Small Animal Surveillance and One Health

Jennifer Granick, DVM, PhD, Diplomate ACVIM

PACCARB Public Meeting, January 31, 2019

Minnesota
ONE HEALTH
Antibiotic Stewardship Collaborative

ANIMALS · PEOPLE · ENVIRONMENT

WORKING TOGETHER TO
**PROTECT HEALTH &
PRESERVE ANTIBIOTICS**

UNIVERSITY OF MINNESOTA
Driven to Discover®

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 nation-wide to establish baseline data on antibiotic prescribing in companion animals

Small Animal Veterinary Surveillance Network
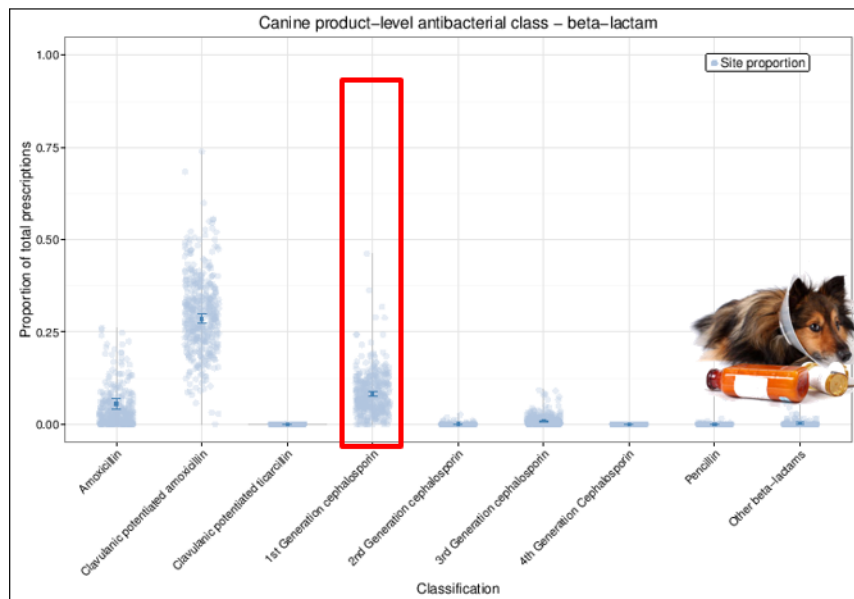
Dogs = Clavulanic potentiated amoxicillin (28.6%, 27.3-29.9)
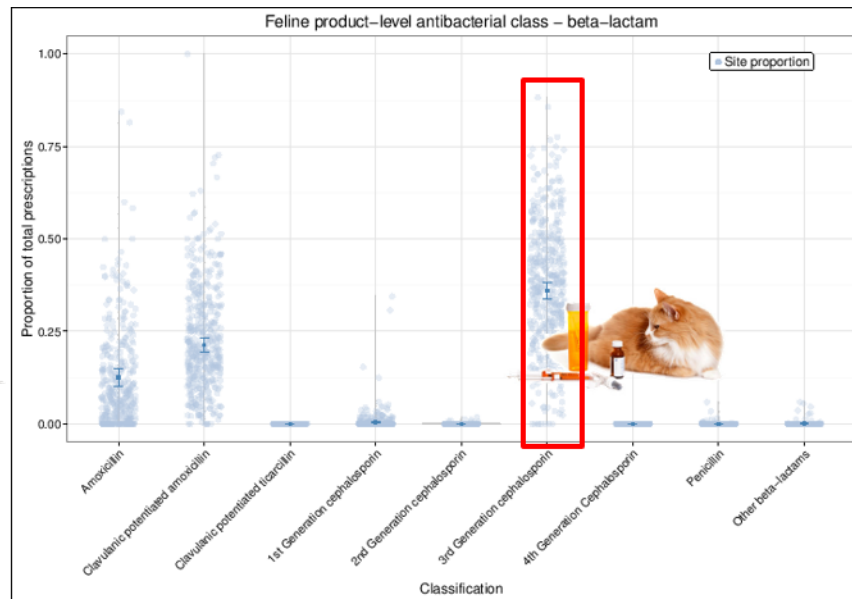
Cats = 3rd generation cephalosporins (36.1%, 33.7-38.5)

Identify Targets for Intervention

Use of cefovecin in a UK population of cats attending first-opinion practices as recorded in electronic health records. Burke et al. *J. Feline Med. Surg.*

- 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.*
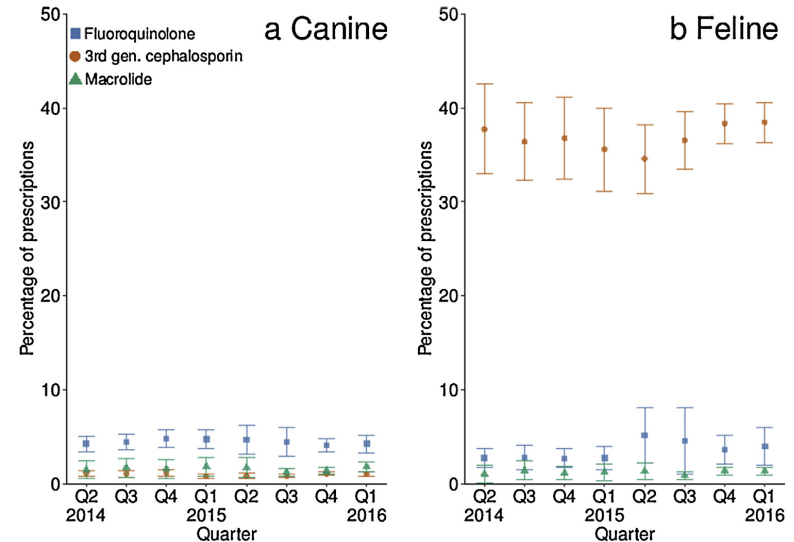
Identify Targets for Intervention

