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DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY
COMMITTEE FOR INFORMATION, COMPUTER AND COMMUNICATIONS POLICY

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Working Party on Indicators for the Information Society

ICTs IN THE HEALTH SECTOR: TOWARDS AN OECD MODEL SURVEY

16-17 June 2010

This document summarises the main outcomes of the OECD Special Session "Towards international co-operation in measuring adoption and use of information technologies in the health sector"- held in Barcelona, back-to-back with the World of Health IT, 15-18 March, 2010 . The meeting was sponsored by the Ministry of Health of Spain, and organised in collaboration with the European Commission. It was chaired by Dr. Chuck Friedman, Chief Scientific Officer of the Office of the National Coordinator for Health IT in the United States. A set of 15 core indicators and an action plan for further statistical work to ensure the international comparability of these indicators were agreed.

The Working Party is invited to note and comment on this document and to discuss its potential contribution to this project under item 3.3 of the Draft Agenda.

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English - Or. English

NOTE BY THE SECRETARIAT

1. In 2007, the OECD Health Committee undertook a study on how OECD countries were monitoring and evaluating adoption and use of Information and Communication Technologies (ICTs) in the health sector. A questionnaire was circulated to delegates for this purpose. The main objective of the study was to identify:

- Policy needs and information requirements,
- Common or leading-edge practices which might be further developed and implemented,
- A framework for the selection of internationally comparable indicators,
- Areas for international action and future research efforts.

2. The brief attached to this note reports on the main findings of this study.

3. The evidence collected shows that the currently available national and international data on health ICTs are often not comparable for a whole range of statistical reasons, including the use of different sampling techniques and definitions, and the scope of the surveys. This leads to difficulties in drawing general conclusions on ICT adoption and use, especially when more complex analyses are being undertaken, such as those attempting to evaluate the impacts of ICTs on health care ((DELSA/HEA(2008)15REV1) ; DELSA/HEA/ICT(2009)1).

4. On the basis of these findings and recommendations arising from discussions by national health ICT experts, on July 6-7, 2009, at their 5th Session, the Health Committee expressed its support for work to develop a model survey on ICTs in the Health Sector. [DELSA/HEA(2009)7; DELSA/HEA M(2009)1]. The initial stages of this work are now underway.

5. A meeting was held on March 16, 2010, back-to-back with the World of Health IT conference in Barcelona. The meeting was sponsored by the Ministry of Health of Spain, and organised as a half-day satellite session in collaboration with the European Commission. It was chaired by Mr. Chuck Friedman, Chief Scientific Officer of the Office of the National Coordinator for Health IT in the United States. Members of sixteen delegations, including the European Commission (EC), the Business Industry Advisory Committee to the OECD (BIAC), and the World Health Organisation (WHO) attended the satellite session (see DELSA/HEA/HCQ (2010)6).

6. A consensus was reached at this meeting on a subset of the indicators listed under Figure 2 in the attached note and on an action plan for further refining these indicators and developing a 'model survey.

7. Participants also agreed that a feasible way forward could be to establish three or four small expert sub-groups tasked to create spanning definitions for the indicators.

8. The sub-groups would be composed of experts drawn from the relevant contributing Working Parties and would work primarily on-line and through an electronic discussion group.

9. This project has since been included in the Programme of Work and Budget 2011/2012 of the OECD Health Committee (DELSA/HEA(2010)12) and the OECD Committee for Information, Computer and Communications Policy (DSTI/ICCP(2010)2/REV1).

10. Delegates are invited to:

- **COMMENT** on the present document;
- **DISCUSS** potential contributions to this project; and
- **INDICATE** interest in participating in the expert sub-groups.

Benchmarking adoption and use of health information technologies to support quality of care and efficiency improvements

In 2007, the OECD undertook a study on how OECD countries were monitoring and evaluating heath ICTs. A questionnaire was circulated to governments for this purpose. The main objective of the study was to identify:

- Policy needs and information requirements,
- Common or leading-edge practices which might be further developed and implemented,
- A framework for the selection of internationally comparable indicators,
- Areas for international action and future research efforts.

This brief reports on the main findings of this study. The evidence collected shows that the currently available national and international data on health ICTs are often not comparable for a whole range of statistical reasons, including the use of different sampling techniques and definitions, and the scope of the surveys. This leads to difficulties in drawing general conclusions on ICT adoption and use, especially when more complex analyses are being undertaken, such as those attempting to evaluate the impacts of ICTs on health care.

