

9 Health

9.1 Domain description

One of the major application areas of Information Society technologies is in the health sector. For many years, ICT systems have been developed which are applied in the clinical, administrative and information dissemination/education areas. Many of these computer based applications do not have a telecommunications component, but recent years have seen increasing usage of telematics in all of these application areas, giving rise to the labels of telehealth and telemedicine.

Parallel to these developments, the health sector has always developed a wide range of statistics for clinical, research, and administrative use. The generation of these statistics is increasingly supported by, and in many cases is only made possible by the use of ICT technology.

The range of materials available to the work in this domain is therefore potentially very large indeed. There are two main reasons for this situation. Firstly, the range of health statistics (as opposed to eHealth statistics) is immense. Secondly, the types of technology underlying eHealth and the range of specific applications is large and growing rapidly. Given the resources available to the project and its focus on developing indicators of eHealth, it was necessary to develop a strategy which enabled the limitation of the range of materials to be treated.

In relation to the first issue, even though more and more mainstream health statistics are gathered, transmitted, analysed and disseminated via ICTs, many of the uses of these statistics are so specialised as to preclude all but the professional classes from using them (for example, undertaking scientific studies in epidemiology). It was decided therefore to limit the analysis which follows in this deliverable to statistics which are 'mainstream' use, i.e. which are widely used by the professional and non-professional consumer. The focus here is on indicators of usage of applications, rather than on the statistics which might form the content of these applications.

A similar approach was taken to the second issue, i.e. the technology question. One of the main objectives of the SIBIS project is on usage of technologies rather than on the technologies themselves. It was therefore decided to focus on indicators of the usage of these technologies rather than on technology *per se*. However, a number of general level indicators of the types of technology in use have been included.

Moreover, when the national and transnational policy in the area of eHealth is examined, especially e-Europe policy, there is a very specific focus to the policy aims which are set out. Specifically, the following actions are indicated:

- Y Ensure that primary and secondary health care providers have health care telematics infrastructure in place including regional networks
- Y Best practices in electronic health services in Europe are identified and disseminated, benchmarking criteria set
- Y Establish a set of quality criteria for health related websites
- Y Establish health technology and data assessment networks

Given these e-Europe priorities, it was decided to focus on the issues of usage of health care telematics by the public and by clinicians and on health administration system, rather than on the much broader fields of telemedicine and health statistics.

9.2 A framework for describing eHealth statistics

It is important to develop an overview of the types of statistics, indicators and questions which may be applied to eHealth systems. Such a framework was developed (on the basis of an extensive literature review) as part of the SIBIS project. There are five elements to the framework. These are:

- ÿ Type of users
- ÿ Type of usage of systems
- ÿ Systems - type of ICT applications
- ÿ Types of issues associated with the application
- ÿ Types of questions to be asked about systems

Each of these elements was further subdivided into sub-element and they were used to classify the currently available statistics which were identified in the literature search.

In undertaking this process of categorisation, it became clear that there are major gaps in coverage in relation to currently available indicators, especially in relation to systems such as educational systems, data transfer systems and others, in relation to issues such as costs and effectiveness of systems and in relation to users other than patients or clinicians.

9.3 Description of major problems and gaps in statistical coverage

Despite the wide range of health statistics available, there are relatively few sources of indicators in the field of eHealth which have achieved widespread usage. Time series data is not yet available for any of the indicators found. This means that all of them can only be described as indicators in development.

Moreover, many of the sources which have come to attention are relatively weak. For example, there are only a few surveys which have used robust sampling techniques while many surveys have been conducted only on the Internet, with attendant biases in their sampling.

The overall impression regarding the state of existing indicators is that there is much work to be done in relation to a wide range aspects of eHealth. For example, the framework proposed in the deliverable points to a number of areas where there is activity in eHealth, e.g. education, for which no or very few indicators could be found.

9.4 Currently available indicators

In all, indicators in 83 separate areas were identified from the available literature.

Currently available indicators in eHealth

System quality	System usage
Background of system developers/sponsors	Barriers to system usage
Purpose of the application	Patients and public usage of eHealth systems
Content of the application	Practitioners usage of eHealth systems
Confidentiality procedures	
Design of the web site	
Evaluation of the web site	

Most of the indicators identified have not yet been developed to the extent where they could be used without modification. No full-scale population studies have yet been undertaken with these indicators, and most have come from the tradition of market research.

9.5 Proposals for indicators

The process of selection and development of new indicators was informed by three considerations. First, the framework for describing eHealth indicators was used as a reference to identify potential gaps in coverage of issues in eHealth. Second, the review of important current issues in eHealth is used as a reference to identify gaps in coverage by the currently available indicators. Finally, the criterion of focusing on usage of eHealth systems, rather than their information content is used to further limit the proposals for new indicators.

A number of specific indicators were selected for inclusion in the GPS of SIBIS. These were selected on the basis of the ability of the target sample to provide informed answers to the questions asked. Many of the new indicators which need to be developed are technical in nature and would be more suited to professional samples.

The table below outlines the indicators proposed for use in the General Population Survey as well as other proposed indicators.

Thematic Domain	Sub-domain	Selected new level 1 indicators	Piloting in SIBIS
e-Health and the information society	Accessing Internet based health information	<ul style="list-style-type: none"> ÿ Description of search behaviour ÿ Outcomes of search behaviour ÿ Satisfaction with outcomes of search behaviour 	SIBIS GPS
	Origin of Internet based health information	<ul style="list-style-type: none"> ÿ Geographical origin of Internet based health information 	SIBIS GPS
	Perception regarding the trust placed in online health information providers	<ul style="list-style-type: none"> ÿ Levels of trust in commercial, professional and other health information providers 	SIBIS GPS
	Type of usage of Internet based health information	<ul style="list-style-type: none"> ÿ Usage of medical consultations/advice via the Internet 	SIBIS GPS
	Rationale and reasons for health information search	<ul style="list-style-type: none"> ÿ Types of reason for health information search ÿ Comparison of quality of Internet based health information with traditional sources 	SIBIS GPS
	Type of system used	<ul style="list-style-type: none"> ÿ Individual usage of a range of eHealth and telemedicine systems 	SIBIS GPS
	Benchmarking good practice (All indicators to be compared to best practice)	<ul style="list-style-type: none"> ÿ Comparisons of the usability, utility, effectiveness quality and conformance with best practice in relation to eHealth systems 	—
	The utility or effectiveness of eHealth systems	<ul style="list-style-type: none"> ÿ The effectiveness of eHealth systems in relation to costs, information quality and time 	—
	Satisfaction with eHealth systems	<ul style="list-style-type: none"> ÿ Satisfaction with the utility and effectiveness of eHealth systems 	—