Snowed Under: Geospatial Data Literacy for Health Students
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Background

The outbreak "commenced in the night between 31st August and the 1st September. I suspected some connexion of the water of the much frequented street-pump in Broad Street, near the end of Cambridge Street." (Circ 1854).

While often considered the father of medical mapping, Dr. John Snow was by no means the first to consider the link between geography and health. However, the second edition of his book On the Mode of Communication of Cholera (1854), included an image that forever linked his name with the idea that maps could be used to illustrate health concepts (Koch, 2005, 2011). London experienced an outbreak of cholera in 1849. While others had suggested that cholera was not just transmitted through means, Dr. John Snow decided to study the outbreak in the neighborhood he once lived in.

Courses on using geospatial information are common in public health and epidemiology courses, but only rarely in other health education courses (Cheffins, Cunningham, & Johnson, 2004; Rhyder, Rover, & Weaver, 2014). They are often taught by GIS technocrats, rather than librarians. The links with the broader concept of information literacy is not made.

Objectives

Overall objective:
To strengthen students' visual digital literacy, specifically, to learn how to apply geospatial data visualization in health care.

Assignment outcomes:
- Identify, evaluate and compare 3 different geospatial data tools that either are or could be used for public health purposes.
- Identify an application where geospatial data might be utilized to visualize and communicate public health information.
- Identify a specific use example which illustrates how geospatial data can be useful to address a public health issue.

Methods

1. Class Session (30 minutes of content to teach concepts of geospatial data in health care as part of 1.5 hour information literacy session)
2. Assignment (see last slide below): Students were provided the following links as a starting point to discover geospatial data:
   - http://db.library.queensu.ca/geospatial_data/
   - http://opengeocode.org/opendata/
   - http://geo2.scholarsportal.info/
3. Assessment: Students were graded 1 point on a possible basis for the geospatial data component

Results

Epidemiology 886 Student:
"As a public health student, I was particularly interested in the Social Determinants of Health Mapper and I am glad that you introduced us to that application. However, I think it would encourage public health students to make use of this application if the instructor demonstrated how to navigate through it and briefly go over some of the features it provides.”

"I do like the idea of the assignment because it got the class to really think about how GIS can be applied in the public health field and get us to explore all the links and resources you provided."  

Discussion

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Conclusions

The health sciences librarians collaborated with the geospatial data librarian and the course coordinator to bring graduate public health students' visual digital literacy. As a recent article in Academic Librarianship asserted "Librarians can work with faculty on assignments that encourage students to experiment with new media" (Lippincott, 2015), our research reinforces that librarians are well positioned to deliver geospatial information literacy within a context of broader information literacy. Our experience also demonstrated that faculty are open to collaborating with librarians on geospatial and data visualization skills.

Researchers in public health have long used geospatial data and visualization tools to identify and solve complex issues. Today, researchers no longer need to plough through mountains of data in order to synthesise and present their information. Open and licensed data on a vast number of topics related to the social determinants of health, disease outbreaks, and disease surveillance, to name a few, are available for local, regional, national and international populations. Combining the open and licensed data with the ever-increasing number of free visualization tools provides excellent opportunities to develop more innovative and targeted solutions in public health issues. Researchers do not have to be aware of or an avalanche of data and can avoid the time crevasse of determining what the information means. Because of the increased volume of data, students need stronger data visualization skills as part of their overall literacy toolkit.

In the future, we plan to expand the geospatial data content and assessment beyond public health into other Faculty of Health Sciences information literacy programs.

References

