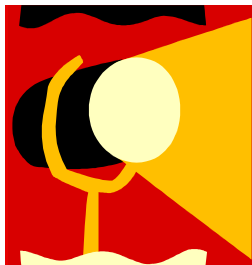# AIHA Internet Resources Digest

Supporting Access to High Quality Online Resources

September 2015

Spotlight on:
TELEMEDECINE RESOURCES

$\mathcal{T}$elemedecine is the use of medical information exchanged from one site to another via electronic communications to improve a patient's clinical health status. Telemedicine includes a growing variety of applications and services using two-way video, email, smart phones, wireless tools and other forms of telecommunications technology.

(*http://www.americantelemed.org/about-telemedicine/what-is-telemedicine#.VgOTl03ovIU*

International Projects and Professional Organizations

Global Observatory for eHealth series - Volume 2. Telemedicine – Opportunities and developments in Member States. January 2011

The Observatory's mission is to improve health by providing Member States with strategic information and guidance on effective practices and standards in eHealth. "This second volume of the Global Observatory for eHealth series examines trends in the uptake of telemedicine, from the well established to newly emerging telemedicine applications. With an emphasis on the needs of developing countries, it looks to the future with an analysis of the strategic actions required to support and strengthen telemedi-

cine in countries. The publication is targeted at telemedicine practitioners and policymakers in health and information technology, as well as health care practitioners interested in adopting telemedicine services." Available in English, Russian, and Chinese**.**

http://www.who.int/goe/publications/ ehealth_series_vol2/en/

The American Telemedicine Association

The American Telemedicine Association is the leading resource and advocate promoting access

to medical care for consumers and health professionals via telecommunications technology in the US. Established in 1993 as a non-profit organization, membership in the Association is open to individuals, companies and other organizations with an interest in promoting the deployment of telemedicine throughout the world. On the web-site one can find a collection of telemedicine guidelines, telemedicine case studies from different health care organizations, links to publications and training materials.

http://www.atmeda.org/

Center for Telehealth and e-health Law

A legal and regulatory telehealth organization – providing support to the community on topics such as: physician and nurse licensure; credentialing and privileging. CTeL's Research Library features fact sheets, briefing memos, reports and white papers drafted by CTeL staff and experts in the telehealth community. CTeL's publications are carefully researched pieces of scholarly and professional literature that explore timely and emerging legal and regulatory issues.

http://ctel.org/

International Society for Telemedicine and ehealth: ISfTeH

  Its mission is to facilitate the international dissemination of knowledge and experience in Telemedicine and eHealth and providing access to recognized experts in the field worldwide. Philosophy and vision:

- Promotion & Support of Telemedicine/

eHealth activities worldwide

- Primarily an umbrella for national Telemedicine and eHealth organizations
- Assisting the start-up of new national organizations
- Non governmental and non for profit society with close ties to WHO and ITU
- Supporting developing countries in the field of Telemedicine and e-Health
- No fee for student and nurse individual members

On the web-site are National e-health strategies, Good practice models, information about conferences, publications, educational programs in the field of Telemedicine, eHealth, Medical Informatics.

http://www.isfteh.org/

Guides

Rural Health Toolbox. Telehealth

This resource is targeted towards rural health providers seeking to implement health IT to improve the overall effectiveness of their institutions. This resource is organized in a question-and-answer format and includes a compilation of resources relevant to all stages of planning, executing, and evaluating the implementation of health IT. This module provides an overview of telehealth with an emphasis on its application in a rural setting. Content:

- What is telehealth?

- How does telehealth differ from tele-medicine?

- What types of care settings can benefit from telehealth technology?

- How can telehealth technology bene-fit primary care?

- How do you begin to set up tele-health services?

- What are the technical infrastructure requirements?

- What are the reimbursement issues for telehealth?

- Are there licensing issues related to telehealth?

- What are the lessons learned in es-tablishing and maintaining telehealth services?

http://www.hrsa.gov/healthit/toolbox/ RuralHealthITtoolbox/Telehealth/ index.html

### Telehealth Teachnology Toolkits

The US **National Telehealth Technology Assessment Resource Center** aims to cre-ate better-informed consumers of telehealth technology. By offering a variety of services in the area of technology assessment, the TTAC aims to become the place for an-swers to questions about selecting appropri-ate technologies for your telehealth program. Toolkits are a critical part of the work that the Telehealth Technology Assessment Center does.

