Overview and update

Martyn Kirk
ISER Overview 2016-2020

• Applied systems research, enhance collaboration and build capacity in health systems research for epidemic control
  • brings together experts in field epidemiology, epidemics, military, international law and risk science, along with government and non-government agencies involved in epidemic response

• The ARM Network

• ISER Academy - think-tank and vehicle for dialogue, to build capacity and generate ideas around epidemic response
ISER Launch 9th December 2015
# ISER Investigators

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<th>CIs</th>
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<td>Prof Raina MacIntyre UNSW</td>
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<td>Prof Martyn Kirk ANU</td>
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<td>Prof Bill Rawlinson UNSW</td>
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<td>Prof Michael Baker U Otago</td>
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<td>Dr Paul De Barro CSIRO</td>
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ISER Operations

- UNSW & ANU professional staff
- UNSW GMO – grant compliance & evaluation
- Internal communications
  - Annual face-to-face
  - Monthly steering committee calls
  - Yammer
- External communications
  - FB, Twitter, website
  - Epiwatch
- Students
  - ~22 PhD students
  - MAE scholar
Research Programs

1. Epidemic response, control and prevention

2. Epidemic intelligence and risk analysis

3. ISER academy
1. Epidemic Response

- Rapid epidemic response
- Preparing for deployment
- Barriers to deployment for public health staff
- Expectations of response agencies
- Health impact of field deployments on public health staff
- Vaccine-preventable diseases
- Improved risk assessments for epidemic diseases
- Clinical research in prevention of epidemics
- Laboratory science, E-health & rapid tests for epidemic response
- Leadership and management in epidemic response
- Risk, vulnerability and ethics of epidemics
- Dual Use Research of Concern and bioterrorism
- Law and governance in biosecurity
2. Epidemic Intelligence

- Modelling of infectious diseases for epidemic control
- Applied research in epidemic pattern recognition
- Laboratory enhanced surveillance & rapid response
- Digital disease detection for detecting outbreaks
- Bioterrorism response research
- Risk analysis research
- Travel as a vector for epidemic disease importation
Infectious disease dynamic modeling can support outbreak emergency responses. We conducted a workshop to canvas the needs of stakeholders in Australia for practical, real-time modeling tools for infectious disease emergencies. The workshop was attended by 29 participants who represented government, defense, general practice, and academia stakeholders. We found that modeling is underused in Australia and its potential is poorly understood by practitioners involved in epidemic responses. The development of better modeling tools is desired. Ideal modeling tools for operational use would be easy to use, clearly indicate underlying parameterization and assumptions, and assist with policy and decision making.

treatment capacity consistently emerged as a vital factor in the control of Ebola virus disease in West Africa in 2014–2015 (3–5). Statistical and mathematical models that provide up to 3-month ahead-of-time forecasts of disease incidence have been developed in the context of influenza and dengue (6–10). Several risk assessments of the Zika virus epidemic that emerged in Brazil in 2015 have been published (11–15).

These published examples of modeling results of large-scale, (often) international infection dynamics can assist in providing guidance for the task of overarching control strategies. However, they might not meet the more immediate, on-the-ground needs of organizations
EpiWATCH Outbreak Observatory

- Weekly EpiWATCH Digest
  - Disease outbreak alerts of public health significance
- Watching Briefs:
  - Critical analysis of outbreaks that are serious, persistent or usual characteristics
- Zikahack 2016
- Evaluation 2017
- Blog & Media
3. ISER Academy

- Integrated epidemic response
- Policy and legislation think tank
- Ethics and accountability
Outputs

- In 2017
  - 65 Publications
  - Six grants
    - Two NHMRC fellowships
    - Havelock North Campylobacter outbreak NZ
  - 5 Workshops & public lectures
- Capacity building
  - GOARN training for deployment
  - Seed grants
Seed Grant Examples...

• Examining the presence of respiratory viruses on medical masks in a hospital setting (Yi Zhang, Abrar Chughtai)

• Influenza A H5N1 and H7N9 in china: A spatial risk analysis (Chau Bui)

• How can we improve field epidemiology training to strengthen workforce competency in epidemic response in South-East Asia? (Stephanie Davis)
Communicable Diseases Control Conference
26 - 28 June 2017
Pullman Albert Park Melbourne VIC
Infectious Diseases: a global challenge
Awards - 2017

Raina MacIntyre and team – CAPHIA Research Team Award (PPE research)

Raina MacIntyre and team – Finalist, Eureka Prize in Infectious Diseases
ISER Advisory Committee & Team

**SAC**
- LTCOL Peta Mantel (Chair)
- Prof Mark Ferson
- Chief Thomas Engells
- A/Prof Matthew Scotch
- Prof Fleur Johns
- Dr Rose Leontini
- Dr Salanieta Saketa
- Ms Caroline O’Hare
- Ms Linda Winn
- Ms Rhonda Owen

**PSP**
- Dr Ben Coghlan Burnet
- Dr Alex Rosewell UNSW
- Dr Lauren Gardner UNSW

**Affiliates**
- Dr Abrar A Chughtai UNSW
- Dr Kerri Viney ANU
- Dr Katherine Lau SESIAHS
- Dr David Muscatello UNSW
- A/Prof Sarah Williams UNSW
- A/Prof Brian Gerber ASU
- Dr Rob Menzies UNSW
- A/Prof Matthew Scotch ASU
- Dr Sasha Steltzer-Braid UNSW
- Professor Abba Gumel, ASU
- A/Prof Samsung Lim UNSW
- Professor Raja Jurdak CSIRO
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