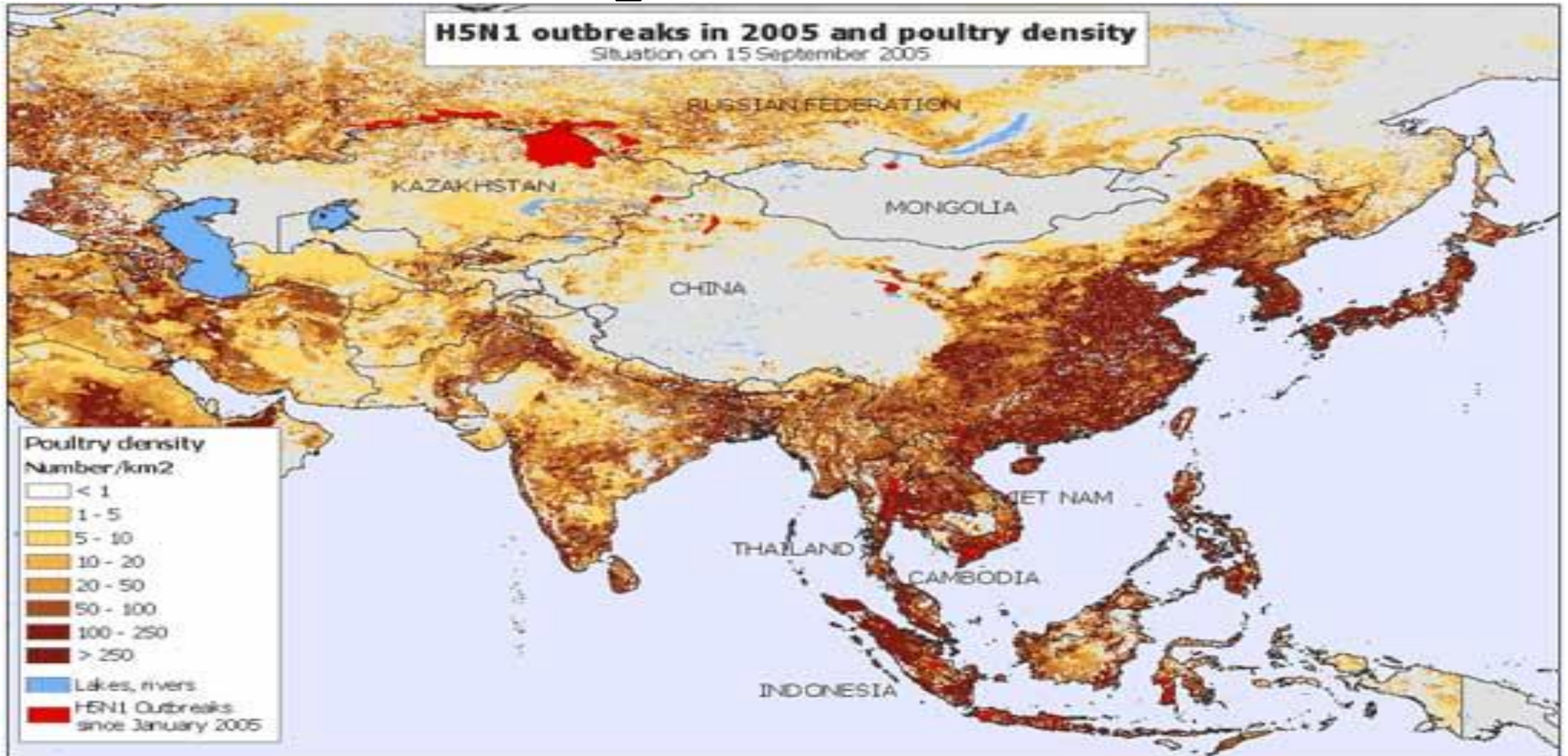


Emerging Pathogens: SARS CoV-2 and Animals

- **One Health - *Ecosystem Approach***
 - Animal Health : Livestock -Wildlife -Domestic Pets
 - Public Health
 - Environmental Health
- **> 1,461 zoonotic diseases**
 - > 60% are multi-host pathogens
 - ~ 75% emerging human diseases are zoonotic.

