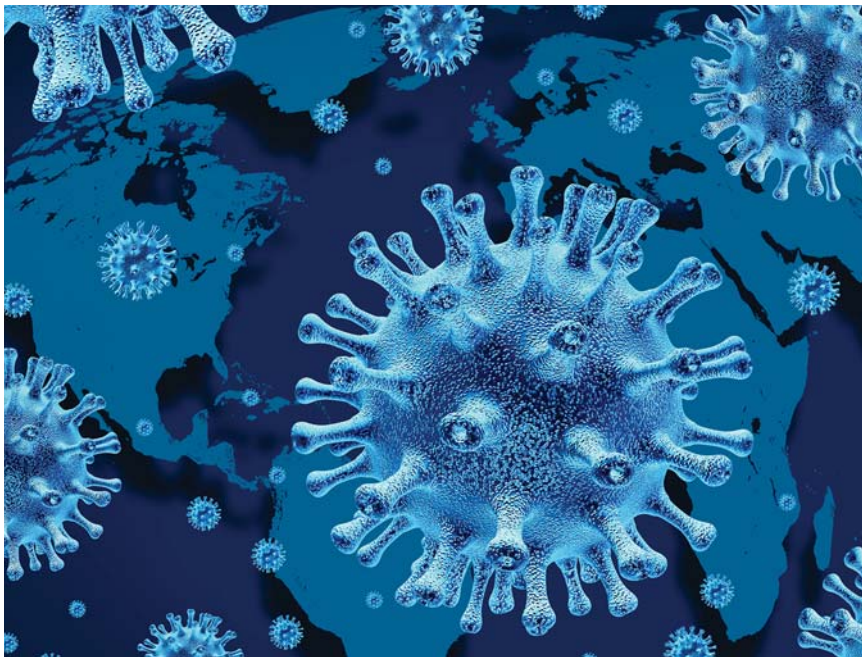




Biosurveillance: How to Monitor Disease Trends



A basic tenet of veterinary medicine is awareness of conditions in the surrounding community, such as the local economy, patterns of pet ownership, and availability of overnight critical-care facilities. We can anticipate client and patient needs by paying attention to such factors as patterns of presenting signs and cumulative use of drugs and other materials. Tracking such data not only improves our ability to treat our patients, but also contributes to our clients' health. This tracking falls under the general title of *biosurveillance*, an important concept that is becoming more widely understood by veterinarians.

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The Centers for Disease Control and Prevention (CDC) first described public health surveillance more than 20 years ago as “the ongoing and systematic collection, analysis, and interpretation of outcome-specific data for use in the planning, implementation, and evaluation of public health practice.”¹ An excellent discussion of this original concept and its development is available as a supplement to a CDC report published in July 2012.² *A National Strategy for Biosurveillance*, also published by the federal government, emphasized the importance of gathering information regarding “...disease activity affecting human, animal, or plant health to achieve early detection and warning, contribute to overall situational awareness of the health aspects of an incident, and to enable better decisionmaking [sic] at all levels.”³

Types of surveillance procedures include:

- **Passive disease surveillance** involves using information and data routinely reported by other agencies and professional and governmental sources. For example, if a patient has an unanticipated response to a vaccine, the veterinarian can check with the manufacturer and then with the Center for Veterinary Biologics (Ames, Iowa) to see if the response is an isolated incident or a new trend. (Adverse effects may be reported at aphis.usda.gov/animal_health/vet_biologics.) The FDA issues updates through its listserv and Web site about pet food and edible treat recalls. Veterinary schools may provide epidemiologic news on their Web sites.⁴ Passive surveillance may be a slower process, as it may take some time for information to become available.
- **Active surveillance** is exemplified by a veterinarian or veterinary technician seeking information about a specific diagnosis or condition; for example, he or she may decide to look at the medical records of patients presenting with upper respiratory disease lasting over a month, based on a suspicion of an increase in such cases. He or she may discover an unusually high number of canine influenza cases and then institute a screening program, testing all dogs with upper respiratory infections for the suspected pathogen and potentially uncovering more cases. Active

surveillance can be accomplished readily, albeit often at significant expense.

- **Syndromic surveillance** is a more prospective methodology that can involve relatively simple data, according to the *Journal of the American Medical Association*.⁵ For example, monitoring sales of cold remedies, orange juice, and facial tissues may yield the first clues to an outbreak of human influenza.

In 2004, a number of racing greyhounds and shelter dogs developed a respiratory disease that resembled kennel cough but was found to be an influenza virus (specifically, an interspecies transmission of equine influenza virus), which likely appeared earlier but was misidentified.⁶ Its rapid spread and high mortality rate attracted attention, and diagnostic laboratories notified the veterinary community about the disease, which was eventually recognized as a new manifestation of a known pathogen. Alerting veterinarians helped diagnose this disease and encouraged biosurveillance.

Biosurveillance is yet another expression of the veterinary profession's commitment to serving the entire family.

Active surveillance is characterized by the work of Dr. L. Glickman, professor emeritus of epidemiology at Purdue University's College of Veterinary Medicine. Rather than collating information regarding already diagnosed animals, he advocated predicting and/or controlling outbreaks based on searching for primary information. Dr. Glickman, using a large multiclinic veterinary practice and a commercial clinical laboratory service to track this information, was instrumental in establishing a national database of disease trends.⁷

An example of syndromic surveillance would be watching for increased sales of parasiticides and fecal kit requests, as well as increased billing for fecal analysis. This may herald the onset

of a new or reemerging intestinal parasite. The veterinarian can then take active steps. Reviewing medical records and consulting local veterinary associations, state diagnostic laboratories, and even the press can result in diagnosis and point to an outbreak. Educating

clients about disease trends, whether in person, in a newsletter, or online, not only provides a vital service but also makes them aware that veterinary professionals are important resources for the human–animal family.

no contamination has spread. Concerned team members should be encouraged to consult their healthcare provider.

Tracking data and analyzing patterns of clinical signs, drug inventory, and treatment protocols help in both disease treatment and prevention. Biosurveillance can ultimately reward an individual veterinary practice and its community, in addition to the community at large. Biosurveillance is yet another expression of the veterinary profession’s commitment to serving the entire family, furry and otherwise.

How can your team monitor disease trends? Visit veterinaryteambrief.com/surveillance-handout to download the **Disease Surveillance Team Handout!**



Inventory analysis and control is just one aspect of monitoring disease trends. A key factor in any successful practice is a complete and detailed medical record—these details are also useful for disease surveillance. For example, if a large number of MRSP (methicillin-resistant *Staphylococcus pseudintermedius*) or MRSA (methicillin-resistant *Staphylococcus aureus*) cases are seen in the clinic, instruments and work areas should be sampled to ensure that

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