New approaches to pharmacosurveillance for monitoring prescription frequency, diversity, and co-prescription in a large sentinel network of companion animal veterinary practices in the United Kingdom, 2014-2016. Singleton et al. *Prev. Vet. Med.*

- 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
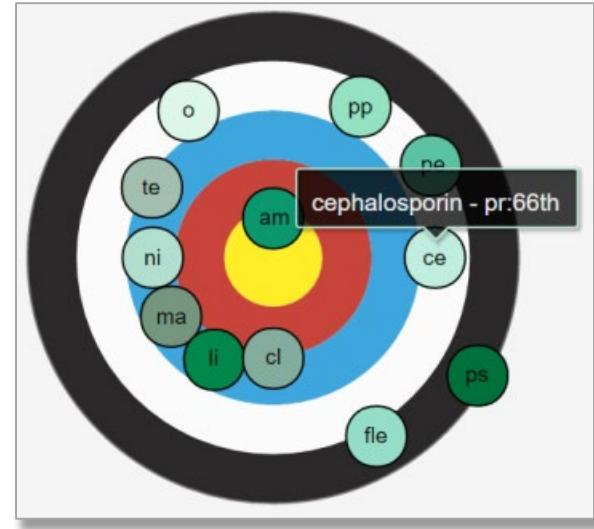
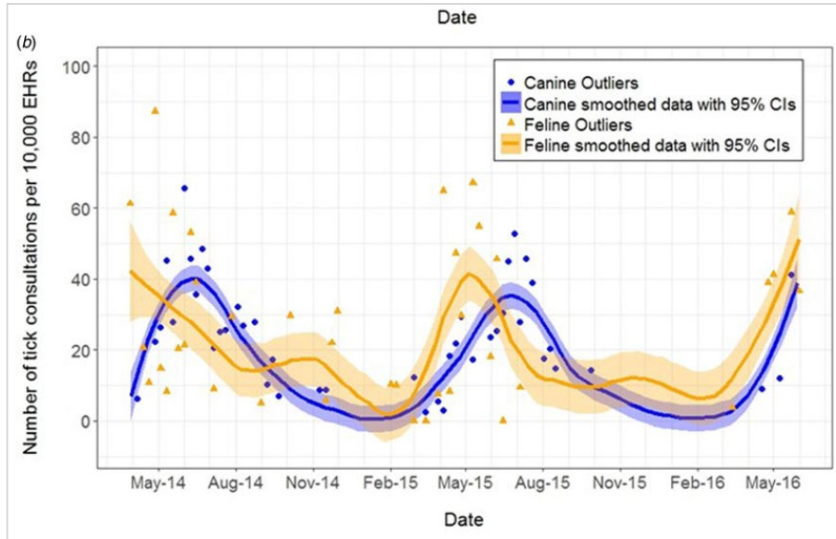# Create local antibiograms to aid prescribers
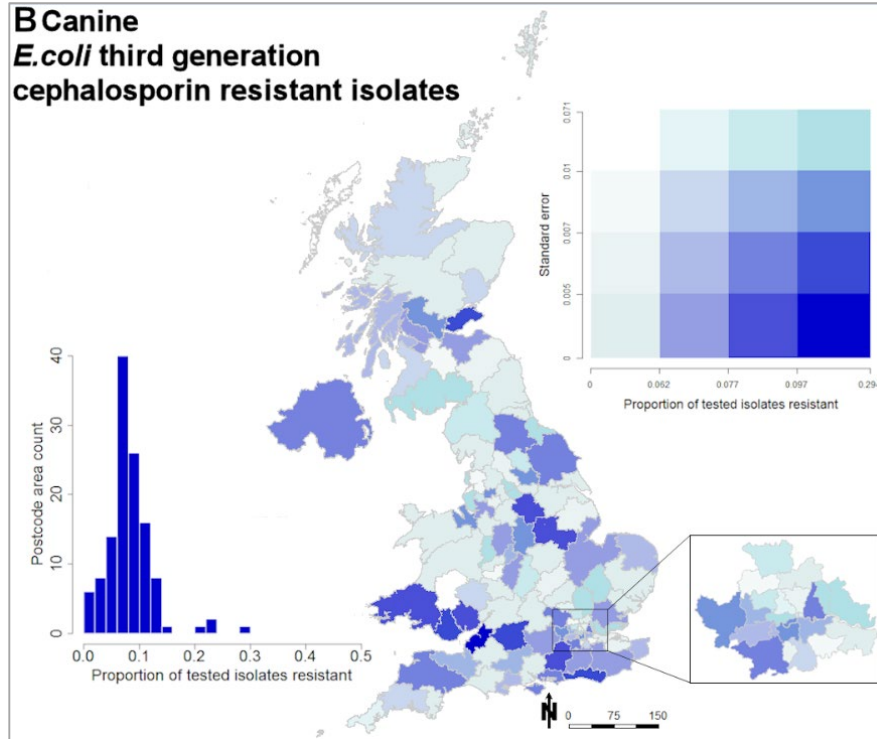
www.savsnet.co.uk

Provide Benchmarking

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

Guide preventative care

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

UNIVERSITY OF MINNESOTA

Driven to Discover®

Crookston Duluth Morris Rochester Twin Cities

Jennifer Granick, DVM, PhD, Dipl. ACVIM
grani003@umn.edu

The University of Minnesota is an equal opportunity educator and employer.