



Development of efficient protocols for the surveillance of swine influenza viruses and other respiratory diseases in pigs in Vietnam.

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Content

- ❖ INTRODUCTION
- ❖ FIELD ACTIVITIES
- ❖ SAMPLE COLLECTION
- ❖ TEST PROCEDURES
- ❖ TEST RESULTS
- ❖ FURTHER ACTIVITIES



Introduction

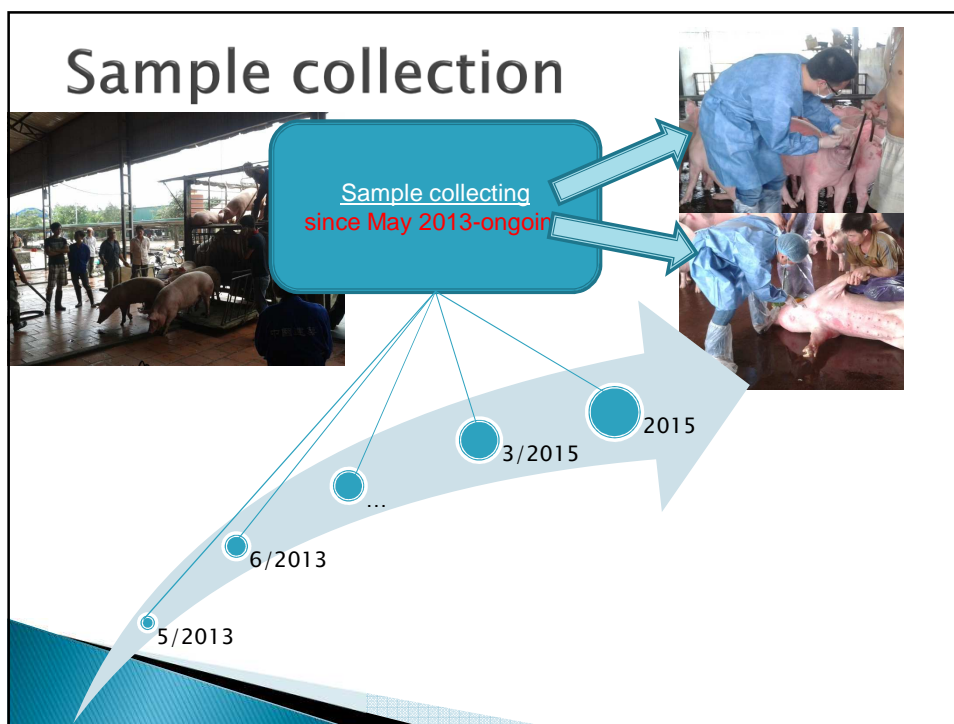


Study Objectives

- ▶ Swine is considered as a potential re-assortment vessel for the generation of novel influenza virus.
- ▶ The surveillance of influenza viruses in the pig population still remains limited in many parts of the world.
- ▶ Flu viruses are both a concern for the pig productions and for Human health, while respiratory diseases in general have a high impact on pig productions.
- ▶ Our aim is to develop more knowledge on the circulation of influenza viruses and other respiratory diseases in swine and to improve the current methods for the detection of respiratory diseases in the pig population in Vietnam
- ▶ Set up a cost-effective long term surveillance program of SI in Vietnam
- ▶ To provide information on potential zoonotic risks

