Swine influenza in Africa- Updates, 2015

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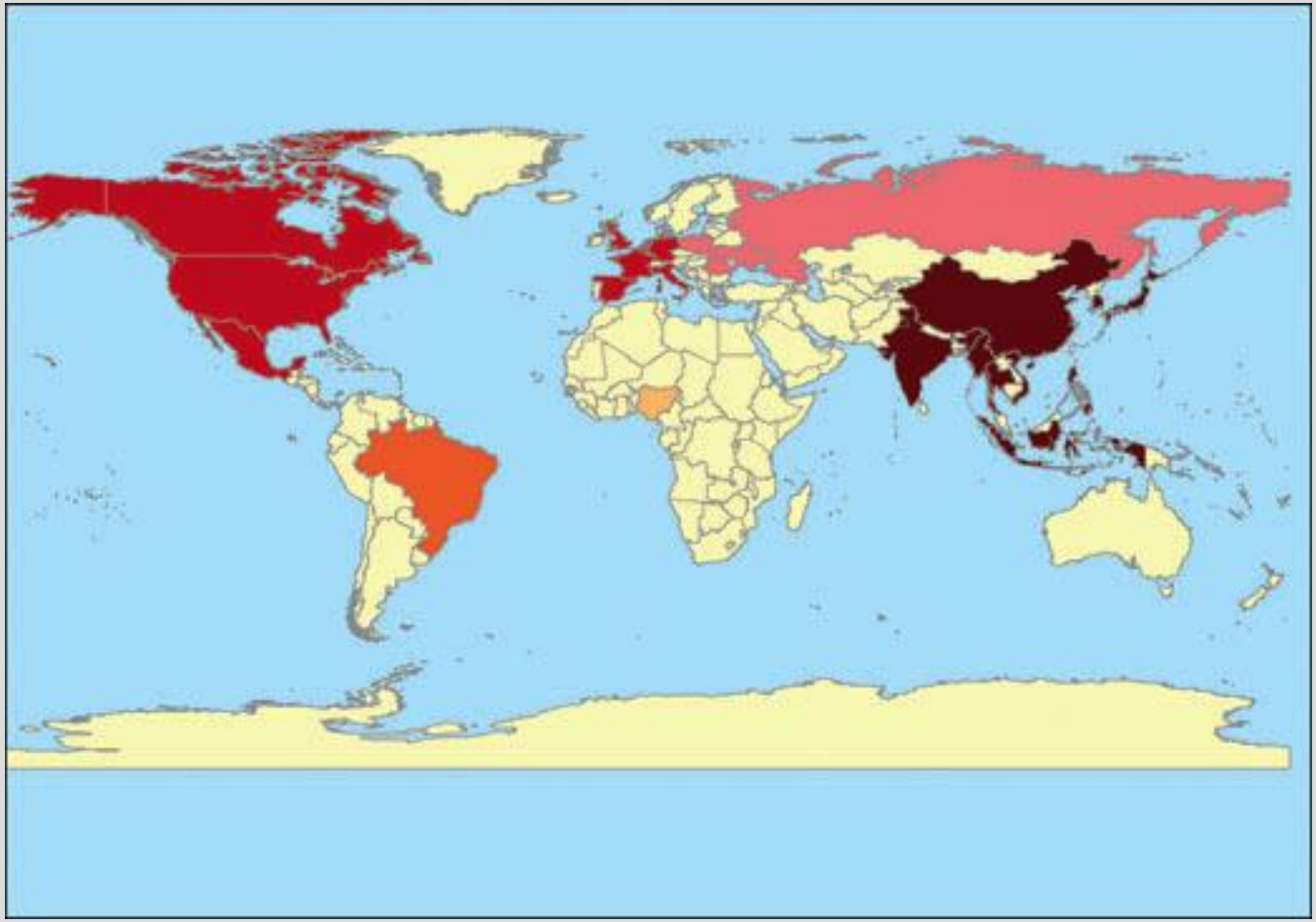
Background

- Influenza A/H1N1pdm09 was also detected in pigs in Africa
- First in Cameroon -(Njabo *et al*,. 2012)
- Next in Nigeria- (Meseko *et al*., 2014)
- Other countries in Africa are Kenya and Togo (Munya *et al.,* 2015; Ducatez *et al*., 2015)
- These represent earlier reports of swine influenza virus from the continent

