ICAHS 3 Post-Conference Workshop

MAKING DATA BEAUTIFUL

TIPS & TECHNIQUES FOR SURVEILLANCE DATA VISUALISATION

Mark Stevenson, Simon Firestone, Uli Muellner, Anna Poulin

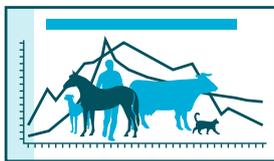### WHEN

6-8 May 2017

WHERE

Novotel,
Rotorua

COST

Early bird

$NZ 950
Standard

$NZ 800
*Full-time
student*

**After
15.03.2017**

$NZ 1,100

WHY THIS WORKSHOP?

Data visualisation can make an important contribution to the surveillance domain by creating better access to data, for example by allowing quick identification of clusters, trends, gaps, or outliers; and enabling users to visually locate relationships and interactions in an easier way than via traditional metadata tables. Most importantly, visualising data well (especially in space and time) can impress, enthuse and engage key audiences (i.e. decision-makers, industry partners and key stakeholders, the public, ...).

Further the use of interactive data visualisation tools to foster the dialog between data analysts and others has been popularised by Hans Rosling's TED presentation in 2006. At the time the transition from static to interactive and animated ways to communicate data provided an exciting expansion of the tools and methods available, however tools available were scarce and applications often required significant development effort. Over the last years the ability to produce interactive data visualisations has improved significantly, allowing rapid development with ready-made tools to get started with ease. Additionally those tools offer great new features for real-time data visualisations or to build interactive "reactive" applications that are accessible on multiple devices (smartphones, tablets etc).
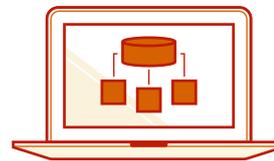
WHO IS THIS WORKSHOP FOR?

The course is designed such that participants with varied experience in surveillance data analysis and visualisation can attend. Participants will be provided with a choice of exercises tailored to different levels of background knowledge. Basic coding skills and some experience with R are of advantage. Knowledge of epidemiological analysis and geographic information systems is desirable.

On completion participants of the workshop will be able to:

- Identify common pitfalls in the visual presentation of data and information

- Design an infographic

- Consider different strategies as well as pros and cons of available tool kits for data analysis and visualisation

- Utilise different Google tools to create charts, dashboards and maps

- Build basic interactive and real-time visualisations with Google tools which can be viewed online

- Build a basic RStudio Shiny app

WORKSHOP DETAILS

The course will start with introductory material on data and information visualisation and will, over time, develop to more complex issues around data analysis and interactive data visualisation.

We will introduce and actively work with R, QGIS, HTML, CSS and JavaScript programming (which will be tailored to workshop participants experience and needs) to manage data and create the dashboards and outputs. Guidance for dashboard creation, step-by-step instructions and reference material will be provided. We will showcase and introduce tools we have been working on recently, in particular freely accessible Google Maps and RStudio Shiny applications.

A special focus will be on incorporating spatial components into the reporting and analysis of human or animal health data and mapping the outputs to advance understanding and explanation of disease dynamics and patterns of spread. Examples include: visualising links between disease occurrence and spatially-orientated explanatory data (dynamic maps of the evolution of disease outbreaks, mapping available resources and comparing to expected case load and estimating associations between disease and environmental variables) and detecting clusters of disease in time and space.

The workshop will run over three days from 9am to 5pm with catered breaks for morning tea, lunch and afternoon tea. It will be taught using an interactive combination of presentations, exercises and group discussions. Participants will be required to bring their own laptops. Software requirements will be specified prior to the course.

PROGRAMME

DAY 1 Data visualisation – the basics

We'll start with planning data visualisation, some key traps (the good, bad and ugly – of graphics), then moving on to choosing the right tool to get your message across and the principles of effective graphic display. Then we will use Google tools to create interactive and real-time visualisations, with practical sessions introducing interactive dashboards with Google chart tools.

DAY 2 Data visualisation – including complex analytics

Building on the interactive sessions, we'll consider spatial and network data visualisation and get you building your own animations to liven up your data. Then we'll move on to linking theory and practice by preparing data visualisations that incorporate complex analytics.

DAY 3 Going live – interactive web-based data visualisations

The final day is devoted to building RStudio Shiny apps for the web. Consolidating on material covered we'll teach you how to develop spectacular web-based data visualisations that your audience can interact with, and get these up online.

A detailed timetable will be provided following registrations as we will tailor the programme and exercises to the group of confirmed participants. Participants are invited to indicate their interest in specific topics upon registration.

PRESENTERS

Prof. Mark Stevenson is a veterinary epidemiologist with wide expertise in the area of infectious disease epidemiology, spatial epidemiology and simulation modelling of infectious disease spread. He is currently Professor of Veterinary Epidemiology (One Health) at The University of Melbourne where he is leading the development of the VE@M online epidemiology teaching tools.

Dr. Simon Firestone is a Senior Lecturer in Veterinary Epidemiology and Public Health at the University of Melbourne with extensive experience in the analysis and presentation of data from epidemiological studies. He also coordinates the Master of Veterinary Public Health (Emergency Animal Diseases) program at the University of Melbourne.

Dr. Uli Muellner is an IT professional with a background in adult teaching and computer science, including a PhD in media education. Uli is one of the directors at Epi-interactive, a Wellington-based consultancy company (epi-interactive.com) where he heads the data visualisation and e-Learning portfolio.

Anna Poulin is the Lead Designer at Epi-interactive and drives the company's visual communications, including everything from infographics, fact sheets, illustrating icons to polishing reports and other outputs.

REGISTRATION & QUESTIONS

Please register online at **animalhealthsurveillance. org/registration**. If you have questions about this workshop, please contact Uli Muellner at **uli@epi-interactive.com**.

LIMITED ENROLMENT

This workshop will be interactive and involves group discussions and computer-based exercises. As a result, registration numbers are limited. Interested participants are urged to enrol early to ensure they will be able to attend.