

Research Review Paper ■

Definitions of Terms in Telehealth

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Abstract. Executive Agency for Health and Consumers supported European-wide project Telehealth Services Code of Practice for Europe – TeleSCopE aims to develop a comprehensive Code of Practice for Telehealth Services. The first output from the Telescope was a report on definitions, terminology and shared understanding of terms relating to telehealth. It is summarised in this article. In parallel in Slovenia, a working group mandated by the Slovenian Medical Informatics Society Executive Board to prepare a draft document for a national telehealth strategy, has prepared the definitions of three basic terms: telemedicine, telehealth and telecare in the Slovenian language. They submitted the definitions to the Board for Standards in Healthcare at the Ministry of Health to include them into the growing Glossary of Terms in Healthcare. These definitions are also presented in this article.

Definicije pojmov na področju zdravja na daljavo

Izveček. Članek predstavlja metodologijo in rezultate (definicije pojmov) evropskega projekta TeleSCopE, ki je namenjen vzpostavitvi standarda za področje storitev zdravja na daljavo (telehealth). Vzporedno s projektom potekajo aktivnosti tudi v Sloveniji. Upravni odbor Slovenskega društva za medicinsko informatiko je oblikoval delovno skupino, ki pripravlja Izhodišča za nacionalno strategijo zdravja na daljavo, ki vključuje tudi telemedicino. Ta delovna skupina je poenotila razumevanje in definicije pojmov telemedicina, zdravje na daljavo in oskrba na daljavo (telecare), ki so podane v tem prispevku. Predloge definicij, ki jih prav tako predstavljamo v članku, je posredovala Odboru za zdravstveno-informacijske standarde pri Ministrstvu za zdravje, da jih uvrstijo v (zdravstveni) Terminološki slovar.

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Background

There are clear indications that telehealth can help reduce costs and be as effective as or more effective than traditional forms of care. Much of the evidence, however, is fragmented and based on pilot applications. The context is one where telehealth is generally not embedded into mainstream service delivery.

However, there are hurdles to the adoption of telehealth technologies because of misunderstandings around its role or simply because users/patients and also healthcare professionals don't know about its potential. In different EU countries different terms may be used to describe the same services e.g. telemonitoring or telemetry. Their understanding is usually influenced by people's experience or their personal or professional view. Also definitions for those terms may differ because they see service provision from different perspectives. A clear perspective on terms used around telehealth is needed as definitions of terms related to telehealth have not yet been agreed, neither in Europe nor globally. Key terms were recognised as telehealth, telemedicine and telecare.

Executive Agency for Health and Consumers has partially supported a European wide project called *Telehealth Services Code of Practice for Europe – TeleSCoPE*.¹ In the project, there are 11 partners from 7 EU MS: 4 user representatives, 2 academic, 7 SMEs and institutes. The primary objective of TeleSCoPE is to develop a comprehensive Code of Practice for Telehealth Services. The main outcome of TeleSCoPE should be an adoption of the Code and its use within member states to underpin service frameworks that contribute to the well-being of EU citizens. The project directly supports EC Action Point to "improve confidence in and acceptance of telemedicine".² It is aiming at influencing European-wide confidence and acceptance of telehealth by influencing a common approach on the political level (harmonisation), on the semantic level (agreeing common priorities), and on the level of education and

awareness raising (evaluation, monitoring and analysis and reflection on good practice).

TeleSCoPE will, through establishing service standards, help establish relationships of trust between patients and providers and contribute to overall health and well-being. The standards will provide a quality benchmark for service regulation in member states.

One of the Workpackages of the TeleSCoPE project deals with definitions, terminology, shared understanding and literature review. The first output from the project was a report on definitions, terminology and shared understanding of terms relating to telehealth which are summarized in this article. This document presents a glossary of terms. It is the outcome of an intensive literature overview that brought together existing definitions related to telehealth, subjected them, where necessary, to critical assessment, and amended where appropriate to fit with the understanding of project partners. The glossary reflects, therefore, a particular understanding of telehealth, its scope, services and technology.

Methodology

One of the aims of the literature review within the TeleSCoPE was to collect and critically analyse the existing definitions for telehealth and related terminology, service models, services, domains covered by services, and fields of applications.

Reference Documents Resources

Different resources were used when identifying definitions. The main sources of existing definitions were documents of professional bodies dealing with telemedicine and/or telehealth. European and wider international sources, as follows, have been drawn upon:

- COCIR – European Coordination Committee of the Radiological, Electro-medical and Healthcare IT Industry³

- ATA – American Telemedicine Association⁴
- NIFTE – National Initiative for Telehealth, Canada⁵
- IiE – EC EAEAC project – ImPaCT in Europe – Improving Person Centred Technology in Europe⁶
- PERSA – Association of Social Support Monitoring Services⁷
- ISfTEH – International Society for Telemedicine and eHealth⁸ (represented in the TeleSCoPE consortium through Lievens Lanckman)
- Telecare Services Association, UK⁹ (A member of the TeleSCoPE consortium)

Additional resources used included relevant strategic and policy documents, the most notable relating to which is the communication from the European Commission on telemedicine.⁸ Several articles in professional journals and the outputs from relevant European projects were also reviewed as a potential resource of definitions. Reports from European projects (within FP6, FP7

and AAL programmes) and the proceedings of some international conferences/workshops were also used. Internet resources such as *Wikipedia*, *Telecare Aware* and *WhatIs* were also used, on occasion, to obtain pointers. The TeleSCoPE project partners also contributed their own definitions for some most critical terms.

The source of each definition is indicated in the glossary. Where definitions closely relate to a primary source but have been amended, these are indicated by an asterisk [*]. Those definitions that have been developed by TeleSCoPE partners are marked "TeleSCoPE".

Specialised technical terms used in telehealth systems that have already been well defined by standardisation organisations (e.g., ISO TC 215, CEN TC 251 and others) are not a part of the glossary. Paid resources like *Mondeca Health Care terminology for eHealth* have not been used.

Database on Information Resources and the TeleSCoPE Reference Literature Library

An Excel spreadsheet was created to serve as a reference literature database of information resources. Its structure is given in Table 1.

Table 1 Structure of the Literature Database.

