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CD-ROM

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Logo Design

Ruth Cronje, and Jan Swanson;
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Evaluation of a swine veterinary-based syndromic surveillance system

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Introduction

There is an increasing interest in obtaining farm level data through veterinarians for real-time surveillance due to the growing concern of emerging and re-emerging diseases in swine populations. Veterinary-based syndromic surveillance systems have been implemented in some countries for cattle, however, information on swine veterinary-based surveillance systems is limited and there are few published studies that have evaluated their performance. The objective of this study was to evaluate the Ontario Swine Veterinary-based Surveillance (OSVS) program, in terms of the completeness and timeliness of data submitted, and the level of compliance among participating veterinarians.

Materials and Methods

A nine-month pilot study involving seven swine specialists from five veterinary clinics began in July 2007 in Ontario, Canada. The veterinarians summarised epidemiological and disease information from farm visits and calls. The data were collected either on carbon paper forms or with personal digital assistants (PDA) Palm®, and an internet-based form was available. Veterinarians were interviewed to obtain their feedback on a variety of issues related to the project. Compliance was evaluated based on the weekly ratio of OSVS disease submissions to diagnostic submissions made to the Animal Health Laboratory (AHL) at the University of Guelph. A ratio less than one reflected poor compliance. The time in days to availability of data was evaluated based on the difference between the date when a veterinarian recorded the case and when their data were received by the program coordinator.

Results

The ratio of OSVS to AHL submissions was only less than one during the first three months of the pilot study (Figure 1). Similar analyses for individual veterinarians indicated that there were intermittent periods throughout the pilot study when this ratio would fall below one.

Three of seven veterinarians used the paper forms. Four veterinarians used PDAs. The internet-based form was never used.

The average time of availability of data for all cases was 24.5 days. The time to availability of data from PDA users was almost 13 days shorter and less variable ($n = 533$ submissions; mean = 18.3 days; S.D. = 13.6 days) than those completing paper forms ($n = 470$ submissions; mean = 31.6 days; S.D. = 32.9 days).

The completeness of fields in the data reporting form ranged from 99.8% to 67.3%. The field with the lowest level of completeness related to area of production affected.

Discussion

Methods to assess different aspects of a veterinary-based surveillance program should be established to improve its performance. In the present study the overall quality of compliance was poor for the first three months of the project. Summer vacations and the time taken by practitioners to adopt the system contributed to the overall poor compliance at the start of the pilot study. Monthly reports and regular visits to the clinics appeared to improve compliance over the course of the study. Time to availability of data was a limiting step for real-time surveillance. More efficient use of PDAs and involving animal technicians in the regular transmission of clinicians' data will be considered for a permanent program.

Figure 1. Ratio of total submissions to the AHL and to the OSVS pilot program (July 2007 to March 2008)

