

MC 6.017 Salmonella/Shigella Susceptibility Reporting

Purpose	This procedure provides instruction and guidance for routine testing and selective and cascad susceptibility reporting on Salmonella/Shigella species.			
Principal and Clinical Significance	The decisions for the most appropriate antimicrobial agents to test and report are made with input from Pharmacy, Infectious Disease and the Clinical Laboratory. The goal is to provide clinically relevant information that will decrease the chance of developing antibiotic resistance, harmful effects of inappropriate antimicrobial use and avoid reporting results that could adversely affect patient care using selective and cascade reporting rules.			
Policy Statements	This procedure applies to Microbiologists who perform susceptibility testing.			
Special Safety Precautions				
Procedure	 Antibiotics appropriate for routine testing and reporting for Salmonella/Shigella species include: Ampicillin Ciprofloxacin Levofloxacin Imipenem Ertapenem Meropenem Trimethoprim-Sulfamethoxazole Cefotaxime Ceftriaxone 			
	 Perform susceptibilities using Vitek cards N806, MicroScan NUC101 or Kirby Bauer Methods. Not all antibiotics are available on every panel. 			
	 Not all antibiotics are available on every parter. Vitek N806 will be the primary method of testing. MicroScan and Kirby Bauer are back up if testing fails. Do not perform testing on multiple methods to cover all the antibiotics. It is acceptable if cascaded antibiotics are not reported. 			
	4. Vitek results will be accepted under the Online Tab. Modifications will be under the VITMIC keyboard under the Susceptibility tab.			
	 MicroScan and Kirby Bauer results will be entered manually under the MMIC and KB keyboards respectively under the Susceptibility tab. 			



Selective
Reporting

- Antibiotics will be reported in a specific order indicating the first and subsequent preferences of the Antimicrobial Stewardship Committee and Infectious Disease physicians.
- 2. Antibiotics will be reported for all sources.
- 3. There will be exceptions based on the method used for testing.
- 4. There will be 3 antibiotics routinely reported for all sources.
 - Ampicillin
 - Ciprofloxacin
 - Trimethoprim Sulfa

Figure 1 Selective reporting with 3 antibiotics reported

Organism	1 #1 -	SALMONELLA SPECIES
- VITMIC	-	
	SS	AM(8),CP(0.06),TS(40)
	HIDE	LEV0(0.12-SS),CAX(1-SS),ETP(0.5-SS),MERO(1-SS)
0		porting with 3 antibiotics reported
0		oorting with 3 antibiotics reported SHIGELLA SONNEI
0	#3 -	
Organism	#3 -	

5. If any carbapenem is resistant, confirm result by alternate method. Report in Sunquest if confirmed resistant. Resistant carbapenems will be reported regardless of selective or cascade reporting.

Cascade Reporting-Vitek If resistance is encountered, additional antibiotics will automatically be released. Method

- For Vitek method, hidden antibiotics will be released when Accept Selected is clicked.
 Accept Selected The released results will be visible in Results Summary.
- 2. Results can be edited under the **VITMIC** keyboard but is not needed to report the cascaded antibiotics.

Method: Vitek

- If Ciprofloxacin is $R \rightarrow$ report Levofloxacin
- If Salmonella on a non-stool → report Ceftriaxone

Figure 2 Levofloxacin released due to Ciprofloxacin resistance, Ceftriaxone released due to non-stool culture.

Organism #2	- SALMO	DNELLA SPECIES
- VITMIC	-	
	SS	AM(8),TS(40),CAX(1),LEVO(0.12)
	R	CP(1)
	HIDE	ETP(0.5-SS),MERO(1-SS)

Figure 3 Levofloxacin released due to Ciprofloxacin resistance. Ceftriaxone not released for Shigella species.

Organism #3-	SHIGELLA SONNEI
- VITMIC -	
SS	AM(8),TS(40),LEVO(0.5)
R	CP(1) T
HIDE	CAX(1-SK),ETP(0.5-SS),MERO(1-SS)



File

Results Summary

is

Cascade

Reporting-

MicroScan

Method

- 3. All other antibiotics on the panel that are not part of the cascade are hidden. Do not release and report. Hidden antibiotics include:
 - Ertapenem
 - Meropenem
- 4. With a provider request, antibiotics may be released.

If resistance is encountered, additional antibiotics will automatically be released.

1. For MicroScan method, hidden antibiotics will be released when File

clicked. The released Results will be visible in Results Summary.

2. Enter **all** results listed, manually, under the **MMIC** keyboard. Antibiotics will be released following the cascade rules.

Method: MicroScan

- If Ciprofloxacin is $R \rightarrow$ report Levofloxacin
- If Salmonella on a non-stool \rightarrow report Ceftriaxone

Figure 4 Stool Culture: Levofloxacin in HIDE

Org #1. - MMIC -	SALMO	NELLA SPECIES	
	SS	AM(8),TS(40)	
	R	CP(1)	
	HIDE	CAX(1-SS),LEVO(0.12-SS),ETP(0.5-SS),MERO(1-SS)	

3. It will appear as the results are hidden but Sunquest will release from HIDE automatically after results are filed.

Figure 5 Stool Culture: Levofloxacin released due to Ciprofloxacin resistance

Organism #1 - SALMONELLA SPECIES			
- MMIC -			
SS	AM(8),TS(40),LEVO(0.12)		
R	CP(1)		
HIDE	CAX(1-SS),ETP(0.5-SS),MERO(1-SS)		

- 4. All other antibiotics on the panel that are not part of the cascade are hidden. Do not release and report. Hidden antibiotics include:
 - Ertapenem
 - Meropenem
- 5. With a provider request, antibiotics may be released.

