Overview eHealth monitoring and benchmarking in Europe

Quantitative monitoring and benchmarking of eHealth is rather widespread in the European Union. Benchmarking activities covering one or more groups of health actors and various eHealth-related issues can — to varying degrees — be found in nearly all EU Member States, as well as in Norway, Iceland, Canada and the United States of America. A search for eHealth monitoring and benchmarking sources of international and national scope conducted by the eHealth Benchmarking study found 89 sources and more than 4,300 indicators. Beside the sheer quantity of sources and indicators, the research also found a wide variability in terms of geographic coverage, analytic depths, and eHealth concepts used.

A majority of the identified sources (74) covers only a single country, while only 15 have a multinational scope, ranging from 5 to 29 countries. Most sources (73) are non-continuous, i.e. data were gathered for only one or two points in time and a continuation is not envisaged. Only a handful of sources (16) is continuous, with data usually being available for two or more points in time. All but one of the continuous data gathering exercises take place on the national level only. The purposes for eHealth monitoring are diverse. Most sources aim to measure the availability and use of ICT in general and eHealth in particular. Others aim to evaluate specific eHealth applications, systems or services, assess attitudes of citizens or health professionals towards eHealth, or provide eHealth market data.

As regards health actors, the group covered most often is that of General Practitioners (GPs). Most of the indicators and data available for GPs deal with administration issues, (generic) ICT use, and attitudes towards ICT and ICT use, but also with ICT availability and patient data exchange and storage. The second-best covered actors are hospitals, where most indicators deal with ICT availability, administration, (generic) ICT use, patient data exchange and storage. Citizens rank third and are most often asked about health information search and their attitudes towards ICT and ICT use, but also the use of ICT for things such as making appointments.

Sources addressing specialists rank fourth, followed by health professionals in general. Pharmacies, health insurances and public health organisations are included considerably less frequently and also only for a limited number of activities. The study found a total of three sources dealing with nurses and practice staff, and no sources covering informal carers, care providers, paramedical practitioners and therapists.

The matrix below gives an overview of the eHealth benchmarking situation in Europe and North America (dark squares) and the US (check mark) in terms of actors and issues covered.

Learn, Share, Contribute
We invite you to learn about the eHealth Benchmarking study and its approach, to share in its outcomes and to actively contribute to our efforts.

If you want to know more about eHealth benchmarking have a look at http://www.ehealth-benchmarking.eu/.

eHealth Benchmarking sources in the United States of America and in Europe/North America
**eHealth Benchmarking in the US**

The eHealth Benchmarking study found eleven sources of eHealth indicators and data that include the US in their scope. Nine of those are national studies focussing solely on the US, while the other two are multinational sources that also cover other countries.

A brief description of all sources found is provided in the following. More information is available online at [http://www.ehealth-benchmarking.eu](http://www.ehealth-benchmarking.eu).

In terms of health actors, eHealth benchmarking sources for the United States cover General Practitioners (GPs), Hospitals, Specialists (including Dentists), Health professionals and Citizens. The coverage of eHealth-related issues and activities varies depending on the actor in question: it is highest for GPs and Hospitals, slightly lower for Specialists Dentists, and Health professionals and very limited for Citizens.

### National Sources:

**Medical Groups’ Adoption Of Electronic Health Records And Information Systems**

*Conducted by: Medical Group Management Association et. al.*

**Type of data gathering:** Survey

**Year of publication:** 2005

**Years of available data:** 2005

**Continuous:** No

**Geographic Coverage:** USA

**Activities:** Administration, Referring, Laboratory analysis, Diagnosis, Prescribing, Patient data storage (generic), ICT availability, eHealth/IT investment, Consultation, Assessment of ICT impacts

**Actors:** General Practitioner, Health professional (generic)

**Further information:** n.a.

The survey covers a nationally representative sample of medical group practices assessing their current use of information technology (IT). The results suggest that adoption of electronic health records (EHRs) is progressing slowly, at least in smaller practices, although a number of group practices plan to implement an EHR within the next two years. Moreover, the process of choosing and implementing an EHR appears to be more complex and varied than expected. This suggests a need for greater support for practices, particularly smaller ones, in this quest if the benefits expected from EHRs are to be realized.

**Electronic Health Records in Ambulatory Care**

*Conducted by: Institute for Health Policy et. al.*

**Type of data gathering:** Survey

**Year of publication:** 2008

**Years of available data:** 2008

**Continuous:** No

**Geographic Coverage:** USA

**Activities:** ICT availability, Patient data storage (generic), Prescribing, Laboratory analysis, Diagnosis, Treatment, eHealth/IT investment, Assessment of ICT impacts, Attitudes towards ICT, Administration, IT related processes, ICT use (generic)

**Actors:** General Practitioner, Specialist

**Further information:** n.a.

National survey of 2758 physicians, which represented a response rate of 62%. Using a definition for electronic health records that was based on expert consensus, the survey determined the proportion of physicians who were using such records in an office setting and the relationship between adoption and the characteristics of individual physicians and their practices.

