National Institute of Allergy and Infectious Diseases

3rd Annual CEIRS Network Meeting

June 23-25, 2009

UNIVERSITY OF MINNESOTA
Radisson University Hotel–Minneapolis
615 Washington Avenue SE, Minneapolis, Minnesota

Web link: http://www3.niaid.nih.gov/research/resources/ceirs/
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June 22, 2009

Dear Colleague,

On behalf of the influenza program at the National Institutes of Health/National Institute of Allergy and Infectious Disease (NIH/NIAID/DMID) and the Minnesota Center of Excellence for Influenza Research and Surveillance (MCEIRS), welcome to the Third Annual NIH/NIAID Centers of Excellence for Influenza Research and Surveillance (CEIRS) Network Meeting at the University of Minnesota. This meeting brings together representatives of the CEIRS network, including research scientists, public health experts, government representatives, wildlife biologists and veterinarians from all over the world to exchange and discuss critical scientific information on influenza virus infection in animals in humans. The meeting will address urgent global issues pertaining to the current pandemic of novel influenza H1N1 and the current status of H5N1 infection in animals and humans. It also will focus on progress made on the basic biology of influenza viruses, emerging scientific questions and future directions of the multiyear collaborative CEIRS contracts at Emory University, Mount Sinai School of Medicine, St. Jude Children’s Research Hospital, the University of Minnesota, the University of California at Los Angeles, and the University of Rochester.

In the short span of the past year since the second annual CEIRS network meeting hosted at St. Jude Children’s Research Hospital, the unexpected that we so often talk about with regard to influenza viruses has happened; a pandemic originating in the Americas and caused by a novel H1N1 virus. This year's CEIRS network meeting comes at a challenging time as many of us are actively pursuing research efforts of H1N1 infection that was not even considered just two months ago. At the same time, we are maintaining active research portfolios involving many of the other strains of influenza virus infection in both animals and humans.

We are pleased to once again interact with the United States Department of Agriculture's AICAP network, the annual meeting of which will be held on June 21st at the University of Minnesota. We would like to thank Dr. Daniel Perez for his efforts to coordinate the two meetings.

We look forward to a wide range of presentations that will engage us in energizing and critical discussion on influenza in animal and human populations. If we’ve learned anything, it is that all influenza viruses are on the table. This meeting will enable professionals to exchange research data and ideas, while building ties with colleagues worldwide. Thank you for participating.

Sincerely,

Diane Post, PhD  
DMID/NIAID Project Officer

Michael Osterholm, PhD, MPH  
MCEIRS PI/Director
DIRECTIONS

Radisson University Hotel–Minneapolis on the East Bank of the UMN Twin Cities Campus
615 Washington Ave SE, Minneapolis, Minnesota 55414
http://www.radisson.com/minneapolis_metrodome

UMN Raptor Center, 1920 Fitch Ave., St. Paul, MN 55108
St. Paul Campus
http://www.raptor.cvm.umn.edu/
Radisson University Hotel—Minneapolis

**FLOOR PLAN FOR MEETING ROOMS, 2ND FLOOR**

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
</table>
| A, B, C, D | **University Ballroom**  
- CEIRS presentations 6/23-6/25 |
| Ballroom Lobby |  
- CEIRS Meeting Registration |
| E | **Faculty Room**  
- Poster Session, 6/23 and 6/24 |
| G | **Alumni Room**  
- Breakout, 6/23: Bird surveillance and epidemiologic coordination  
- Breakout, 6/24: Immunology: coordination of 2009 H1N1 activities |
| H | **Regents Room**  
- Breakout, 6/23: Human and other mammalian surveillance (including 2009 H1N1)  
- Breakout, 6/24: Next generation sequencing for influenza viruses |
| I | **Presidents Room**  
- Breakout, 6/23: BioHealthBase demonstration  
- Breakout, 6/24: BioHealthBase demonstration |
| L | **Nolte Room**  
- Breakout, 6/23: 2009 H1N1 animal/experimental coordination  
- Breakout, 6/24: Surveillance sampling and cross center testing |
| P | **Hubert H. Humphrey Ballroom**  
- AICAP Presentations, Monday, 6/22  
- CEIRS Lunch 6/23, 6/24, and 6/25  
- Keynote Dinner, Tuesday, 6/23 |
# PROGRAM SUMMARY

