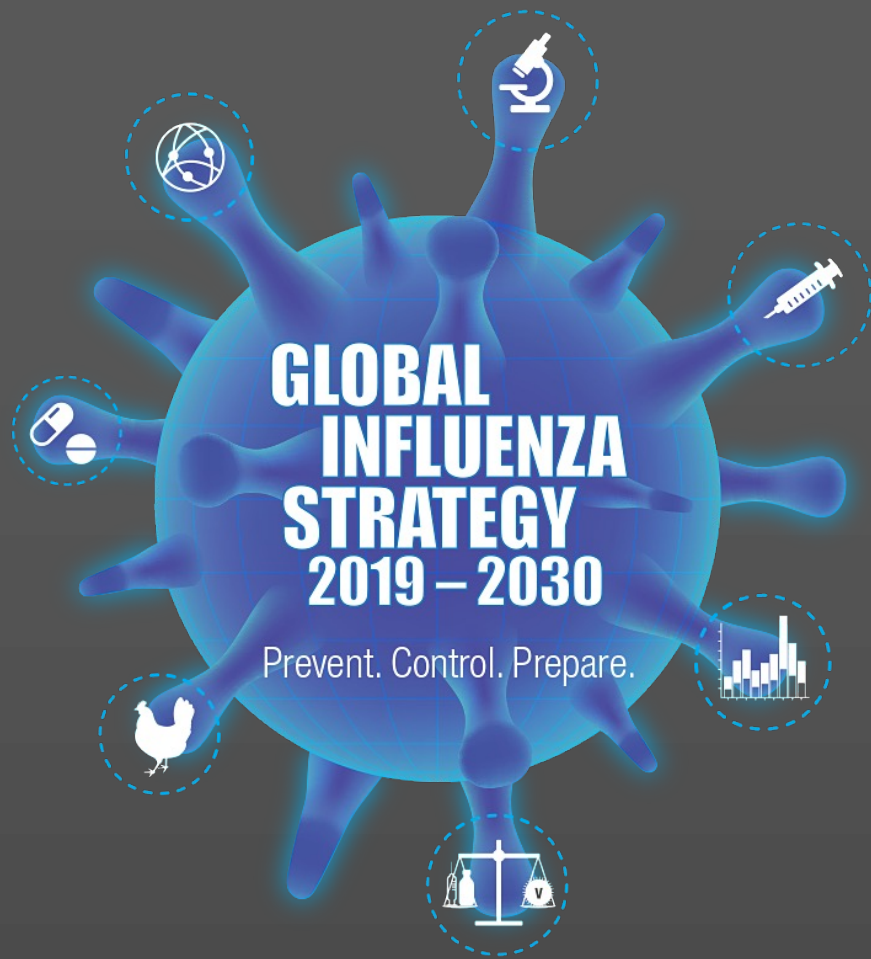# Risk associated with HPAI H5

Zoonotic infections Sept 2020-Feb 2023

Tool for Influenza Pandemic Risk Assessment (TIPRA)

The objectives are to:
- support a timely and updatable hazard risk assessment;
- Document risk features of the virus:
- identify knowledge gaps;
- facilitate information sharing.

