

NIAID Influenza Programs and Data Sharing

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Vaccines



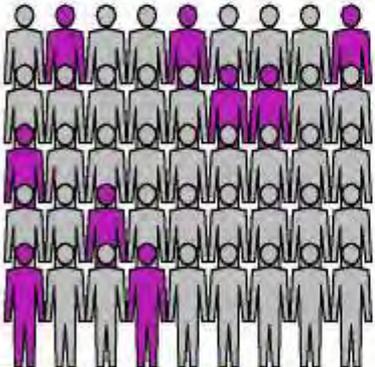
Therapeutics



Diagnostics



**NIAID
Influenza
Research**



**Surveillance
and
Epidemiology**



Basic Research



**Field and
Clinical Research**

Data Sharing Guiding Principles

- Commit to data sharing with timely (rapid) publicly release of data into international databases
- Implement guidelines fairly and consistently
- Partner with NCBI
- Commit to working with scientific community
- Acknowledge data generators
- Promote fair use of pre-publication data
- Review and update policies
- Sharing includes research resources such as reagents, organisms, bioinformatic tools & information

Data Release Guidelines/Policy

- **Sequence and Genomics Data:**
 - Pre-publication data release into GenBank, dbSNP, and international databases 45 days from generation.
- **Surveillance, Phenotypic and Meta Data:**
 - Release with sequence when possible; some data 9-12 month embargo
- **Other “Omics” and related data:**
 - Pre-publication data release in 6-12 months from generation
- **Sharing information with animal & human health authorities ahead of public release**
 - Use for instituting disease prevention and control measures
 - In place data reporting requirements and reporting plans

NIAID Influenza Genome Sequencing Project

Any Investigator can submit a white paper to have full genome sequencing done on viruses

Strain Selection ↓ *Sample Preparation*

**Viruses sequenced
by JCVI**

**Data Released to Public
Databases 45 days after generation
GenBank/IRD**

Data Sharing through the Genome Sequencing Project

- Data is rapidly and freely available
- Full genomic sequences of thousands of viruses has been released to the public
- Now incorporating metadata about samples
- Challenges:
 - Requests coming in
 - Investigator concerns regarding publications
 - Data coming out one virus at a time
- Future:
 - Data will be released 45 days after generation
 - Additional options for data release

NIAID Centers of Excellence for Influenza Research and Surveillance (CEIRS)