**5th Annual AI CAP Meeting & 3rd Annual CEIRS Network Meeting**  
University of Minnesota, Radisson University Hotel, 2nd floor meeting rooms

| Monday, June 22 | 5th Annual AI CAP meeting | 8:15-8:30 pm  
Humphrey Ballroom  

Tour of UMN Raptor Center, St Paul campus (open house) | 5:00-8:30 pm  
Board buses at Radisson Hotel front entrance |
| --- | --- | --- |
| Tuesday, June 23 | 3rd Annual CEIRS Network Meeting | 7:30 am Breakfast, Sign-in  
8:30 am Welcome  
University Ballroom  

Session 1: **2009 H1N1 Outbreak Response**  
Lunch  
H1N1, the Media and You  
Joanne Silberner, NPR | 8:45–11:20 am  
University Ballroom  

11:20–12:30 pm  
Humphrey Ballroom  

Session 2: **Current 2009 H1N1 Studies**  
Breakout Sessions | 12:30–2:20 pm  
University Ballroom  

2:20–3:30 pm  
Alumni, Regents, Presidents, and Nolte Rooms  

Q&A with NIAID Program and Contract Staff | 3:30–3:50 pm  
Presidents Room  

Session 3: **Global H5N1 Studies**  
Poster Session | 3:50–5:05 pm  
University Ballroom  

5:05–6:30 pm  
Faculty Room  

**Keynote Dinner**  
Robert Webster, St Jude | 6:30 pm  
Humphrey Ballroom  

Wednesday, June 24 | 3rd Annual CEIRS Network Meeting | 7:30 am Breakfast  
8:25 am Introduction  
University Ballroom  

Session 4: **Ecological Issues in Wild Bird Surveillance**  
Break | 8:35–10:30 am  
University Ballroom  

10:30–10:50 am |
| Session 5: **Antigenic and Genetic Characterizations of Influenza Viruses**  
Lunch  
BioHealthBase Update | 10:50–12:00 pm  
University Ballroom  

12:00–1:15 pm  
Humphrey Ballroom  

1:15–2:15 pm  
University Ballroom  

Session 5, continued |
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>2:15–3:15 pm</td>
<td>Breakout Sessions</td>
</tr>
<tr>
<td>3:15–3:35 pm</td>
<td>Q&amp;A with NIAID Program and Contract Staff</td>
</tr>
<tr>
<td>3:35-5:10 pm</td>
<td>Session 6: <strong>Influenza Viral Transmission in Animal Models</strong></td>
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<tr>
<td>5:15-6:00 pm</td>
<td>Poster Session</td>
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<tr>
<td>6 pm</td>
<td><strong>Dinner cruise on Lake Minnetonka</strong></td>
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### Thursday, June 25

**3rd Annual CEIRS Network Meeting**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
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<tbody>
<tr>
<td>7:30 am</td>
<td>Breakfast</td>
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<tr>
<td>8:25 am</td>
<td>Introduction</td>
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<tr>
<td>8:35-10:00 am</td>
<td>Session 7: <strong>Influenza Receptor Binding and Fusion</strong></td>
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<tr>
<td>10:00 am - 12:25 pm</td>
<td>Session 8: <strong>Influenza Pathogenesis and Host Responses</strong></td>
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<tr>
<td>12:25-1:25 pm</td>
<td>Lunch</td>
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<td>1:25-3:50 pm</td>
<td>Session 9: <strong>Immune Responses to Influenza Infection &amp; Vaccination</strong></td>
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<tr>
<td>3:50-4:20 pm</td>
<td>Breakout Session Highlights</td>
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<tr>
<td>4:20-4:40 pm</td>
<td>Program Highlights and Concluding Remarks</td>
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<tr>
<td>4:40 pm</td>
<td>Adjourn</td>
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**Additional Scheduled Meetings:**

**CEIRS Data Managers:** Thursday, June 25 (8:35 am - 12:30 pm), Presidents Room

**CEIRS Network Executive Committee:** Wed. June 24, 12-1:15 pm (lunch), Coffman Room
EVENT SCHEDULE

Monday, June 22, 5-8:30 pm
Tour of the University of Minnesota Raptor Center
1920 Fitch Ave., St. Paul, MN 55108
http://www.raptor.cvm.umn.edu/
Buses will run continuously between the Radisson University Hotel, front entrance, and the Raptor Center for this open house between 5 and 8:30 pm. Refreshments and hors d’oeuvres will be served. Pat Redig will give a brief presentation at 6:15 pm.

