - cracked medium in plates
  - hemolysis (if blood containing)
  - excessive number of bubbles
  - freezing
  - agar detached from plates
  - insufficient agar in the plates (<3 mm)
  - change in the expected color of the media (possible pH problem)
  - expiration date
  - adequate hydration
  - appropriate color and thickness
  - tube media not dried or loose from sides
  - broth media not cloudy
  - contamination
  - frozen/melted agar
  - agar surface smooth
4. If acceptable, record the date of receipt on each package. Place a label from the inspected lot of media on the Media Labels and Quality Assurance Form.
  - For blood culture bottles, record the date received, medium type, lot number and expiration date, whether the visual check was acceptable, tech code and date on the Blood Culture Media Visual Inspection Log.
5. If the inspection is unacceptable, record the problem and inform a Supervisor of the lot number of unacceptable media.
  - The Supervisor will contact the manufacturer regarding the failed media.
  - Microbiology staff must document and notify the media manufacturer of deficiencies found during the use of the media. If the shipment contains more than one (1) lot, each individual lot should be tested prior to use.
6. If the QC organism is not viable or a medium does not perform acceptably, do not use that lot of medium until the problem is resolved. Record the corrective action. If media that has acceptable QC results is not available, media may be borrowed from the other Adventist Hospital or Quest Diagnostics in Chantilly. If media that has passed QC cannot be obtained from these locations, specimens can be sent to Chantilly to be plated. This option should only be used in a critical situation as it will delay turn-around-time.

**III. Sterility Testing:**

Because manufacturers routinely perform contamination testing, commercially prepared media need not be retested for sterility by the end user. Instead, careful inspection for contamination should take place immediately before inoculation with patient specimens.

**IV. Processing of Quality Control Organisms**

- A. At least once per year, prepare a culture of each quality control organism routinely used by the laboratory. Use lyophilized or frozen organisms.
- B. Inoculate one nonselective medium. Incubate under conditions favorable for growth. Label as a stock control with the name of the organism and the date of inoculation. Tightly seal and store at 2-8° C for up to 12 months. Certain fastidious bacteria such as *Neisseria gonorrhoeae* may require 25 to 35°C storage.
- C. From the stock control, prepare a second subculture. Label as working control with the name of the organism and date of inoculation. Incubate under conditions favorable for growth. Store the working control at room temperature or 35± 2°C CO<sub>2</sub> for one to two weeks. Prepare a fresh working culture at least once per month from the refrigerated stock control. Avoid multiple serial subcultures of quality control organisms over extended periods of times. For *Neisseria gonorrhoeae* and *Neisseria meningitidis*, maintain the stock culture at room temperature. It may be required to replenish the stock on a monthly basis.

**V. Performance Testing:**

Evaluation of each new lot or shipment of nonexempt media should be made for growth supporting, selective and differential properties prior to use. An adequate variety of stock organisms will be maintained to perform this testing. One positive and one negative control organism should be used to test each property of a medium.

**VI. Satisfactory Performance of Media:**

A medium performs satisfactorily if all test strains provide satisfactory growth with typical colony morphology and size or in the case of selective media, if growth of the appropriate organisms is inhibited. Tubed media are generally evaluated by testing strains that will give negative and positive results with each reaction what can be observed. The appropriate reactions should be obtained before the medium can be considered to be satisfactory.

**VII. Limitations:**

Quality control is intended to detect defects among a small sample of media. It may not detect every defect from every agar plate or tubed medium.

**6. RELATED DOCUMENTS**

- Media Labels and Quality Assurance (AG.F184)
- Media Quality Control Form (AG.F177)
- Blood Culture Media Visual Inspection Log (AG.F471)

**7. REFERENCES**

Krisher et. al, Bartlett RC et al: *Quality Control for Commercially Prepared Microbiological Culture Media: Approved Standard—3<sup>rd</sup> Edition* NCCLS Publication M22-A3 (ISBN 1-56238-536-4), NCCLS, 940 West Valley Road, Suite 1400, Wayne Pennsylvania 19087-1898 USA, 2004.

**8. REVISION HISTORY**

Version	Date	Reason for Revision	Revised By	Approved By
		Supersedes SOP M016.004		
000	8/20/2010	Addendum C: Delete MacConkey Sorbitol	R. Master	R. Master
001	8/23/2011	Addendum B: Added Hektoen agar	R. Master	R. Master
002	5/21/2012	Addendum A: Deleted Campylobacter	R. Master	R. Master
		Addendum B: Deleted CIN, TCBS, Campy agar, HE, XLD, and BAP w/ ampicillin		
002	5/21/2012	Addendum C: Deleted BAP w/ ampicillin and Campy agar	R. Master	R. Master
		Addenda D & E: Location added	L. Barrett	
003	12/6/2016	Header: added WAH Section 6: added forms Section 9: moved addenda D & E to section 6 Addendum B: deleted LIM broth, added V agar Addendum C: deleted Thayer-Martin Footer: version # leading zero's dropped due to new EDCS in use as of 10/7/13	R. Master	R. Master
4	12/3/19	Header: changed WAH to WOMC Section 5: Edited instructions for blood culture media QC Section 6: Added form AG.F471; removed AG.F183	R. Master	R. Master

**9. ADDENDA AND APPENDICES**

- Addendum A - Incubation Conditions
- Addendum B - Exempt and Nonexempt Categories for Media
- Addendum C - Quality Control Organisms for Nonexempt Media

## Addendum A

### Incubation Conditions

Quality Control Organisms	Incubation Temperature	Incubation Atmosphere	Length of Incubation
Rapidly growing bacteria	35-37°C	Ambient Air* or CO <sub>2</sub> Enriched	18-24 hours
Bacteria with special growth requirements	35-37°C	CO <sub>2</sub> Enriched	24-72 hours

## Addendum B

### Exempt and Nonexempt Categories for Media

CATEGORY	EXEMPT	NONEXEMPT
General bacteriologic media	Blood agar Chocolate agar Thioglycolate broth	Nutrient broth
Blood culture media	Automated blood culture bottle represents broth formulations from BD Diagnostics Systems.	
Media for gram-positive bacteria	Columbia (CNA) agar	
Media for gram-negative bacteria	MacConkey agar	V agar
<i>Neisseria gonorrhoeae</i> (GC) media		Martin-Lewis agar
Anaerobic media	Anaerobic blood agar	

## Addendum C

### Quality Control Organisms for Nonexempt Media

Medium	Atmosphere, length of incubation	Control organisms	Expected results
Chocolate agar	CO <sub>2</sub> , 24-48 hrs	<i>N. gonorrhoeae</i> (ATCC 43069 or 43070)	Growth
		<i>H. influenzae</i> (ATCC 10211)	Growth
Martin-Lewis agar	CO <sub>2</sub> , 24-48 hrs	<i>N. gonorrhoeae</i> (ATCC 43069)	Growth
V agar	CO <sub>2</sub> , 24-48 hrs	<i>G. vaginalis</i> (ATCC 14018)	Growth

