"Behind the feathers": Evaluating Poultry Health Surveillance

L. Royo-Hernandez[1, 2] (lroyohernande24@rvc.ac.uk), Z. Treharne[2], P. Jones[2], J. Cardwell[1], D. Brodbelt[1]

[1] *Veterinary Epidemiology, Economics and Public Health Group, Royal Veterinary College, Hatfield, United Kingdom*

[2] *Surveillance Intelligence Unit, Animal and Plant Health Agency, London, United Kingdom*

Summary:
In this study, we evaluated the poultry scanning surveillance system in England and Wales following the Surveillance Evaluation Framework (SurF) (Muellner et al. 2018). Our evaluation objectives included: i) Evaluate surveillance performance, ii) Assess the coverage and representativeness, and iii) Identify operational strengths and weaknesses. The surveillance system design presented beneficial characteristics supporting attributes like multiple utility and historical data. On the other hand, some of the main findings resulting from this evaluation included the lack of standardised surveillance objectives, the quality of data affected by data completeness, selection bias and unknown representativeness.

Introduction:
The poultry scanning surveillance system, delivered by the Animal and Plant Health Agency (APHA) in England and Wales, aims for the early detection of new and re-emerging disease threats (NRTs) in poultry species. This is a passive surveillance system which covers a wide range of non-regulated diseases. The case inclusion is voluntarily initiated by veterinary practitioners. The systematic implementation of evaluations is essential to ensure that surveillance systems remain fit for purpose (Drewe et al. 2012b; Stark and Häsler 2015; Muellner et al. 2018). To date, there has not been a comprehensive systematic evaluation of the poultry scanning surveillance system, and it is unknown to what extent the voluntary nature of submissions might impact representativeness. The APHA recognises the uncertainty in the collected animal health-related data, which includes the unknown representativeness of the target population (APHA 2025). Additionally, the voluntary participation can lead to under-reported disease levels (Geddes et al. 2021), and this can be particularly important in passive surveillance systems (Gates et al. 2021; Phiri et al. 2024). Collectively, these aspects emphasise the need to evaluate the poultry scanning surveillance system.

Materials and Methods:
In this study, the poultry scanning surveillance system was evaluated following the Surveillance Evaluation Framework (Muellner et al. 2018). 21 attributes were selected through expert consultation, and 14 of them were assessed through expert consultation, document review and analysis of surveillance data.

Results:
The findings resulting from this surveillance evaluation provided three main outcomes: i) Description of the system, objectives, structure, users, target population, design and processes; ii) The strengths and weaknesses of qualitative attributes; and iii) The assessment of quantitative attributes.

Discussion:
This has been the first surveillance evaluation implemented in the poultry scanning surveillance system for England and Wales. The application of this method has the potential to be systematically applied and transferable to this and similar surveillance systems. The findings could support surveillance users by identifying areas requiring improvement within the system, as well as providing support to decision makers in prioritising resource allocation. The selected evaluation framework allows evaluators to adapt the process to the available resources. However, the inherent flexibility and lack of standardisation in the evaluation design, data collection and interpretation have the potential of introducing bias in the process. To address the constraints in the evaluation process, adopting a structured, transparent and logical approach is essential to ensure credibility of the results (Drewe et al. 2012a; Muellner et al. 2018).

Keywords: Surveillance, Evaluation, Voluntary, Passive, Poultry.

References:

1. APHA (2025) SIU dashboards: data limitations, available: https://www.gov.uk/government/publications/siu-dashboards-data-limitations/siu-dashboards-data-limitations [accessed 19/08/2025].
2. Drewe, J.A., Hoinville, L.J., Cook, A.J., Floyd, T., Gunn, G. and Stark, K.D. (2012a) 'SERVAL: a new framework for the evaluation of animal health surveillance', Transbound Emerg Dis, 62(1), 33–45, available: http://dx.doi.org/10.1111/tbed.12063.
3. Drewe, J.A., Hoinville, L.J., Cook, A.J., Floyd, T. and Stark, K.D. (2012b) 'Evaluation of animal and public health surveillance systems: a systematic review', Epidemiol Infect, 140(4), 575–90, available:

http://dx.doi.org/10.1017/S0950268811002160.
4. Gates, M.C., Earl, L. and Enticott, G. (2021) 'Factors influencing the performance of voluntary farmer disease reporting in passive surveillance systems: A scoping review', Prev Vet Med, 196, 105487, available: http://dx.doi.org/10.1016/j.prevetmed.2021.105487.
5. Geddes, E., Mohr, S., Mitchell, E.S., Robertson, S., Brzozowska, A.M., Burgess, S.T.G. and Busin, V. (2021) 'Exploiting Scanning Surveillance Data to Inform Future Strategies for the Control of Endemic Diseases: The Example of Sheep Scab', Front Vet Sci, 8, 647711, available: http://dx.doi.org/10.3389/fvets.2021.647711.
6. Muellner, P., Watts, J., Bingham, P., Bullians, M., Gould, B., Pande, A., Riding, T., Stevens, P., Vink, D. and Stark, K.D. (2018) 'SurF: an innovative framework in biosecurity and animal health surveillance evaluation', Transbound Emerg Dis, 65(6), 1545–1552, available: http://dx.doi.org/10.1111/tbed.12898.
7. Phiri, B.J., Hernandez-Jover, M., Hidano, A. and Martinez Aviles, M. (2024) 'Editorial: Developments in animal health surveillance, volume II', Front Vet Sci, 11, 1505140, available: http://dx.doi.org/10.3389/fvets.2024.1505140.
8. Stark, K.D. and Häsler, B. (2015) 'The value of information: Current challenges in surveillance implementation', Prev Vet Med, 122(1-2), 229–34, available: http://dx.doi.org/10.1016/j.prevetmed.2015.05.002.