Tuesday, June 23, 11:20 am to 12:30 pm, Humphrey Ballroom
Lunch
Introduction: Michael Osterholm, University of Minnesota (MCEIRS)
Guest speaker: Joanne Silberner, Health Policy Correspondent, National Public Radio
H1N1, the Media, and You

Tuesday, June 23, 5:05-6:30 pm, Faculty Room
CEIRS Poster Session (cash bar)

Tuesday, June 23, 6:30 pm, Humphrey Ballroom
Dinner with Keynote Speaker: Robert Webster, St Jude Children’s Research Hospital (St Jude CEIRS) (preregistration required)

Wednesday, June 24, 12-1:15 pm, Humphrey Ballroom
Lunch with special 10-minute update on BioHealthBase
Richard Scheuermann, University of Texas Southwestern Medical Center

Wednesday, June 24, 5:15-6:00 pm, Faculty Room
CEIRS Poster Session (cash bar)

Wednesday, June 24, 6:00 pm
Dinner and Boat Cruise on Lake Minnetonka
Load buses at the west side entrance of the Radisson University Hotel (preregistration required).
3rd Annual CEIRS Network Meeting
June 23-25, 2009
University of Minnesota, Radisson University Hotel–Minneapolis
615 Washington Avenue S.E., Minneapolis, Minnesota 55414

AGENDA

Monday, June 22, 5:00 - 8:30 pm
Tour of the University of Minnesota Raptor Center
Buses will run continuously between the Radisson University Hotel, front entrance, and the Raptor Center for this open house between 5 pm and 8:30 pm. Refreshments and hors d’oeuvres will be served. Pat Redig will give a brief presentation at 6:15 pm.

DAY 1 • TUESDAY, JUNE 23, 2009

7:30-8:30 Sign-in material pick-up and breakfast
8:30-8:45 Welcome and introductions
   Michael Osterholm, University of Minnesota (MCEIRS)
   Diane Post, CEIRS Project Officer, RDB/DMID/NIAID/NIH

SESSION #1 – 2009 H1N1 Outbreak Response

Co-Moderators: Nancy Cox and Michael Osterholm

8:45-9:15 Epidemiology of the 2009 H1N1 outbreak
   Nancy Cox, Influenza Division, NCIRD/CDC

9:15-9:45 Research questions to be answered for the 2009 H1N1 virus
   Robert Webster, St. Jude Children’s Research Hospital (St. Jude CEIRS)

9:45-10:15 2009 H1N1 vaccine development
   Robin Robinson, OASPR/DHHS

10:15-10:30 Break

10:30-11:00 H1N1 clinical research response and immunological questions
   John Treanor, University of Rochester (NYICE)
11:00-11:15  Summary and discussion of Session #1

11:20-12:30  Lunch – Humphrey Ballroom
H1N1, the Media and You
Guest Speaker: Joanne Silberman, Health Policy Correspondent, National Public Radio
Introduction: Michael Osterholm

SESSION #2 – Current 2009 H1N1 Studies
Co-Moderators: Irene Glowinski and Diane Post

12:30-12:40  Introduction to the session: current and planned CEIRS studies
Diane Post, RDB/DMID/NIAID/NIH

12:40-1:00  H1N1 animal experimental studies at CRIP
Adolfo Garcia-Sastre, Mt. Sinai School of Medicine (CRIP)

1:00-1:20  Stability of H1N1 in the environment
David Stallknecht, University of Georgia (MCEIRS)

1:20-1:40  H1N1 phylogenetic studies
Gavin Smith, University of Hong Kong (St. Jude CEIRS)

1:40-2:00  Experimental infection of swine with 2009 H1N1
Amy Vincent, USDA (St. Jude CEIRS)

