Small Animal Surveillance and One Health

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How does surveillance fill the gaps in antimicrobial stewardship for companion animal vets?

What can we learn from surveillance?
- Understand what antibiotics are used for what conditions in pets
- Determine prescribing and culture & sensitivity testing behavior
- Track antibiotic-resistance bacteria
- Identification of targets for stewardship intervention

AMS tools surveillance can provide:
- Regional Antibiograms
- Optimal dose/duration for patient outcomes → Guidelines
- Benchmarking → drives prescriber behavior
- Outcomes of stewardship interventions
How is antibiotic use and antibiotic-resistance surveillance possible in veterinary medicine?

**Low-tech methods**

- **Point Prevalence Surveys**
  - All clinics can participate regardless of how medical records system
  - Minimal equipment or technical expertise needed
  - Some time and effort needed for data collection
  - Collection must be standardized for data to have meaning

**High tech methods**

- **Electronic Surveillance Network**
  - Data extracted from electronic medical records
  - Technical expertise required for network administrators
  - Passive—minimal effort for practices
  - Data can be extracted from free text
University of Minnesota Veterinary Teaching Hospital Point Prevalence Survey

Inputs
• Single Day per Month
• Inpatient and Outpatient Services
• House officer-driven project
• Define the rate of prescribing in each service and by prescriber type
• Describe drugs, classes, indications for antibiotic use

Outcomes
• Compare prescribing behavior with guidelines and best practices
• Identify targets for stewardship
• Create practice awareness by providing information to prescribers
• Validated tool that can be used nationwide to establish baseline data on antibiotic prescribing in companion animals
Dogs = Clavulanic potentiated amoxicillin (28.6%, 27.3-29.9)

Cats = 3rd generation cephalosporins (36.1%, 33.7-38.5)
Identify Targets for Intervention


• 1148 cats treated with cefovecin (injectable long-acting 3rd generation cephalosporin)
• Cultures in only 0.5%
• Culture offered and declined in 1.4%

Patterns of antimicrobial agent prescription in a sentinel population of canine and feline veterinary practices in the United Kingdom. Singleton et al. Vet. Record.
Identify Targets for Intervention


- Antibiotics prescribed for 1879 of 10,000 canine consults, 1749 of 10,000 feline consults
- Most frequently prescribed medication aside from
- 50% of feline and 40% of canine respiratory cases received antibiotics
- 38% of canine and 29% of feline GI cases
- Nearly 10% of both feline and canine patients received antibiotics post-operatively
Create local antibiograms to aid prescribers

- Clinicians can compare their antibiotic use to their peers
- Motivation for action

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Antibiotic use and resistance surveillance is critical

- For pets and people, veterinarians and public health officials
- For benchmarking, targeting interventions and providing practice guidelines
- Must be provided in a way that costs minimally in time and financial resources to practitioners