Field Activities

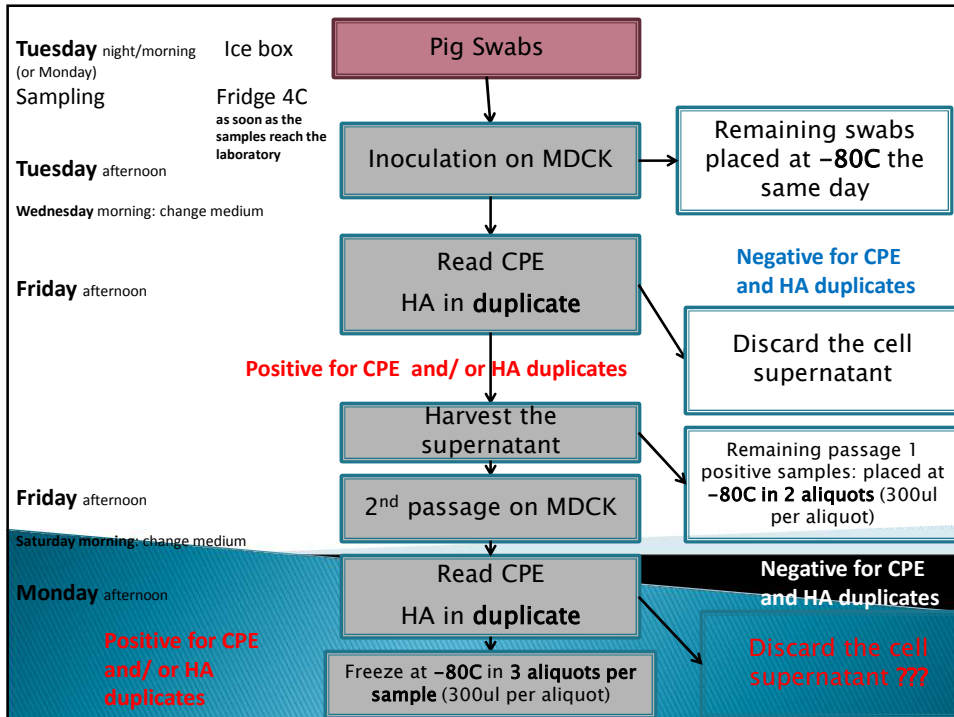
- In the research project, we selected total 16 sentinel farms in Van Lam and Van Giang district in Hung Yen Province to implement the surveillance.
 - ▶ 1st visit: a group of 10 pigs of 2 weeks to 2 months old of the same litter will be chosen and will be ear tagged and sampled (blood, nasal swab and saliva).
 - ▶ One visit every month until the pigs are 5 or 6 months old: we will visit the farm and sample 6 pigs of the group chosen at the 1st visit.
 - ▶ If the farm have poultry, at each visit we will sample some of them (blood, cloacal and oral swabs).
 - ▶ A questionnaire about pig and poultry production, trade and health status will be done at each visit.
 - ▶ The samples which were taken from pigs, will be analyzed for swine influenza and some other respiratory diseases including PRRs.
- Slaughter house activities:
 - + Collect samples one time per month from : 3 local slaughter houses (2 SH in Van Giang and 1 SH in Van Lam district, Hung Yen); 1 industrial slaughter house in Van Phuc, Hanoi.
 - Collect samples in the live pig market in Van Lam district one time per month.