No	Field	No	Field	No	Field
1	No	18	Education	35	Legislation-EU
2	Ref_No	19	Ethical_issues	36	Pilot_application
3	Author(s)	20	Interoperability	37	Services
4	Document_title	21	Legislation-national	38	Technology_product
5	Language	22	Policy-global-EU	39	eVersion_available_at
6	Number_of_pages	23	Standardisation	40	Printed_version_available
7	Country_of_origin	24	Other_matters	41	Document_held_by
8	Year_of_publication	25	Barriers_boosters	42	Data_entered_by
9	Published_in_publisher	26	Definitions	43	Brief_description
10	Document_type	27	Environment-Clinical	44	Value_for_TELESCOPE
11	B2B	28	Evidence	45	Remarks_Comments
12	B2P	29	Investments_Costs	46	Date_of_entry
13	Telehealth	30	Perspective	47	Usability_rating
14	Telecare	31	Policy-National	48	Auto_Reference_Vancouver
15	Telemedicine	32	Strategic_document	49	Reference_Vancouver
16	eHealth	33	Environment-Home		
17	Accreditation	34	Good_practice		

References, and in some cases, links to relevant documents, were collected by the project partners. For this purpose a dedicated PDF template was developed by two of the project members (MKS, ITC-CNR). Each filled template was sent as an XML file by email to the responsible partner (MKS) for further processing. The XML formatted files were then imported into the XLS database. In some cases references were provided as plain text

only and data were inserted into the spreadsheet manually. The collection template is presented in Figure 1.

In addition to the reference database, the *TeleSCoPE Reference Literature Library* was created containing documents in electronic and printed form. The library is held by the responsible partner (MKS).

Figure 1 Template for collection of data for literature review.

Literature Classification

The collected reference documents were classified using the following primary groups of classifiers:

- Type of document (paper, book, article, communication);
- Scope of document (telehealth, telecare, telemedicine, eHealth);
- Field of application covered (definitions; strategy; policy – EU, global, national; education; ethical issues; legislation – EU,

national; standardisation; interoperability; accreditation; technology/product description; etc.);

- Type of activity (pilot application, good practice; services; evidence; investments/costs assessment; etc.);
- Locus of the activity (home environment; clinical environment, regional; international);
- Barriers/boosters (obstacles/enablers) for telehealth services.

The collected definitions in the glossary were critically assessed by TeleSCoPE project partners in the context of a broad view of existing and potentially new telehealth services. This broad view covers not only the domain of medicine but also of personal well-being. It follows from this that partners adjusted some of the most important definitions in a way that helped to move the focus from illness to a broader frame of reference that embraces both health and lifestyle issues. Such a move reflects a paradigm shift that affirms the view of partners about the primary importance of telehealth, rather than telemedicine, in the pursuit of key European policy objectives.

What is Telehealth?

TeleSCoPE partners understand telehealth as

the means by which technologies and related services at a distance are accessed by or provided for people and/or their carers at home or in the wider community, in order to facilitate their empowerment, assessment or the provision of care and/or support in relation to needs associated with their health (including clinical health) and well-being. Telehealth always involves and includes the service user or client. It includes remote patient management.

The foregoing definition largely accords with that of COCIR.¹⁰ But the TeleSCoPE definition affords telehealth with a broader frame of reference that extends beyond long-term conditions and places greater emphasis on the use by and empowerment of patients/users. The TeleSCoPE definition (above) seeks, therefore, to ensure that telehealth responds to congenital disability, frailty, preventative and public health agendas as well as issues relating to lifestyles and assessments or treatment responding to illness or chronic conditions.

COCIR assert that the term telehealth covers systems and services linking patients with care providers to assist in diagnosing, monitoring, management and empowerment of patients with long-term conditions (chronic patients). They add

that telehealth solutions use devices (interactive audio, visual and data communication) to remotely collect and send data to a monitoring station for interpretation and to support therapy management programs and to improve patients' knowledge and behaviour.

The range of devices, indicated by COCIR as supporting telehealth solutions, are rightly noted as embracing systems and components (patient interfaces in hardware and software; sensors/peripherals; operating software and applications intended for care provider usage; clinical content and intelligence; data transmission, storage and intelligent routing). These, they recognised, are associated with services that address healthcare delivery, diagnosis, consultation and treatment as well as education/behavioural modifications and transfer of medical data.

Scope of Telehealth

A definition that helps in understanding how telehealth fits with other terms and service areas was necessary in order to enable the scope and boundaries of telehealth services to be made. This, in turn, facilitated a better understanding of the requirements for and the limitations of the technologies being used within telehealth services. All TeleSCoPE project partners were invited to contribute their views on such matters by which a shared understanding was subsequently reached.

Key interrelated terms were identified including telehealth, telemedicine, telecare, social alarms, eHealth and assistive technologies. The partners agreed on an initial understanding of the scope and the relationships between these terms. The result is presented in Figure 2. Encompassing them all is recognition that all contribute to personal well-being – hence personal wellbeing offering the broadest, and arguably indisputable, domain.

There are two major sub-domains within that domain: assistive technologies aiming at supporting disabled and frail people, and eHealth covering needs of patients. The telecare domain

falls almost completely into the eHealth domain – involving social alarms and telehealth. An element of social alarms is indicated as falling outside of eHealth in recognition of those applications that relate to e.g. personal security and property

management. Telemedicine, being concerned more narrowly with the more clinical aspects of health and well-being (and including services within which clinicians exchange data and information) becomes a sub-domain of telehealth.