World Health Organization

Multiple, weighted, elements considered

Public Health
1. Human infection
2. Disease severity
3. Population immunity

Animal Health
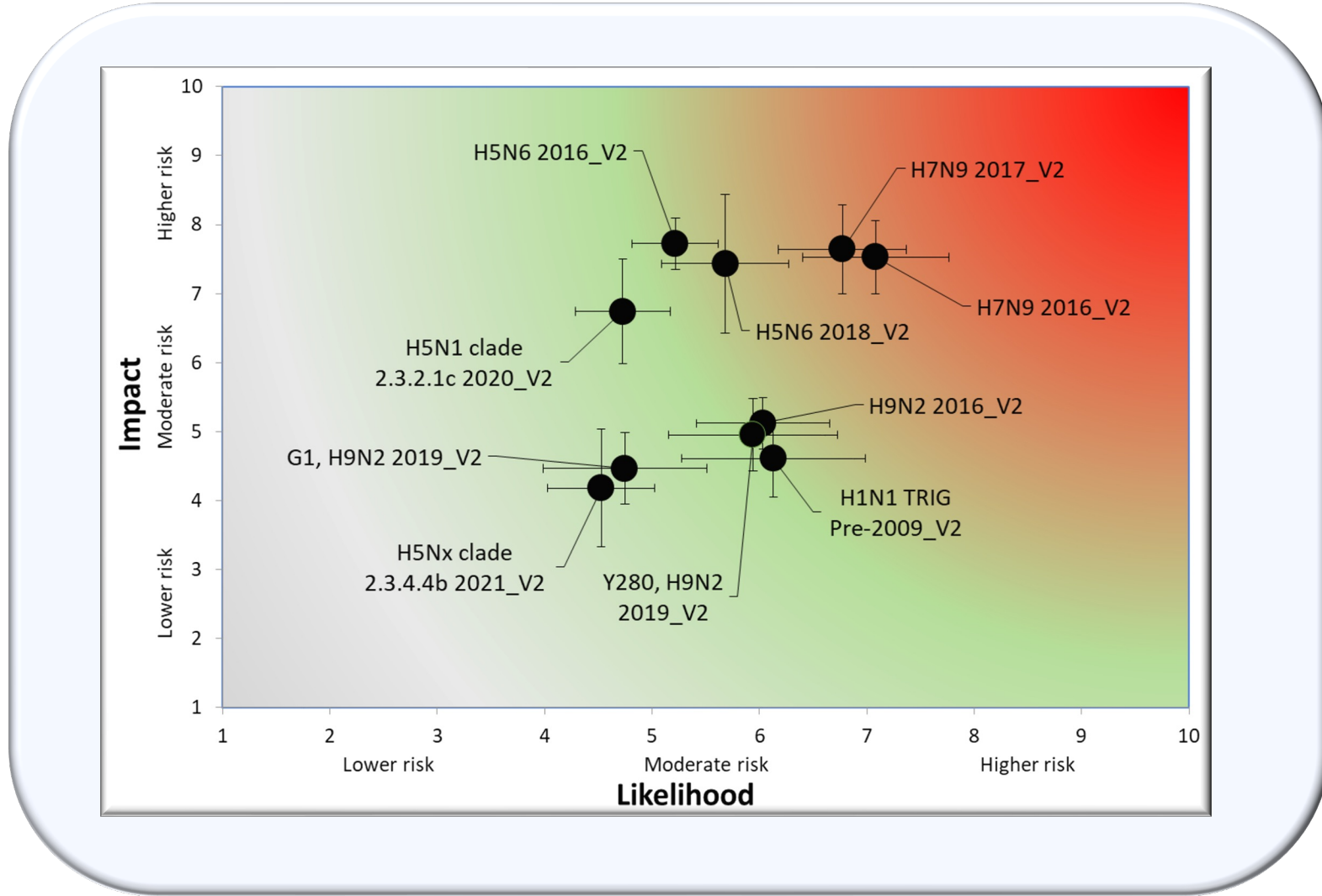4. Geographical distribution in animals
5. Infection in animals

