

Teaming up for animal health

In the interest of animals, their owners and society at large



Inter-laboratory agreement of swine influenza serology proficiency testing

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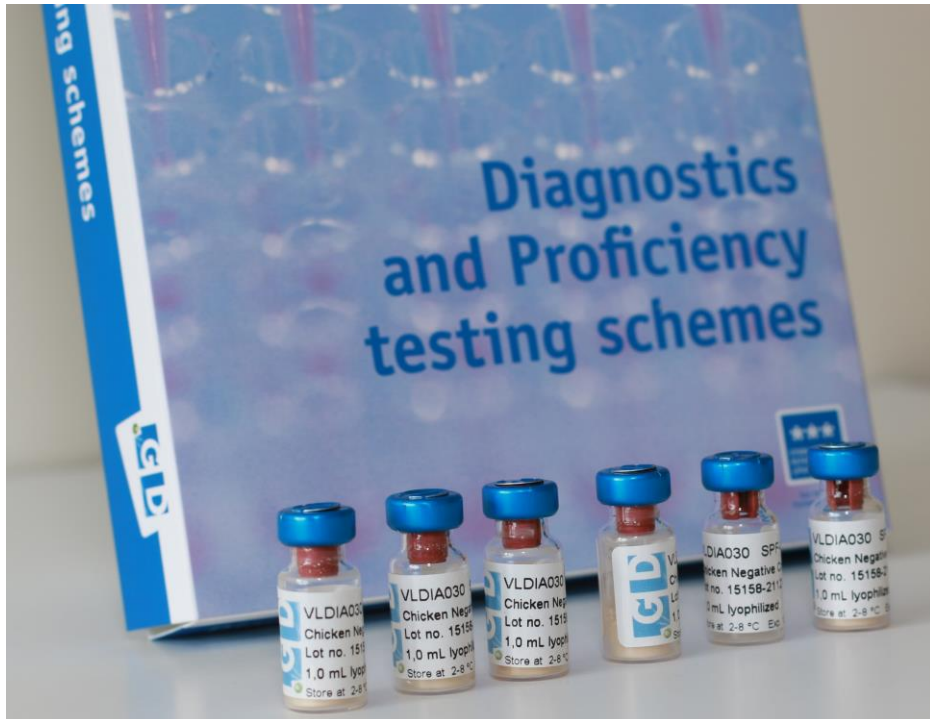


Swine influenza virus (SIV) diagnostic challenges

SIV	Diagnostics
High diversity and rapid evolution of SIV	Constant update diagnostic
Country-specific SIV evolution	Adjust of diagnostics to “local” SIV
Inter-country introduction of new SIV	Adjust of diagnostic to detect new SIV



Important to evaluate and monitor the performance of diagnostic tests



PTS = Proficiency Testing Schemes

= inter-laboratory testing schemes to determine and monitor laboratories' continuing performance.

Aim of this study:

To analyse the results of the participating laboratories in the PTS organized by Royal GD for the **ELISA** and **HI** of the last six years



- To get insights into the performance of the tests throughout the years
- To detect potential challenges on the detection of SIV

- Anonymized data from PTS SIV ELISA and HI results from 2018 to 2023
- 8 well defined samples per year:
 - H1N1, H1N2, H3N2
 - (Vaccinated) + experimental infection
 - Field strains
 - Negative
- Overall annual-sample agreement between laboratories (%)
- Laboratory qualitative performance

**Samples reported as 'suspected' were evaluated as true qualitative value*



- Average 23 laboratories participated per year
- ELISA: 13 laboratories participated at least 4 PTS
- HI: 5 laboratories participated at least in 4 PTS
- ELISA + HI: 4 laboratories participated in at least 4 PTS



ELISA:

- Different influenza screening ELISAs kits were used
- Annual sample-set inter-lab agreement was on average 98,0%
- For eight selected samples which were included for at least four years during that period, sample-agreement was on average 99,0%
- High percentage of labs with qualitative true results



HI:

- No laboratories used similar subtype-specific antigens
- Annual sample-set inter-lab agreement:
 - 73,5% for H1N1
 - 82,5% for H1N2
 - 91,7% for H3N2
- Variation in both qualitative and quantitative results among labs and throughout the years following the reused samples



- Important to evaluate laboratory test performance
- ELISA: high agreement among laboratories vs HI: lower agreement among laboratories
- Additional analysis:
 - Results separately per serum sample -> subtype, field/exp. infection/vaccine, year of isolation
 - Results per year
 - Further analysis of antigens used, country?



