

North Dakota Electronic Animal Health Surveillance System

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Objective: To describe the North Dakota Electronic Animal Health Surveillance System and data analysis using the CDC EARS V4r5.

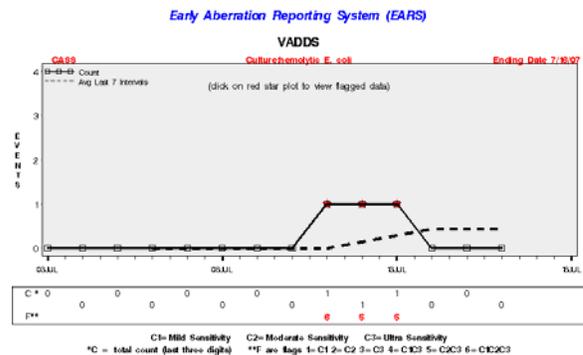
Background: The North Dakota Veterinary Diagnostic Laboratory (NDVDL) manages animal disease laboratory tests, results and diagnostic services using the software VetStar Animal Disease Diagnostic System (VADDS) (Advanced Technology Corporation, Ramsey, NJ). The North Dakota State Board of Animal Health with the Department of Agriculture, in collaboration with the North Dakota Department of Health (NDDoH), has developed an electronic laboratory reporting system using data streams exported from the VADDS system for statewide animal health and public health surveillance.

Methods: Animal health laboratory records are exported from VADDS following completion of each test in a plain text, tab-limited format and uploaded to a secure File Transfer Protocol (ftp) website at the NDDoH. Plain text data files are downloaded from the secure ftp site and imported into an Access database (Microsoft® Office Access 2003). Further processing using SAS 9.1 (SAS Institute Inc., Cary, NC) programming code allows for de-duplication of animal records and various reporting schemas.

The North Dakota State Veterinarian at the Department of Agriculture has access to all reportable animal disease records. The NDDoH has access to animal disease records of public health significance only. A list of public health-significant zoonotic diseases was determined by the State Epidemiologist and approved by the State Veterinarian.

The CDC's Early Aberration Reporting System (EARS) is used at the NDDoH as a data analytic tool to monitor distribution and frequency of zoonotic diseases defined significant to public health.

Results: Automated reports developed using SAS are distributed via email to designated personnel at the NDDoH and Department of Agriculture. These aggregate data reports include positive results by condition, county and CDC bioterrorism category. EARS analysis is run manually on a weekly basis and reviewed by the NDDoH.



Discussion: The North Dakota Electronic Animal Health Surveillance System is a timely and secure electronic laboratory reporting system that will replace the currently used paper reports sent weekly by the NDVDL to the Department of Agriculture. The system also provides real time applications as an animal disease surveillance tool in augmentation with other existing syndromic surveillance data sources used at the NDDoH.

Due to lack of a functioning national animal identification registration system, assigning unique identification numbers to animals tested at NDVDL was somewhat challenging. Unique identification is important to distinguish between animals especially when multiple animals of the same owner are tested. The issue was resolved by assigning a unique identification field to each animal record. SAS code combining the unique ID with distinct test name per animal case allowed the system to eliminate duplicate records from the database.

The animal health dataset analyzed by EARS consists only of positive laboratory results. The sample size for most reportable animal diseases in North Dakota is small and often results in false positive flags in EARS. Evaluation of animal health data using EARS is needed to determine whether it may be beneficial to set manual thresholds as opposed to using non-historical baseline limits.

Further Information:
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