**Hospital ICT use survey**

*Conducted by: American Hospital Association*

**Type of data gathering:** Survey

**(Most recent) Year of publication:** 2008

**Years of available data:** 2008

**Continuous:** Yes

**Geographic Coverage:** USA

**Activities:** ICT availability, Patient data storage (generic), Diagnosis, Consultation, Laboratory analysis, Prescribing, Treatment, Facility management, Telemedicine, Administration, eHealth/IT investment, Attitudes towards ICT, IT related processes

**Actors:** Hospital

**Further information:** n.a.

Census of all U.S. acute care hospitals (not including psychiatric hospitals, long-term nursing homes, etc., i.e. approximately 5,000 hospitals. It is being fielded by the American Hospital Association.

**National Survey of Physician Organizations and the Management of Chronic Illness**

*Conducted by: Department of Health Studies, University of Chicago et al.*

**Type of data gathering:** Survey

**Year of publication:** 2003

**Years of available data:** 2001

**Continuous:** No

**Geographic Coverage:** USA

**Activities:** Patient data storage (generic), ICT use (generic), Laboratory analysis, Prescribing, Diagnosis, Treatment, Administration

**Actors:** Health professional (generic)

**Further information:** n.a.

Survey of Physician Organizations (PO) of more than 20 physicians on the use of different types of care management processes (for case management, performance feedback to individual physicians, use of disease registries, use of clinical practice guidelines). The survey includes questions on how clinical IT systems are used for the purpose of care management.

**Forward Momentum - Hospital Use of Information Technology**

*Conducted by: American Hospital Association.*

**Type of data gathering:** Survey

**Year of publication:** 2005

**Years of available data:** 2005

**Continuous:** No

**Geographic Coverage:** USA

**Activities:** ICT availability, ICT use (generic), Laboratory analysis, Administration, Facility management, Patient data storage (generic), Treatment, Diagnosis, Prescribing, Consultation.
The Leapfrog Group Hospital Patient Safety Survey

Conducted by: The Leapfrog Group
Type of data gathering: Survey
Year of publication: 2003
Years of available data: 2002/2003
Continuous: No
Geographic Coverage: USA

Activities: ICT availability, ICT use (generic), Prescribing, ICT availability, eHealth/IT investment
Actors: Hospital
Further information: n.a.

The Leapfrog Group is a coalition of large employers in the U.S. including General Motors, Ford, and General Electric. The Leapfrog Group attempts to encourage hospitals to adoption of patient safety practices including computerized physician order entry. This survey was the 2002-2003 version of the survey that examined use of computerized provider/physician/prescriber order entry (CPOE) systems in 1189 hospitals across the U.S. It was not a nationally representative sample, but it was broad-based and sampled hospitals of all sizes from across the U.S. The survey focused on detailed questions about CPOE use. It has been rated high in methodology and functionalities but is limited in that it is not a nationally representative sample of U.S. hospitals.

National Hospital Ambulatory Medical Care Survey (NHAMCS)

Conducted by: National Center for Health Statistics
Type of data gathering: Survey
Year of publication: 2008
Years of available data: 2008
Continuous: Yes
Geographic Coverage: USA
Activities: ICT availability, Patient data storage (generic), Prescribing, Treatment, Administration
Actors: Hospital
Further information: http://www.cdc.gov/nchs/about/major/ahcd/ahcd1.htm

The National Hospital Ambulatory Medical Care Survey (NHAMCS) is designed to collect data on the utilization and provision of ambulatory care services in hospital emergency and outpatient departments. Findings are based on a national sample of visits to the emergency departments and outpatient departments of noninstitutional general and short-stay hospitals, not taking into consideration the Federal, military, and Veterans Administration hospitals, located in the 50 States and the District of Columbia.

The survey instrument is the Patient Record form, which is provided in two versions, one for use in outpatient departments and another for use in emergency departments. Hospital staff are instructed to complete Patient Record forms for a systematic random sample of patient visits during a randomly assigned 4-week reporting period. Data are obtained on demographic characteristics of patients, expected source(s) of payment, patients' complaints, physicians' diagnoses, diagnostic/screening services, procedures, medication therapy, illness-related predispositions, types of health care professionals seen, causes of injury where applicable, and certain characteristics of the hospital, such as type of ownership.

Mathematica

Conducted by: Mathematica Policy Research, commissioned by the federal government
Type of data gathering: Survey
Year of publication: 2005
Years of available data: 2005
Continuous: No
Geographic Coverage: USA
Activities: Prescribing, Laboratory analysis, Diagnosis, Patient data storage (generic), Assessment of ICT impacts
Actors: Hospital
Further information: n.a.

The primary objectives of the project are twofold: to develop a comprehensive overview over the installed base of healthcare IT systems in acute/general hospitals (excluding long stay psychiatric or geriatric) by major segments as defined in Europe at a level of detail that cannot be satisfied by currently available secondary data or market intelligence; to assess the future development of healthcare IT in hospitals. The primary objectives are fulfilled by: Mapping supplier application profiles, Mapping hospital application profiles, Assessing progress towards eHealth, Identifying practical transition steps. Overall, the information supplied by this project shall enable strategic planning for Marketing and Sales functions of leading suppliers of healthcare IT systems and related services by supplying in-depth information on the current situation, which in conjunction with the data on future developments will allow accurate projections for the market potential at segment level and in connection with in-house sales data for own sales in the short to medium term future.

