

AGENDA

Modeling the Spread and Control of Ebola in W. Africa

A Rapid Response Workshop

Jan 22-23, 2015

Historic Academy of Medicine @ Georgia Tech

875 W. Peachtree St, Atlanta, GA 30309

http://bit.ly/ebm_gt & ebola-modeling-workshop@gatech.edu

Organizers: Joshua Weitz (Chair, Georgia Institute of Technology), Rustom Antia (Emory), John M. Drake (UGA), Jonathan Dushoff (McMaster), John Glasser (CDC), Pinar Keskinocak (Georgia Institute of Technology), Lauren Meyers (UT-Austin), Fredrik Vannberg (Georgia Institute of Technology)

Mission: A two day-workshop to: report on and discuss the use of dynamical models to support, interpret and enhance public-health practices to stop the spread of Ebola in West Africa.

Motivation: The Ebola epidemic in West Africa has spurred an international response. The scope of this response has been strongly influenced by epidemiological models that predicted a devastating rise in cases without large-scale changes – through behavior change and/or external intervention. There is increasing agreement that epidemic models have an important role to play in controlling Ebola. But dynamic models must also be examined carefully in light of uncertainties and constraints. This meeting will facilitate discussion of dynamic models of Ebola spread and control as well as identification of key challenges in the field for which integrated modeling is needed.

Goals:

- Discussion of the role of dynamical modeling in predicting the scope of the ongoing Ebola epidemic in West Africa and in guiding efforts to control and stop the epidemic.
- Identification of key knowledge gaps and new challenges induced by the changing nature of the epidemic, in particular those where collecting and sharing data and knowledge can aid in planning and deploying control measures.
- Reporting back findings to the academic, public-health and policy communities.

Products:

- Webpage with slide decks and poster abstracts
- A meeting report summarizing the discussions, from panels to break-out groups. The report will be compiled by student rapporteurs from Georgia Tech and Emory.
- Formation of small, collaborative groups for new research

Major Sponsors:

BURROUGHS
WELLCOME
FUND 



Schedule

NOTE: Registration includes access to all events as well as the following meals. Breakfast on January 22 and January 23 will be provided from 7am-8:30am. Lunch on January 22 and January 23 will be provided from 12pm-1:30pm. A light buffet will be provided at the poster session on January 22 from 4pm-6pm. Coffee will be available throughout.

Update: The meeting is full. We cannot accommodate any walk-up registration.

Thursday Jan 22, 2015

7:00am-8:30am **Breakfast**

8:30am: **Welcoming Remarks**

Ileana Arias
Deputy Director
Centers for Disease Control and Prevention

8:40am: **Workshop Objectives and Introductions**

Joshua Weitz, *Workshop Chair*
Associate Professor
School of Biology
Georgia Institute of Technology

8:50am: **Charge to Participants**

Richard Hatchett
Chief Medical Officer and Deputy Director
Biomedical Advanced Research and Development Authority

9:00am-10:20am: **Panel - Predicting and interpreting initial outbreak dynamics**

How do we take information from early outbreak dynamics and interpret it? How much confidence do we have in these inferences? And, given experience in response to other emerging infectious diseases, what can we learn from these and from the initial Ebola outbreak?

Moderator:

John Glasser
Epidemiologist
Centers for Disease Control and Prevention

Panelists:

Gerardo Chowell
Associate Professor
School of Public Health
Georgia State University

Jeffrey Shaman
Associate Professor
Department of Environmental Health Sciences
Columbia University

Alessandro Vespignani
Professor
Schools of Physics, Information and Health Sciences
Northeastern University

Zhlian Feng
Professor
Department of Mathematics
Purdue University

Format:

Each panel member will make a brief presentation (8-10 minutes) and then there will be a moderated discussion. Discussion to last between approximately 30 minutes. The same format will be used for the successive panels.

10:20am-10:40am Coffee break

10:40am-12:00pm Panel – Planning and evaluating interventions

How are distinct modalities of interventions, and varying levels of intervention scope and effort predicted to affect the spread of EVD? A suite of interventions will be explored including: hospitalization, safe burial, targeting of asymptomatic infections, as well as the effect of clustered transmission on intervention efficacy.

Moderator:

Jonathan Dushoff
Associate Professor
Department of Biology
McMaster University

Panelists:

Andrew Park
Associate Professor
School of Ecology
University of Georgia-Athens

Brian Gurbaxani
Senior Scientist
Centers for Disease Control and Prevention

Steve Bellan
Postdoctoral Fellow
Department of Integrative Biology
University of Texas-Austin

Sam Scarpino
Omidyar Fellow
Santa Fe Institute

12:00pm-1:40pm Lunch and Learn – Delivering care on the front lines: My experience as an Ebola physician in Liberia

Speaker:

Karen Wong
Medical Epidemiologist
Centers for Disease Control and Prevention

1:40pm Charge to break-out groups

Joshua Weitz, *Workshop Chair*
Associate Professor
School of Biology
Georgia Institute of Technology

2:00pm-3:00pm Break-out group discussions

Objectives: Discuss the development and use of dynamic models to support control efforts in W. Africa, with the following questions common to all:

- What relevant findings can be communicated to the policy and public health community, including known uncertainties?
- What new research and/or new data is needed to improve the interface between dynamic models and control efforts?
- How ripe is the area for collaborative work moving forward?