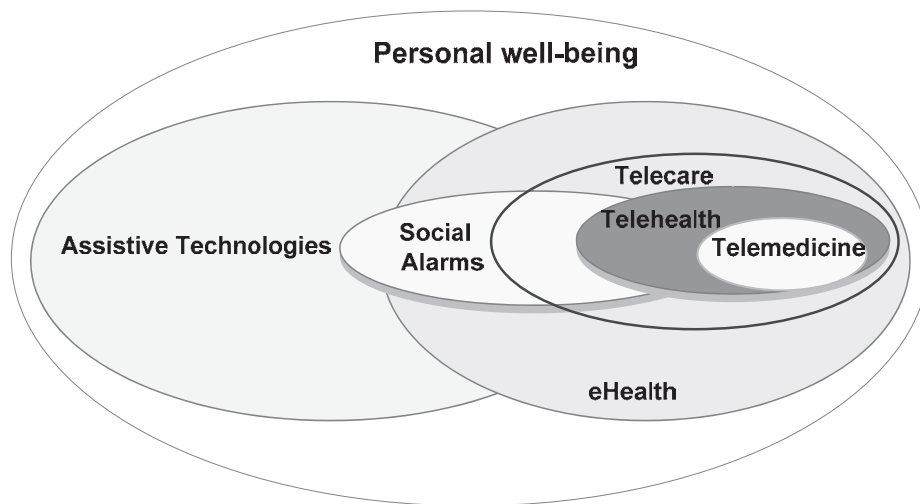


Figure 2 Scope of Telehealth by TeleSCoPE.

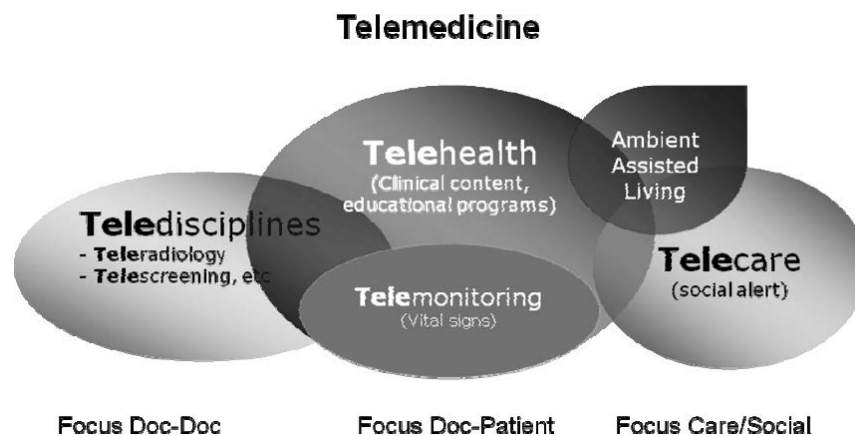


Figure 3 Scope of Telemedicine by COCIR.⁹

Having set out the scope of telehealth in this way it must be recognised that the boundaries and overlaps are not set in stone. Some adjustment, though not perhaps radical change, is envisaged as our understandings of telehealth applications develop.

The TeleSCoPE understanding of the telecare domains as depicted in Figure 2 is in line with that

suggested by Telecare Aware¹¹ as one where "there is an emerging case to use the term 'telecare' also as an overarching term for all types of care, including health care, delivered at a distance".

The domain model for telemedicine/telehealth offered by COCIR⁹ is, in some respects, different from that of the TeleSCoPE partners (see Figure 3). For COCIR, the overarching telemedicine

domain includes telehealth, ambient assisted living, telecare, telemonitoring and several teledisciplines. Accordingly, telemedicine in the view of COCIR "includes all areas where medical or social data is being sent/exchanged between at least two remote locations, including both Caregiver-Patient/Citizen as well as Doc-to-Doc communication".¹⁰

The foregoing discussion has made it clear that the TeleSCoPE context needs to be understood as one which recognises telehealth as supporting both health and well-being. In other words it is recognised that health cannot be seen purely in clinical terms. Rather it is concerned with people's lives and people's homes – where services using telehealth technologies are provided by agencies;

or, importantly, technologies are harnessed by individuals. Therefore, from the TeleSCoPE point of view, the COCIR domain framework has shortcomings. It is argued that as medical services are only a part of healthcare services, telemedicine should be a sub-domain of telehealth and not vice versa.

To further support the TeleSCoPE view, Table 2 presents what can be seen as some main differences in focus between telemedicine and telehealth.¹² In essence, this table points to telemedicine as relating to a service paradigm that reflects a "medical" rather than "social" model of care and support. In practice there is substantial overlap, but a TeleSCoPE promotes a move from the former towards the latter.

Table 2 Understanding of Telemedicine vs. Telehealth.

Telemedicine	Telehealth
Technologies for illness	Technologies for wellness (well-being)
Clinician and nurse led	Service or user led
Institutional context	Home or community context
Focus on patients	Focus on people
Control and monitoring of patient	Self-management by user
"Treatment" may promote dependency	"Empowerment" can support independence

WHO makes a distinction between telemedicine and telehealth through which it also defines also their domains. They affirm that "telehealth is understood to mean the integration of ICT systems into the practice of protecting and promoting health, while telemedicine is the incorporation of these systems into curative medicine...".¹³ We may derive from this that, for WHO, telemedicine is a sub-domain of telehealth.

Definitions of Terms

Terms that relate to healthcare services, solutions and systems were collected from the range of literature noted below. A Glossary of Terms in Telehealth has been compiled (Table 3).

From the TeleSCoPE point of view a clear perspective on the terms used around telehealth has been needed in view of the fact that terms related to telehealth have, as yet, neither been agreed in Europe nor globally. In EU countries different terms may be used to describe the same service e.g. telemonitoring or telemetry. Their understandings are usually influenced by people's experience or their point of view (as professionals, users, patients). For healthcare workers, "telecare" could mean a social service at a distance while for others it could be a healthcare service delivered for e.g. people with long-term conditions. There are also several other factors that have influencing people's understandings. For example, the telemedicine/telehealth industry (represented by COCIR⁹) understands and defines terms differently from politicians.²

Table 3 Glossary of Terms in Telehealth.