Clinical Computing in General Dentistry

Conducted by: Schleyer et al., Center for Dental Informatics, University of Pittsburgh
Type of data gathering: Survey
Year of publication: 2006
Years of available data: 2004
Continuous: No
Geographic Coverage: USA
Activities: Prescribing, Laboratory analysis, Diagnosis, Patient data storage (generic), Assessment of ICT impacts
Actors: Hospital
Further information: n.a.

The eHealth Benchmarking Situation 2008

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The objective of the survey was to measure the adoption and utilization of opinions about, and attitudes towards clinical computing among general dentists in the United States. The survey was carried out as a telephone (and paper) survey of 256 general dentists in active practice in the USA. The sample was drawn as a random sample and the response rate was 39.8%.

Results: Clinical information associated with administration and billing, such as appointments and treatment plans, was stored predominantly on the computer; other information, such as the medical history and progress notes, primarily resided on paper. Nineteen respondents, or 1.8% of all general dentists, were completely paperless. Auxiliary personnel, such as dental assistants and hygienists, entered most data. Respondents adopted clinical computing to improve office efficiency and operations, support diagnosis and treatment, and enhance patient communication and perception. Barriers included insufficient operational reliability, program limitations, a steep learning curve, cost, and infection control issues.

Conclusion: Clinical computing is being increasingly adopted in general dentistry. However, future research must address usefulness and ease of use, workflow support, infection control, integration, and implementation issues.

Multinational Sources:

SIBIS - Statistical Indicators Benchmarking the Information Society

Conducted by: empirica
Type of data gathering: Survey
Year of publication: 2003
Years of available data: 2003
Continuous: No
Geographic Coverage: EU25+USA
Activities: Health information search
Actors: Citizen
Further information: www.sibis-eu.org

SIBIS was one of the projects of the "Information Society Programme" of the European Commission which was running from January 2001 to September 2003. SIBIS has developed innovative information society indicators to take account of the rapidly changing nature of modern societies and to enable the benchmarking of progress in EU Member States. One of the topics addressed in the survey was the eHealth sector. The indicators have been tested and piloted in representative population surveys in all (in those days 15) EU Member States, 10 Acceding and Candidate countries, Switzerland and the USA. The indicators developed and data obtained through the survey questionnaire relate to:
- the search of health related information on the Internet,
- the suitability of the information for the needs of the citizen,
- language issues (use of relevant websites identified in other languages than mother tongue),
- reasons for searching health-related information on the Internet, and
- seeking a second opinion on own, a family member's or a friend's medical diagnosis.

Data on these indicators are freely available on the website and as part of project publications (e.g. reports and Statistics Pocketbook). An SPSS file of the survey data is made available and is sent on request.

International Health Perspectives 2006: A Survey of Physicians in Seven Countries

Conducted by: The Commonwealth Fund
Type of data gathering: Survey
Year of publication: 2006
Years of available data: 2006
Continuous: No
Geographic Coverage: Australia, Canada, Germany, Netherlands, New Zealand, United Kingdom, United States
Activities: Administration, Prescribing, Laboratory analysis, Patient data exchange (generic), Treatment, Patient data storage (generic)
Actors: General Practitioner, Citizen, Pharmacy, Hospital
Further information: http://www.commonwealthfund.org/surveys/surveys_show.htm?doc_id=419152

This survey is a follow-up on a first survey of physicians in Australia, Canada, New Zealand, the United Kingdom and the United States. In this second survey in 2006, Germany and the Netherlands were included as well. The survey was carried out through mail, fax or telephone interviews. The study examined how primary care physicians perceive the quality of care in their countries and what factors they view as impeding or supporting high-quality, efficient, patient-centred care. The survey explored:
- Physicians’ overall satisfaction with the health care system,
- Concerns about patients’ access to care,
- Responsiveness to patients’ needs for after-hours care,
- Views on reducing medical errors in practice,
- Support for patient involvement in decision-making,
- Involvement in pay-for-performance programs,
- Use of interdisciplinary teams and nurse coordinators,
- Experience with EMR to address the needs of specific patient populations.

The eHealth Benchmarking Study

The "eHealth Benchmarking" study is carried out by empirica on behalf of the European Commission, Information Society and Media Directorate-General. The study aims to collate and analyse existing eHealth monitoring and benchmarking sources in order to identify best practice in data gathering and to develop a framework for an EU-wide eHealth benchmarking activity. The intention is not only to help better understand eHealth progress but also to identify the main gaps, obstacles and barriers in relation to eHealth monitoring / benchmarking to be overcome in the next few years. In doing so, the study covers the Member States of the European Union, Norway, Iceland, Canada and the United States.

The benchmarking sources were identified by means of a combination of different research methods, including a survey among the experts of the EEA Working Group on Information Society statistics, desk research on sources of eHealth data and measurements on a supranational and European level, and research on the national level carried out by a network of national correspondents.

More information on the study is available online at http://www.ehealth-benchmarking.eu/ or from the project coordinator.
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