Project title: Epiwatch outbreak analysis

Traditional disease surveillance relies on laboratory and health system notifications, which are usually delayed by weeks to months from the epidemic event. In some countries, epidemics are not reported due to lack of official reporting, or fear of impacts on trade and tourism. Use of open source data such as news feeds and social media can give a real-time global picture of epidemics, even where official data are not reported. EpiWATCH is semi-automated outbreak data collection and analysis observatory that monitors and provide critical analysis of global outbreaks and epidemics of public health significance using publicly available sources. It is created and run by The NHMRC Centre for Research Excellence, Integrated Systems for Epidemic Response (ISER). The group conducts applied systems research, enhance collaboration and build capacity in health systems research for epidemic control. The database has over 10,000 outbreaks from 2016 onward that can be searched on disease, date, location and other key words. It is curated, cleaned and enhanced by weekly review as new data is collected. Past students have done projects on hepatitis A, Zika virus, mumps, influenza and on outbreaks within a specific country.

Project aims or objectives

To analyses global, regional or national outbreaks of a specific disease, within any defined timeframe from 2016 onward using EpiWATCH outbreak data. This will be discussed and agreed upon with the student. Examples could include measles, Ebola, influenza, cholera, diphtheria or any other outbreak-prone disease. A specific country could also be chosen, and all outbreaks affecting that country could be analysed. This is particularly useful for Pacific islands, where formal reporting may not be available.

Research design and proposed methodology

A database of EpiWATCH Outbreak Alerts will be retrieved for all disease keywords (will be specified depending on the disease), dated between prescribed dates. Geolocation tags will also be retrieved and categorised. News items that are not related to this topic and duplicates of similar events will be excluded. For the analysis, all reported cases will be grouped according to geolocation, disease, and the time in which they occurred. Descriptive epidemiologic analysis of the outbreaks will be conducted. Additional public domain data will be sought where necessary, if any outbreak report is unclear.

Field experience: students will be part of the Epiwatch team for the duration of the project.
They will gain outbreak experience by:
- (i)   reviewing the literature in their chosen topic
- (ii)   analysing and interpreting the outbreak data from EpiWATCH
- (iii)   preparing a written report suitable for publication
- (iv)   presenting results in a group setting.
- (v)   Attending weekly EpiWATCH meetings
- (vi)

Outcomes: A report in a format suitable for peer-reviewed publication.

Timeline and proposed workload

A 14 hour per week (2 days) workload is expected to synthesis all the relevant material, complete the analysis, and write the report and manuscript during the term.

Prior methodological courses
- Epidemiology and Statistics for Public Health

The research environment includes a weekly research meeting with students and staff, the opportunity to publish your research and a dynamic, engaged team to work with. Contact Prof Raina MacIntyre r.macintyre@unsw.edu.au for inquiries.