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## EDITORIAL

# Public health information systems – and EUPHIX

FINN KAMPER-JØRGENSEN

In public health, we are moving towards the third generation of public health information systems. The two articles in this issue [1,2] demonstrate how a cross-national European system has been developed as an integrated knowledge system (EUPHIX), and how a national system (Norhealth) can develop along the same lines.

The *first generation* of public health information systems comprised a data system collecting important basic data on a population and the health of a population, such as births and deaths. Over time, the vital and mortality statistics proved to be a very useful and informative tool. Such statistics have existed for hundreds of years, partly to provide the king of a country with information on the power that he possessed through the size of the population, and partly to obtain knowledge about population health.

When the discipline of epidemiology emerged, strict concepts and definitions such as mortality rates and incidence rates were developed.

The *second generation* of public health information systems is characterized by combining time-series data and international comparative data with comments related to the data – for example, comparing age- and sex-standardized mortality rates of lung cancer over time and in different European countries. The public health consequence of such comparisons was an increased focus on high-mortality countries and attempts to understand causal pathogenic links between risk factors and disease and mortality – and intervention, e.g. with regard to tobacco smoking.

A growing interest in measuring health and disease in live populations and outside institutions developed from the middle of the 20th century. Health interview surveys and health examination surveys of nationally representative populations began to appear in the literature, and lately we have been seeing European attempts to standardize such information systems through standardization of the measurement instrument: the questionnaire.

The second generation of public health information systems is also characterized by data collection based on a theoretical concept of health and disease rooted in a multifactorial understanding. Health and disease is determined by many factors, including lifestyle, living conditions, genetics, health system interventions and population structure.

The World Health Organization (WHO) programme in Europe, “Health for All by the Year 2000”, has been very important and instrumental in the development of relevant health indicators measuring health policy targets.

Now – at the beginning of the 21st century – we meet the *third generation* of public health information systems. I use the term “integrated knowledge system” because it integrates data, descriptive and analytical information, and digested and evidence-based knowledge.

Electronic data handling, information technology and the Internet have revolutionized the possibilities of creating integrated health information.

We are still at the beginning of this new epoch. The European EUPHIX model needs further development, but is a powerful demonstration of the possibilities of today's public health information systems.

The EUPHIX model is an interactive Internet-based system allowing one to create tables, graphs and maps of indicators of health and health determinants across the European countries. The data are based on already existing data systems such as those of EUROSTAT, the WHO and the Organization for Economic Co-operation and Development (OECD).

The so-called EUphact and EUphocus add to this traditional data and information system, making it an early third-generation system. EUphacts are textual expansions on the basic list of European Community Health Indicators (ECHI). EUphocus contributes to health policy with relevant information related to decision-making.

The EUPHIX model is clearly an interesting model for Europe in the future. It needs further development and further political back-up, including European Union (EU) economic support, in order to make it a sustainable model.

It is interesting to note that both the EUPHIX model and the Norwegian model Norhealth originate from national public health institutes – not from statistical offices or from departments of health or health agencies. The explanation seems logical. The national public health institutes are advisers on health policy and on evidence-based research to governments and health authorities. The need for a third generation of public health information systems existed. Now they have been developed – EUPHIX as a European model, and Norhealth as a national model.

In Europe, we should express our gratitude to RIVM, The Dutch National Institute of Public Health, for its continued interest and huge investment in developing first a proposal for the European Health Indicators (ECHI, etc.), and next in establishing the EUPHIX model in dialogue with a number of European countries.

In the Scandinavian countries, we are in a very favourable position with regard to public health information systems. We have a long tradition of developing public health information systems, including systematic information from our health-care institutions, e.g. our individually based hospital information systems. In Denmark, Finland and Sweden – and apparently soon also in Norway – legislation allows the merging of different population-based registers at the individual level. This creates internationally unique health information

and research material for further analysis and planning of public health interventions and health-care interventions.

This journal prioritizes the publication of such linked register population-based studies.