2:00-2:20  Summary and discussion of Session #2

2:20-3:30  BREAKOUT SESSIONS
• Bird surveillance and epidemiologic coordination (Alumni Room) – Chair: David Stallknecht
• Human and other mammalian surveillance, including 2009 H1N1 (Regents Room) – Chair: Richard Webby
• 2009 H1N1 animal/experimental coordination (Nolte Room) – Chair: Ron Fouchier
• BioHealthBase demonstration (Presidents Room) – Chair: Richard Scheuermann

3:30-3:50  Break – Q&A with NIAID Program and Contract Staff (Presidents Room)

SESSION #3 – Global H5N1 Studies
Co-Moderators: Malik Peiris and David Suarez

3:50-4:05  Introduction to the session: current global H5N1 situation
Malik Peiris, University of Hong Kong (St. Jude CEIRS)

4:05-4:25  Multiple introductions, multiple problems: H5N1 in Lao PDR
**David Boltz**, St. Jude Children’s Research Hospital (St. Jude CEIRS)

*4:25-4:45*  
The continuing threat of H5N1 in Thailand  
**Alongkorn Amonsin**, Chulalongkorn University (MCEIRS)

*4:45-5:05*  
Summary and discussion of Session #3

*5:05-6:30*  
**POSTER SESSION** – Faculty Room (*cash bar*)

*6:30*  
*Dinner (Humphrey Ballroom)* - *preregistration required*  
Keynote speaker: **Dr. Robert Webster**, St. Jude Children’s Research Hospital
DAY 2 • WEDNESDAY, JUNE 24, 2009

7:30-8:25  Sign-in, material pick-up and breakfast
8:25-8:35  Welcome and housekeeping

SESSION #4 - Ecological Issues in Wild Bird Surveillance
Co-Moderators: Carol Cardona and David Stallknecht

8:35-8:50  Introduction to the session - questions to be addressed in the field
David Stallknecht, University of Georgia (MCEIRS)

8:50-9:10  AI findings from the Mississippi Flyway
Richard Slemons, Ohio State University (MCEIRS)

9:10-9:30  Characterization of viruses isolated from wild birds in Hong Kong
Justin Bahl, University of Hong Kong (St. Jude CEIRS)

9:30-9:50  Ecological studies on AI in wild birds in Northern Europe
Vincent Munster, Erasmus Medical Center (CRIP)

9:50-10:10 Serologic testing to develop effective strategies for wild bird surveillance
Justin Brown, University of Georgia (MCEIRS)

10:10-10:30 Summary and discussion of Session #4

10:30-10:50 Break

SESSION #5 - Antigenic and Genetic Characterizations of Influenza Viruses
Co-Moderators: Mark Tompkins and Ron Fouchier

10:50-11:00 Introduction to the session - questions to be addressed in the field
Ron Fouchier, Erasmus Medical Center (CRIP)

11:00-11:20 Evidence of interspecies transmission of triple reassortant H3N2 swine influenza virus to waterfowl
Srinand Sreevatsan, University of Minnesota (MCEIRS)

11:20-11:40 Molecular characterization of human and animal recombinant influenza A viruses originating from 1956-2007
Emmie de Wit, Erasmus Medical Center (CRIP)

11:40-12:00 Continuing endemic and evolution of H5N1 influenza virus in southern China: persistent pandemic threat
Guan Yi, University of Hong Kong (St. Jude CEIRS)

12:00-1:15 Lunch (Humphrey Ballroom)
Special 10-minute update: newest features of BioHealthBase
Richard Scheuermann, University of Texas Southwestern Medical Center
CEIRS Network Executive Committee Working Lunch

1:15-1:35  Molecular basis for antigenic variation of H5 viruses
           Ron Fouchier, Erasmus Medical College (CRIP)

1:35-1:55  Mapping the antigenic drift of H5N1 influenza viruses using panel of monoclonal antibodies - implications for selecting vaccine candidates for pandemic influenza
           Honglin Chen, University of Hong Kong (St. Jude CEIRS)

1:55-2:15  Summary and discussion of Session #5

2:15-3:15  BREAKOUT SESSIONS
           ▪ Next generation sequencing for influenza viruses (Regents Room) - Chair: Maria Giovanni
           ▪ Immunology: coordination of 2009 H1N1 activities (Alumni Room) - Chair: David Topham
           ▪ Surveillance sampling and cross-center testing (Nolte Room) - Chair: Carol Cardona
           ▪ BioHealthBase demonstration (Presidents Room) - Chair: Richard Scheuermann