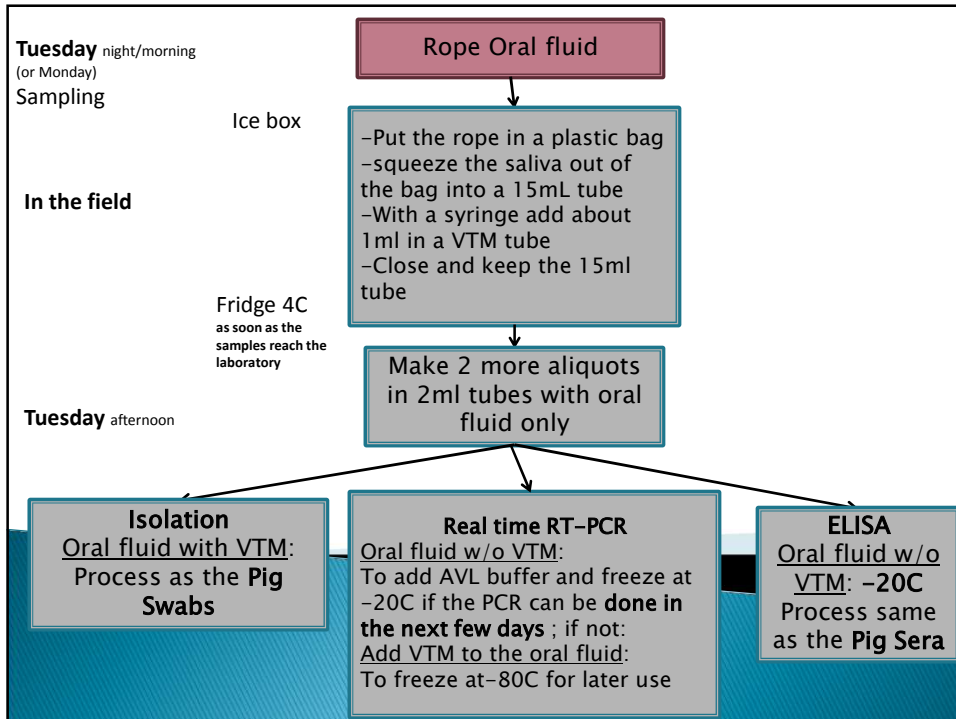
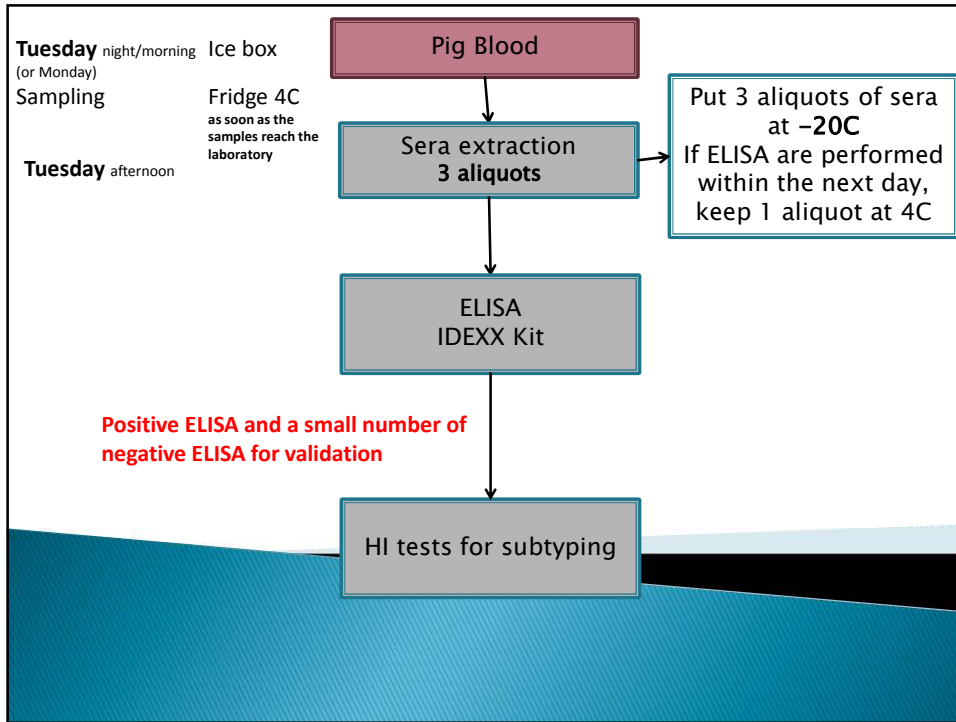


