Routine antimicrobial susceptibility testing data:

challenges and opportunities for antimicrobial resistance surveillance

Anatoliy Trokhymchuk, DVM, MSc
Prairie Diagnostic Services
Disease Surveillance Veterinarian

Canadian Animal Health Laboratorians Network meeting, June 7, 2017 Guelph, Ontario
Objectives

Why do we need AMR surveillance

What routinely available data can we use

How individual lab can contribute

Lessons learned

The wish list
AMR: a global crisis

AMR now
700,000
(low estimate)

AMR in 2050
10 million

Tetanus
60,000

Road traffic accidents
1.2 million

Cancer
8.2 million

Measles
130,000

Cholera
100,000—120,000

Diarrhoeal disease
1.4 million

Diabetes
1.5 million
AMR: who's problem?

80% of all antibiotics are used on farm animals.
Show me the data!!!

CARSS/CIPARS

Research groups

Public animal health diagnostic laboratories
Regional antimicrobial resistance focus group
Stakeholder needs

- Antimicrobial therapy decisions
- Antimicrobial stewardship support
- Research support
- Public communication/
  Maintaining social license
PDS AMR unit

Dr. Musangu Ngeleka, DVM, PhD
– Diagnostic Microbiologist

Dr. Kazal Ghosh, DVM, MSc
– Surveillance Microbiologist

David Thiessen
– Antimicrobial Resistance Technologist

Dr. Anatoliy Trokhymchuk, DVM, MSc
– Disease Surveillance Veterinarian
PDS AMR workload
(samples by week (June 2014 – present)
Overwhelming majority of routine testing data come from companion animals
Antimicrobial susceptibility testing: choices, choices...
AMR: which test is the best?

Here is a standardized test – everyone has one chance to climb that tree.
Antimicrobial susceptibility testing: choices, choices...

- Cheap
- Convenient
- Fast
- Accurate
Reporting options

- Individual case report
- Periodical summary
- Regional aggregated reporting
- National aggregated reporting
PDS AMR unit accomplishments so far:

- Better client service (clinical, research, surveillance)
- Addition of Sensititre testing
- Regional aggregated reporting
Lessons learned:
1. The current turnaround time is not acceptable

1-2 days in transit + 2-4 days testing
TOT = 3 - 7 days

to get a test result needed for
prescription guidance
Lessons learned:
2. Navigation of sensitivity interpretive criteria is a challenge
Lessons learned:
3. Client education is critically important
The wish list:

- Sustainable support (antimicrobial prescription guidance and targeted AMR surveillance at a diagnostic laboratory level)
- Fast AND cheap AND accurate test
- Interpretive criteria for every possible situation
- National aggregated reporting
Questions and suggestions?
Thank you!

anatoliy.trokhytmchuk@pds.usask.ca