Developing and implementing a “Model Survey” tailored to the needs of health policy makers provides one possible way to improve the availability and comparability of data on health ICTs. In the model survey approach an agreed set of indicators, including their definitions can be developed to aid international comparability between survey results. The use of core modules (as an add-on to existing country surveys or as a stand alone survey) allows measurement on an internationally comparable basis. The scope of what is considered will be determined by the main policy issues confronting policy makers, can evolve with time and allows country-specific features to be included. This approach was developed in 1999 by the OECD and has proven successful in establishing a common set of guidelines to measure ICT use in enterprises and in households and is today widely adopted by national statistics offices.

What are the most common policy needs and information requirements?

A key premise underlying this study is that metrics and indicators have to be relevant to policy makers. For this purpose a short questionnaire was used to survey policy needs and information requirements. The study did not to try to develop a compendium or address the totality of the surveys being conducted in this area as many of the existing surveys may be only of passing interest to policy makers.

The OECD obtained relevant information from ten OECD countries (Australia, Canada, the Czech Republic, Finland, France, New Zealand , Norway, Spain, Sweden and the United States), the European Commission and the Commonwealth Fund. Responses provided a snapshot of the most common policy and information needs.

Most OECD countries are at an early stage of ICT implementation, integrating systems that clinicians use at the point of care to document and share clinical patient data. Thus, the main type of information that policy makers seek is on 'access to and use of ICTs". A shared priority is for indicators to measure the ways in which ICT is being used by health care providers – particularly at primary-care level. As most countries' policy agendas are focused on accelerating use by general practitioners, there is also demand for indicators to monitor incentives and barriers to the use of ICTs.

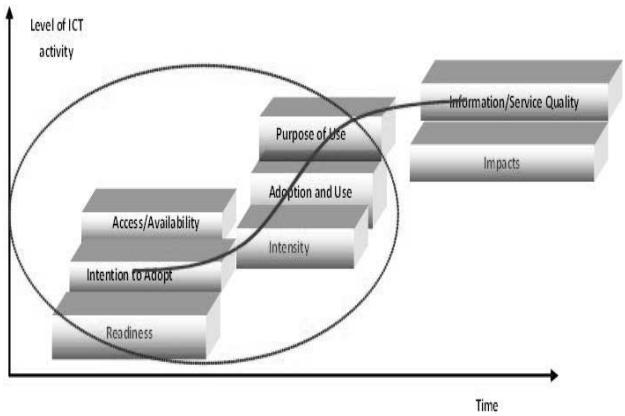
Key messages:

Most OECD countries are at an early stage of ICT implementation in the health sector. Hence, the main type of information that policy makers seek is on 'access to and use of ICTs'.

As most countries' policy agendas are focused on stimulating use, there is also demand for indicators to monitor incentives and barriers to ICTs.

The main information needs today are represented in the areas encircled in Figure 1 below. The figure illustrates through an S-curve, describing the diffusion of ICT innovations over time and the related level of ICT activity, how such information needs may also evolve.

Figure 1. Principal information needs



This conceptual framework was developed by the OECD in the early 1990s and recognizes that measurement of an ICT-related activity in a country means measuring a "*moving target*". Indicators concerning availability and access to infrastructures or the "readiness" to adopt ICTs are of greater interest in a situation/country where ICT use is in its infancy. As the use of ICT progresses, countries place greater emphasis on the purpose and level of ICT use (intensity) and on its impact (and less on readiness indicators). There is likely to be some demand for all three types of indicator, but priorities will differ over time.

What can we learn from existing survey practices?

The major types of data collections are:

Stand-alone surveys of health care providers (businesses or personnel),

Surveys of the population,

Use of administrative data.

Key messages:

The predominant mode of collecting information is to survey the primary care sector or hospitals. Other, less common, data collections include surveys of population (Canada) or use of administrative data (Norway, Spain, Sweden).

Most surveys are conducted as stand-alone surveys, on an ad hoc basis. Activity by national statistics offices to monitor ICT use in the health sector is limited.

With the exception of Finland, where ICT adoption has been monitored since 2005 on an annual basis and across various segments of the health sector, most OECD countries have not yet set out to collect national data on health ICT adoption on any systematic basis. In addition, most surveys are conducted as stand-alone surveys, on an ad hoc basis and in most cases target exclusively the primary care sector.

Surveys of populations are less common, although there appears to be some demand for indicators to track patients' opinions and attitudes (*e.g.* on privacy and security), including access to and use of health information on the web.

Three out of the ten countries (Norway, Spain and Sweden) also use routine administrative data collections to monitor ICT adoption. This approach may represent a low cost alternative way for compiling indicators. The downside is that in most cases administrative data collections are designed for other purposes than monitoring ICT use and impact.

