Scholarship Forum 2013

9-25-2013

Advanced Technologies: Health Care Anytime... Anywhere?

Danielle Hart
Franklin University

John Pilutti
Franklin University

Leslie J. King
Franklin University, leslie.king@franklin.edu

Recommended Citation

Hart, Danielle; Pilutti, John; and King, Leslie J., "Advanced Technologies: Health Care Anytime... Anywhere?" (2013). *Scholarship Forum 2013*. 20.
https://fuse.franklin.edu/forum-2013/20

Advanced Technologies: Health Care Anytime … Anywhere?

Danielle Hart & John Pilutti
Dr. Leslie King
Franklin University MHA Program

ABSTRACT

Advanced technology in the medical profession has had a significant impact on the access, efficiency, and cost of health care delivery services over the past decade. Technological advancements in the medical profession can be bucketed into two main categories: mobile and biological/physiological. Some examples of mobile technology include web apps that can monitor a patient's vital signs remotely and mobile phone attachments that can provide medical imaging data for doctors in the most remote areas of the globe. Remote patient monitoring and the use of mobile health apps to deliver timely, useful information to the patient about their health decision represent a significant shift in health care information delivery. Research conducted with a biological/physiological intent ranging from nanotechnology to molecularly modified proteins and genes designed to provide personalized medicine based on the "context of a patient's unique biological state."

The health care industry is among the first to develop the semantic web through WC3 which launched the Health Care Life Sciences Interest Group to improve interaction and collaboration through adaptive data mining using the semantic web. "Connected devices" refers to the premise that the semantic web will make the meaningful connections between disparate bits of information through smart and connected devices. EHRs already use APIs (application programming interfaces) to securely share clinical content.

OBJECTIVES

• To research current and up-and-coming advances in medical technology
• To identify how changes and trends in medical technology will impact management in the healthcare industry
• Identify ways in which mobile technologies improve health
• Identify changes to web technology with the introduction of Web 4.0
• Identify new ways to link advances in medical technology to improved healthcare management capabilities

METHOD

This research study conducted a meta-analysis for 23 articles and online resources. The articles were scanned for reoccurring themes and key information that provided insight on the use of advance technology in the healthcare industry.
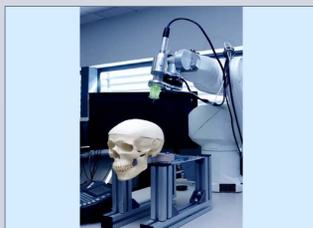
CONCLUSIONS

Advances in technology are having a significant impact on patient care. We see mobile devices being used to collect vital information about a patients condition remotely. Nanotechnology and genetically modified organism are providing treatment to patients at a molecular level, while we also see advancements with social media and patient support. Below are a few examples of how advanced technologies are impacting healthcare:

• Advances in technology aim to make healthcare accessible, efficient, and cost-effective
• Medical care can be effectively administered in the comfort of the patient's home
• Social media allows physicians to consult with each other globally
• Social media also allows patients to seek out support groups for their particular condition
• Many advances in diabetic care will allow for continuous glucose monitoring and automatic insulin dosing
• Improved electronic methods of providing informed consent will reduce the number of malpractice claims

REFERENCES

2013 global medical devices outlook. (2013, July 31). *The Wall Street Hournal*. Retrieved August 6, 2013, from http://www.marketwatch.com/story/2013-global-medical-devices-outlook-2013-07-31

7 really cool medical tech advancements underway. (2010, January 7). *SherWeb*. Retrieved August 6, 2013, from http://blog.sherweb.com/7-really-cool-medical-tech-advancements-underway/

Aghaei. 2011. EVOLUTION OF THE WORLD WIDE WEB: FROM WEB 1.0 TO WEB 4.0. International Journal of Web & Semantic Technology 3, (1). DOI : 10.5121/ijwest.2012.3101 1. Retrieved from: http://www.cbpp.uaa.alaska.edu/afef/web%20evolution%201-4.htm

Chait, J. (2013, March 11). Advances in medical technology improving diabetes care. *Diabetes Self-Management*. Retrieved August 6, 2013, from http://www.diabetesselfmanagement.com/articles/general-diabetes-and-health-issues/advances_in_medical_technology/all/

Chen, T. 2007. Consumer's Guide to the top Healthcare 2.0 Websites. Retrieved from: http://www.hospitalimpact.org/index.php/scoop/2007/04/16/consumer_s_guide_to_the_top_healthcare_2

Chu, J. (2013, January 8). Tiny tools help advance medical discoveries. *MIT News*. Retrieved August 6, 2013, from http://web.mit.edu/newsoffice/2013/tiny-tools-help-advance-medical-discoveries-0108.html