Term	Definition	Source
Ablement	see Reablement	
Accessibility	Physical and sensory access to buildings, services and information. Relates to matters such as physical design, lighting, colour, textures, technologies, visual and audible cues.	TeleSCoPE
Accreditation	A process by which acknowledgement can be obtained for services that are accessible, appropriate and delivered according to agreed quality standards.	TeleSCoPE
Activity monitoring	The monitoring of activity (movement or interaction with the environment) in order to identify situations or circumstances that reflect adverse changes in or threats to personal well-being. Lifestyle Monitoring represents an extension of Activity Monitoring.	TeleSCoPE
Ageing	The process by which minor impairment multiply (e.g. in relation to sight, hearing, dexterity, mobility and cognition), potentially leading to disability and dependency.	IiE [*]
Ambient Assisted Living (AAL)	Independent living supported by unobtrusive systems, services and devices within the home.	TeleSCoPE
Ambient Intelligence (AI)	The intelligence, derived from systems and devices in built into environments that support Ambient Assisted Living (AAL).	TeleSCoPE
App	An abbreviation for 'application'. Software for use in devices such as mobile phones, TVs or tablet PCs (including that which can relate to personal health and well-being).	TeleSCoPE
Assistive Technology	Any item, piece of equipment, or product system that is used to increase, maintain, or improve the functional capabilities of individuals with disabilities. See also Electronic Assistive Technology	IiE
Augmentative and Alternative Communication (AAC)	Any means of communication that supplements handwriting or speech where either of the latter are impaired.	IiE [*]
Barrier-Free Design	See Design for All	
Bluetooth	An industrial specification for wireless personal area networks (PANs) that connect and exchange information between devices (including mobile phones, laptops and PCs) over a secure, globally unlicensed shortrange radio frequency.	ATA [*]
Broadband	Communications (e.g., broadcast television, microwave, and satellite) capable of carrying information, images and data via a wide range of frequencies over a segment of the total bandwidth available.	ATA [*]
Call Centre	Call centres receive and respond to incoming telephone calls. They may also handle letters, faxes and e-mails. See Monitoring Centre.	TeleSCoPE
Carephone	see Social Alarm	
Certificate	electronic 'key' that a secure server checks for before allowing a user access	MIT
Certification	see Accreditation.	
Clinical Information	Information relating exclusively to patient care rather than administrative matters.	ATA [*]
Community Alarms	see Social Alarms	
Competency	The specific knowledge, skills, judgement and personal attributes required to practice safely and ethically in a designated role and setting	NIFTE [*]
Computer-Based Patient Record (CPR)	An electronic form of individual patient information.	ATA [*]
Confidentiality	The fundamental requirement whereby personal information is safeguarded and accessible only in agreed circumstances (where appropriate, to authorised	TeleSCoPE

Term	Definition	Source
	persons) and/or in relation to the fulfilment of service objectives that are normally agreed with the user / patient.	
Conformance	Conformance to standards refers to the ability of a product or system to perform a set of functions according to specifications that are defined within a standard.	NIFTE [*]
Consent	see Informed Consent	
Consulting Site	see Service Provider Site	
Control Centre	see Monitoring Centre	
Data Security	The protection of personal data from unauthorized or unintentional loss, theft, access, use, modification, or disclosure.	NIFTE [*]
Design for All	Facilitates access to environments, products and services for the largest range of people (i.e. including people with physical or sensory impairments). Is an equivalent term to Universal Design.	IiE [*]
Diagnostic equipment	Devices that can provide medical data to assist diagnosis. When linked to a computer can be considered as Peripheral Devices.	ATA [*]
Digital Imaging and Communication in Medicine (DICOM)	A standard for the identification, formatting and communication of medical images	ATA [*]
Disability	Disability is a complex phenomenon, reflecting an interaction between features of a person's body and environment, whereby full and effective participation in economic and social life may be hindered.	TeleSCoPE
Disease Management	A continuous coordinated health care process that seeks to manage and improve population's health	TeleSCoPE
Domotics	see Home Automation	
Duty of care	The legal duty of a health or social care professional to a person who is receiving care and support in respect of an identified need.	TeleSCoPE
e-Health	eHealth describes the application of information and communication technologies across the whole range of functions that affect the health sector. It aims to improve significantly the quality, access and efficacy of healthcare for all.	EC CT i2010
eInclusion	The policy direction of the European Commission that affirms the priority given to the social inclusion of citizens in ways furthered through the appropriate use of methods of electronic communication	TeleSCoPE
Electronic Assistive Technology	Assistive Technology which communicates electronically with other devices and/or the user / patient. See Assistive Technology.	IiE [*]
Electronic Health Record (EHR)	An electronic record that can be maintained directly by users / patients that securely holds information and data relating to their health history, medication and care received. Includes Personal Health Records.	TeleSCoPE
Electronic Patient Record (EPR)	An electronic record regarding information and data of users / patients by which clinical decisions regarding their treatment can be made.	TeleSCoPE
Emergency Response System	see Social Alarm	
Empowerment	A process through which people gain or are afforded greater control over decisions and actions affecting their lives.	TeleSCoPE
Environmental control device	A piece of equipment that helps people with a physical or sensory impairment to control their environment and help them to undertake day to day tasks safely.	TeleSCoPE
Good Practice	Practice that is informed, shared with others and accords operates according to sets of principles that help fulfil aims and objectives associated with appropriate political, economic and social goals.	TeleSCoPE
Governance	The function of determining an organisation's direction, objectives, policy and practice frameworks in order to effect effective service delivery.	TeleSCoPE
Health Care	Any individual who, directly or indirectly, provides health care at the hands-on	Kluge ¹⁵

