Point-Prevalence Survey of Antibiotic Use in U.S. and Canadian Veterinary Teaching Hospitals

OVERVIEW AND BENEFITS OF PARTICIPATION

What are point-prevalence surveys and why are they important?

In public health, the **point-prevalence survey (PPS)** approach has been used to establish national estimates of **antibiotic use (AU)** in acute care and long-term care settings.[1-3] PPS is used to determine the percent of a population that has a disease, or is receiving a treatment, at a single point in time. Our University of Minnesota (UMN) study team has used the PPS approach to estimate the percent of cats and dogs receiving an antibiotic on any given day, or, put another way, the prevalence of AU[4]. An estimate of AU is made by compiling a single day of data from many individual facilities, including antibiotic type, drug class, and reason for use.

Why should we conduct an AU PPS for small animal veterinary medicine?

In 2020, a national PPS of AU in 14 U.S. small animal veterinary teaching hospitals identified that 36.5% of dogs and cats received or were scheduled to receive at least one antibiotic (see infographic). Repeating this AU PPS in U.S. and Canadian small animal teaching hospitals will increase representativeness of data and understanding of changes in antibiotic prescribing. It will also identify situations in which antibiotics are used that may be contributing to antibiotic-resistant infections in cats and dogs. The International Society for Companion Animal Infectious Diseases (ISCAID) has published AU guidelines for canine superficial bacterial folliculitis and for canine and feline urinary tract and respiratory tract disease.[5-7] Without AU data, we cannot determine how well the profession is adhering to these guidelines and whether we are improving over time. By using and repeating the PPS methodology, we can compile uniform data from many hospitals, providing a snapshot of prescribing practices and highlighting opportunities to improve care.

What are the goals of this PPS?

The goal of this study is to establish an estimate of AU in U.S. and Canadian small animal teaching hospitals, to describe how and why antibiotics are prescribed to small animal patients, and to identify change in antibiotic prescribing from 2020. This information will be used to identify antibiotic stewardship (AS) objectives, define interventions to improve prescribing, and track progress.

What will be required of me if I participate in the PPS?

Each participating hospital should identify a primary point of contact (facility coordinator) for this study. This person, or a designated team, will be responsible for:

- Confirming exemption from local ethics approval (Institutional Review Board (IRB), Institutional Animal Care and Use Committee (IACUC))
- Completing a facility survey (e.g., services offered, clinic capacity, urban/rural characteristics)
- Attending an online training session
- Selecting a single survey date from a prespecified date range
- Generating a list of canine and feline patients seen on the survey date
- Collecting medical record information for each of those animals into an online data collection tool
- Completing an assessment survey of how data collection went
- Communicating with the UMN research team for data validation and other study coordination
- Revising and approving manuscript (if primary contact wishes to be a co-author)

The time commitment for participation each year is expected to be 1 hour for an online training, 5–10 hours for data entry based on patient caseload, 30 minutes for pre- and post-surveys, and follow-up communication with UMN for data validation.

What will be provided to me?

A clinic survey, data collection tool, data dictionary, standard operating procedures (SOP) for data collection, and online training session will be provided to participating facilities. Lead study personnel from UMN will be available for assistance.

How will participation benefit my hospital?

Join with other hospitals to establish an AU estimate for U.S. and Canadian small animal teaching hospitals. Through the PPS approach, many hands make light work. In addition, each participating hospital will gain experience reviewing AU data and using protocols that can be used internally for continued AU tracking and improvement of facility-level prescribing. Increase awareness of AS practices and opportunities, and receive online access to an AS resource toolkit, including a Handbook of AS in Companion Animal Veterinary Settings, customizable commitment posters, AU tracking tool, an antibiotic time-out worksheet, AU talking points, and more. **A free continuing education webinar will be offered to the facility coordinator(s), as well as co-authorship on a manuscript** (if desired).

Should I be concerned about data privacy?

Data will be collected in a secure software system, called REDCap. Data identifying client or veterinary team members will not be collected. Participating facilities cannot see data from other participating facilities. Any report published or presented as a result of this study will not include any information that will make it possible to identify a patient or hospital. UMN IRB deemed this research "Not Human Research" and UMN IACUC deemed this research exempt from review because we are not collecting sensitive information about patients, clients, or veterinary staff and there is no interaction with animals or animal specimens.

How is this project funded?

Funding for this project is being made possible by the U.S. Food and Drug Administration (FDA) through grant number 1U01FD007061-01. Individual participating facility data are not shared with FDA.

What is the timeline, and how do I participate?

- **April–August 2022:** UMN will conduct hospital recruitment and establish participation agreements. Participating hospitals will receive training in data collection and will complete a facility survey about AU.
- **August 15–28, 2022:** Collect patient census from a single day of practice during this date range.
- **August 15–Oct 30, 2022:** Enter data and complete post-study evaluation.
- Conduct another single day of data collection in 2024.

To participate or ask questions, contact the study team at: cavsnet@umn.edu.
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Additional information can be found at: https://arsi.umn.edu/vthpps

References

1. Eure, Taniece et al. *Infect Control and Hosp Epidemiol* (2017)
2. Timbrook, Tristan et al. *Infectious Dis Ther* (2017)
3. Magill, Shelley et al. *N Engl J Med* (2014)
4. Hsieh, Emmelyn et al. *J Vet Intern Med* (2021)
5. Hillier, Andrew et al. *Vet Dermatol* (2014)
6. Lappin, M. R. et al. *J Vet Intern Med* (2017)
7. Weese, J. Scott et al. *Vet Med Int* (2011)

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