PI – Dr. Michael Osterholm
University of Minnesota
Minneapolis, MN

MCEIRS



PI – Dr. John Treanor
University of Rochester
Rochester, NY

NYICE



PI – Dr. Adolfo Garcia-Sastre
Mt. Sinai School of Medicine
New York, NY

CRIP



PI – Dr. Richard Webby
St. Jude Children's Research
Hospital
Memphis, TN

SJCEIRS



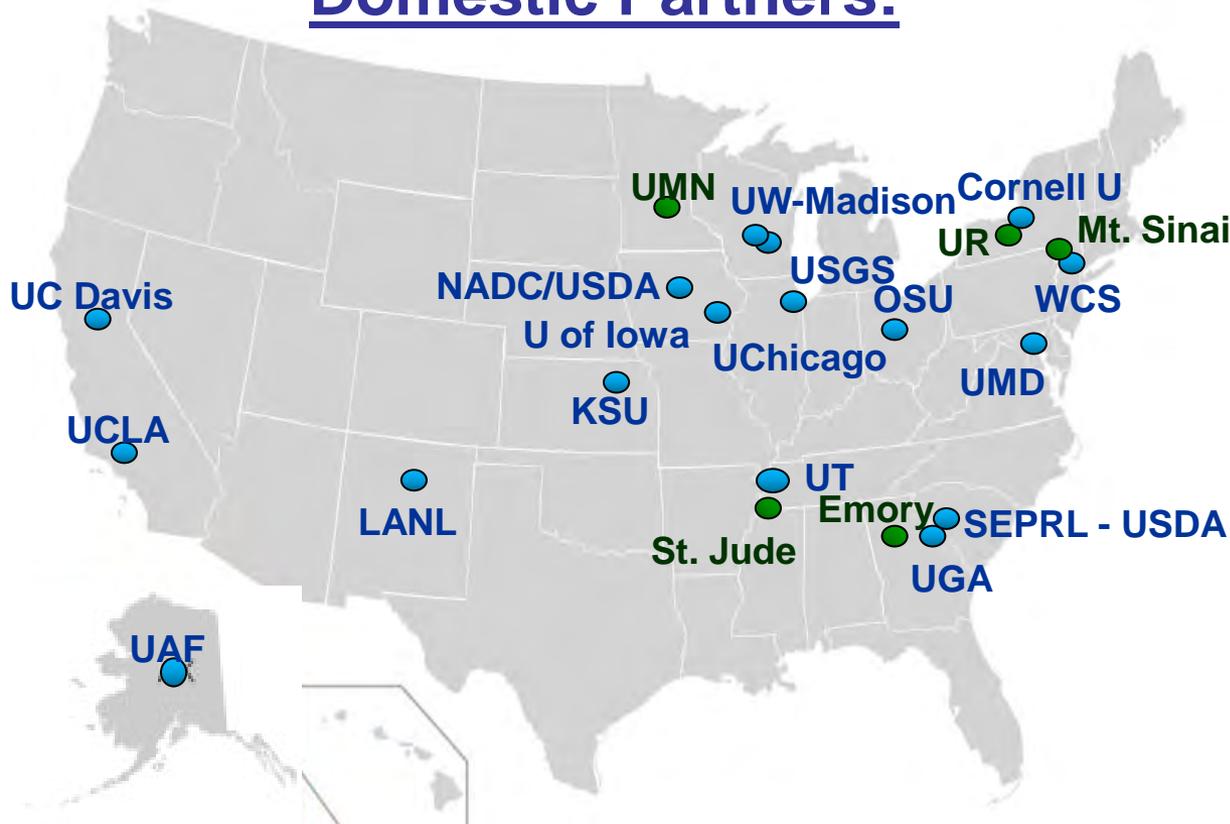
PI - Dr. Richard Compans
Emory University
Atlanta, GA

IPIRC



NIAID CEIRS Network

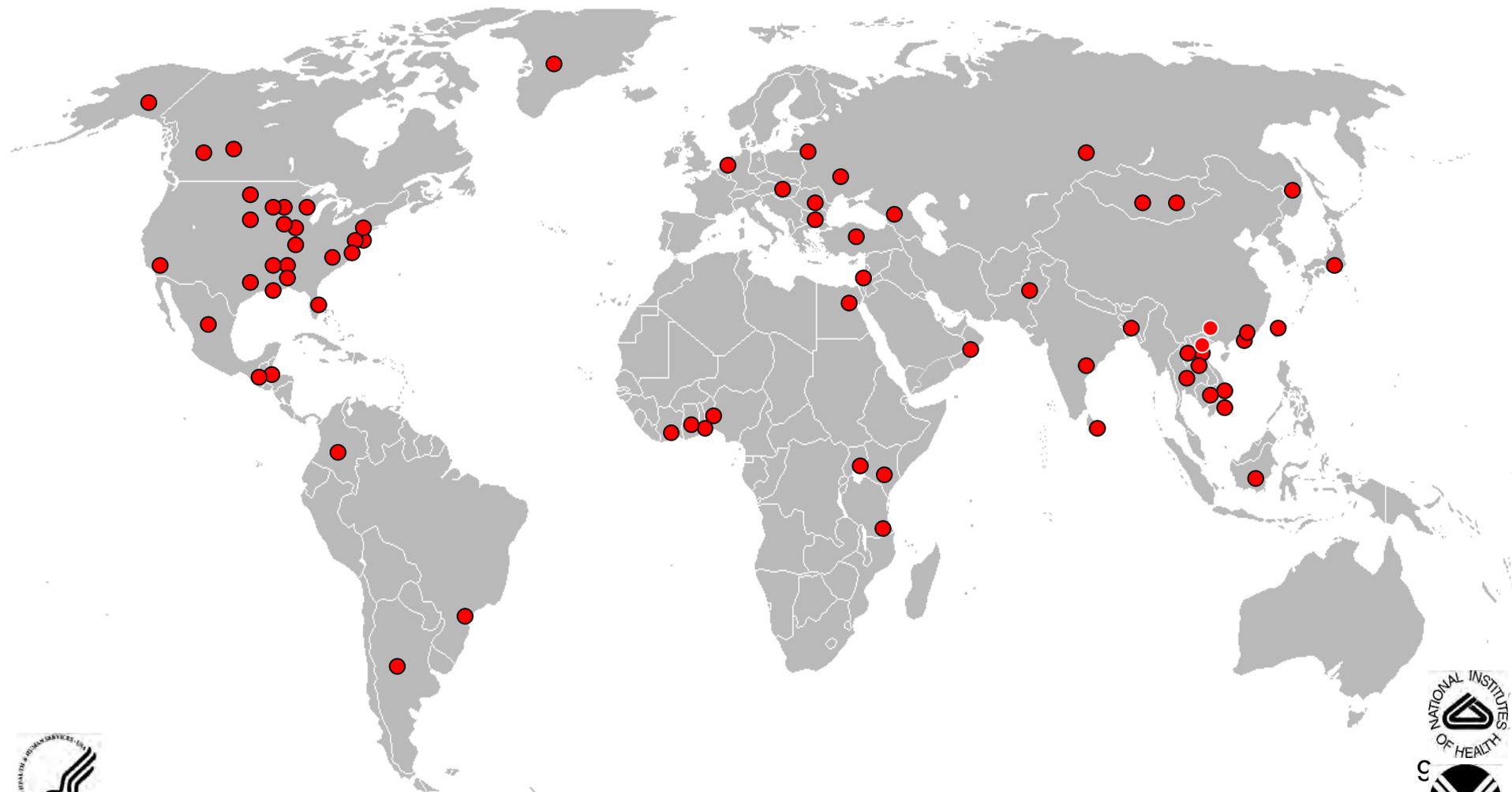
Domestic Partners:



International Partners:

- Hong Kong University
- National Research Centre (Egypt)
- National University of Singapore
- National Taiwan University
- Chulalongkorn University
- The Kenya Medical Research Institute
- Erasmus Medical College (Netherlands)

NIAID CEIRS Surveillance Sites (2009-2010)



NIAID CEIRS: Overview of program

Animal Influenza Surveillance

- Sustained active surveillance
 - Domestic & international; animal reservoirs
- Natural history studies – viral evolution
- Interspecies transmission
- Detection of emerging pathogens

Pathogenesis and Host Responses

- Role of immune response in protection and disease
- Structure/function
- Molecular Markers/mechanisms
 - Transmission, adaptation & pathogenicity

Reagent development, Training, Lab capacity building & emergency response

CEIRS Reagent Sharing



**Reagents generated under contract:
Viruses, sera, mAbs, peptides**

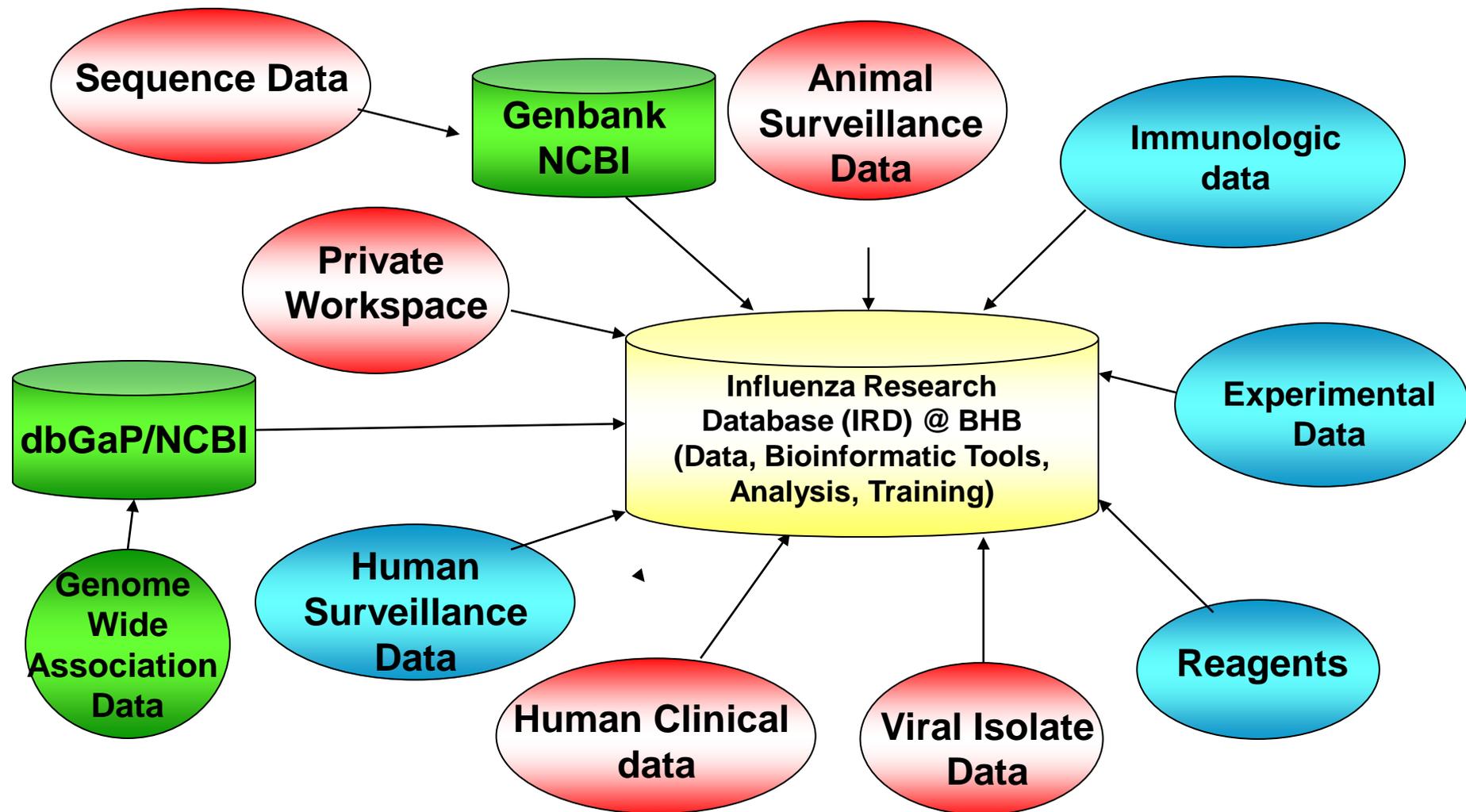
**Investigators can
request reagents
from NIAID or from
CEIRS PI directly**



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(ATCC)

CEIRS Data Sharing

- Data and information generated by CEIRS & other NIAID funded research will be an extremely valuable research **resource** for the scientific community
 - Data generated under the CEIRS will be **freely** available to the scientific community
- **Incentives:**
 - Funding
 - Working with investigators
 - Capacity building
 - Training
- **Challenges:**
 - Cost
 - Logistics/data collection in field
 - Publication concerns
 - Where to put the data



CEIRS Surveillance Data in IRD

Avian

109,861 avian surveillance records

96,367 tested for flu (88%)

4477 flu positive (4.1%)

Non-human mammalian

2,048 non-human mammalian surveillance records

seals, sea lion, bats, domestic cat (~70%),

bobcat, domestic pig (4)

2,008 tested for flu (98%)

15 flu positive (0.7%)

Surveillance Record

Surveillance Host Record Details

Collection Information

[View on Map](#)[Show Records at Location](#)

Collection:	MCEIRS
Collector Name:	David Stallknecht
Collector Institution:	University of Georgia
Collection Date:	09/15/2007
Reason For Collection:	Active Surveillance (e.g. trap); sampling not initiated by an outbreak; live capture
City:	Cameron Co.
State/Province:	Louisiana
Country:	USA
Latitude:	29.9704
Longitude:	-93.360297