Activity by national statistics offices has been generally limited. With few exceptions (namely Canada, the Czech Republic and the United States), current surveys on ICT by national statistics offices do not include the health care sector within their scope and cover ICT use in general, while the issues of relevance to health care policy relate to specific applications such as EHRs.

Table 1. Overview of main data collections

Data collections	Relevance	Feasibility	Prevalence	Comparability
National statistics surveys	Low	Low	Low	High
Use of administrative data	Medium	High	Low	Low
Surveys of population	Medium	Low	Low	Low
Stand-alone surveys	High	Medium	High	Low

Table 1 presents a simplified comparative analysis of the different data sources in terms of: *a)* relevance, *i.e*. how well the data reflects the information priorities of policy makers; *b)* feasibility, *i.e.* how easily data can be gathered (cost and time); *c)* prevalence, *i.e.* whether the type of data collection is frequently used or not; and *d)* extent of comparability.

Terms and definitions

With the exception of the term "electronic health record" and "electronic medical record", there was very little or no overlap in the lists of definitions provided by countries. Notably, none included any general definition for ICTs or health care. Even for the term EHR, the definitions used in questionnaires were inconsistent.

A few questionnaires characterized EHRs and EMRs by their attributes, the scope or nature of their information/content, the source of their information, and the features and functions they offer. Box 1 describes the approach adopted to define EHRs in 2008 by DesRoches and colleagues.

Functions are becoming the common language used by all main stakeholders: when describing the capabilities of applications (vendors), needs and clinical uses (providers) quality requirements (regulators), or other purposes.

Box 1. Functional characteristics of an electronic health record

On the basis of advice from an expert panel, in 2008 DesRoches and colleagues defined the key functions that constitute an outpatient EHRs. Using a modified Delphi process, the panel reached consensus on functions that should be present to qualify the system into two functional categories, a basic system and a fully functional system.

The functions that should be present to qualify a system as "fully functional" consist of four domains: recording patients' clinical and demographic data, viewing and managing results of laboratory tests and imaging, managing order entry (including electronic prescriptions), and supporting clinical decisions (including warnings about drug interactions or contraindications). The four domains are associated to a total of sixteen unique functions. The distinction between the two types of EHRs is defined by the absence of certain order – entry capabilities and clinical-decision support in a basic system while a fully functional system has all sixteen functions present.

Source: DesRoches, C. *et al.* (2008), "Electronic Health Records in Ambulatory Care – A National Survey of Physicians", *New England Journal of Medicine*, Vol. 359, pp. 50-60.

Common information needs are reflected in a core set of widely used indicators

The main types of indicators in widespread use today address use and purpose of use (see Figure 2 below). This is reflective of the long-standing preoccupation of many countries to encourage physicians to use ICTs for clinical care and not just for administration and billing. The trend in some countries to use indicators on physicians' "attitudes or perceptions" demonstrates also a growing interest in gauging the impacts of health ICTs on clinical practice. This information is important to address key policy questions such as the need to provide specific incentives.

Although, surveys are generally tailored to country-specific needs, six indicators are commonly used in over 40% of the questionnaires analysed. These are:

- Access to computerised systems,
- Internet access,
- Patient access to web-based services,
- Adoption and use of EMRs/EHRs,
- Use of e-messaging,
- User satisfaction.

The use of these indicators can provide information to help policy makers achieve three broad objectives:

1. Promote access and availability of health ICTs

ICTs can enable integration and better co-ordination of care across health care sectors. This integration, however, is dependent upon the state of ICT infrastructure and of the "ICT readiness", particularly of the least advanced organisations in the network. Variation in the level of readiness can create a significant barrier to the entire enterprise of local/regional/national integration.

2. Stimulate adoption and meaningful use of ICTs for clinical care

A continuing challenge for many countries is the gap in adoption rates and between adoption and use. Indicators that capture the different dimensions of use particularly in relation to the various potential clinical functions of an EHR (*e.g.* e-prescription or clinical decision support) could, therefore, be of great value to policy makers in all OECD countries. Of particular and growing interest today is also the expanded use of EHRs to facilitate the collection of data on quality of care for quality improvement activities. Indicators to monitor this use can be useful to document adherence to clinical guidelines and quality assurance criteria and inform actions for surveillance, population and outcomes research.