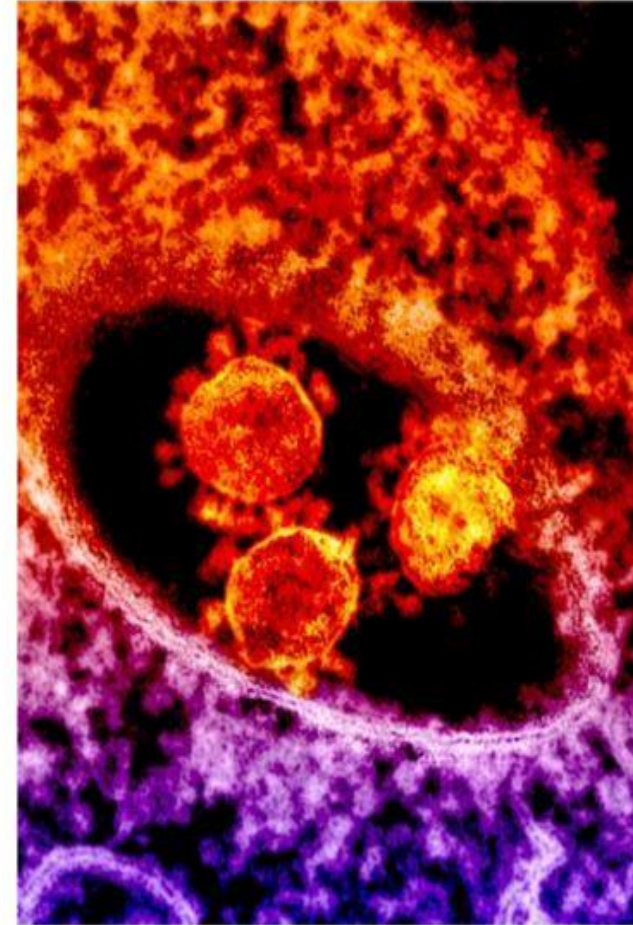
Feeding a Growing Population --- Intensification of Agriculture