Virology
6. Receptor binding properties
7. Transmission in animal models
8. Susceptibility to antiviral treatment
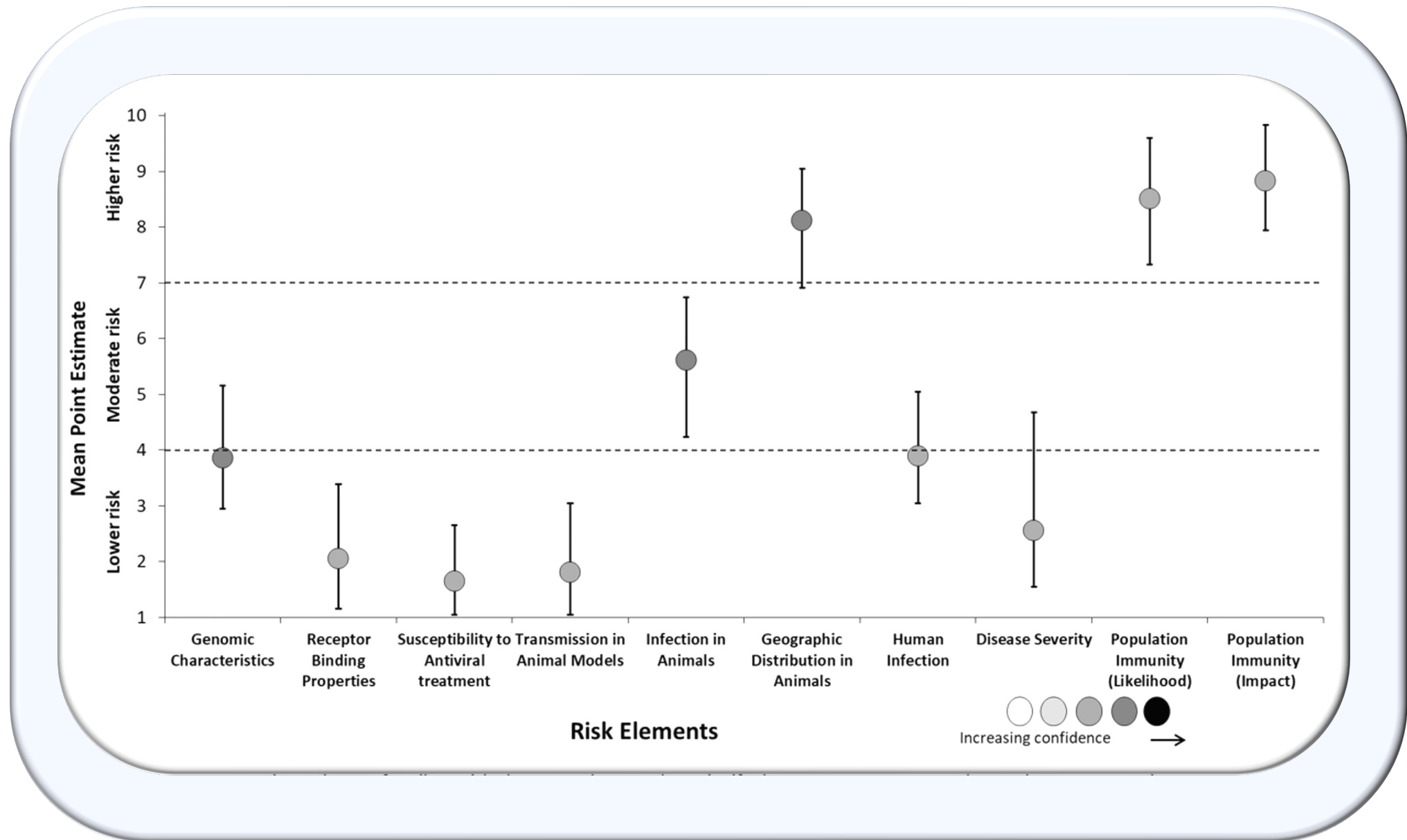9. Genomic characteristics

