

Mathematics in Emerging Infectious Disease Management

Centro Internacional de Ciencias

Auditorio del Centro de Ciencias Genómicas, UNAM

Cuernavaca, Morelos, México

January 10-14, 2011

Organizing Committee:

Julien Arino

University of Manitoba, Canada

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University of British Columbia

Advisory Board, MITACS Centre for Disease, Canada

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Director, Mathematical and Computational Modeling Sciences Center

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Jianhong Wu

Director, Centre for Disease Modelling

York University, Canada

Conference Agenda

Monday, January 10th, 2011

Chair: Rafael Meza

8:45-9:00 Welcome and opening remarks

Marco V. José, Centro Internacional de Ciencias / Instituto de Investigaciones Biomédicas, **Universidad Nacional Autónoma de México** (on behalf of the Organizing Committee)

Jianhong Wu, Center for Disease Modelling, York University, Canada

9:00-10:00 Plenary Talk:

Carlos Castillo-Chávez

Role of cross-immunity, quarantine, isolation and other factors on the transmission dynamics of influenza

Arizona State University, USA

10:00-11:00 Plenary talk:

Stefano Merler

Predictability in the spatiotemporal dynamics of the 2009 H1N1 pandemic in Europe

Fondazione Bruno Kessler, Trento, Italy

11:00-12:00 Coffee break and office assignments at CIC

12:00-13:00 Plenary talk:

Duygu Balcan

Role of large scale computational models in forecasting spreading patterns of emerging infectious diseases: Experiences from the 2009 H1N1 influenza pandemic

Indiana University, USA

13:00-14:00 Plenary talk:

Jianhong Wu

Spatiotemporal dynamics of avian influenza: roles of and impact on migratory birds and interaction of low and high pathogenic strains

**Centre for Disease Modelling
York University, Canada**

14:00-16:00 Dinner at UAEM Campus

16:00-17:00 Plenary talk

Eliane Rodrigues

Stochastic methods in the study of epidemics

Instituto de Matemáticas, UNAM, México

17:00-17:45 Troy Day

Recombination and the evolutionary epidemiology of drug resistance

Queen's University, Canada

Tuesday, January 11th, 2011

Chair: Jorge A. Alfaro-Murillo

9:00-9:45 Seyed Moghadas

Challenges of community health protection in the face of emerging infectious diseases

National Research Council of Canada, Canada

9:45-10:30 Robert Smith?

The impact of media coverage on the transmission dynamics of human influenza

University of Ottawa, Canada

10:30-11:15 Leticia Velázquez

Optimal control applied to a discrete influenza model

The University of Texas at El Paso, USA

11:15-11:45 Coffee break

11:45-12:30 James Watmough

Disease transmission in a layered network

University of New Brunswick, Canada

12:30-13:15 Marco Arieli Herrera Valdez

Local transportation and social distancing explain the different “waves” of A-H1N1 pdm cases observed in Mexico during 2009.

Arizona State University, USA

13:15-14:00 Benjamin Mori

Network Evolution in the Presence of an Influenza-like Disease with Adaptive Behavior

Arizona State University, USA

14:00-16:00 Gathering at CIC and Dinner at UAEM Campus

16:00-16:45 Mustafa Erdem

Mathematical models of influenza with imperfect quarantine

Sinop University, Turkey/ Arizona State University, USA

16:45-17:30 Alma Lara-Sagahón

Stability analysis of a stochastic system of delay-difference equations for a SEIR epidemiological model

FES Cuautitlán, UNAM, México

17:30-18:15 Jessica M. Conway

Timing of vaccination campaigns against pandemic influenza in a population dynamical model of Vancouver, Canada

University of British Columbia, Canada

Wednesday, January 12th, 2011

Chair: Robert Smith?

9:00-10:00 Plenary talk:

Ping Yan

Aspects of homogeneous vs. heterogeneous transmission

Public Health Agency of Canada, Canada

10:00-11:00 Plenary talk:

Marco V. José

Modeling the geographical spread of influenza A (H1N1) in Mexico

CIC and Instituto de Investigaciones Biomédicas, UNAM, México

11:00-11:30 Coffee break

11:30-12:15 Jorge A. Alfaro Murillo

Modeling the antigenic drift and cross-immunity of influenza strains in a population

Purdue University, USA

12:15-13:00 Natalia Mantilla-Beniers

Internet-based monitoring of respiratory infections

Facultad de Ciencias, UNAM, México

13:00-13:45 David Buckeridge

Towards the use of mathematical modeling with surveillance data to support rapid decision-making in public health practice

McGill University, Canada

13:45-16:00 Gathering at CIC and Dinner at UAEM Campus

16:00-16:45 Julien Arino

Global air transportation and the spread of infectious Diseases

University of Manitoba, Yorke University, Canada

16:45-17:30 Rafael Peña-Miller

Controlling the evolution of antimicrobial resistance: information is power

Imperial College, United Kingdom

Thursday, January 13th, 2011

Chair: David Buckeridge

9:00-9:45 Rafael Meza

Assessing the potential impact of emergent infectious diseases: Lessons from the 2009 H1N1 influenza pandemic
University of British Columbia, Canada

9:45-10:10 Romarie Morales

Influenza vaccination strategies when supply is limited.
Arizona State University, USA

10:10-10:35 Emmanuel Morales

Transmissibility of H5N1 avian influenza in Nigeria: The 2006 epidemic
Arizona State University, USA

10:35-11:00 Paula A. González-Parra

Optimal control on a discrete time influenza model
The University of Texas, USA and Universidad Autónoma de Occidente, Cali, Colombia

11:00-11:30 Coffee break

11:30-12:15 Sherry Towers

2009 H1N1 pandemic data: A new window into the seasonality of influenza
Purdue University, USA

12:15-13:00 Sunmi Lee

Control theory in influenza
Arizona State University, USA

13:00-13:45 Gerardo Chowell-Puente

Adaptive vaccination strategies to mitigate pandemic influenza: Mexico as a case study
Arizona State University, USA

13:45-16:00 Gathering at CIC and Dinner at UAEM Campus

16:00-16:25 Víctor Serrano-Solís

Genomic landscapes of influenza virus: relevant information content and its impact on influenza pandemics
Instituto de Investigaciones Biomédicas, UNAM, México

16:25-17:10 Maytee Cruz-Aponte

On the role of unconfirmed cases and vaccination during an influenza pandemic
Arizona State University, USA

17:10-17:55 Susie ElSaadany

To be announced
University of Ottawa, Canada

Friday, January 14th, 2011

9:00-9:45 Bahman Davoudi

Time evolution of the spread of diseases with a general infectivity profile on a complex dynamic network
University of British Columbia, Canada

9:45-10:30 Beni M Sahai

Innate immunity to pandemic Influenza: a double-edge sword
University of Winnipeg, Canada

10:30-11:00 Coffee break

11:00-13:00 PROVOCATEURS: Julien Arino, Jianghong Wu, Carlos Castillo Chávez and Marco V. José
ROUND TABLE: SUMMARY AND CONCLUSIONS

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