Term	Definition	Source
Professional (HCP)	level in a professional capacity.	
Health Coaching	see Health Training	
Health Record	see Electronic Health Record	
Health Training	The use of techniques based on psychological evidence to help people change behaviours that are known to cause ill-health. Also known as Health or Motivational Coaching.	TeleSCOPE
Home Automation	A field of building automation by which affords users greater control over their home environment and can enhance usability, security and comfort. Also known as Domotics.	IiE [*]
Home Telehealth	see Telehealth	
Hub Site	see Service Provider Site	
Impairment	Reduced capacity arising out of congenital or acquired physical or sensory impairments, health conditions, ageing and frailty. Impairments can lead to disability through factors relating to the design of environments, products, systems and services.	IiE [*]
Independence	The circumstances by which individuals remain, with or without care and support, in control of aspects of their lives that are most important to them.	TeleSCOPE
Independent Living Services	Services designed to enhance the abilities of individuals to live independently and, if appropriate, to secure and maintain employment.	IiE
Information and Communication Technology (ICT)	An umbrella term that includes communication devices or applications including radio, television, mobile (cell) phones, computer hardware, software and their networks, satellite systems, etc. As well as the services and applications associated with them – such as video-conferencing and distance learning.	IiE [*]
Informed Consent	Voluntary permission given, in a context of understanding by the user / patient (or where appropriate their carers), to the purpose, procedures, benefits, risks and rights relating to their use of a technology or service.	TeleSCOPE
Intelligent Home	see Smart Home	
Interface	see User Interface	
Interoperability	Interoperability refers to the ability of two or more devices or systems to interact with one another and exchange information in order to achieve predictable results.	NIFTE
Lifestyle Monitoring	The monitoring of environmental conditions, activity (movement or interaction with the environment) and physiology in order to identify situations or circumstances that reflect adverse changes in or threats to personal well-being. Represents an extension of Activity Monitoring.	TeleSCOPE
Medical model of disability	The model of disability and ageing implies that people are disabled as a consequence of their own condition, and seeks to either remedy the impairment through medication, rehabilitation and surgery, or through adaptive aids and equipment.	IiE
Medical / Nursing Call Centre	A call centre that answers incoming telephone calls from patients and may also respond to letters, faxes, e-mails and similar written correspondence. May provide basic health information and guidance to users / patients and act as an initial triage point for patients. See Monitoring Centre.	ATA [*]
Medication compliance	A term used to signify patient accordance with treatments and therapies decided upon by the doctor or other health professionals.	TeleSCOPE
Medication concordance	A term used to signify patient accordance with treatments and therapies decided upon between the patient and the doctor or other health professionals.	TeleSCOPE
mHealth	Mobile communications and network technologies for healthcare.	Robert Istepanian
Mobile Telehealth	The provision of health care services with the assistance of a mobile unit that can	ATA [*]

Term	Definition	Source
	be located at a distance from normal medical facilities.	
Monitoring Centre	A monitoring centre includes call centre functions but carries additional responsibility for people, buildings, equipment, vehicles, etc. that can relate to the operation of services concerned for personal health and wellbeing. See Call Centre.	TeleSCoPE
Motivational Coaching	see Health Training	
Nursing Telepractice	see Telehealth Nursing	
Originating Site	see Patient / User Site	
Patient / User Encounters	A patient / user encounter occurs where there is real time personal communication with a service provider (who may be a health practitioner) on the basis of which decisions may be agreed regarding care, support and treatment.	ATA [*]
Patient / User Site	The place where the patient / user is located during a telehealth encounter or remote consultation (CMS). Also known as Spoke or Originating Site. Complements the Service Provider Site.	ATA [*]
Peripheral Device	Devices that communicate with a computer, carephone or other device, e.g. scanners, mouse pointers, printers, keyboards; pulse oximeters, weight scales, fall detectors, etc. Includes some Diagnostic Equipment.	ATA [*]
Person Centred Technology (PCT)	Person Centred Technology (PCT) is technology specifically designed around the needs of the individual and, where appropriate, their carers. It includes Electronic Assistive Technologies.	IiE
Personal (Emergency) Response Systems (PERS)	see Social Alarm	
Personal Health Record	see Electronic Health Record	
Personalisation	The design and development of services in ways that respond to the expressed wishes and needs of the people who seek access to them.	IiE [*]
Picture Archiving and Communications Systems (PACS)	PACs provide centralised storage and access to medical images over information systems.	ATA
POTS	Acronym for Plain Old Telephone Service.	ATA
Presenter (Patient Presenter)	A person, trained where appropriate in the use of the equipment, to assist in a patient / user encounter at the patient / user site and, to perform any hands-on activities to assist in any remote examination.	ATA [*]
Privacy	The state afforded to users / patients whereby their right to control information (including images and data) relating to their health and lifestyles is both recognised and respected.	TeleSCoPE
Qualified Staff	Those staff having the credentials and competence to perform specific acts as a result of their training and/or experience – potentially recognised through registration, certification, licensure.	NIFTE [*]
Quality Assurance	The process by which services or aspects of services, following some form of assessment or accreditation, are deemed to meet appropriate levels of quality.	NIFTE [*]
Reablement	An approach or a philosophy within care at home services which aims to help people "do things for themselves", rather than "having things done for them".	TeleSCoPE
Real Time	see synchronous	
Referral Site	see Service Provider Site	
Rehabilitation	The process of restoration of skills by a person who has had an illness or injury so as to regain maximum self-sufficiency and function in a normal or as near normal manner as possible.	Medicine.net

Term	Definition	Source
Remote Monitoring	The use of devices that collect patient / user vital sign and other data and effect its transmission, in real-time or periodically, to a monitoring centre.	AdvaMed ¹⁶ [*]
Remote Patient Management (RPM)	Remote evaluation and non-operative treatment of a user / patient, using communications technology.	TeleSCoPE
Risk Management	The process by which risks are managed or mitigated in order to reduce the chance or possibility of danger, loss or injury.	NIFTE [*]
Safe walking	see Wandering	TeleSCoPE
Safeguarding	The processes and procedures, normally involving several agencies of service provision, whereby vulnerable adults and children are protected against different forms of abuse (or power).	TeleSCoPE
Safety Alarm	see Social Alarm	TeleSCoPE
Security	see Data Security	
Self Monitoring	The periodic use of a device by the patient/user to obtain measures relating to his/her health and wellbeing.	TeleSCoPE
Sensor	Any device that receives a signal or stimulus and responds to it in a distinctive manner.	TeleSCoPE
Service Provider Site	The place, at a distance, where the service provider is located and receives information and/or communicates with the user/patient. Otherwise known as the Hub, Referral or Consulting Site.	ATA [*]
Smart Home	A home with installed technologies the use, or automatic operation, of which can assist the resident to live with e.g. greater comfort or safety. Also known as Intelligent Home.	TeleSCoPE
Social Alarm	A device located in the home which, when activated, communicates with a responder and can send of information relevant to the user's well-being. Otherwise known as a carephone, community alarm, safety alarm or (personal) emergency response system (PERS).	TeleSCoPE
Social exclusion	see Social Inclusion	
Social inclusion	The state whereby people are engaged with the social, economic and political activities commensurate with citizenship and normal living. The converse of social exclusion.	IiE [*]
Social model of disability	In contrast to the medical model, the social model sees people as disabled or enabled by the social context in which they function.	IiE
Spoke Site	see Patient / User Site	
Standards	Documented agreements containing technical specifications or other precise criteria to be used consistently as rules, guidelines or definitions of characteristics to ensure that materials, products, processes and services are fit for the purpose.	ISO
Store and Forward (S&F)	A type of telehealth encounter or consultation where digital images of a patient/user are forwarded asynchronously in order to assist in diagnosis or treatment.	ATA [*]
Synchronous	Simultaneous (e.g. with regard to transmission of data, speech and information). Also known as Real Time.	TeleSCoPE
Tele-assistance	The assistance given when a health professional or other person, at the location of the user/patient (the originating site), assists the carrying out of a medical act guided by a doctor or other health professional at the service provider site.	TeleSCoPE
Telecare	The means by which technologies and related services at a distance are accessed by or provided for people and/or their carers at home or in the wider community, in order to facilitate empowerment or the provision of care and/or support in relation to needs associated with their health and well-being.	TeleSCoPE
Teleconferencing	Interactive electronic communication between multiple users at two or more sites which facilitates real time voice, video, and/or data transmission.	ATA [*]