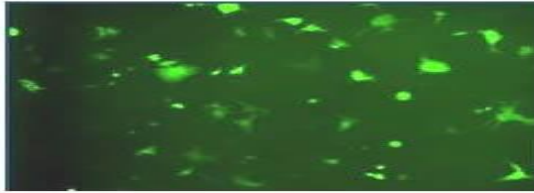
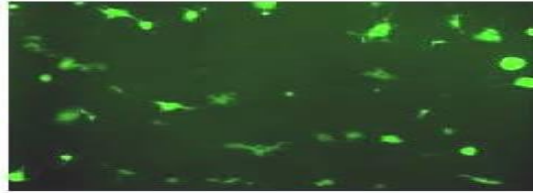
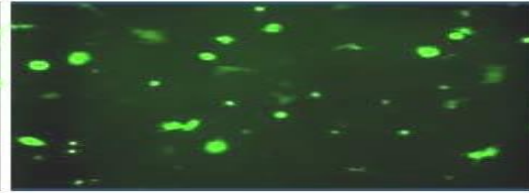
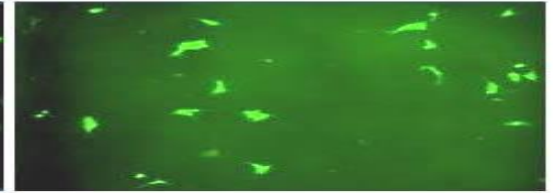
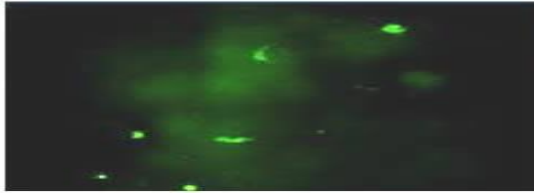
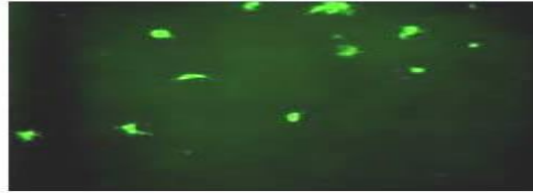
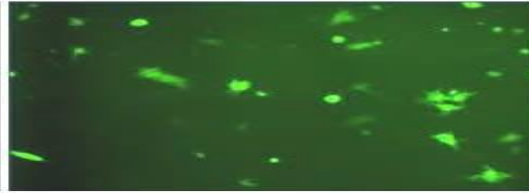
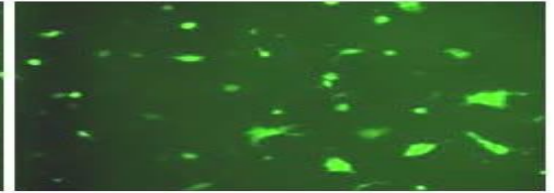
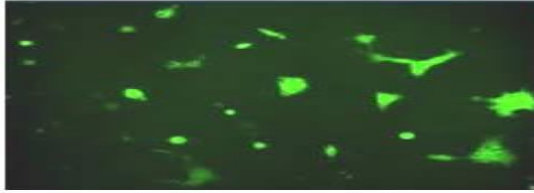
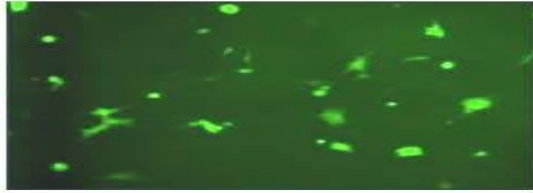
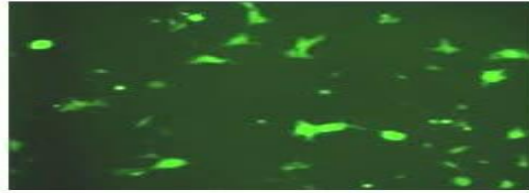
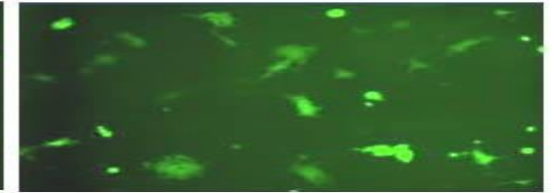
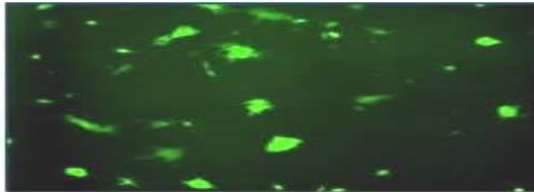
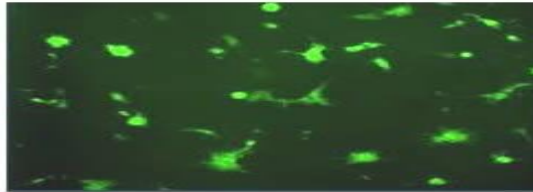
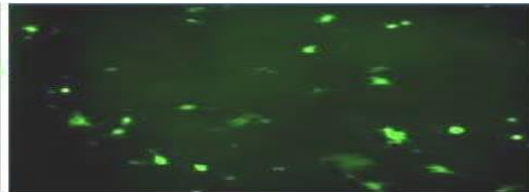
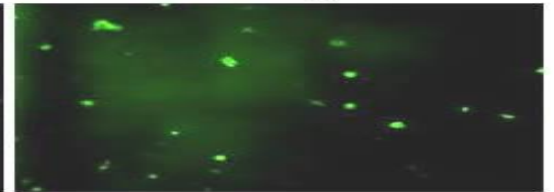
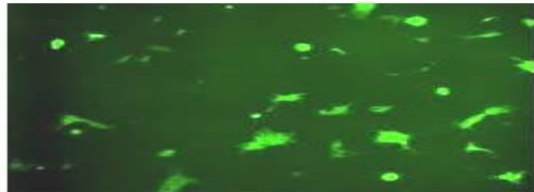
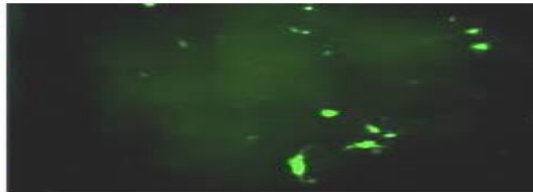
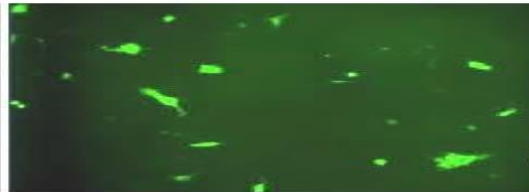
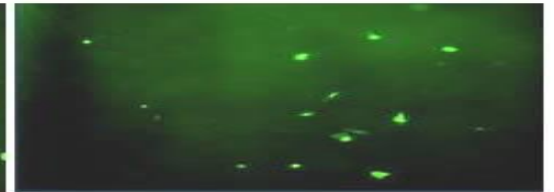
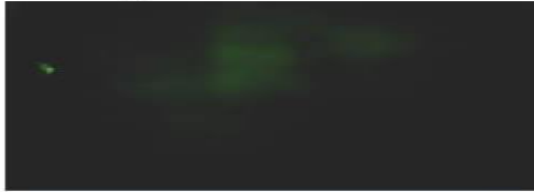


