CREATING DIGITAL EHEALTH REPOSITORY (THE NEW DIGITAL LIBRARY)

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Abstract: The paper presents in brief the launch of a free of charge digital library, focused on Telemedicine and eHealth. Its goal is to enhance the knowledge sharing by giving users access to multiple contents. With more than 1200 papers included only in the one of the sections, not mentioning hundreds of abstracts, it is definitely worth paying special attention to this library. The latter is offering an extraordinary virtual tool for all engaged in the field of Telemedicine/eHealth. The content is accessible from the Media Section of the website of the International Society for Telemedicine and eHealth (ISfTeH), https://www.isfteh.org/media.

СЪЗДАВАНЕ НА ЦИФРОВО ХРАНИЛИЩЕ В ОБЛАСТТА НА ЕЛЕКТРОННОТО ЗДРАВЕОПАЗВАНЕ (НОВАТА ВИРТУАЛНА БИБЛИОТЕКА)

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Резюме: Статията представя накратко стартирането на безплатна цифрова библиотека, насочена към телемедицина и електронно здравеопазване. Целта й е да помогне за обмен на знания, като даде на потребителите достъп до голямо количество информация. С повече от 1200 статии, включени само в една от секциите на библиотеката, без да се споменават стотици резюмета, определено си заслужава читателят да обърне специално внимание на тази библиотека. Тя предлага изключителен виртуален инструмент на всички ангажирани в областта на електронното здравеопазване. Съдържанието е достъпно от Медийната секция на уеб сайта на Международното дружество за телемедицина и електронно здравеопазване (ISfTeH), https://www.isfteh.org/media.

Introduction

A digital library is: "a collection of digital resources that may have existed only in a digital form, or have been converted from another form to a digital. These resources are generally stored in a broad range of formats and can be accessed by users over a computer network" [1].

Digital libraries are the new norm in many public and academic organizations and their significance is increasing as they
- Make the information retrieval easier, i.e. give access to multiple contents with just a mouse click;
- Overcome one of the main limitation of traditional libraries – the physical space and thus can store more information;
- Can be updated, if and when needed even on a daily basis;

- Act as a repository of publications, research data, information and findings;
- Create a virtual heritage of information for the generations to come as they help solving the problem of deterioration.

Digital libraries differ in terms of size, scope and purpose. Institutions, organizations or even individuals may maintain them [1].

This paper presents in brief the launch of a new, free of charge digital library and its first sections.

Why the digital library was created

The development and launch of the digital library, focused on Telemedicine/eHealth, is in response to the ISfTeH mission to *"Facilitate the international dissemination of knowledge and experience in Telemedicine and eHealth and providing access to recognized experts in the field worldwide"*. It is also line with the constant efforts of the organization to share knowledge and expertise not only between its members but also with all interested parties.

The library was launched in 2018. It is incorporated in the website of the International Society for Telemedicine and eHealth (ISfTeH, https://www.isfteh.org). At present, two sections "Knowledge Resources" and "Telemedicine/eHealth History" are available. They are accessible from the Media part of the web https://www.isfteh.org/media (Fig. 1).
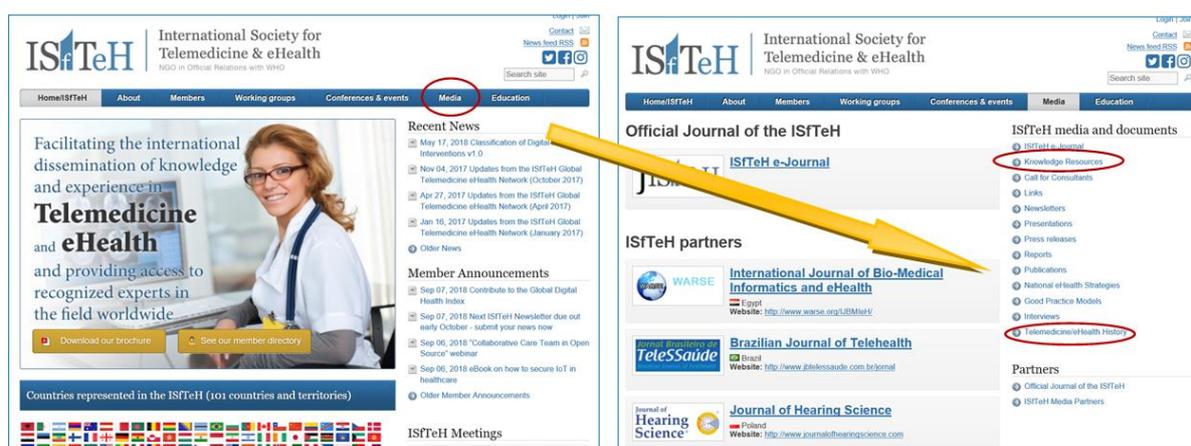
Fig. 1. Access to the digital library

