

Companion Animal Veterinary Surveillance Network

MEASUREMENT AND BENCHMARKING OF ANTIMICROBIAL USE AND RESISTANCE

How will AU data be collected by the CAVSNET team?

Two methods are used to collect antimicrobial use (AU) data from companion animal practices. The Companion Animal Veterinary Surveillance Network ([CAVSNET](#)) is a comprehensive disease surveillance system that combines clinical practice data with data from veterinary diagnostic laboratories. Companion animal clinics can participate in CAVSNET through automated, near real-time submission of de-identified disease and treatment data. A second, “low tech,” method of collecting AU data is the point prevalence survey, in which patient and AU data from a single time point (e.g., one clinic work day) are collected from several clinics. The point prevalence method allows us to collect data from clinics not yet participating in CAVSNET.

CAVSNET is modeled after, and has been developed in collaboration with, [SAVSNET](#), a University of Liverpool program with the support of the British Small Animal Veterinary Association.¹ In addition to providing data on AU, CAVSNET will be a rich source of comprehensive data on animal health, disease, and veterinary practice. Early use of CAVSNET data to describe AU and antimicrobial resistance (AMR) trends in veterinary medicine will demonstrate the power of these data.

Why should we track AU?

Antibiotics are critical for medicine, but the problem of AMR threatens the effectiveness of these valuable drugs. Widespread use of antibiotics is a major driver of resistance, because bacteria adapt over time to evade antibiotic effects. In human and animal health settings, the problem of AMR has led to infections that are more difficult to treat. The Centers for Disease Control and Prevention and the World Health Organization have identified essential strategies to combat AMR, including improvement of how antibiotics are used (antibiotic stewardship, AS). Measurement and tracking of AU and resistant organisms is critical to our ability to practice AS. In the U.S., no national or state-level programs are in place to track AU in companion animals, despite the acknowledged importance of this sector to both the AMR problem and the solution of AS.

The CAVSNET and point prevalence survey approaches allows us to overcome barriers to AU and AMR tracking, including information technology challenges, human resource constraints, lack of standardized clinical and laboratory documentation, and nascent awareness of AS in clinical practice.

How do CAVSNET data empower veterinarians and clinics?

Individual clinics and clinic groups participating in CAVSNET can view their own data (e.g., prescriptions, patient demographics), access benchmarking metrics showing how their practices compare to those of others, and set targets for practice initiatives. In a March 2018 survey of Minnesota veterinarians, 85% of respondents agreed that benchmarking against anonymized peers would be useful.² In addition to these individual benefits, CAVSNET will provide valuable near real-time information to the wider veterinary profession about companion animal disease. In the future, clinicians and other animal health professionals can use the CAVSNET website to visualize syndromic (e.g., gastrointestinal, respiratory) and disease-specific (e.g., multidrug-resistant infection) incidence data in their area. This information

will provide situational awareness and empower clinicians to use data to communicate the importance of disease prevention to pet owners.

AU data acquired through CAVSNET can be used to support AS action in individual veterinary practices. For example, antibiotic drug class data can be used to track the impact of efforts to align empiric prescribing with recommendations for first-line antibiotic use.³ Benchmarking of AU in comparison to anonymized peers can help clinics to identify areas where they might be able to improve prescribing practice. CAVSNET AU data can be analyzed by drug class, route (e.g., oral, topical), priority ([Highest Priority Critically Important Antibiotics](#)), and species. An example report can be downloaded at [mySAVSNET AMR example feedback report](#).⁴

How will the CAVSNET Team use AU data to foster veterinary stewardship?

In addition to individual clinic access to their AU and disease data for internal tracking and external benchmarking, the CAVSNET Team will develop aggregate summaries of AU, AMR, and related clinical practices, and has developed resources and tools to support AS programs in companion animal clinics. These resources are freely available on a veterinary AS website (<https://arsi.umn.edu>) and will be distributed at professional conferences and meetings and through professional groups. By compiling aggregate AU and AMR data summaries, CAVSNET will help define baseline practice and measure AS progress of the profession over time.

De-identified data will also be used to guide U.S. research and veterinary priorities in the areas of AS, AU, and AMR. SAVSNET has harnessed U.K. data to describe how antibiotics are used and to identify opportunities for improvement.⁵

How will CAVSNET data be presented and shared?

All data collected are de-identified and will be analyzed by CAVSNET or researchers approved by CAVSNET. These researchers will prepare scientific papers for the veterinary profession, wider scientific community, and general public. Information might be communicated through publications, conferences, webinars, and social media, as well as other media, as appropriate. Anonymous data might be provided to supporting partners to ensure the financial sustainability of CAVSNET.

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1. [SAVSNET](#), University of Liverpool.
 2. Unpublished data, 2018. University of Minnesota College of Veterinary Medicine.
 3. [ISCAID guidelines for the diagnosis and management of bacterial urinary tract infections in dogs and cats](#), 2019.
 4. SAVSNET, [mySAVSNET AMR](#), University of Liverpool. <https://www.liverpool.ac.uk/savsnet/my-savsnet-amr/>
 5. Singleton 2017, [Patterns of antimicrobial agents prescriptions in a sentinel population of canine and feline veterinary practices in the United Kingdom](#).

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