Topics and Moderators:

Breakout topic 1: The structure and uncertainty in EVD models

Andrew Hill, Statistician, CDC

Juliet Pulliam, Assistant Professor, Biology, U of Florida

Breakout topic 2: Spatial features of the outbreak

Bryan Lewis, Public Health Policy Analyst, Virginia Tech

Matthew Taylor, Senior Healthcare IT Strategist and Architect, Intel Corporation

Breakout topic 3: Real-time data – type, quality and accessibility

Caitlin Rivers, PhD Candidate, Computational Epidemiology, Virginia Tech

Victoria Zagaria, Director, Intel Federal/DHHS, Intel Corporation

Breakout topic 4: Logistical needs - from optimization to decision-making support

Turgay Ayer, Assistant Professor, Industrial and Systems Engineering, Georgia Tech

Charles (Chick) Macal, Director, Center for Complex Adaptive Agent Systems Simulation,
Argonne National Laboratory

Breakout topic 5: Evolutionary dynamics

Philip Johnson, Assistant Professor, Biology, U of Maryland

Fredrik Vannberg, Assistant Professor, Biology, Georgia Tech

Breakout topic 6: Vaccine trial design

Jonathan Dushoff, Associate Professor, Biology, McMaster University

Manoj Gambhir, Ebola Emergency Response, Modeling Task Force, CDC

Breakout topic 7: Modeling and policy

Dylan George, Office of Science and Technology Policy, Executive Office of the President

Marco Mesa Frias, Prevention Effectiveness Fellow, CDC

3:10pm **Report-back from break-out groups**

4:00pm-6:00pm **Poster session**
Approximately 20 research posters are expected.

6:00pm **Dinner on your own**

Friday Jan 23, 2015

7:30am-8:30am **Breakfast**

8:30am-9:00am **Ecological Reservoirs of *Ebola* virus**

Moderator:

Leslie Real
Professor
Department of Biology
Emory University

Speaker:

Peter Walsh
University Lecturer
Department of Biological Anthropology
Cambridge University

9:00am-10:00am **Panel – Real-time monitoring and logistics**

What are the information streams available to inform interventions? What are the logistical constraints that may limit effectiveness of interventions? How can one incorporate practical constraints in designing interventions? How can real-time data be relayed to those intervening?

Moderator:

Pinar Keskinocak
Associate Professor
School of Industrial and Systems Engineering
Georgia Institute of Technology

Speakers:

Michael Washington
Health Systems Specialist
Centers for Disease Control and Prevention

Benjamin Lopman
Infectious Disease Epidemiologist
Centers for Disease Control and Prevention

Simon Johnson
GIS Data Analyst
British Red Cross & Humanitarian Data Exchange

10:00am-10:20am Coffee break

10:20am-11:40am Panel – Modeling as a tool for communication

What do different sectors (academic, government, public) seek to learn from modeling exercises? How does each sector evaluate the usefulness and reliability of a model? What are the distinct roles, both benefits and challenges, of models of varying complexity?

Moderators:

John Drake
Associate Professor
School of Ecology
University of Georgia-Athens

Glen Nowak
Professor
Grady College of Journalism and Mass Communication
University of Georgia-Athens

Panelists:

Martin Meltzer
Lead, Health Economics and Modeling Unit
National Center for Emerging and Zoonotic Infectious Diseases
Centers for Disease, Control and Prevention

Dylan George
Office of Science and Technology Policy
Executive Office of the President

Katriona Shea
Professor
Department of Biology
Pennsylvania State University

Betsy McKay
Bureau Chief, Atlanta
Wall Street Journal

11:45am **Closing remarks & opportunities for follow-up**

John Drake
Associate Professor
School of Ecology
University of Georgia-Athens

Colleen Jonsson
Director
National Institute for Mathematical and Biological Synthesis
University of Tennessee-Knoxville

Joshua Weitz, *Workshop Chair*
Associate Professor
School of Biology
Georgia Institute of Technology

12:00pm-1:30pm **Networking lunch**
1:30pm **Adjourn**

Sponsors:

Burroughs Wellcome Fund
Intel Corporation
Georgia Institute of Technology - College of Sciences
Georgia Institute of Technology - GT-FIRE program
Georgia Institute of Technology – School of Biology
Georgia Institute of Technology - Center for Health and Humanitarian Logistics
Elsevier and the journal “Epidemics”

Administrative Support:

Georgia Institute of Technology – Parker Petit Institute for Bioengineering and BioSciences
Georgia Institute of Technology – Bioinformatics Program
Georgia Institute of Technology – School of Biology

THANK YOU TO ALL OF THE SPONSORS:

BURROUGHS
WELLCOME
FUND 



ELSEVIER