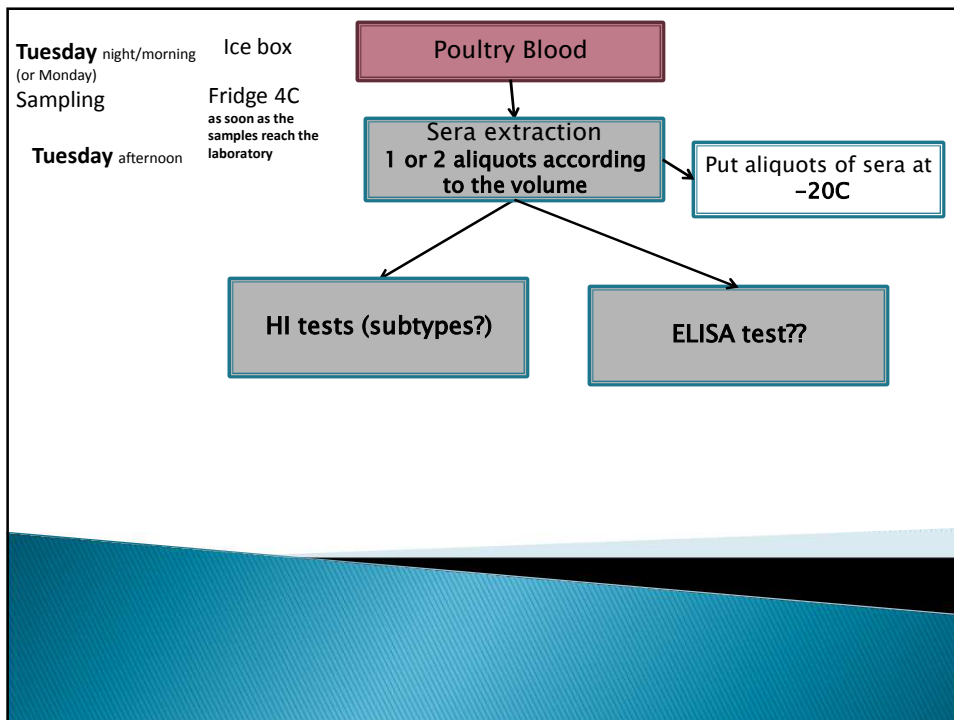
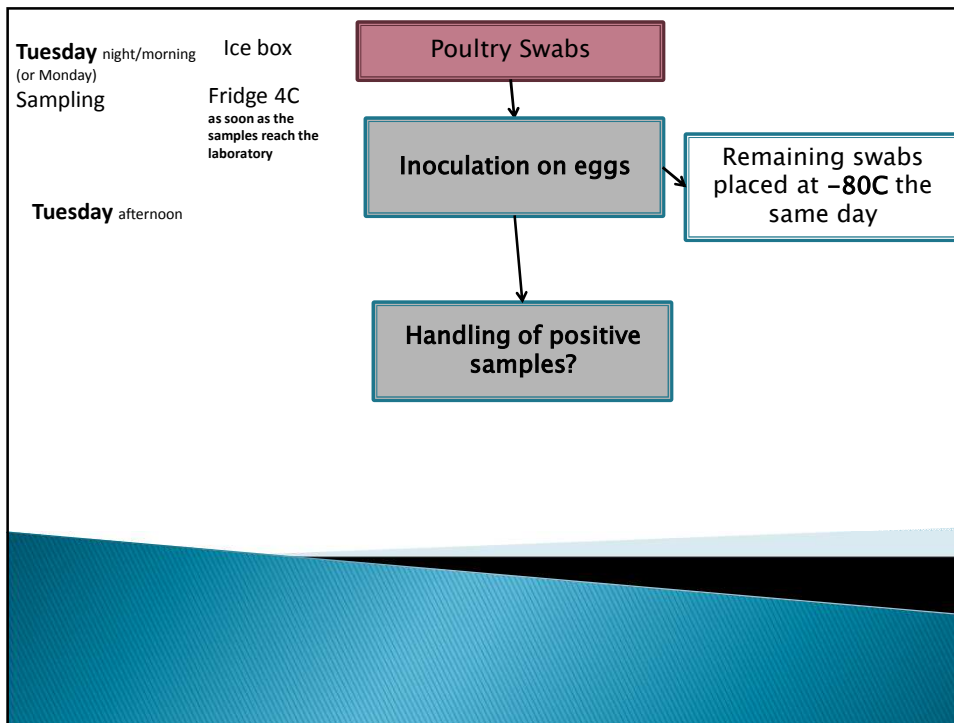
Total samples collected from May 2013 – March 2015

| Locations | Pig swab samples | Pig blood samples | Poultry swab samples | Poultry blood samples | Pig saliva samples |
|-------------------|------------------|-------------------|----------------------|-----------------------|--------------------|
| Van Phuc SH | 3403 | 2314 | | | |
| 3 local SH | 683 | 696 | | | |
| Live pig market | 703 | 609 | | | |
| 16 sentinel farms | 612 | 604 | 534 | 534 | 88 |
| SUM | 5401 | 4223 | 534 | 534 | 88 |