The purpose of the digital library is not only to collect, store and organize information but also to strengthen communication and encourage cooperation between all interested parties.

The importance of the ISfTeH digital library is enormous. It is a blessing for many people and organizations. Users can both read the contents and download it, when required, if they have a decent internet connection and a computer or a mobile device. The access to all included texts is free of charge. What is more, the library is becoming a portal, where organizations, groups and/or individuals may publish their researches, share their expertise and gain information to enhance their work. It gives a great amount of choices and with a huge quantity of selections, it boost users to expand their horizons.

The library is enhancing the knowledge sharing by giving users access to multiple contents. Knowledge is a strategic resource. It is a significant source increasing the competitive advantage of organizations and individuals. Often is underlined that in a complex and dynamic environment, as Telemedicine / eHealth, knowledge has a pivotal role both as a resource in itself and as an integrating factor that makes other resources and capabilities effective [2].

What is available as per fall 2018?

As already mentioned, two sections are accessible at present: "Telemedicine/eHealth History" and "Knowledge Resources".

The *"Telemedicine/eHealth History"* or the history section, to name it shortly, is an important part of the digital library. There are many reasons why to study history. History provides us with valuable information, solutions and ideas. Everything that happened a second ago is already a history.

"The Past supplies the key to the Present and Future". This is an old wisdom. History tells us how we came to know what we know today. The importance of knowing history is summarized by

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Marcus Tulius Cicero (106–43 BC), roman writer, politician and great orator almost 2000 years ago: "Not to know what has been transacted in former times is to be always a child. If no use is made of the labors of past times, the world must remain always in the infancy of knowledge". These words are especially applicable to the necessity to study history of medicine. The latter is much more than the history of doctors, nurses and medical discoveries. The patients are also a major part of the broad picture. No doubt, throughout human evolution health and diseases always were matters of major concern and had a profound effect on human society, shaping it.

Yet, at present, the history of Telemedicine /eHealth is difficult to find at one place. There are many publications on the topic focused mainly on the history of telemedicine in West Europe and USA. The difference of the "Telemedicine/eHealth History" section is that it starts with a resume of telemedicine history worldwide but it also is aimed at giving a platform to different countries to present and share the history of their Telemedicine/eHealth implementation, describing all successes and failures.

Two books laid the foundation of this section. The first is the "Atlas of the Telemedicine History" [3] that illustrates the main historical stages of the telemedicine development. The second book is "A Century of Telemedicine: Curatio Sine Distantia et Tempora" by A. Vladzymyrskyy, M. Jordanova and F. Lievens [4]. This book is an overview of telemedicine implementation until the beginning of 1990s and is a result of the 10 years research. The book is not just a duplication of the previous publications. Researchers of telemedicine history will not be disappointed reading it as new facts, theories, and amazing stories from different parts of the world are included. These two books also inspired a new series of publications dedicated to a deep scientific analysis of the history of telemedicine technology worldwide named "A Century of Telemedicine - A World Wide Overview".