3:15-3:35  Break - Q&A with NIAID Program and Contract Staff (Presidents Room)

SESSION #6 - Influenza Viral Transmission in Animal Models

Co-Moderators: Robert Webster and Peter Palese

3:35-3:45  Introduction to the session - questions to be addressed in the field
           Peter Palese, Mt. Sinai School of Medicine (CRIP)

3:45-4:05  Molecular constraints in the interspecies transmission of H9N2 influenza
           Daniel Perez, University of Maryland, College Park (CRIP)

4:05-4:25  Interspecies transmissibility of H5 AI virus strains and surveillance in feral cats
           Mark Tompkins, University of Georgia (IPIRC)

4:25-4:45  Blocking transmission of influenza viruses by vaccines or antivirals in the guinea pig system
           Anice Lowen, Mt. Sinai School of Medicine (CRIP)

4:45-5:10  Summary and discussion of Session #6

5:15-6:00  POSTER SESSION - Faculty Room (cash bar)

6:00 pm    Board buses from the Radisson west door for the dinner cruise on Lake Minnetonka (preregistration required)

6:15 pm    Buses depart for dinner cruise on Lake Minnetonka
DAY 3 • THURSDAY, JUNE 25, 2009

7:30-8:25  Breakfast
8:25-8:35  Welcome and housekeeping
8:35-12:30 Concurrent data manager breakout session

SESSION #7 – Influenza Receptor Binding and Fusion
Co-Moderators: Richard Compans and Charles Russell

8:35-8:45  Introduction to the session - questions to be addressed in the field
Richard Compans, Emory University (IPIRC)

8:45-9:05  HA activation by host cell proteases
Gary Whittaker, Cornell University (NYICE)

9:05-9:25  Changes in H5N1 influenza virus hemagglutinin receptor binding domain affect systemic spread in mice
Hui-Ling Yen, University of Hong Kong (St. Jude CEIRS)

9:25-9:45  Receptor binding and membrane fusion of HA
David Steinhauer, Emory University (IPIRC)

9:45-10:00  Summary and discussion of Session #7

SESSION #8 – Influenza Pathogenesis and Host Responses
Co-Moderators: Richard Webby and Adolfo Garcia-Sastre

10:00-10:10  Introduction to the session - questions to be addressed in the field
Adolfo Garcia-Sastre, Mt. Sinai School of Medicine (CRIP)

10:10-10:30  Coexistence of oseltamivir-sensitive and resistant H5N1 influenza viruses in a ferret model
Elena Govorkova, St. Jude Children’s Research Hospital (St. Jude CEIRS)

10:30-10:50  Break

10:50-11:10  Role of polymerase in host adaptation of influenza A viruses
Toru Takimoto, University of Rochester (NYICE)

11:10-11:30  Influenza A virus NS1 targets the ubiquitin ligase TRIM25 to evade recognition by RIG-I
Randy Albrecht, Mt. Sinai School of Medicine (CRIP)

11:30-11:50  Comparing host responses to H5N1 and seasonal influenza viruses in vitro
Malik Peiris, University of Hong Kong
SESSION #9 - Immune Responses to Influenza Infection and Vaccination

Co-Moderators: David Topham and Paul Thomas

1:25-1:35 Introduction to the session - questions to be addressed in the field
David Topham, University of Rochester (NYICE)

1:35-1:55 B-cell responses to H5N1 vaccine
Jens Wrammert, Emory University (IPIRC)

1:55-2:15 Activation of human dendritic cells by influenza virus with different receptor specificities: a new viral recognition strategy by immune cells?
Ana Fernandez-Sesma, Mt. Sinai School of Medicine (CRIP)

2:15-2:35 Redemption from original antigenic sin
Joshy Jacob, Emory University (IPIRC)

2:35-2:55 Break

2:55-3:15 Specificity of HLA-DR1-restricted CD4 T cells elicited in the primary response to infection with a vaccine strain of H1N1 influenza
Andrea Sant, University of Rochester (NYICE)

3:15-3:35 TNF/iNOS-producing dendritic cells—the necessary evil of lethal influenza virus infection
Jerry Aldridge, St. Jude Children’s Research Hospital (St. Jude CEIRS)