Denmark, Finland and Sweden have produced National Public Health Reports. Norway is beginning soon. These reports could easily be linked to the relevant parts of a third generation of public health information systems in each of the Scandinavian countries.

The EUPHIX and Norhealth models seem to be a step to follow in the Scandinavian countries to further develop our unique international position with regard to population-based registers rooted in individual registration.

The European perspective of further developing a feasible third generation of public health information systems for Europe seems clear.

*Step 1: Support politically, morally and economically the further development of EUPHIX through the RIVM team and the associated European collaboration team*

We need collaboration between EUROSTAT, DG Sanco and the European nations on structured support for further development – we do not need a power game between DG Sanco and EUROSTAT and other interested bodies on this issue.

*Step 2: Initiate science-based studies in order to make sure that the indicators are comparable, valid and reproducible*

It is not acceptable that the so-called EU SILC study, leading to an assumed comparable structural EU indicator, has resulted in methodological criticism from Denmark and in a footnote in the EUPHIX system: “Due to some differences in the Danish SILC, data for Denmark should be interpreted with caution.” We cannot accept information systems where Denmark in OECD country comparisons is among the lowest-ranking life-expectancy countries, while, at the same time, on the new EU structural indicator “Healthy Life Expectancy”, we find Denmark at the top just below Malta. Our public health experts are confused and react, and our politicians cannot understand that experts are not able to construct comparable data and information systems.

*Step 3: Prepare for a European directive (= European law) describing how EU Member States, over the next 10 years, can develop a harmonized and standardized third-generation public health information system based on the EUPHIX model*

Today, it is completely unrealistic to ask all countries for harmonization and standardization on the relevant indicators. We need a long-term politically accepted strategy for this development. The political acceptance is a prerequisite for the

nations to contribute in a positive way to the further development of a European public health information system along the lines of EUPHIX.

We need this kind of system in the 21st century. Political action is needed.

## References

[1] Achterberg PW, Kramers PGN, van Oers HAM. European community health monitoring: the EUPHIX-model. *Scand J Public Health* 2008;36:676–84.

[2] Trewin C, Strand BH, Grøholt E-K. Norhealth: Norwegian Health Information System. *Scand J Public Health* 2008;36: 685–89.

## Supplementary relevant websites

EUPHIX: <http://www.euphix.org>

Norhealth: <http://www.norghelsa.no>

WHO: <http://www.who.int/healthinfo/systems/en/>

OECD: <http://www.oecd.org>

EUROSTAT:

[http://epp.eurostat.ec.europa.eu/portal/page?\\_pageid=1090,30070682,1090\\_33076576&\\_dad=portal&\\_schema=PORTAL](http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1090,30070682,1090_33076576&_dad=portal&_schema=PORTAL)

DG Sanco: <http://dev.ersnet.org/294-what-is-dg-sanco.htm>

Sundhedsstyrelsen, DK: [http://www.sst.dk/Informatik\\_og\\_sundhedsdata.aspx](http://www.sst.dk/Informatik_og_sundhedsdata.aspx)

Socialstyrelsen, SE: <http://www.socialstyrelsen.se/Statistik/>

Helsedirektoratet, N: <http://www.shdir.no/>

Statistics Sweden: [http://www.scb.se/default\\_\\_\\_\\_2154.asp](http://www.scb.se/default____2154.asp)

Statistics Denmark: <http://www.dst.dk/homeuk.aspx>

Statistics Finland: [http://www.stat.fi/index\\_en.html](http://www.stat.fi/index_en.html)

Statistics Norway: <http://www.ssb.no/english/>

KTL, National Public Health Institute, Finland: <http://www.ktl.fi/portal/english/>

FHI, National Public Health Institute, Sweden: [http://www.fhi.se/default\\_\\_\\_\\_1417.aspx](http://www.fhi.se/default____1417.aspx)

SIF, National Institute of Public Health, Denmark: <http://si-folkesundhed.dk/?lang=en>

Norwegian Institute of Public Health: <http://www.fhi.no/eway/?pid=238>



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