Term	Definition	Source
Teleconsultation	The means by which clinicians and other healthcare practitioners use telephone or video-telephony to consult with users/patients and/or their carers.	COCIR [*]
Teledisciplines	The various disciplines (e.g. teleradiology, teledermatology, telepsychiatry, etc.) performed at a distance between a doctor and a patient/user, or between two healthcare professionals; through the use of ICT.	COCIR [*]
Telehealth	The means by which technologies and related services at a distance are accessed by or provided for people and/or their carers at home or in the wider community, in order to facilitate their empowerment, assessment or the provision of care and/or support in relation to needs associated with their health (including clinical health) and well-being.	TeleSCoPE
Telehealth Nursing	Telehealth nursing is the practice of nursing over distance using telecommunications technology.	NCSBN
Tele-Intervention	Tele-intervention is a therapeutic medical act which is performed remotely by a physician on a patient, without or with the local presence of other healthcare professional (e.g. telesurgery).	COCIR
Telematics	The use of information processing based on a computer in telecommunications, and the use of telecommunications to permit computers to transfer programmes and data to one another.	ATA [*]
Telemedicine	The delivery of medical care at a distance by clinicians and other health care staff, via telecommunications technologies. Telemedicine will sometimes involve and include the service user / patient.	TeleSCoPE
Telementoring	The use of audio, video, and other telecommunications technologies to provide guidance or direction.	ATA [*]
Telemonitoring	The use of communications technologies to remotely collect/send data relevant to the health and well-being of a user / patient to a monitoring centre to assist in diagnosis and monitoring.	COCIR [*]
Telepresence	The use of robotic and other instruments that enable a clinician to perform a procedure at a remote location by which he/she receives feedback or sensory information that contributes to his/her sense of presence.	ATA [*]
Telesurgery	Surgical procedures carried out remotely with the assistance of robotic devices and a real-time video and audio connection.	TeleSCoPE
uHealth	The notion by which services such as those under the rubric of telehealth offer ubiquitous (u) access.	TeleSCoPE
Universal design	see Design for All	TeleSCoPE
User Interface	The area in which users / patients interact with and, where appropriate, exercise control over devices.	TeleSCoPE
Videoconferencing	Real-time two way transmission of digitised video images between two or more locations.	ATA [*]
Videoconferencing Systems	Equipment and software to provide real-time two way transmission of digitised video images between two or more locations.	ATA [*]
Vital Signs	Health or activity measures that relate to a person's well-being. Included are such measures as relate to weight, blood pressure, blood oxygen level, body temperature, lung function and body movement.	TeleSCoPE
Wandering	An aspect of the behaviour of some people with dementia that can appear to (others to) lack purpose and may expose the patient / user to additional risk. An alternative term, not favoured, is Safe Walking.	TeleSCoPE
Well-being	Quality of life characterised by satisfactory levels of health and welfare.	TeleSCoPE

Note that where sources are indicated with an asterisk [*], the definition in question has been amended from that offered by the body in question.

Critical Analysis of the Definitions of Terms

Key terms associated with TeleSCoPE project are recognised to be "telehealth", "telemedicine" and "telecare". These are, of course, defined in the glossary along with definitions relating to service and technological contexts e.g. facets of care and support services, key devices, communications networks, databases, interoperability, etc.

For some terms several different definitions were found in the literature. These have, in some cases, been set aside (as inadequate or inappropriate for the TeleSCoPE context) but in many cases adopted or amended. It can be noted that different definitions were found for the key terms with which TeleSCoPE is concerned. These are discussed below.

European Commission Definitions

The European Commission, in its communication on telemedicine document,² defines telemedicine as "the provision of healthcare services, through the use of ICT, in situations where the health professional and the patient (or two health professionals) are not in the same location ...". It does not define "telehealth" explicitly.

In the Staff Working Paper,¹⁴ also addressing "telemedicine", the European Commission reaffirms the same understanding, with telemedicine embracing services which we might recognise as "telehealth" or "telecare".

COCIR Definitions

The European Coordination Committee of the Radiological, Electro-medical and Healthcare IT Industry (COCIR) has done substantial work to define terms relating to telemedicine and telehealth. Regarding the term "telemedicine", COCIR adopts the EU Commission definition² adding that "telemedicine is the overarching definition spanning telehealth, telecare and teledisciplines".¹⁰ COCIR also opines that

telehealth covers systems and services linking patients with care providers to assist in diagnosing, monitoring, management and empowerment of patients with long-term conditions (chronic patients)". It is suggested, however, that, in general, the COCIR definitions are closer to the needs of industry than those of the EC.

The TeleSCoPE project partners consider, furthermore, that the COCIR definition, in focusing on long-term conditions, can exclude technologies and services that relate to preventative and other agendas (e.g. concerned with lifestyles, frailty, falls). Consequently, TeleSCoPE partners have set definitions that move the focus from illness to a broader view of well-being.