3:35-3:50 Summary and discussion of Session #9

3:50-4:20 Breakout session highlights

4:20-4:40 Program highlights and concluding remarks
Michael Osterholm, University of Minnesota (MCEIRS)
Diane Post, RDB/DMID/NIAID/NIH

4:40 Adjourn
BREAKOUT SESSION AGENDA

Bird Surveillance and Epidemiologic Coordination
Chair: David Stallknecht, University of Georgia
Tuesday, June 23, 2:20-3:30 pm
Alumni Room

Maintaining and maximizing relevance
Primary objectives of the surveillance efforts are to:

a) Obtain representative type-A influenza viruses to support experimental and genomic sequencing efforts;

b) Provide field data to better define the epidemiology and natural history of these viruses; and

c) Provide field data to better understand the risk of transmission across animal and animal/human interfaces.

Field isolates
- Are the numbers of isolates being obtained from birds adequate to clearly define the avian reservoirs?
- How do we decide which isolates to sequence?
- Is global coverage adequate?
- Are isolates from captive/domestic birds adequately represented?

Epidemiology and natural history
- Are the minimum data fields adequate for these studies?
- Do we need a detailed “site description” for our study sites (wild, captive, and domestic)?
- What are the most important gaps in our understanding of the natural history?
- What are the most important gaps in our understanding of the bird/domestic animal/human interface?
- What do we need to evaluate to improve surveillance efficiency?

Risk: predictive value
- Can we effectively map expected AIV prevalence in wild birds with what we know NOW?
- Can effective risk maps based on wild bird/domestic animal interfaces be made NOW?
- What additional information do we need to define risk?

Coordination and collaboration (between Centers)
- Can any or all of the above be improved through some collaborative efforts (which ones)?
- Do we need to officially “organize” this into some larger projects?
- Are there other types of studies that are needed (e.g., pathogenesis) to improve perspective on any or all of the above?
BREAKOUT SESSION AGENDA

Next Generation Sequencing for Influenza Viruses: Lessons Learned and Strategies for the Future
Chair: Maria Giovanni, NIAID
Wednesday, June 24, 2:15-3:15 pm
Regents Room

2:15 pm Welcome and Overview: NIAID Influenza Genome Sequencing Project
5-10 min Maria Y. Giovanni, PhD, NIAID

2:25 pm 454 Sequencing Influenza Viruses
10 min Srinand Sreevatsan, PhD, University of Minnesota

2:35 pm 454 Sequencing Influenza Viruses
10 min David Spiro, PhD, J. Craig Venter Institute

2:45 pm Next Generation Sequencing for Viruses
10 min Niall Lennon, PhD, The Broad Institute

2:55 pm Panel Discussion/Questions and Answers
20 min

3:15 pm Adjournment
## BREAKOUT SESSION AGENDA

### Meeting of the CEIRS Data Managers

**Chair:** Valentina Di Francesco, NIAID  
**Thursday, June 25, 8:30am - 12:30pm**  
**Presidents Room**

**8:30am-10:30am**  
**Presentations from all CEIRS - Focus on best practices for data handling and data processing workflows**

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>8:30am-8:50am</td>
<td>Julie Ostrowsky and Alain Duchene (MCEIRS)</td>
</tr>
<tr>
<td>8:50am-9:10am</td>
<td>Jerry Parker (St. Jude) “Submission of surveillance data to BHB”. The talk will focus on current submission practices and the need for planning for future submission practices.</td>
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<tr>
<td>9:10am-9:30am</td>
<td>Jingming Ma (Rochester)</td>
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<td>9:30am-9:50am</td>
<td>Eric Bortz (Mt. Sinai)</td>
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<tr>
<td>9:50am-10:10am</td>
<td>Andi Plotsky (Emory)</td>
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<tr>
<td>10:10-10:30am</td>
<td>Discussion</td>
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**10:30am-10:50am**  
**Break**

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<thead>
<tr>
<th>Time</th>
<th>Presentation/Discussion</th>
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<tr>
<td>10:50am-11:00am</td>
<td>Eric Bortz (Mt Sinai): “Passage Nomenclature”</td>
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<tr>
<td>11:00am-11:30am</td>
<td>BHB “Prototype interface to upload virus characterization data into BHB”</td>
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<tr>
<td>11:30am-12:00pm</td>
<td>Discussion, next steps and closing remarks</td>
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CEIRS CENTER OVERVIEWS