These interactive elements allow users to learn the fundamentals of how various tech-

nologies work, as well as how to assess them for use in telehealth programs.

http://www.telehealthtechnology.org/ toolkits

### Telehealth in the Developing World
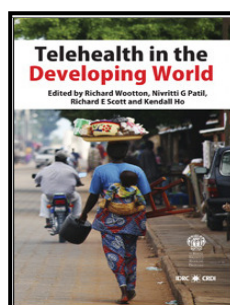
Telehealth in the Develop-ing World is a very wide-ranging book, rich in prac-tical experience, which will be of interest both to those who want to learn about the developing world and to those who want to learn from developing countries. The present volume aims to summarize the experience of starting and sustaining telehealth projects in the de-veloping world. It represents a description of how telemedicine in the broadest sense can be applied to improve the delivery of health care in developing countries. 2009, Royal Society of Medicine Press.

http://www.idrc.ca/EN/Resources/Publications/ openebooks/396-6/index.html

Journals and Articles

Telemedicine and e-Health
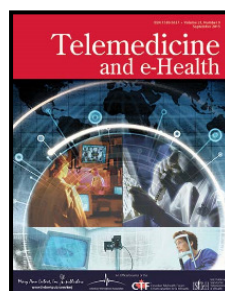
Telemedicine and e-Health is the leading inter-national peer-reviewed journal covering the full spectrum of advances and clinical applications of tele-medicine and management of electronic health records. It places special emphasis on the outcome and impact of telemedicine on the quality, cost effective-ness, and access to healthcare. Telemedi

cine applications play an increasingly important role in health care . "They offer indispensable tools for home healthcare, remote patient monitoring, and disease management, not only for rural health and battlefield care, but also for nursing home, assisted living facilities, and maritime and aviation settings" Journal coverage includes:

• Clinical telemedicine practice
• Technical advances
• Medical connectivity
• Enabling technologies
• Education
• Health policy and regulation
• Biomedical and health services research

Selected free articles and issues. Access to full-text through HINARI.
http://www.liebertpub.com/overview/ telemedicine-and-e-health/54/

Journal of Telemedicine and Telecare

An Official Journal of The American Telemedicine Association. "The leading journal in its field, Journal of Telemedicine and Telecare, helps you to stay up-to-date in this fast moving and growing area of medicine. Contributions from around the world provide a unique perspective on how different countries and health systems are using new technology in healthcare. This high quality scientific work provides excellent coverage of developments in telemedicine and e-health with a focus on clinical trials of telemedicine applications." Selected free articles, free sample issue
http://jtt.sagepub.com/

Journal of the International Society for Telemedicine and eHealth

JISfTeH is a peer reviewed, open access, online journal covering all aspects of eHealth and health informatics. ***http:// journals.ukzn.ac.za/index.php/JISfTeH/ index***

Eccles N. Telemedicine in Developing Countries: Challenges and Successes.
Harvard College Global Health Review, February 1, 2012

"In rural or impoverished pockets of the world, where disease is prevalent, doctors are scarce, and health care infrastructure is inadequate, telemedicine is an innovative solution that connects the developing world to the resources of the developed world. Telemedicine holds promise in expanding health care access worldwide. Certain aspects of telemedicine, however, are often difficult to implement in underdeveloped settings and should be addressed to capitalize on the potential these new tools offer." Free full-text.
http://www.hcs.harvard.edu/hghr/print/ spring-2011/telemedicine-developing/

Goldberg M. Telemedicine in Developing Countries. Columbia University Online Journal, Voices in Bioethics, September 9, 2014

"One important factor, which affects the reasonableness of telemedicine, is the cost. Countries, particularly developing countries, are concerned with both the start-up and maintenance costs. ICT infrastructure in developing countries is limited; thus, developing countries have a greater challenge in the initial implementation of telemedicine. " Free full-text.

http://voicesinbioethics.org/2014/09/09/ telemedicine-in-developing-countries/

Scott RE, Mars M. Telehealth in the developing world: current status and future prospects. Smart Homecare Technology and TeleHealth, February 2015 Volume 2015:3 Pages 25—37

"Evidence shows telehealth has been used in essentially all countries of the world, but is embedded in few. Uses and needs of telehealth vary between the developed and developing world; the latter struggles with both communicable diseases and noncommunicable diseases, and with very few resources. Common clinical applications include teleconsultation, telecardiology (transmission of ECGs), teleradiology, and teledermatology. Many telehealth projects exist throughout Latin America and the Caribbean, Asia, and Africa, but there is little published evidence and only isolated examples of sustained programs". Free full-text

https://www.dovepress.com/telehealth-in-the-developing-world-current-status-and-future-prospects-peer-reviewed-article-SHTT#

Alajmi D., Almansour S., Househ MS. Recommendations for implementing telemedicine in the developing world. Stud Health Technol Inform. 2013;190:118-20

"Telemedicine in the developing world can offer solutions to healthcare access for people in rural areas, reduce healthcare costs, and possibly improve healthcare quality. A major benefit for patients is that they will be more involved in maintaining their health without the constant need to visit healthcare centers.

