cmpt Canadian microbiology proficiency testing

CMPT Clinical Bacteriology Program

Innovation, Education, Quality Assessment, Continual Improvement

Challenge PC242

August 2024

HISTORY

This paper challenge was sent to category A and C1 laboratories. The following scenario was presented to participants:

A physician phones the laboratory. An *E. coli* isolate has been reported as susceptible to tetracycline (which is on the susceptibility panel of your automated instrument) but she would like to use doxycycline and would like a susceptibility done for that agent.

Please choose the best option to describe how you would proceed?

A. Indicate that tetracycline susceptibility is predictive, at greater than 95%, of the susceptibility to doxycycline.

B. Send the isolate for doxycycline susceptibility.

C. Indicate that doxycycline susceptibility is not available and cannot be done.

D. Indicate that doxycycline is not currently on the panel but that you will pass on a suggestion to add it to your director.

E. Indicate that your lab may collect isolates and test them against doxycycline to provide guidance for the future.

F. Not applicable to this lab

CMPT QA/QC

The Committee considered option "A" as the best answer.

SURVEY RESULTS

Reference labs: 9/13 (69%) labs reported A, 3 reported B, and 1 reported F

No consensus was reached amongst reference laboratories therefore, the challenge is not suitable for grading

Participants: 38/55 (69%) laboratories reported option A; 7 reported option B, 2 option C, 1 option D; 7 laboratories indicated the case did not apply to them (Table 1).

MAIN EDUCATIONAL POINTS from PC242

1. In general, when a request is made for an antibiotic that is not routinely reported by the laboratory, consultation with the clinical director/Microbiologist should take place. However, if the laboratory follows the CLSI guidelines and there is straightforward instructions on reporting of antibiotics in the same class such as tetracycline and doxycycline, as found in the in the CLSI M100-ED34 (2024) Table 1A Group C for *Enterobacterales* and footnote q, which states: "Organisms that are susceptible to tetracycline are also considered susceptible to doxycycline and minocycline. However, some organisms that are intermediate or resistant to tetracycline may be susceptible to doxycycline, minocycline, or both.[1]

2. In this case, the physician had the susceptible result for tetracycline for an *E. coli* isolate and therefore a technologist should be able to tell the physician on the phone that doxycycline can be used without testing.

3. It is imperative that technologists understand the standards they are using for interpretation of susceptibility results. Some of these instances can be covered by footnotes that are added to results to give guidance to the physicians, saving the phone call to the lab.

COMMENTS ON RESULTS

The results were ungraded due to a lower than acceptable level of agreement among the reference laboratories (69%). Three of thirteen reported B –that they would send the isolate for doxycycline testing, while one reported that it was unapplicable to their lab.

The participant labs faired almost exactly the same – i.e. 38/55 or 69% said that A was their choice, while seven labs chose B. One lab each chose C and D – neither of those choices would address the current request.

Grading

This challenge was ungraded.

Table 1. Reported results

Reported	cat A	cat C1	Total	Grade
A	37	1	38	ungraded
B	7		7	ungraded
C	1		2	ungraded
D	1		1	ungraded
F	4	3	7	ungraded
Total	**51**	**4**	**55**	

The choice of A was considered the most appropriate as it provides the physician with straightforward guidance for treatment without any delay, and is backed by CLSI guideline interpretation.

REFERENCES

1. Clinical and Laboratory Standards Institute. Performance Standards for Antimicrobial Susceptibility Testing; M100 Ed 34. Februaray 2024. Wayne, PA.