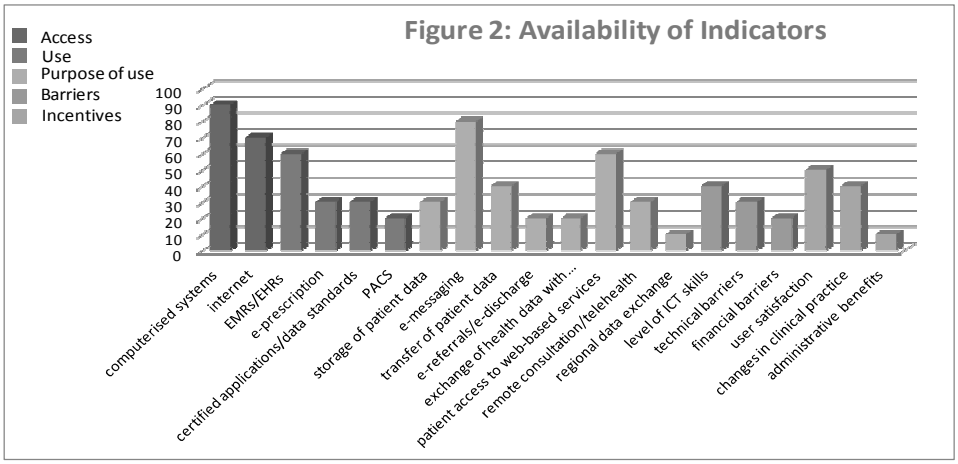
3. Make it possible to understand barriers and incentives

Understanding the barriers and incentives to ICT use is an important component to understanding the potential of ICTs to improve the performance of health systems. Information at the level of individual actors on relevant parameters, for instance, user satisfaction, can help address key policy questions such as the need to provide financial incentives or technical/training support. The surveys analysed appear to focus on two main issues: *i)* usability of the ICT tools (predominantly EMRs, EHRs, e-prescription), i.e. how easily and reliably these tools can be integrated in the workflow; *ii)* impact on the quality of the care delivered.

Did you know that…

Over the past ten years, statistical work on information technologies has been undertaken by the OECD in co-operation with many national Statistical Agencies, Eurostat and (particularly) the Voorburg Group on Service Statistics which focuses on the development of service industries statistics (one of the "city groups" established by the United Nations Statistics Division). The history of this work has been now fully detailed in a 2009 OECD paper: *Guide to Measuring the Information Society.*

[*http://www.oecd.org/dataoecd/25/52/43281062.pdf*]



The path forward: improving the comparability of data through a "Model Survey" approach

Developing and implementing a "Model Survey" provides one possible way to improve comparability of data across countries.

To be useful in all contexts, a 'Model Survey' is composed of separate, self-contained modules that ensure flexibility and adaptability to a rapidly changing environment. The use of core modules (as an add-on to existing country surveys or as a stand alone survey) allows measurement on an internationally comparable basis. Additional modules and new indicators can be added to respond to evolving or country-specific policy needs in this area.

The framework underlying the elaboration of the model survey includes three main features that are of general applicability. These features are reviewed below.

1. Link of indicators to user needs: the model survey reflects common elements of national ICT usage that in turn are guided by national policy priorities.

2. Flexibility and adaptability: the model urvey is a flexible tool composed of separate, self-contained modules to ensure flexibility and adaptability to a rapidly changing environment. While the use of core modules allows the measurement on an internationally comparable basis, additional modules and new indicators within existing modules can be added to respond to evolving or country-specific policy needs in this area.

3. Minimise burden: the model survey is designed to reduce respondent burden and enhance international comparability by being short, by making use of filter questions and by using a very limited amount of quantitative questions.

Options for international action

Many OECD countries are in the process of establishing national strategies to begin collecting indicators on adoption and use of ICTs. These efforts do not and will not lead, except by accident, to internationally comparable data. Given the rapid pace of developments, there is currently a narrow window of opportunity to achieve international agreement on indicators and terminology. The study by the OECD indicates that there is a nucleus of a few indicators and terms that may be acceptable as a basis, and may represent a reasonable starting point for the development of a common understanding about what should be included in the core module of a "Model survey" on adoption and use of ICTs in the health sector. A great majority of countries are monitoring progress of ICT implementation by surveying adoption and use by physicians in the primary and tertiary care sectors. Work could initially focus on one of these sectors and select a single provider group.

Key message:

Developing a "Model Survey" may provide one possible way for handling both the problem of a lack of proper definitions and of comparability of data across countries.

For more information on the project:

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Related documents:

Achieving Efficiency Improvements in the Health Sector through ICTs
available online at:

http://ec.europa.eu/health/eu_world/docs/oecd_ict_en.pdf

For information:

OECD Health Policy Studies

Improving Health Sector Efficiency :
The Role of Information and Communication Technologies

(*available at the end of June 2010).*