TEST PROCEDURES



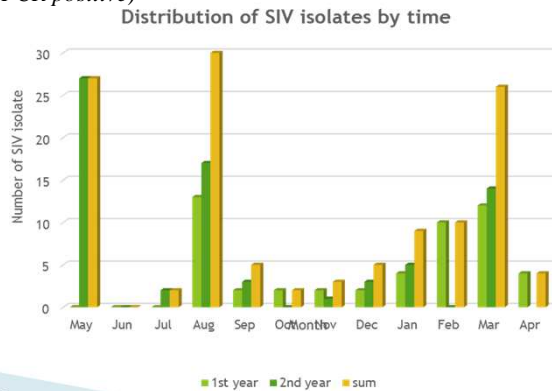




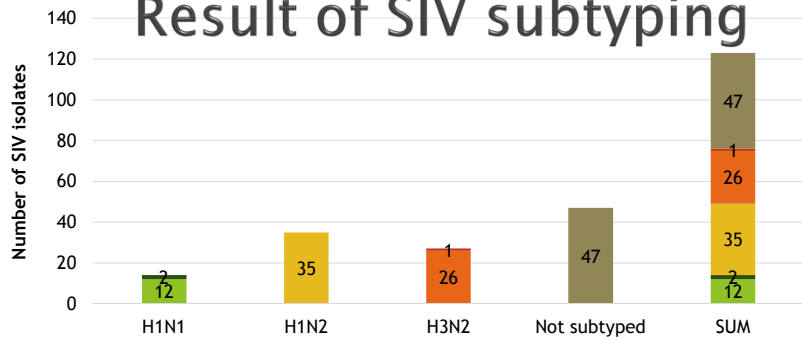
Result of SIV isolation

- All nasal and saliva swab samples from pig in sentinel farms, local SH and live pig market were negative.
- 4 isolations from poultry swabs were detected (1 NDV and 3 others non-subtype)
- 123 SIVs positive swabs have been detected in Van Phuc SH
(CPE on MDCK, HA and RRT-PCR positive)

Number of SIV isolated each month in Van Phuc SH (May 2013-March 2015)



Result of SIV subtyping



- Subtype
- Not subtyped
 - related to viruses isolated in 2010 in Southern Vietnam.
 - related to a Korean triple reassortant influenza A virus
 - H1N2
 - reassortants between these H1N2 and influenza virus A(H1N1)pdm09
 - related pdm09 lineage

SHORT COMMUNICATION
Detection of Novel Reassortant Influenza A (H3N2) and H1N1 2009 Pandemic Viruses in Swine in Hanoi, Vietnam
 E. Baudon^{1,2,*}, L. L. Poon^{1,*}, T. D. Dao³, N. T. Pham³, B. J. Cowling¹, M. Peyre², K. V. Nguyen^{3,1} and M. Peiris^{1,1}
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Conclusion

- ▶ **The most effective method is surveillance swine influenza viruses in the big slaughter house (Van Phuc).**
- ▶ A seasonality of SIV circulation was observed with a **higher isolation rate in the end of winter and spring season (Jan-March).**
- ▶ Most of the H1N1(12/14) viruses were from the influenza virus A(H1N1)pdm09 lineage.
- ▶ 26 H3N2 isolates were novel re-assortants not reported previously in Vietnam.
- ▶ Did not detect any avian influenza virus H5 or H7 types in the pig population concerned.

Following activities

- ▶ Long term SIV surveillance in slaughter house
- ▶ Evaluate the efficiency of rope sampling to detect SIV (less invasive)
- ▶ Research on inter species transmission of SIV between pig and slaughter men:
 - follow up of human worker cohort (in collaboration with NIHE)
- ▶ Role of other animals in the SIV circulation

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Thank you for your attention!

