Effect of intervention practices to control the porcine epidemic diarrhea (PED) outbreak during the first epidemic year (2013-2014) on time to absence of clinical signs and the number of dead piglets per sow in Japan: *A Summary of the paper by MSHMP*

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Key Points:

- There was little to no research on factors affecting time to absence of clinical signs (TAC) and dead piglets/sow (DP/S) during PED infections.
- Good external biosecurity in the form of clean transport methods and one-way truck entrances is significantly associated with lower TAC and DP/S.
- The timing of feedback relative to the PED outbreak was more important than the method of feedback.

The objectives of this study were to assess the effect of biosecurity measures and intervention practices to control PED on time to absence of clinical signs (TAC) and number of dead suckling piglets during TAC in Japan during the PED epidemic of 2013-2014. A questionnaire was administered to 120 PED-affected farms located across Japan between 2013, when the first case was reported in Japan, and 2014. Farms were asked to provide information on farm characteristics and internal or external biosecurity measures during PED outbreak, as well as on intervention practices to control PED. The TAC was defined as the number of days from the date that clinical PED signs appeared to the date that clinical PED signs disappeared. The number of dead piglets per sow (DP/S) was calculated as the number of dead suckling piglets during TAC divided by the sow inventory.

The median TAC was 6.1 weeks, but there was large farm-to-farm variation. The farm characteristic variables that were associated with higher TAC were the outsourcing of pig transport and the presence of *Actinobacillus pleuropneumoniae* (APP). Transportation companies generally visit multiple farms and share loading trucks, which may increase the risk of circulating PED virus and of new virus introductions. Respiratory diseases become more severe if they are also PED positive, and it could be difficult to control PED on such farms.

The overall mean DP/S was 1.4, with large variation among farms. The only significant farm characteristic variable associated with DP/S was truck route; farms with one-way entrances had lower DP/S than those without. This association simply indicates a difference in biosecurity level. Regarding intervention practice variables, farms with fixed staff hours had a significantly lower DP/S than those without. This finding could reflect the fact that farms with severe outbreaks were not able to fix the hours that staff worked.

Approximately 80% of farms affected with PED treated piglets by such means as oral rehydration and intraperitoneal rehydration. Additionally, approximately 40% of farms treated sows. However, results show that treatments were not effective for reducing TAC and DP/S. These results indicate that it is difficult to treat PED-affected piglets or sows that have no immunity against PED. Feedback was practiced at a majority of the farms as a way to provide immunity to the virus. Results showed that the methodology of feedback was not significant regarding the length of TAC or number of DP/S, but that the timing was. The practice of feedback at 2 weeks or later after the PED outbreak was associated with long TAC and high DP/S.

In conclusion, it is important to consider the period from PED outbreak to feedback when practicing feedback. Additionally, regarding farm characteristics and internal or external biosecurity measures at PED outbreak, outsourcing of pig transport was associated with long TAC and high DP/S. These results could contribute to understanding the epidemiology of the disease in the country and, ultimately, to design and implement effective prevention and control strategies in Japan and other regions epidemically infected by the PED virus.

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