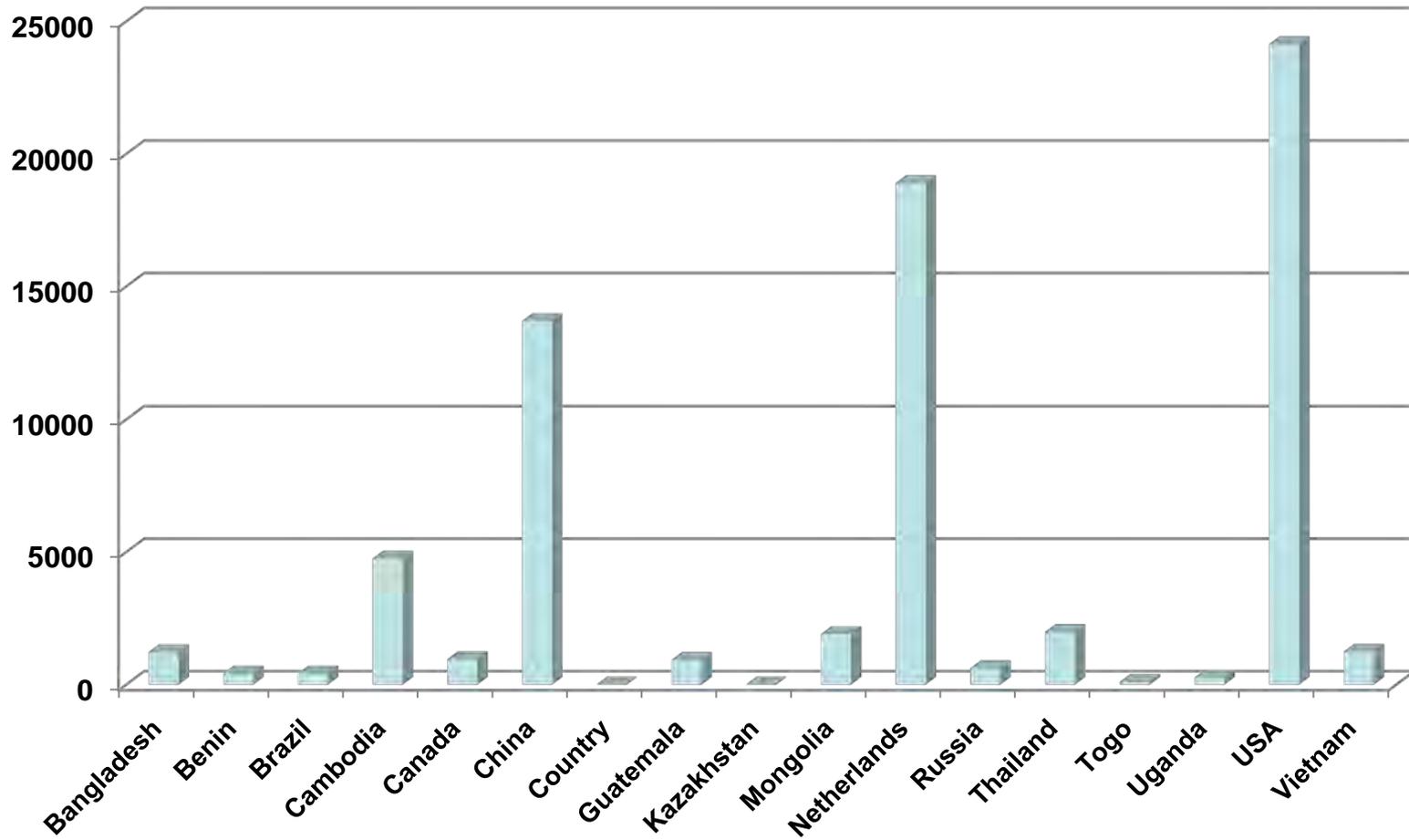
Host Information

Host Identifier:	UMN023:UMN:AI07-5825
Common Name:	Blue-Winged Teal
Scientific Name:	Anas discors
Bird Behavior:	Wild
Age Class:	Hatch Year
Health:	Undetermined
Order:	Anseriformes
Family:	Anatidae

Sample Information

Sample Identifier	Sample Material	Positive for Flu	Virus Type	Subtype	Strain Name	IRD Sample Accession
AI07-5825	Cloacal	Positive	A	H3N8	A/blue-winged teal/Louisiana/Sg-00224/2007(H3N8)	IRD_UMN000032703

Surveillance Data in IRD



Data Release Challenges & Future Directions

- Standards generated took time
- Building the database took time
- Ability to publish data
- Acknowledgement by users of the data
- IRD Database
 - Confidentiality for human studies
 - Development of tools for data analysis
 - Fully public
 - Connection with other databases