The purpose of this paper is to provide solutions and recommendations for the implementation of telemedicine in the developing world. A comprehensive search of both academic and gray literature was conducted in September 2012. The results show that there are potential benefits of and challenges in the implementation of telemedicine

in developing countries. How to overcome the key challenges related to financial issues, acceptance, health infrastructure, and legal and privacy issues is discussed ."
http://ebooks.iospress.nl/publication/33688

Flodgren G., Rachas A., Farmer A.J., et al. Interactive telemedicine: effects on professional practice and health care outcomes. Cochrane Database Syst Rev. 2015 Sep 7; 9:CD002098

The objective of this systematic review was to assess the effectiveness, acceptability and costs of interactive TM as an alternative to, or in addition to, usual care (i.e. face-to-face care, or telephone consultation). The findings in the review indicate that the use of TM in the management of heart failure appears to lead to similar health outcomes as face-to-face or telephone delivery of care; there is evidence that TM can improve the control of blood glucose in those with diabetes. Free full-text.

http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD002098.pub2/abstract;jsessionid=CBB75B2FD6DA85101706093098A53E64.f04t02

Armfield N.R., Bradford M., Bradford N.K. The clinical use of Skype-For which patients, with which problems and in which settings? A snapshot review of the literature. Int J Med Inform. 2015 Oct;84(10):737-42.

„Low-cost and no-cost software-based video tools may be a feasible and effective way to provide some telemedicine services, particularly in low-resource settings. One of the most popular tools is Skype; it is freely available, may be installed on many types of devices, and is easy to use by clinicians and

patients. While a previous review found no evidence in favor of, or against the clinical use of Skype, anecdotally it is believed to be widely used in healthcare for providing clinical services. However, the range of clinical applications in which Skype has been used has not been described".

The authors „reviewed the literature to identify studies that reported the use of Skype in clinical care or clinical education.. The use of Skype was most prevalent in the management of chronic diseases such as cardiovascular diseases and diabetes, followed by educational and speech and language pathology applications. Most reported uses were in developed countries. While Skype may be a pragmatic approach to providing telemedicine services, in the absence of formal studies, the clinical and economic benefits remain unclear." Access to full-text through HINARI.
http://www.ijmijournal.com/article/ S1386-5056(15)30011-3/abstract

Burke B.L. Jr, Hall R.W.; Dehnel P.J., et al. Telemedicine: Pediatric Applications. Pediatrics. 2015 Jul;136(1):e293-308.

„Telemedicine is a technological tool that is improving the health of children around the world. This report chronicles the use of telemedicine by pediatricians and pediatric medical and surgical specialists to deliver inpatient and outpatient care, educate physicians and patients, and conduct medical research. It also describes the importance of telemedicine in responding to emergencies and disasters and providing access to pediatric care to remote and underserved populations. Barriers to telemedicine expansion are explained, such as legal issues, inadequate payment for services, technology costs and sustainability, and the lack of technology infrastructure on a national scale". Free full-text.

http://pediatrics.aappublications.org/ content/136/1/e293.short

Ward M.M., Jaana M., Natafgi N. Systematic review of telemedicine applications in emergency rooms. Int J Med Inform. 2015 Sep;84(9):601-16

„Hospital-based applications of telemedicine present a potentially important solution, particularly for small and rural hospitals where access to local specialists is rarely available." This systematic review of telemedicine applications for hospital-based emergency care is a synthesis of the existing evidence on the impact of tele-emergency applications that could inform future efforts and research in this area.
„Overwhelmingly, tele-emergency studies reported positive findings especially in terms of technical quality and user satisfaction. There were also positive findings reported for clinical processes and outcomes, throughput, and disposition, but the rigor of studies using these measures was limited. Studies of economic outcomes are particularly sparse."
Access to full-text through HINARI.
http://www.ijmijournal.com/article/S1386-5056(15)00102-1/abstract

Silva B.M., Rodrigues J.J., de la Torre Díez I.,et al. Mobile-health: A review of current state in 2015. J Biomed Inform. 2015 Aug; 56:265-72.