2.3.4.4b considered lower risk 2021
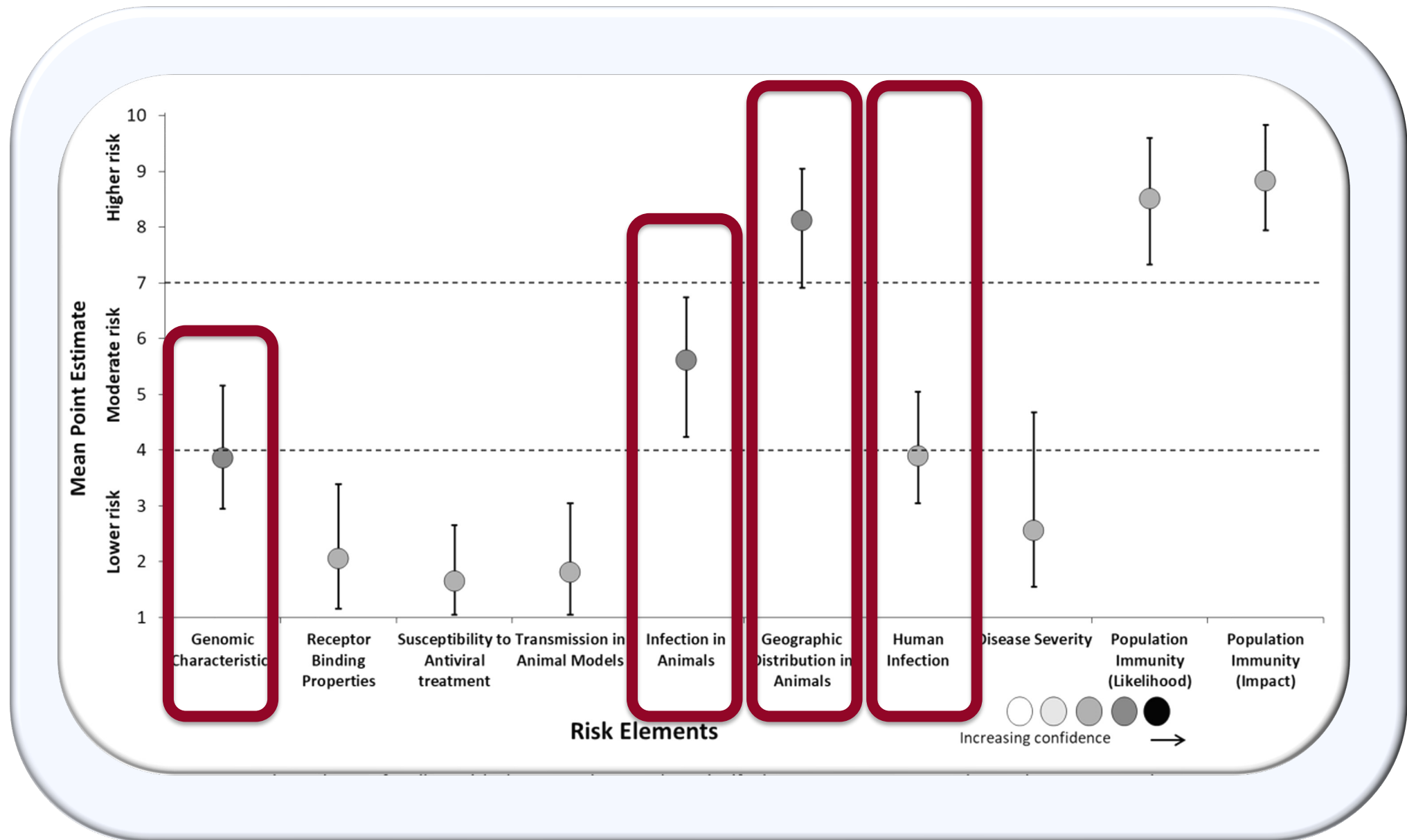

- Driven a lot by low number of human infections
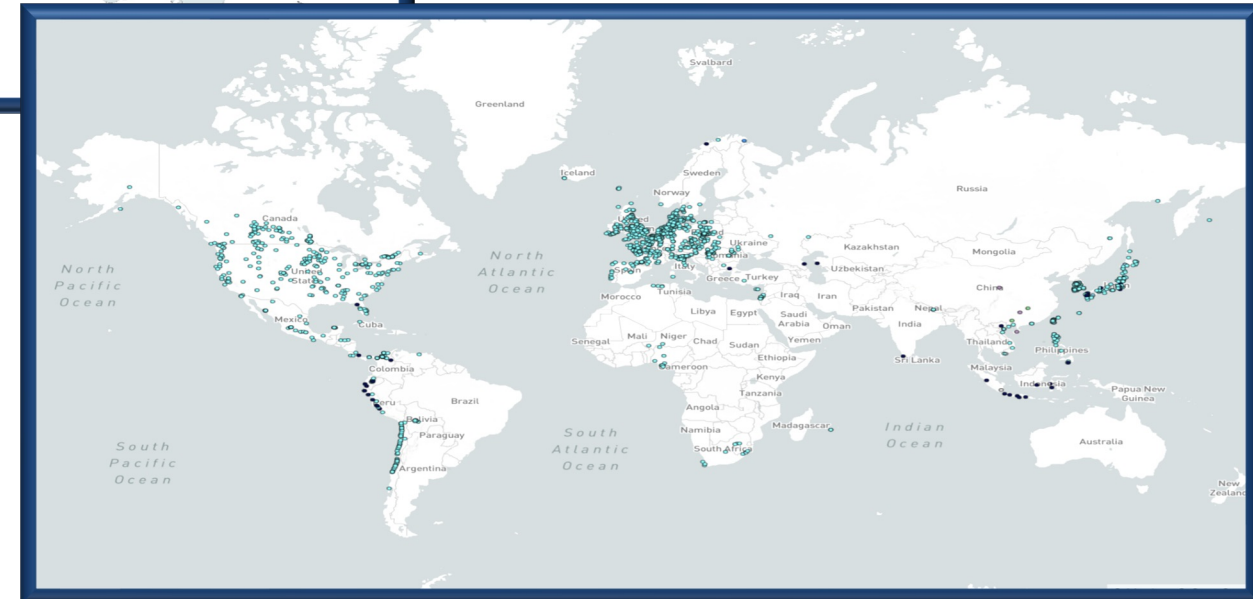
What has changed since early 2021?

What has changed since early 2021?