St. Jude Center of Excellence for Influenza Research and Surveillance
Lead Institution: St. Jude Children’s Research Hospital
PI: Robert Webster, PhD

The overarching goals of the Center of Excellence for Influenza Research and Surveillance (CEIRS) at St. Jude Children’s Research Hospital and its subcontract partners (Hong Kong U, Kansas State, NADC, USDA, NRC Egypt) is to be prepared to detect and control the emergence of novel influenza viruses that are a threat to both the human and animal populations of the world. While the focus has been on continued evolution of the highly pathogenic Asian H5N1 virus in Asia, our aim is to have a global network for early detection of all influenza viruses. Thus, our current focus is on the newly emerged H1N1 virus of swine lineage. Currently, St. Jude CEIRS animal surveillance spans to more than a dozen countries and multiple U.S. States. In addition, St. Jude also monitors pediatric populations for flu activity and maintain a surveillance component to monitor for evidence of the reemergence of the severe acute respiratory syndrome (SARS). Our research is aimed at: indentifying viral markers that may indicate how a virus becomes deadly, adapts and transmits infection; uncovering immune system mechanisms that protect against the H1N1 avian flu virus; and indentifying the factors that make animals and people susceptible to flu virus infection. On the practical level we continue to prepare reagents for research and vaccine standardization as well as characterizing the susceptibility of all emerging viruses to the current and future anti-viral strategies. In response to the continuing evolution of influenza viruses and St. Jude’s position as one of five World Health Organization Collaborating Centers, efforts continue to prepare seed stocks suitable for vaccines for human and lower animals.

New York Influenza Center of Excellence (NYICE)
Lead Institution: University of Rochester
PI: John Treanor, MD

The New York Influenza Center of Excellence (NYICE) is one of six Centers of Excellence in Influenza Research and Surveillance (CEIRS) funded by the NIH in April 2007. Research activities of NYICE are focused on studies of the pathogenesis and host response of avian and human influenza viruses. Three projects provide a comprehensive assessment of the immune response to influenza in humans and in animal models, and attempt to identify cross-reactive responses that might provide the theoretical underpinnings for broadly protective vaccines. Two other projects evaluate the mechanisms of host range specific replication for influenza viruses by assessing the structural differences in the hemagglutinin and polymerase protein complexes that impact replication efficiency in avian and mammalian cell culture and animal models. These projects are supported by a clinical core that organizes and carries out studies of the response to infection and vaccination in selected human populations. A sample handling core organizes, stores, and distributes samples collected in these clinical studies, and a data management core provides a web-based solution for data storage and data sharing.
Center for Research on Influenza Pathogenesis (CRIP)
Lead Institution: Mount Sinai School of Medicine
PI: Adolfo García-Sastre, PhD
CRIP received funding from the National Institute of Allergy and Infectious Diseases as one of six NIAID Centers of Excellence for Influenza Research and Surveillance (CEIRS). CRIP is dedicated to understanding influenza by conducting novel collaborative research into virus pathogenesis, host restriction, transmission, evolution and host adaptation, interactions between influenza virus proteins and gene segments, evasion of immunity, and induction of host responses. Through this research program, scientists at CRIP will promote better understanding of the host range of influenza viruses and the molecular and immunological factors leading to pandemic flu. Led by Principal Investigator, Dr. Adolfo García-Sastre, CRIP is comprised of individual project leaders, Dr. Peter Palese, Mount Sinai School of Medicine; Dr. Ron Fouchier, Erasmus Medical Center (The Netherlands); Dr. Daniel Perez, University of Maryland; and Dr. Yoshi Kawaoka, University of Wisconsin–Madison. Dr. García-Sastre leads Project 1 – “Contribution of NS1 to Pathogenicity and Evasion of Innate Immunity.” Dr. Palese leads Project 2 – “Pathogenicity Factors Encoded by the Influenza Virus Polymerase Genes.” Dr. Fouchier leads Project 3 – “Pandemic flu; Host Adaptation of Influenza A Virus.” Dr. Perez leads Project 4 – “Molecular Determinants of Adaptation of Influenza Viruses to Domestic Birds and their Effect on Interspecies Transmission.” CRIP also has a pilot program research component over 6 years for 4 individual pilot projects. Dr. Ana Fernandez-Sesma leads the first project, “Activation of Human Dendritic Cells by Influenza Virus with Different Receptor Specificities: A New Viral Recognition Strategy by Immune Cells?” CRIP is also engaged in avian influenza surveillance. In order to coordinate surveillance and research activities associated with surveillance, Drs. Perez and Fouchier share oversight responsibilities in all matters related to surveillance activities in the CRIP network. Dr. Fouchier has ample experience in coordinating influenza virus surveillance activities in several parts of the world, including Europe and Asia, and Dr. Perez has established collaborations with several groups in Central and South America and in Central Asia for influenza virus surveillance. In addition, Dr. Kawaoka conducts an influenza virus surveillance program in Vietnam, one of the most interesting countries with respect to H5N1 influenza virus infections and evolution. In addition to the surveillance activities, research activities are conducted with representative isolated strains obtained from the CRIP surveillance sites.
Website: http://www.mountsinai.org/Research/Centers%20Laboratories%20and%20Programs/Center%20for%20Research%20on%20Influenza%20Pathogenesis