The book "A Century of Telemedicine - A World Wide Overview (Part I)" [5] is the first one, committed devoted to a detailed presentation of Telemedicine and eHealth history in different countries. Each chapter is devoted to one country. The chapters provides a glimpse and summarizes the practical achievements, existing solutions and experiences in Australia, Brazil, Czech Republic, India, Nigeria and Russia. The goal of the authors was to share these experiences with international, national and regional institutions and policy makers as well as with all groups or individuals involved in healthcare. The book was launched during the international Med-e-Tel conference (April 2017, Luxembourg).

The next book from the series, "A Century of Telemedicine - A World Wide Overview (Part II)" [6] reveals the long way and the enormous efforts of Chile, Finland, Georgia, Japan, Peru and USA in wide implementation of Telemedicine/eHealth. It is worth underlining that the countries presented in each volume are chosen on basis of a random selection method.

The history section also includes the "The History of Telehealth in Rio Janeiro State Brazil" [7] and "Lessons Learned from 25 Years with Telemedicine in Northern Norway" [8].

The second section is "Knowledge Resources". It is inspired from Med-e-Tel: The International eHealth, Telemedicine and Health ICT Forum for Education, Networking and Business. Med-e-Tel was an official annual event of ISfTeH from 2002 until 2017. It was an eHealth science, practice and market meeting place by excellence.

Med-e-Tel was the gathering place with a proven potential for Education, Networking and Business among a global audience with diverse professional backgrounds. It brought suppliers of specific equipment and service providers together with buyers, healthcare professionals, scientists, decision makers and policy makers from many countries around the globe and provided them with hands-on experience and knowledge about currently available products, technologies and applications. This was the forum where state-of-the-art products, ideas, projects, etc., were presented and discussed. Year after year Med-e-Tel was the nesting place for new international co-operations and partnerships between scientific groups and institutions, small, medium and large size enterprises, from all over the world.

Med-e-Tel was publishing Electronic Proceedings since 2006 and the series "Global Telemedicine/eHealth Updates: Knowledge Resources" since 2008. Both publications presented a collective experience of experts from different continents all over the world. Papers revealed various national and cultural points of view on how to develop and implement Telemedicine/eHealth solutions for the treatment of patients and wellbeing of citizens. Year after year the series "Global Telemedicine and eHealth Updates: Knowledge Resources" provided a glimpse and summarized the most recent practical achievements, existing solutions and experiences and ongoing projects in the area of Telemedicine/eHealth.

Both publications offered ideas and valuable knowledge to those who were, and still are, preparing to update or start introducing Telemedicine/eHealth in their regions or countries. They allowed readers to rely on the experience of others, make them aware of the benefits and problems

that encountered during or after implementation of systems or services, and as such help them to avoid mistakes and reduce potential problems.

One of the most important initiatives of Med-e-Tel was the creation of a Knowledge Database on its website. This database, available free, provided copies of all abstracts, papers and presentations made at Med-e-Tel throughout the years (2002-2017). It was a comprehensive listing, providing an overview of Telemedicine and eHealth research, technology, practical experiences and information from around the world, updated year after year with new titles and links.

After the official end of Med-e-Tel, the huge information database was lost. The creation of the sections "Knowledge Resources" and "Telemedicine/eHealth History" partially compensate this loss.