2.3.4.4 A(H5NX) human infections

- England
- US
- China (2 N1, 26 N6)
- Spain (2)
- Ecuador

- Still relatively low considering scope of infected animals

Geographic distribution in animals

2021
49 countries/territories

2023
65 countries/territories

Infection in animals- more incidental hosts

The New York Times

Bird Flu Found in Dolphin in Florida and Porpoise in Sweden

The findings represent the first time a highly pathogenic form of the virus, which has devastated bird populations this year, has been detected in cetaceans.
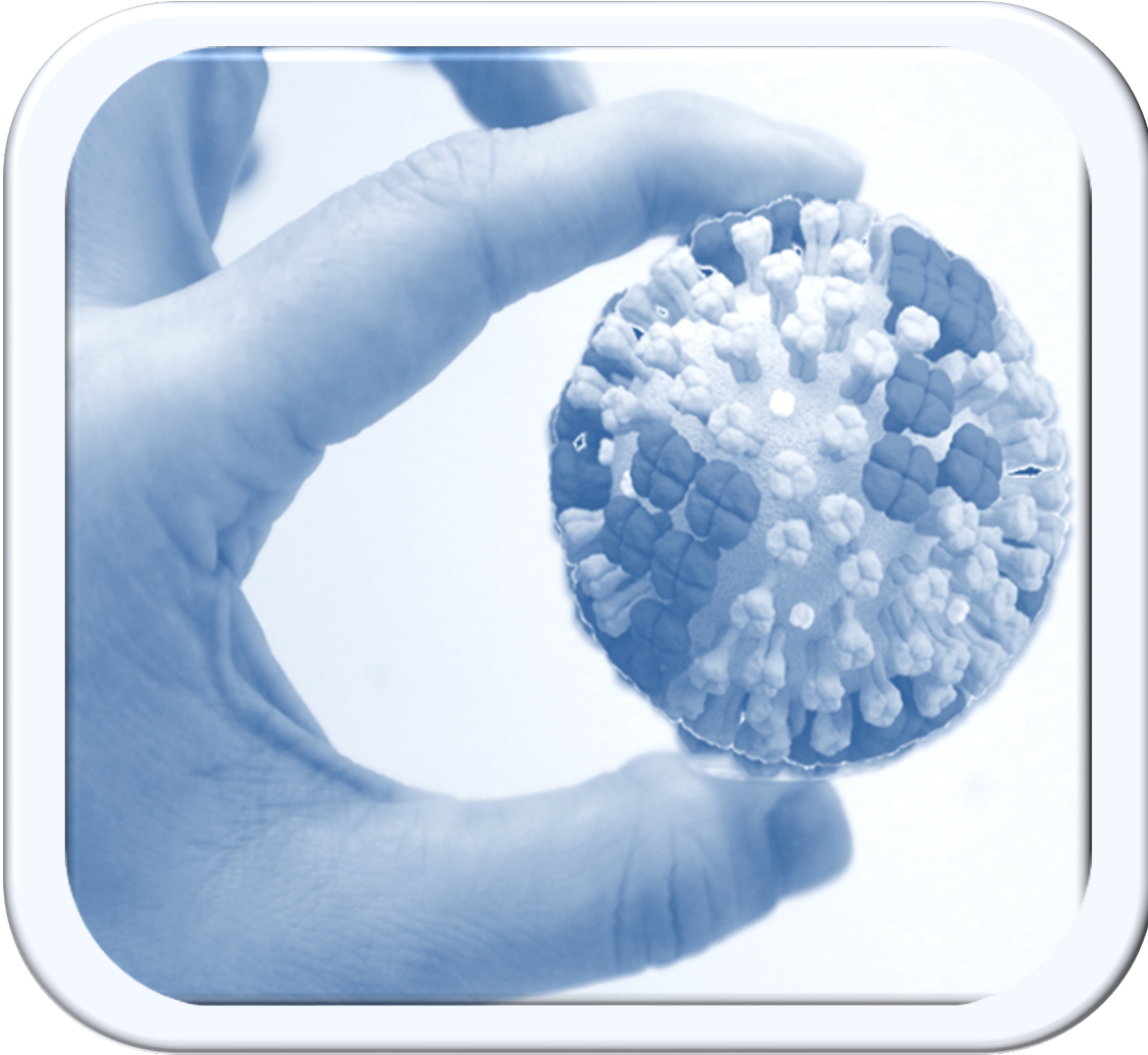
Infection in animals- new maintenance hosts?

Courtesy Dave Stallknecht, Rebecca Poulson UGA

Genomic characteristics

- Polymerase
- NA
- HA

Data needs for improved risk assessments

- ## Genomic characteristics
  Encourage more labs to share sequences timely

- ## Receptor binding

  More in vitro studies using different platforms

- ## Transmission in animal models
  More ferret studies in different laboratories

- ## Population immunity
  Examine impact of heterologous immunity

- ## Infection in animals
  Role of poultry vaccination

Acknowledgements

St. Jude Children's Research Hospital/ALSAC

Becky Poulson, Dave Stallknecht, UGA
Mia Torchetti, USDA
Yohannes Berhane, National Centre for Foreign Animal Disease, Canada
Michael Walsh, Andrew Allison, Allison Murawski, U Florida