Influenza Pathogenesis & Immunology Research Center (IPIRC)
Lead Institution: Emory University
PI: Richard Compans, PhD
The Influenza Pathogenesis & Immunology Research Center (IPIRC) is one of six national Influenza Centers of Excellence funded by NIH/NIAID. The goals of the Center are to determine
the molecular, ecologic, and/or environmental factors that influence the evolution, emergence, transmission, and pathogenicity of influenza viruses, including studies on animal influenza viruses with pandemic potential; and to characterize the immune response to influenza vaccination to improve understanding of the immune correlates of protection and cross-protection. The Center's structure is comprised of four research projects, two pilot projects, and two training slots. The scope of the Center's focus includes planning for pandemic influenza and sharing data with other scientists in order to promote collaboration and lay the groundwork for new and improved methods of controlling influenza virus. In the event of a public health emergency involving the emergence and spread of an influenza pandemic in humans, the Network of Centers will be on the frontline to implement the NIAID Pandemic Public Health Research Response Plan.

Website: [http://www.microbiology.emory.edu/ipirc/faculty.html](http://www.microbiology.emory.edu/ipirc/faculty.html)

**Minnesota Center of Excellence for Influenza Research & Surveillance (MCEIRS)**

**Lead Institution:** University of Minnesota  
**PI:** Michael Osterholm, PhD, MPH

Established by NIH in April 2007, the Minnesota Center of Excellence for Influenza Research and Surveillance (MCEIRS) focuses on the detection, epidemiology, ecology, and transmission of influenza A viruses. The overall goal is to enhance understanding of how influenza viruses evolve, adapt, and spread among animal populations and from animals to humans. As an international, collaborative research center drawing on a wide range of technical expertise, MCEIRS also serves as a high-level scientific resource in the event of a public health emergency involving the emergence and transmission of pandemic influenza or high pathogenic influenza virus. The central components of MCEIRS’ program are surveillance, detection, virus isolation, genetic analysis, ecological assessment, outbreak investigation, experimental research on the pathogenesis and transmission of influenza viruses, and development of domestic and international capacity-building education and training programs. MCEIRS’ surveillance initiatives underway in North America, Central America, Southeast Asia, and East Africa are aimed at identifying and analyzing influenza viruses in wild birds, poultry, swine, and humans at high risk of infection through close contact with animals.

**Center for Rapid Influenza Surveillance and Research (CRISAR)**

**Lead Institution:** University of California, Los Angeles  
**PI:** Scott Layne, MD

Under the leadership of Principal Investigator Scott Layne, investigators at the Center for Rapid Influenza Surveillance and Research (CRISAR) monitor animal influenza internationally and in the states of Alaska, Washington and California. They will also maintain a high-throughput laboratory network capable of providing real-time information about circulating influenza virus strains and antiviral drug resistance, information that will be most critical during the early stages of an influenza pandemic.
### POSTER SESSION

Posters will be presented in the Faculty Room

**Tuesday, June 23, 5:05-6:30 pm and Wednesday, June 24, 5:15-6:00 pm**

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<th>#</th>
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