

Evaluation of Bluetongue surveillance in Germany

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Abstract

In August 2006, Bluetongue disease (BT) occurred for the first time in Western and Central Europe. To comply with regulation (EC) No 1266/2007, Germany established a sentinel program in cattle and carried out a cross-sectional study in winter 2007. We analyzed the suitability of both the sentinel program and the cross-sectional study and its benefit for BT control, taking the officially reported BT outbreaks into consideration. The evaluation shows that particularly the sentinel program was time-consuming and expensive.

Keywords: bluetongue disease, Germany, surveillance system.

Introduction

In August 2006, Bluetongue disease (BT) occurred for the first time in Western and Central Europe. To improve the understanding of the epidemiological situation and to establish proportionate measures, a working document was developed by the European Commission, DG-SANCO, with guidelines for a harmonized approach to monitor BT in restricted zones and for surveillance in non-restricted zones adjacent to restricted zones (SANCO/10581/2006 Rev 4). This working document was the basis for Commission regulation (EC) No 1266/2007, which has been amended several times. The aims of the monitoring and surveillance systems were to detect the introduction of new BT serotypes and to demonstrate the absence of certain serotypes. Other objectives may include the demonstration of the absence of BT virus circulation. Furthermore, they are necessary tools for exempting certain animals of susceptible species from the exit ban.

To comply with the regulation, the following activities were carried out in cattle in Germany:

1. Cross-sectional study in winter 2007 in all districts in the 150 km zone and in the surrounding districts to get information about the spread of the disease in 2006,
2. Sentinel program to detect the re-occurrence of BT. About 150 animals in 10 to 15 farms were tested monthly serologically in each federal state. After the occurrence of the first positive test result in May 2007, the sentinel program was stopped.
3. Vector monitoring in the restricted areas.

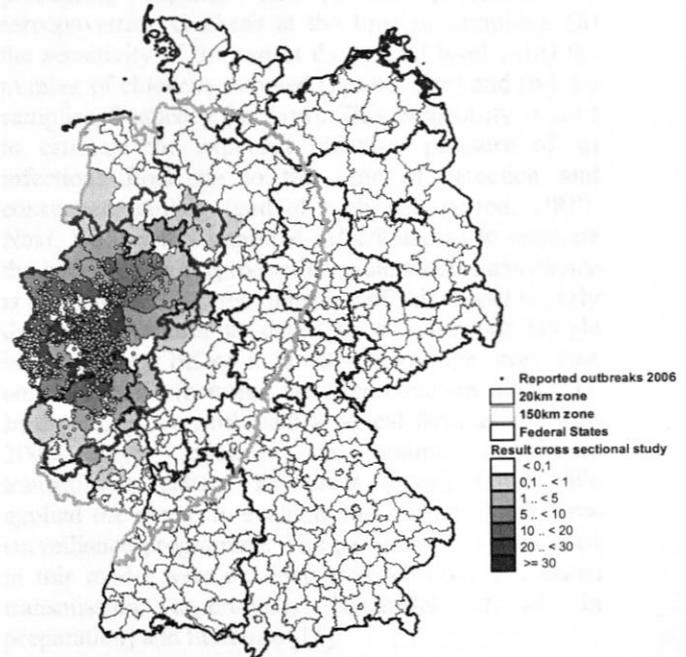
For disease control, a 20 km and a 150 km zone around the outbreaks were established. All affected premises had to treat their animals with insecticides. Before animals could be moved from the 20 km zone into the 150 km zone or from the 150 km zone to free zones, they had to be tested with a negative result for BT and treated with insecticides.

Materials and methods

For the analysis of the cross-sectional study and the sentinel program, we used data provided by the federal states, the German animal disease notification system (TSN, TierSeuchenNachrichten) to estimate the time point when the desired detection level of the sentinel program was reached. The surveillance system was analyzed and the detection level of the sentinel program in Germany was calculated for a two staged design.

Results

1. The cross-sectional study conducted in winter 2007 showed that the prevalence on district level had been up to 66% at the end of the transmission season 2006. It also showed that only a small fraction of the infected farms and animals had been reported. Only in a few districts, cattle with positive test results were found outside the 20 km zone [1].



2. It seems that the sentinel program was sensitive as it detected the first new BT case in 2007. However, implementing the program was very time-consuming and expensive. For several reasons animals could not be sampled randomly and in the selected herds the number of tested animals was between 10 and 15. This two staged design affected the detection level of the program. Instead of the desired 2%, the detection level rose to 2.0-6.7%. Furthermore, many farmers were reluctant to participate in the sentinel program because they were not allowed to sell sentinel animals and suspected that the monthly testing might affect the performance of the animals.

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Discussion

The cross-sectional study conducted in winter 2007 provided comprehensive information on the distribution of BT in cattle at the end of the transmission season of the year 2006 in the affected region in Western Germany. In winter 2008, no cross-sectional study was carried out to get information about the spread of bluetongue disease in 2007 but reports from the mainly affected federal states indicated that the prevalence at the end of 2007 had been nearly 100% in the core region of the epidemic.

Since the program had to be adapted for the benefit of practicability, it failed to achieve the desired detection level but succeeded to detect the first fresh BT case in Germany in 2007. The overall cost-benefit ratio of the sentinel program was poor.

References

1. Gethmann J. et al. in *Tiergesundheitsjahresbericht 2007* (Friedrich-Loeffler-Institut), 2008, pp 30-36.

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The overall cost-benefit ratio of the sentinel program was poor. Since the program had to be adapted for the benefit of practicability, it failed to achieve the desired detection level but succeeded to detect the first fresh BT case in Germany in 2007. The overall cost-benefit ratio of the sentinel program was poor. Since the program had to be adapted for the benefit of practicability, it failed to achieve the desired detection level but succeeded to detect the first fresh BT case in Germany in 2007. The overall cost-benefit ratio of the sentinel program was poor. Since the program had to be adapted for the benefit of practicability, it failed to achieve the desired detection level but succeeded to detect the first fresh BT case in Germany in 2007. The overall cost-benefit ratio of the sentinel program was poor.