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Data sources: AI outbreaks: OIE, FAO and Government sources. Poultry Density: FAO-AGA; Lakes and Rivers: Global Lakes and Wetlands Database (GLWD-3), UNEP/GRID (Data provider: WWF).

Background: Coronaviruses

- Coronaviruses are a large family of viruses that cause respiratory illnesses
- Named for the crown-like spikes on surface
 - 4 subgroupings (alpha, beta, gamma, delta)
- Some cause cold-like illnesses in people, while others cause illness in certain types of animals, such as cattle, camels, and bats
- Some coronaviruses, such as canine and feline coronaviruses, infect only animals and do not infect humans
- SARS and MERS are examples of zoonotic diseases caused by coronaviruses that originated in animals and spread to people



Human**Chinchilla****Rabbit****Rat****Chicken****Turkey****Horse****Pig****Water Buffalo****Cattle****Goat****Sheep****Pangolin****Cat****Civet****Dog****Ferret****Little Brown bat****Fruit bat****Horseshoe bat****pDISPLAY**

angiotensin-converting enzyme 2 (ACE2); binding site shows a between-species variation

CDC's COVID-19 One Health Working Group

- Established at the start of the CDC COVID-19 response
- Addressing issues at the interface of human health, animal health, and environment in US and globally
 - One Health Coordination, Collaboration, and Communication
 - Epidemiology (Surveillance and Laboratory)
 - Research and Science
 - Veterinary Public Health
 - Consultations
 - Policy and Partnerships
- Uniform Messaging



Animal health

- Companion Animals
 - Pets
 - Shelters

USDA
USGS, USFWS
CDC
- Wildlife and Zoo Animals

State Animal Health Officials
State Wildlife Officials
State Public Health Officials
- Livestock
 - Farmers