Cascade Reporting-Kirby	If resistance is encountered, additional antibiotics will automatically be released.
Bauer Method	 Enter all results listed, manually. under the KB keyboard. Antibiotics will be released following the cascade rules.

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Method: Kirby Bauer

If Salmonella on a non-stool → report Ceftriaxone

Figure 6-Blood Culture, Ceftriaxone released

Organism #2	- SALM	ONELLA SPECIES	
- КВ - (ZZO3)			
	SS	AM(17),CP(31),CAX(23),TS(16)	
	HIDE	ETP(22-SS),MERO(23-SS)	•

Figure 7 Blood Culture, Ceftriaxone not released

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0	rganism	#4 -	SHIGELLA SPECIES
-	КВ —		
		SS	AM(18),TS(16)
		I	CP(25)
		HIDE	CAX(23-SS),ETP(22-SS),MERO(23-SS)

- 2. All other antibiotics on the panel that are not part of the cascade are hidden. Do not release and report. Hidden antibiotics include:
 - Ertapenem
 - Meropenem
- 3. With a provider request, antibiotics may be released.

Intermediate

Interpretations

As there are multiple MIC intermediate interpretations for *Salmonella* species, additional Intermediate codes were created. You may see either I, INTE or INTERM. All 3 codes translate to Intermediate. See example below:

Organism #1	- s	ALMONELLA SPECIES
- VITMIC - (ZZ00)		
	SS	TS(40),CAX(1)
	I	AM(16)
	INTE	LEV0(1)
	INTERM	CP(0.25)
	HIDE	ETP(0.5-SS),MERO(1-SS)

Vitek Product

Limitations

Results for an antibiotic/organism combination may have limitations and may be suppressed from reporting. Refer to table below for specific limitations.

Antibiotic	Product Limitations
Ertapenem	Perform alternate method with MIC of 0.25-0.5



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Appendix

	Salmonella spe		
Vit	ek N806 card / M	licroScan	
F	Reported antibiotio	cs- Stool	→ If Non-Stool
Disk (Abbrev.)	Sunquest code	Drug Name	Also report Ceftriaxone
AM	AM	Ampicillin	[
CIP	СР	Ciprofloxacin	→ If Ciprofloxacin is R
SXT	TS	Trimethoprim/Sulfa	Report Levofloxacin
	Hidden antibiot	tics	
CRO	CAX	Ceftriaxone	
LVX	LEVO	Levofloxacin	
ETP	ETP	Ertapenem	
MEM	MERO	Meropenem	
	Kirby-Baue Use EBAC stan		
F	Reported antibiotio	cs- Stool	→ If Non-Stool
Disk (Abbrev.)	Sunquest code	Drug Name	Also report Ceftriaxor
AM	AM	Ampicillin	nuo report certificator
CIP	СР	Ciprofloxacin	
SXT	TS	Trimethoprim/Sulfa	
	Hidden antibiot	tics	
		- 6 1	
CRO	CAX	Ceftriaxone	
ETP	CAX ETP	Ertapenem	
		Ertapenem Meropenem	
ETP MEM	ETP MERO	Ertapenem Meropenem	
ETP MEM	ETP MERO Shigella spo	Ertapenem Meropenem ecies MicroScan	
ETP MEM V	ETP MERO Shigella spo itek N806 card /	Ertapenem Meropenem ecies MicroScan	
ETP MEM V	ETP MERO Shigella spo itek N806 card / Reported antibio	Ertapenem Meropenem ecies MicroScan	
ETP MEM V Disk (Abbrev.)	ETP MERO Shigella spo itek N806 card / Reported antibio Sunquest code	Ertapenem Meropenem ecies MicroScan tics- Stool Drug Name Ampicillin Ciprofloxacin	
ETP MEM V Disk (Abbrev.)	ETP MERO Shigella spo itek N806 card / Reported antibio Sunquest code AM	Ertapenem Meropenem ecies MicroScan tics- Stool Drug Name Ampicillin	
ETP MEM V Disk (Abbrev.) AM CIP	ETP MERO Shigella spo itek N806 card / Reported antibio Sunquest code AM CP	Ertapenem Meropenem ecies MicroScan tics- Stool Drug Name Ampicillin Ciprofloxacin Trimethoprim/Sulfa	
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References	 bioMerieux Vitek 2 AST-N806 Gram Negative Susceptibility Card 424709 2023-07 bioMerieux Vitek 2 AST-XN30 Gram Negative Susceptibility Card 424639 20235-04 Beckman Coulter Diagnostics. 250 South Kraemer Boulevard. Brea, CA 92821-6232 USA, MicroScan® Dried Gram Negative (8/2022). CLSI M100 edition 34 Performance Standards for Antimicrobial Susceptibility Testing 2024 						
	Training Plan	1	Initial Comp	Initial Competency Assessment			
Training Plan/ Competency Assessment	 Employee procedure. Employee procedure, 	must read the procedure. will observe trainer performing will demonstrate the ability to perfo record results and docum action after instruction by the trainer	the rm ent				
Historical Record							
	Vorsion	Writton/Povisod by:	Effective Date:	Summary of Povisions			

Version	Written/Revised by:	Effective Date:	Summary of Revisions
1	Susan DeMeyere	12/17/2024	Initial version