The "Knowledge Resources" page (Fig. 2, https://www.isfteh.org/media/category/knowledge_resources) includes all ten volumes of the series "Global Telemedicine and eHealth Updates: Knowledge Resources" as well as the Electronic Proceedings of Med-e-Tel, listed per year. The content of the books and proceedings is free to read and download.
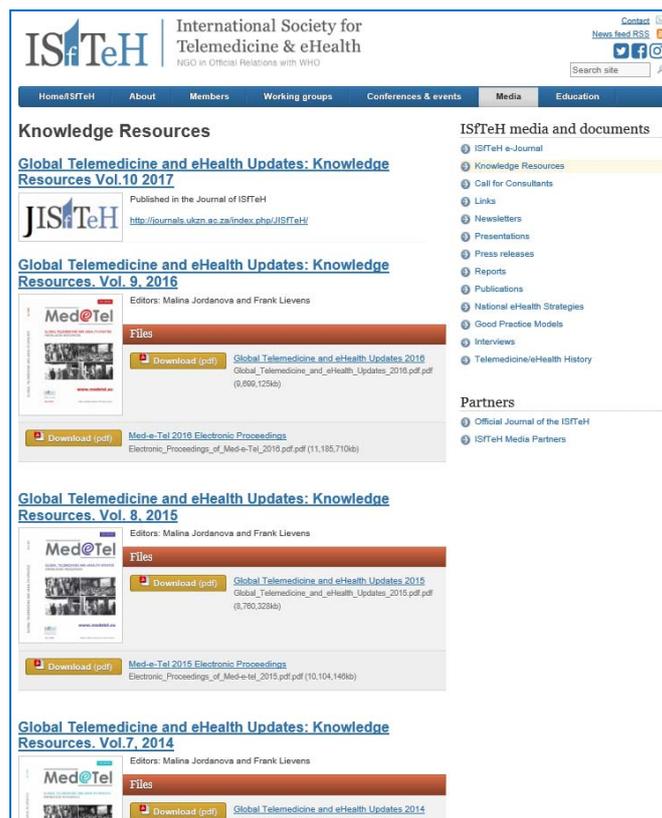

Fig. 2. Knowledge Resources section

The content of the books is divided in chapters covering various areas of Telemedicine/eHealth. The chapters, and papers in each chapter, are listed alphabetically and the original style of the authors is respected as much as possible. "How", "Where", "When" and especially "How Much" – are only part of the questions that authors were trying to answer.

With more than 1200 papers, only in the books, it is definitely worth paying special attention to this section of the library. The latter is offering an extraordinary virtual tool for all engaged in the field of Telemedicine/eHealth. The topics covered all areas of healthcare – audiology; cardiology; dentistry; maternal care; nursing; prevention; primary and emergency care; psychiatry; surgery and traumatology, etc. In addition, some more general topics are widely presented to mention some - disability and assistive technology; disease management and treatment adherence; eLearning; eHealth economics; ethics, law, user needs in telehealth services; international telemedicine and eHealth initiatives and developments; maritime telemedicine; mobile solutions (mHealth); cross-border healthcare, national and regional telemedicine/ehealth initiatives; space technologies applications; standards and security; open source software in healthcare, smart and assistive technologies for independent living and wellbeing, etc. Not underestimating the other topics it is necessary to focus readers' attention to the huge amount of papers presenting evidence based research. The Evidence Based Telemedicine/Telehealth publications provide evidence of Telemedicine/Telehealth outcomes,

i.e. an insight into clinical and/or economic effectiveness and efficiency of Telemedicine/Telehealth applications.

The information included in the "Knowledge Resources" section provides directions of a wide variety of decisions, able to affect the form and functioning of the healthcare sector over the next decades. It offers clues towards the expected future of health organization at community level. The results and guidelines presented apply to all – national and local administration, individual practitioners, group practices, healthcare systems, as well as to providers of health-related services where there are Telemedicine/eHealth interactions either directly to the patient or from provider to provider for the purposes of healthcare delivery.

Conclusions

Telemedicine/eHealth technological solutions are available and ready for implementation. If carefully realized, taking into account the needs of the community, cultural frames and economic development, they are able to improve both access to and the standard of healthcare, and thus to close the gap between the demand and supply of affordable, high quality healthcare to everyone, at any time, everywhere. The ISfTeH digital library provides useful information to those who are preparing to introduce or expand Telemedicine/eHealth. They give readers the chance to rely on the experience of others, make them aware of the benefits and problems that were encountered and as such, help them to avoid re-inventing the wheel.

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