State Public Health Officials
- Food Processing

American Veterinary Medical Association
- Animal Diagnostics/Testing

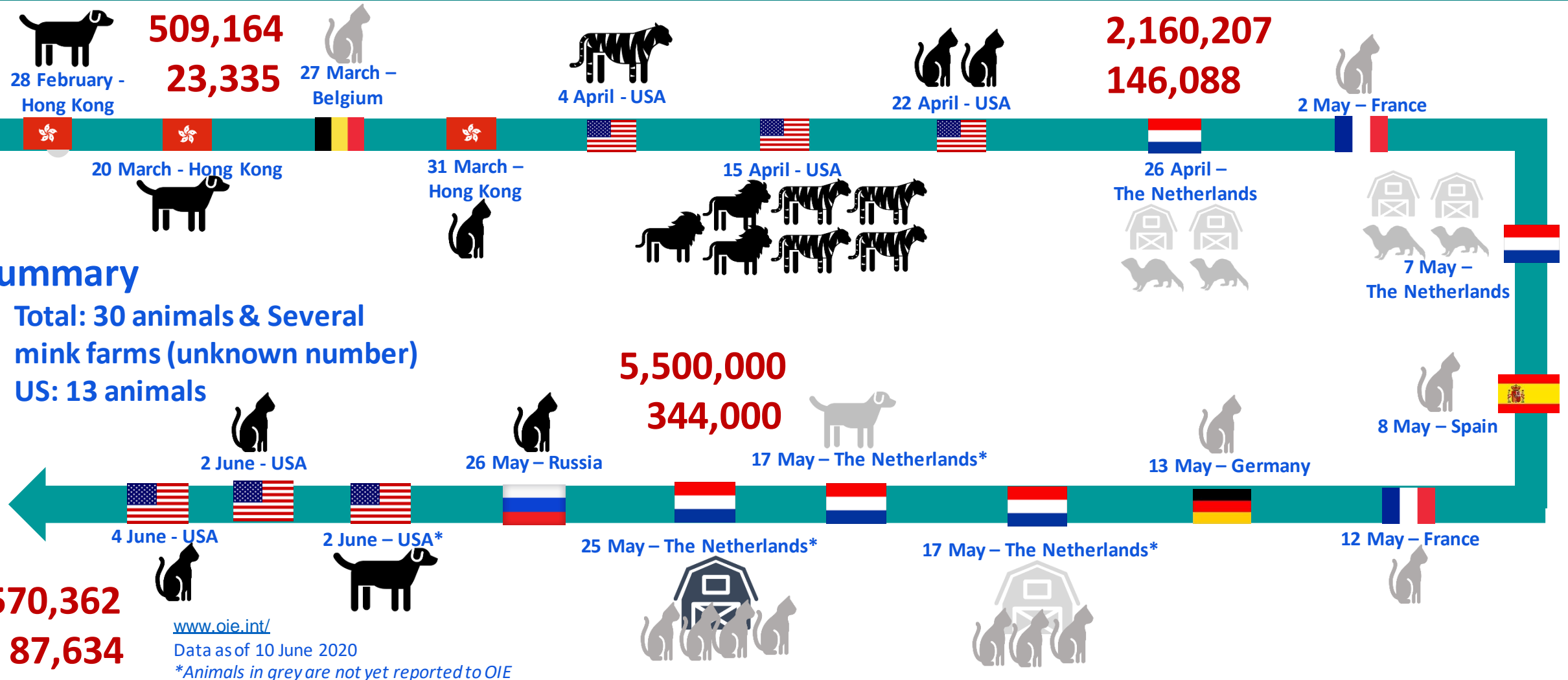
American Association of Zoo Veterinarians

Expected Clinical Signs of SARS-CoV-2 in Animals

- Fever
- Coughing
- Difficulty breathing or shortness of breath
- Lethargy
- Sneezing
- Nasal discharge
- Ocular discharge
- Vomiting
- Diarrhea



Animals positive for SARS-CoV-2 globally reported



COVID-19 Key Messages: Pets

- A small number of pets worldwide, including cats and dogs, have been reported to be infected with the virus that causes COVID-19, mostly after close contact with people with COVID-19.
- Based on the limited information available to date, the risk of animals spreading COVID-19 to people is considered to be low.
- It appears that the virus that causes COVID-19 can spread from people to animals in some situations.
- Treat pets as you would other human family members – do not let pets interact with people outside the household.
- If a person inside the household becomes sick, isolate that person from everyone else, including pets.

One Health Responses following “Crisis-Emergency Risk Communication” Principles

Six Principles of CERC

Fully integrated CERC helps ensure that limited resources are managed well and can do the most good at every phase of an emergency.

- 1**  **Be First:**
Crises are time-sensitive. Communicating information quickly is crucial. For members of the public, the first source of information often becomes the preferred source.
- 2**  **Be Right:**
Accuracy establishes credibility. Information can include what is known, what is not known, and what is being done to fill in the gaps.
- 3**  **Be Credible:**
Honesty and truthfulness should not be compromised during crises.
- 4**  **Express Empathy:**
Crises create harm, and the suffering should be acknowledged in words. Addressing what people are feeling, and the challenges they face, builds trust and rapport.
- 5**  **Promote Action:**
Giving people meaningful things to do calms anxiety, helps restore order, and promotes some sense of control.³
- 6**  **Show Respect:**
Respectful communication is particularly important when people feel vulnerable. Respectful communication promotes cooperation and rapport.