ATA Definitions

The American Telemedicine Association (ATA) has done intensive work in this field, defining a variety of clinical terms and disciplines. The ATA closely associates telehealth with telemedicine, stating that telecare is "often used to encompass a broader definition of remote health care that does not always involve clinical services...".⁴

NIFTE Definitions

NIFTE wrote its strategic guideline document on telehealth in 2003⁵ in which only one term – t "telehealth" – was used for all telecare and telemedicine services. The term "telemedicine" was used only in a historical context when referring to the documents in the past, e.g. "the earliest identifiable telemedicine activities in Canada ...". This document contains also a chapter on definitions, where the term "telemedicine" was simply omitted.

IiE Definitions

The IiE project⁶ adopted the definition of telehealth from WHO, hence telehealth is regarded as "the remote exchange of physiological data between a patient at home and medical staff

at hospital to assist in diagnosis and monitoring (this could include support for people with lung function problems, diabetes etc). It includes (amongst other things) a home unit to measure and monitor temperature, blood pressure and other vital signs for clinical review at a remote location (for example, a hospital site) using phone lines or wireless technology". Telemedicine for IiE is, therefore, "the use of telecommunication to provide diagnostic and therapeutic medical information between patient and doctor over a distance, without necessitating they meet in person".

WHO Definitions

According to Darkins and Cary,¹³ the World Health Organisation (WHO) makes a distinction between telemedicine and telehealth. They point to telehealth as meaning "the integration of ICT systems into the practice of protecting and promoting health, while telemedicine is the incorporation of these systems into curative medicine...". They observe that "telehealth corresponds more closely to the international activities of WHO in the field of public health. It covers education for health, public and community health, health system development and epidemiology, whereas telemedicine is oriented more towards the clinical aspects. The WHO definition of telemedicine is also adopted by Telecare Aware (see below).

Telecare Aware Definitions

Telecare Aware¹¹ posit a definition of telecare as "the continuous, automatic and remote monitoring of real time emergencies and lifestyle changes over time in order to manage the risks associated with independent living". This definition firmly associates telecare with "social" or "lifestyle" issues. It recognises, however, that there is an emerging case for using the term "telecare" as an overarching term for all types of care, including health care, delivered at a distance with communications technologies. Usefully they opine that "telecare and telehealth technologies will

merge, and although the clients and patients they benefit are often one and the same individuals, it is still useful – at this stage of technological and linguistic evolution – to maintain a difference between the terms "telecare" and "telehealth".

For telemedicine, the WHO definition is adopted, viz. "Telemedicine is the practice of medical care using interactive audio visual and data communications. This includes the delivery of medical care, diagnosis, consultation and treatment, as well as health education and the transfer of medical data". Telemedicine, according to this definition, is therefore essentially doctor-to-doctor, with the patient somewhere in the system, and will typically involve consultation with specialists at a distance.

TeleSCoPE Definitions

The collected definitions in the glossary were critically assessed by the TeleSCoPE project partners in the context of their varied and broad view of existing and potentially new telehealth services. This view covered not only the domain of medicine but of wider personal well-being. This reflected what has been signalled as a paradigm shift towards a social model of care and support, by which we have a clearer understanding of telemedicine versus telehealth.

Because telehealth is a newly emerging concept, it is unsurprising that there should be some differences in the way that it is understood and key terms are used. In setting out these definitions, therefore, there is no criticism intended of definitions that have been set out elsewhere. As with any new term the core activities that are embraced and the boundaries that separate those activities from others must initially be explored and tested. TeleSCoPE furthers this process. We have noted, therefore, and have attempted to make sense of the way in which the interplay of key terms relating to telehealth, (most notably telemedicine and telecare) have often been used to embrace that area of services and technologies

that we consider are most appropriately embraced by the term telehealth.

In essence, definitions provided in other contexts have been accepted, refined or added to. Where there is significant deviation from the definitions from such sources, this is noted. The foregoing discussion indicates where the justification for such deviations lie.

Separate attention was not given to most separate "tele" disciplines or services (such as telepharmacy, teledermatology, telepsychology and telesurgery) where these are seen as embraced within more generic terms – most usually telemedicine. Medical terms are, similarly, not included but some behaviours (relating to lifestyles) of particular relevance are. In addition, some detailed technical terms are omitted in view of the service focus of TeleSCoPE.¹ Operational aspects of the technologies are nevertheless recognised as important and defined where appropriate.

Future Actions Related to the Glossary

It is considered that the definitions offered in this document that relate to telehealth should be made widely available so that understandings regarding them are more consistently in place. This is of particular importance given the extent of attention being given to telehealth by the European Commission.

Consultation regarding this document is, in any case, taking place during the first half of 2011 with over 350 stakeholders (from a variety of sectors) within the member states of the European Union. This relates to Workpackage 4 of the TeleSCoPE project. Their views and opinions on definitions are being taken into account in order to amend or add to the *Glossary of Terms in Telehealth*.

Appendix: Developments and Definitions in Slovenia – Dodatek: Stanje in izrazje v Sloveniji

V kontekstu zagotavljanja zdravstvenih storitev na daljavo uporabljamo več pojmov, med katerimi so ključni "telemedicina" (angl. telemedicine), "zdravje na daljavo" (angl. telehealth) in "oskrba na daljavo" (angl. telecare). Številni drugi pojmi, povezani s tovrstnimi storitvami, so strokovni pojmi iz kliničnega okolja, npr. tele-posvetovanje, tele-dermatologija, tele-kardiologija, tele-psihiatrija ali tele-rehabilitacija. Drugi so povezani s procesi ali s postopki, npr. telemetrija, spremljanje na daljavo (angl. telemonitoring) ali obisk na daljavo (angl. tele visit). Naslednja skupina pojmov prihaja s področja informacijskih tehnologij: video konferenca, širokopasovno omrežje, medmrežje, prenos podatkov, protokol TCP/IP, USB ipd.

Tehnični in tehnološki pojmi so v slovenskem jeziku v glavnem definirani v prevodih mednarodnih in evropskih standardov, osnovne pojme, kot so telemedicina, zdravje na daljavo in oskrba na daljavo, pa je potrebno ustrezno definirati. Obstajajo številne neuskkljene definicije, ki so rezultat razumevanja posameznih avtorjev znanstvenih ali strokovnih člankov, razumevanja posameznih strokovnih ali interesnih združenj ali pa strokovnih izkušenj skupin oz. posameznikov.