Background

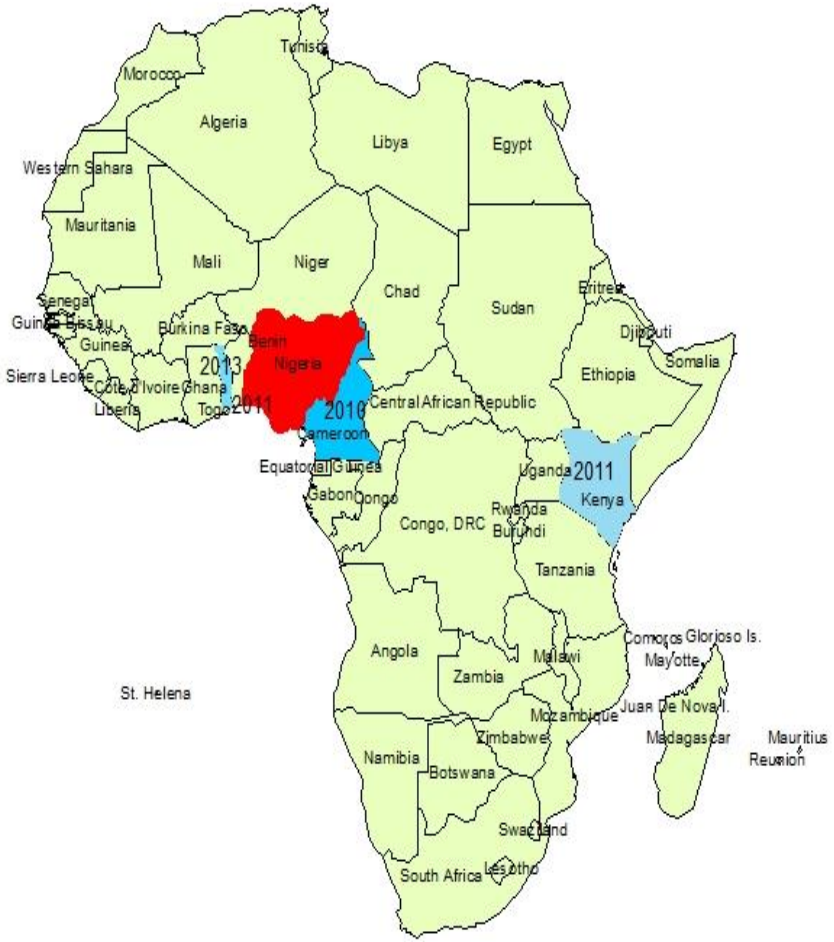
- Influenza A/H1N1 pdm09 circulates in the African ecological regions, particularly where pig are intensively reared (reverse zoonoses)
- The potential for interspecies infection and virus reassortment exist
- Not much data on classical influenza in the region
- However, the potential for pandemic swine influenza virus circulation and possible reassortment with epizootic avian influenza in Nigeria and other West African countries need to be monitored

Swine influenza worldwide



- Vincent et al., 2013. Review of Influenza A Virus in Swine Worldwide

Countries with reported influenza H1N1pdm09 in pigs- Africa



Background

- Though Africa as a continent has less number of pigs compared to Asia, Europe and America
- Yet there are over 32 million pigs in the continent (FAO, 2011)
- Nigeria alone accounts for 30% pig production in Africa with over 10 million pigs in intensive and free range husbandry
- Need for more virological and genomic data describing status of classical or pandemic influenza in this region cannot be overemphasized

State of the art…

- Pandemic Influenza A/H1N1pdm09 reported in four countries in Africa with sequence data in the GenBank
- No virological or genomic data on classical swine influenza from Africa as at November 2015
- Known isolates of swine flu are pandemic strains detected in pigs
- These may probably be the source of endemic swine flu strains in the region
- Potential risks of circulation, reassortment of human, avian and swine strains are high

Cross border-trade in pigs (Nigeria, Benin and Togo)

Feral pigs- North Central Nigeria

Live pig market- Kaduna Sate

Backyard pig production system- Plateau State

Mixed farming-Risk of avian and swine flu reassortment- Lagos

Current surveillance efforts

- Targeted surveillance in live pig markets and abattoirs (nasal swabs, lung tissues and sera)
- Targeted surveillance in major commercial farms and pig settlement centers
- Surveillance in major pig producing States
- Feral pigs surveillance
- Analysis of sera samples collected for ASF surveillance

Findings

- As at March 2015, H1N1pdm09 cases are still being detected in Lagos piggery estate (8 isolates)
- Samples from 7 major pig producing States and major live pig market were positive (15) for swine influenza (matrix gene … subtyping underway)
- Serology in commercial farms, 303 sera – 29.4% flu A (98.9% pandemic H1, 25.8% H1 and 1.1% H3), Meseko *et al*,. unpublished

Findings…

- Serology at farms and abattoirs -372 sera-(11.8%seroprevalence), Michael *et al*., 2015
- Serology in Live pig markets-540 sera 10.4 seroprevalence), Ijomanta *et al*, 2014)
- ELISA detection of H3 antigen in commercial pig farms Adeola *et al*., 2015
- Backyard pig surveillance - 1400 sera collected
- ASF surveillance sera- 2350 sera collected from 7 States-(analysis ongoing)

Implications

- Evidence of infection and potential reassortment of pandemic influenza with human, swine and avian strains in Africa
- Feral pigs exposure to carcasses from currently circulating H5N1 in West Africa
- Mixed farming (pigs and chickens) in some locations is evident

Challenges

- Government policy focuses more on avian influenza H5N1 surveillance
- The need for more rigorous and sustained surveillance for swine flu
- Virus isolation in less sensitive in eggs for swine flu virus (chicken eggs appeared to be less supportive) need to explore other medium
- Need for effective collaboration with swine flu reference centers for subtype identification and sequencing

Conclusion

- Some countries in Africa (e.g Nigeria) have been described as zoonotic hotspots (Grace *et al*., 2012)
- The criteria used include:

  Large human population

  Large and diverse livestock population

  Human-animal interface- intermingling

  Biosecurity levels – usually poor
- These factors are inherently important in viral evolution and emergence (swine flu)
- Intensification of surveillance and early detection + control is important

- " … better understanding of the key determinants of influenza infection and transmission dynamics…"- Offlu

Thank you for listening-pigs matter matters

References and acknowledgement

- Njabo *et al*,. 2012
- Meseko *et al*.,2014
- Munya *et al*., 2015
- Ducatez et al., 2015
- FAOSTAT, 2011
- Vincent et al., 2013
- Michael *et al*., 2015
- Ijomanta et al., 2015
- Adeola et al., 2015
- Grace et al., 2012

- Executive Director, National Veterinary Research Institute, Vom
- OFFLU Secretariat