„M-Health solutions address emerging problems on health services, including, the increasing number of chronic diseases related to lifestyle, high costs of existing national health services, the need to empower patients and families to self-care and handle their own healthcare, and the need to provide direct access to health services, regardless of time and place. This paper presents a comprehensive review of the state of the art on m-Health services and applications. It surveys the most significant research work

and presents a deep analysis of the top and novel m-Health services and applications proposed by industry. A discussion considering the European Union and United States approaches addressing the m-Health paradigm and directives already published is also considered. Open and challenging issues on emerging m-Health solutions are proposed for further works." Access to full-text through HINARI.
http://www.j-biomed-inform.com/article/ S1532-0464(15)00113-6/abstract

Amadi-Obi A., Gilligan P., Owens N·, et al. Telemedicine in pre-hospital care: a review of telemedicine applications in the pre-hospital environment. Int J Emerg Med. 2014 Jul 5; 7:29

„This review is part of the LiveCity project to examine the history and existing applications of telemedicine in the pre-hospital environment... A majority of the studies were on stroke management. The studies suggested that telemedicine had a positive impact on emergency medical care. It improved the pre-hospital diagnosis of stroke and myocardial infarction and enhanced the supervision of delivery of tissue thromboplasminogen activator in acute ischaemic stroke. Telemedicine presents an opportunity to enhance patient management. There are as yet few definitive studies that have demonstrated whether it had an effect on clinical outcome." Free full-text.
http://www.ncbi.nlm.nih.gov/pmc/ articles/PMC4306051/

Di Cerbo A., Morales-Medina J.C., Palmieri B. Narrative review of telemedicine consultation in medical practice. Patient Prefer Adherence. 2015 Jan 13;9:65-75.

„This narrative review gives an overview of the growing use of telemedicine in different medical specialties, showing how its use

use can improve medical care... Telemedicine provides specialist medical care to patients who have poor access to hospitals, and ensures continuity of care and optimal use of available health resources... The use of telemedicine opens new perspectives for patients seeking a medical second opinion for their pathology." Free full-text
https://www.dovepress.com/narrative- review-of-telemedicine-consultation-in- medical-practice-peer-reviewed-article- PPA

Ndlovu K., Littman-Quinn R., Park E., et al. Scaling up a Mobile Telemedicine Solution in Botswana: Keys to Sustainability. Front Public Health. 2014 Dec 11;2:275.

„Botswana's health care system is one of the many in the African continent with few specialized medical doctors, thereby posing a barrier to patients' access to health care services... Pilot studies were conducted across four medical specialties, including radiology, oral medicine, dermatology, and cervical cancer screening. Findings from the studies became vital evidence in support of the first scale-up project of a mobile telemedicine solution in Botswana, also known as "Kgonafalo." Free full-text.
http://journal.frontiersin.org/ article/10.3389/fpubh.2014.00275/abstract

Xue Y., Liang H., Mbarika V., et al. Investigating the resistance to telemedicine in Ethiopia. Int J Med Inform. 2015 Aug;84 (8):537-47

A survey on 107 healthcare professionals in Ethiopia was conducted. The resistance to telemedicine is determined by perceived threat and perceived controllability, which in turn are influenced by reduced autonomy, anxiety, and costs.

Government support weakens the effect of perceived threat but strengthens the effect of perceived controllability on telemedicine resistance. Free full-text.
http://www.pacis-net.org/file/2014/2041.pdf

Daniel H., Sulmasy L.S.. Policy Recommendations to Guide the Use of Telemedicine in Primary Care Settings: An American College of Physicians Position Paper *Ann Intern Med.* Published online 8 September 2015 doi:10.7326/M15-0498

„The potential benefits of telemedicine must be measured against the risks and challenges associated with its use, including the absence of the physical examination, variation in state practice and licensing regulations, and issues surrounding the establishment of the patient–physician relationship." This paper offers policy recommendations for the practice and use of telemedicine in primary care. Free full-text
http://annals.org/article.aspx?articleid=2434625

AIHA Related Resources

LRC Project Toolkit: Training Materials. Tech Topic: Teleconsultation (2009)

http://toolkit.lrcnetwork.org/English/Training/teleconsult-eng.pdf

About the AIHA Internet Resources Digest

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The *Internet Resources Digest* is compiled by Irina Ibraghimova, PhD, Library and Information Management Specialist HealthConnect International (www.healthconnect-intl.org). The contents are the responsibility of AIHA and do not necessarily reflect the views of PEPFAR, HRSA, or the United States Government.

If you have a suggestion for a Digest topic, or would like to contribute information about Internet resources, please contact ibra[at]zadar.net.

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