Evropska komisija je v svojem dokumentu o koristih telemedicine za paciente, zdravstvene sisteme in družbo² definirala pojem "telemedicina" kot "zagotavljanje zdravstvenih storitev z uporabo informacijskih in telekomunikacijskih tehnologij v primerih, ko izvajalec zdravstvene storitve in pacient (oziroma dva izvajalca zdravstvene storitve) nista na istem mestu. Vključuje varen prenos medicinskih podatkov in informacij v obliki besedila, zvoka, slike ali v drugi obliki, ki je potrebna za preventivo, diagnosticiranje, zdravljenje ali spremljanje pacienta".

V tem dokumentu Evropska komisija torej ni posebej opredelila pojma zdravje na daljavo, a je iz vsebine razvidno, da v okviru telemedicinskih storitev storitev dejansko govori tudi o storitvah, ki jih opredeljujemo kot zdravje na daljavo.

Evropski koordinacijski komite radiološke, elektromedicinske in zdravstvenoinformacijske industrije (COCIR) je prevzel definicijo Evropske komisije, vendar meni, da pojem vključuje področja, kot so zdravje na daljavo, oskrba na daljavo in številne medicinske telediscipline.³ Pojem telemedicine po mnenju COCIR vključuje tako storitve kot sisteme, ki povezujejo pacienta z izvajalcem oskrbe ter pomagajo pri diagnosticiranju in spremljanju pacienta s kronično boleznijo ali upravljanju postopkov. Telemedicina po njihovem mnenju daje tudi večje opolnomočenje pacientu.

Ameriško združenje za telemedicino (ATA) je pojem telemedicina definiralo kot "izmenjavo medicinskih informacij z uporabo elektronskih komunikacijskih sredstev za izboljšanje zdravstvenega stanja pacienta".⁴ Nacionalna pobuda za zdravje na daljavo iz Kanade (NIFTE) je definirala le pojem "zdravje na daljavo", pojem telemedicina pa omenja zgolj kot njenega zgodovinskega predhodnika.⁵

Oskrba na daljavo

Evropska komisija v svojem ključnem dokumentu² ni definirala pojma "oskrba na daljavo", čeprav govori o storitvah, ki niso strogo medicinske, pač pa posegajo na področje celostne dolgotrajne oskrbe bolnikov. Standard ETSI TR102415 definira oskrbo na daljavo kot "izvajanje (nudenje) zdravstvene in socialne oskrbe posamezniku v domačem okolju ali širši skupnosti s podporo oziroma ob uporabi informacijsko-komunikacijske tehnologije (IKT)". Vključuje tudi storitve zagotavljanja varnosti in elektronske podpore tehnologije".

V evropskem projektu TeleSCoPE je oskrba na daljavo (telecare) definirana kot "The means by which technologies and related services at a

distance are accessed by or provided for people and/or their carers at home or in the wider community, in order to facilitate empowerment or the provision of care and/or support in relation to needs associated with their health and well-being" (tabela 3).

Slovenske definicije pojmov

V Sloveniji se je pojem telemedicina že udomačil in ga razumemo kot "medicina na daljavo". Stereotipne predstave za tovrstne storitve so npr. izvajanje kirurških operacij na daljavo, vrednotenje radioloških slik na daljavo, posvetovanja med zdravstvenimi delavci na podlagi slike, signala, zvoka itd. Pogosto naveden primer telemedicinske storitve je tudi merjenje EKG signala v domačem okolju in posredovanje signala zdravniku v klinično okolje, kjer zdravnik EKG ovrednoti in pošiljatelju (bolniku) vrne oceno, na podlagi katerega naj bi bolnik ustrezno ukrepal. Pojem "zdravje na daljavo" se pri nas še ni udomačil, saj nekateri prevajajo angleški izraz kot "tele-zdravje".

V Sloveniji načrtujemo bistvene spremembe na področju dolgotrajne oskrbe, kamor spada tudi dolgotrajna oskrba kronično bolnih oseb. Kot del te oskrbe so v okviru predloga zakona o dolgotrajni oskrbi načrtovane tudi storitve oskrbe na daljavo, ki so opredeljene kot "pomoč na daljavo", zato je v nadaljevanju definiran tudi ta pojem.

Upravni odbor Slovenskega društva za medicinsko informatiko je na svoji seji dne 24. 5.2010 pooblastil dva svoja člana, da v sodelovanju z drugimi strokovnjaki pripravita Izhodišča za nacionalno strategijo zdravja na daljavo (telehealth), ki vključuje tudi telemedicino. Ta delovna skupina se je že poenotila glede definicij pojmov telemedicina, zdravje na daljavo in oskrba na daljavo, ki so podane v nadaljevanju. Predloge definicij je posredovala Odboru za zdravstveno-informacijske standarde pri Ministrstvu za zdravje, da jih uvrstijo v (zdravstveni) Terminološki slovar.

- **Telemedicina (angl. telemedicine)**

Telemedicina je zagotavljanje zdravstvenih storitev z uporabo informacijskih in telekomunikacijskih tehnologij v primerih, ko sta izvajalec zdravstvene storitve in pacient, oziroma dva izvajalca zdravstvene storitve, prostorsko ločena.

- **Zdravje na daljavo (angl. telehealth)**

Zdravje na daljavo je zagotavljanje z zdravjem povezanih storitev na daljavo. Predstavlja razširitev pojma "telemedicina" na področji ohranjanja in izboljševanja zdravja.

- **Oskrba na daljavo (angl. telecare)**

Oskrba na daljavo je skupek različnih storitev na daljavo, ki jih izvajamo z uporabo IKT. Namenjene so bodisi neposredno osebam z zmanjšanimi zmožnostmi, bodisi njihovim oskrbovalcem, ki v domačem okolju ali širši skupnosti potrebujejo zunanjo pomoč. Z njimi izvajamo oskrbo in dajemo podporo pri obvladovanju vsakdanjih potreb in prizadevanjih za čim bolj samostojno življenje.

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