

Chapter 2.4 - Databases and Registers as Tools for Disaster Epidemiology

Throughout our daily lives, there are many factors that influence our health and well-being and these are likely to increase during disasters and other health emergencies. This leads to great complexity that is difficult to quantify, but databases and registers can be important tools for researchers trying to improve understanding of the various factors and how they interact.

I'm Alice Kim one of the authors for the *WHO Guidance on Research Methods for Health Emergency and Disaster Risk Management* and I'd like to welcome you to this podcast for Chapter 2.4, which is titled *Databases and Registers as Tools for Disaster Epidemiology*. Over the next few minutes, I'll outline the three main types of database and register that are available to epidemiology researchers working in Health EDRM, namely, ongoing population-based databases and registers, pre-existing subpopulation databases and registers, and post-disaster databases and registers.

The first, ongoing population-based databases and registers, are broad-based, comprehensive and linked population-based datasets that will have been created outside the context of disasters and health emergencies. They are relatively uncommon at the moment but one of the few examples is New Zealand's Integrated Data Infrastructure, or IDI. This is a large national research database that holds microdata about all New Zealand people and households, linking detailed data about their health, education, justice, income and work. A database such as this can provide a holistic and detailed baseline account and history of the individuals in a wide region a disaster or emergency strike, including data that was collected in real time before the event.

Similarly, but on a much smaller scale, pre-existing sub-population databases and registers might have been developed for cohort or longitudinal studies that were being conducted in an area affected by an emergency or disaster. They provide a good source of pre-collected data for the relevant sub-population, often covering multiple domains. A notable example is the Christchurch Health and Development Study, which followed nearly 1300 children from their birth in 1977. At the time of the 2010-2011 Christchurch earthquakes, these people were 34 years old and just over half were exposed to the earthquakes. Researchers were then able to examine whether exposure to the earthquakes was linked to depression and found that peri-traumatic stress is an under-recognized predictor of major depressive disorder following a disaster.

Finally, the chapter discusses the post-disaster databases and registers that are set up after the event and gather data to help understand the health impacts and service gaps for a population following the emergency or disaster. They are flexible and tailored to the instruments and tools that are most pertinent to the specific population and situation but they don't already contain pre-disaster information. This must be retrieved retrospectively and might suffer from biases such as selection bias and information bias. An example of such a database is the World Trade Center Health Registry, which contains health data on the survivors of the 9/11 attacks on the World Trade Center. Survivors completed health surveys over many years, which were added to the registry, helping to determine the extent to which physical and mental health conditions persisted among the survivors, and whether any new symptoms or conditions emerged.

In summary, therefore, disaster epidemiology researchers are able to use a variety of health-related databases and registers when studying topics of relevance to Health EDRM; and, if you would like to delve deeper into this topic, you can access the chapter for free on the WHO Knowledge Hub website and see a list of additional readings that could take you further into this topic.

Thanks for listening and goodbye for now.