10.O. Skills building seminar: Health information is beautiful: tools and approaches to visualize data and health indicators

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Access to public available data and information as well as informative and attractive visualization in terms of graphs, maps, infographics, or videos is key for the uptake of facts in the general public as well as for evidence-informed policy making. This relevance is also recognized in population health monitoring that is primarily based on routine health statistics and health indicators.

Approaches to make data available and techniques for data visualization have a long history in population health monitoring. Well-known examples are the London Bills of Mortality from the 16th century or famous visualization approaches like John Snow's map of cholera cases in London in 1854 or Florence Nightingales polar diagram on mortality in the British army from 1856. Due to technological advances possibilities for storing, reporting and visualizing health data and indicators have of course largely increased. Nowadays online platforms for easy access, analysis and data retrieval are commonly used and interactive data visualizations and infographics are becoming increasingly popular.

The chances that these advances bear in terms of improved uptake of factual based knowledge come along with some challenges and questions regarding the required techniques, resources, skills and capacities. The EUPHA section of Public Health Monitoring and Reporting recognized this need and aims to hold a skills building seminar at this year's European Public Health Conference and the upcoming conferences. This series of skills building seminars on data visualization will cover topics like

- the design and technique behind online health information platforms,
- the design of informative graphs and maps,
- how to generate animated or interactive graphics, and
- the theory behind and the resources required to design infographics, info websites or explainer videos.

The series of skills building seminars on data visualization start with exploring online health information platforms. Questions we are dealing with are:

- What are the building blocks of these systems?
- Which technologies and programming skills are required?
- What kind of experts should be involved?
- How to improve user-friendliness of these platforms?
- Which audience uses the data and information provided?

Within this seminar three health information platforms are presented, one international platform and two national ones. The presentations will have a "How to..." focus which means that we go beyond a mere description of the front face of the systems. We are looking behind the scenes in order to improve knowledge and capacity about users' needs, the routines involved and the techniques, skills and resources behind it. Room for questions will be given after each presentation and we devote 30 minutes for questions and the exchange of experiences at the end of the seminar. The seminar is targeted at everyone working in the field of population health monitoring and experts with an interest in population health research.

Key messages:

- Modern health information websites offer possibilities for data retrieval, data analysis and data visualisation as well as interpretation of health data
- Participants of this seminar will acquire knowledge about the design of health information websites, resources involved and how they can be developed according to user needs

WHO European Health Information Gateway
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The WHO European Health Information Gateway has been conceptualised as a one-stop health information shop for policy-makers, analysts, WHO staff and the public in the WHO European Region catering for different needs and skills. It offers an innovative approach for the presentation of key public health information made available by the WHO Regional Office for Europe.

The demonstration will take a look "under the hood", presenting technical building blocks of the Gateway, how they work, and with examples on how they come together to address the needs of various audiences. Elements that will be presented: (1) the Data Warehouse, its API (application programming interface) and examples of tools data scientists can use to make visualisations on the fly based on the data from the API; (2) the Gateway and it various components for information presentation and use, (3) approaches and examples to interactive infographic designs and data story communication, and (4) design and use of mobile apps for dissemination of health information. The presentation will emphasize a hands-on walk through and opportunity for participants to provide feedback.

The continuous design of all the tools has been influenced by the user research WHO Europe has conducted on its online data presentation tools and the Gateway is being adapted accordingly. The user research was conducted as a web-based audience of visitors to the WHO Europe web site who seek health information (n = 694), 12 follow up interviews with volunteers among survey respondents, as well as in-depth qualitative interviews with 12 stakeholders from strategic

collaborators and actors in the health information landscape in Europe. Recommendations of the research were: (a) making WHO data count, proactive engagement in strategic health information roles, development of user-oriented tools, and establishing communication services for health information users.

The health information toolset of the Norwegian Institute of Public Health

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The Public Health Act (2012) obliges the NIPH to supply counties and municipalities with some of the data needed to provide public health services for the population.

This is done through a set of health information tools, available online to the public:

1. Public health profiles for municipalities, counties and city districts. These small booklets give a brief overview of population health and risk factors, specialized articles on a new topic every year, and a public health barometer; a graphic device that shows key indicators for each municipality/county/city district with colour codes and symbols.
2. The two statistics banks NorHealth and the Municipal Data Bank. They make it easy to find and illustrate data for users without statistical knowledge: maps, time lines and bar charts. The banks have more indicators than the public health profiles.
3. Fact sheets: short articles, written in non-medicalese, explaining and describing diseases and risk factors, illustrated with data from the statistics banks, updated in real time.

NorHealth and around 30 fact sheets are available in English. To improve user-friendliness, contact with potential users is important. In 2014, in-depth interviews were conducted with users from different areas, and an online user survey was done. The users wanted changes in functionality and specified more indicators which led to several changes implemented by the NIPH team. A new survey was done in 2016.

The information tools were primarily made for public health coordinators and advisors. According to the 2014 survey (N = 216), 48% of respondents belonged to this group. Other users were administrators and planners, and health professionals.

Looking at the NIPH information tools together, one might say that the public health profiles present data from the statistics banks, while fact sheets explain what the data mean.

RIVM websites on their way to get more visual

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The Dutch National Institute of Public Health and the Environment (RIVM) has been improving its visual presentations on health information websites like VZinfo.nl, Municipality Health Profiles and Atlas Living Environment. This was done by using several types of data visualisation, such as graphs, (interactive) maps, infographics and one pagers.

Within the presentation we will give an overview on the building blocks of the RIVM health and environmental information websites, our capacity building efforts in data visualisation, as well as the applied technical resources.

First part of the presentation will be dedicated to a short demo of these websites. Each of these websites has its own target groups and its own level of interactivity (ability to adjust the visual presentation). Furthermore, each website has its own level of exploration and explanation possibilities. 'Exploring' in this respect means visitors are offered tools for analysing data and build their own interpretation. Explanatory websites and visuals on the other hand tell a story, by means of an infographic, or by providing an explanatory text along with a graph.

Capacity building regarding data visualisation is bundled within the DIVE-project (Data Information Visuals Explored): We share some good practice examples in data visualisation, experiences regarding the production of good, attractive, and interactive data visualizations, highlighting some information on the development of a 'good practice database' for data visualisations as well as a wizard that supports people in producing good data visualizations.

The third part of the presentation has a more technical focus. We work with i.e. High Charts, High Maps, D3 and Geoserver and will explain which choices we have made regarding the applied visualisation tools.