Driscoll, P. (2013, July 26). Medtech: Incremental advances and game-changing innovation. *HealthWorks Collective*. Retrieved August 6, 2013, from http://healthworkscollective.com/patrickdriscoll/117446/medtech-incremental-advances-and-game-changing-innovation

Driscoll, P. (2013, May 31). Medtech from incremental to quantum leap advances. *Advanced Medical Technologies*. Retrieved August 6, 2013, from http://blog.mediligence.com/2013/05/31/medtech-incremental-quantum-leap/

Dunn, L. 2012. Dr. Daniel Kraft Discusses the Future of Medicine at ACE 2012. Retrieved from: http://www.beckershospitalreview.com/news-analysis/dr-daniel-kraft-discusses-the-future-of-medicine-at-ace-2012.html

Giustini, D. (2007). Web 3.0 and medicine. BMJ 335 doi: http://dx.doi.org/10.1136/bmj.39428.494236.BE

Haffner, K. (2012, October 8). Redefining medicine with apps and iPads. *The New York Times*. Retrieved August 6, 2013, from http://www.nytimes.com/2012/10/09/science/redefining-medicine-with-apps-and-ipads-the-digital-doctor.html?ref=thedigitaldoctor&_r=1&

Handley, A. (2013, March 22). 10 medical technologies that could shape the future. *Listverse*. Retrieved April 6, 2013, from http://listverse.com/2013/03/22/10-medical-technologies-that-could-shape-the-future/

Health care providers leveraging advances in telehealth technology. (2013, April 8). *IHealth Beat*. Retrieved August 6, 2013, from http://www.ihealthbeat.org/articles/2013/4/8/health-care-providers-leveraging-advances-in-telehealth-technology

Hepp, R. (2013, July 18). Harnessing new technology. *Advance Healthcare*. Retrieved from http://physical-therapy.advanceweb.com/Student-and-New-Grad-Center/Student-Top-Story/Harnessing-New-Technology.aspx

Hyatt, C. 2010. Web 3.0 and Health Care: Connected Devices. Retrieved from: http://www.mhealth360.com/2010/08/19/web-3-0-and-health-care-connected-devices/

Jennsen, W. 2007. Web 3.0 and Predictive, Preventive and Personalized Medicine. Retrieved from: http://www.highlighthealth.com/healthcare/web-30-and-predictive-preventive-and-personalized-medicine/

Kei-Hoi, C. (2008). HCLS 2.0/3.0: Health care and life sciences data mashup using Web 2.0/3.0. *Journal of Biomedical Informatics*, 41(5). P.694-705. ISSN: 1532-0464, DOI: 10.1016/j.jbi.2008.04.001

Lee, E. (2013, January 24). 5 ways technology is transforming health care. *Forbes*. Retrieved August 6, 2013, from http://www.forbes.com/sites/bmoharrisbank/2013/01/24/5-ways-technology-is-transforming-health-care/

Medical technology shares the spotlight in 2013 with technology for fun and entertainment. (2013). *SysteMedicus Incorporated*. Retrieved August G, 2013, from http://www.systemedicus.com/?p=598

Niewolny, D. (2013, January 15). Advances in semiconductor technology are shaping next generation medical devices. *Element14 Community*. Retrieved August 6, 2013, from http://www.element14.com/community/community/news/blog/2013/01/15/advances-in-semiconductor-technology-are-shaping-next-generation-medical-devices

Richtel, M. (2012, October 8). Apps alert the doctor when trouble looms. *The New York Times*. Retrieved August 6, 2013, from http://well.blogs.nytimes.com/2012/10/08/apps-alert-the-doctor-when-trouble-looms/?ref=thedigitaldoctor

Tiny microfluidic device detects early malarial infections. (2013, August 19). *MedGadget*. Retrieved August 19, 2013, from http://www.medgadget.com/?s=Tiny+Microfluidic+Device+Detects+Early+Malarial+Infections

Top ten medical innovations: 2013. (2013). *Cleveland Clinic*. Retrieved August 6, 2013, from http://www.clevelandclinic.org/innovations/summit/documents/CC%20BROCHURE%20Top%2010%202013%20121025_1600%20F%20SC.pdf

Photo credits: www.aristotlelabs.com, Orion Jones/www.bigthink.com, www.slashgear.com, Universitat Politecnica/www.sciencedaily.com, Tierney Gallagher/www.clemson.edu

CONTACT INFO

Danielle Hart
Student, Master of Healthcare Administration
hart13@email.franklin.edu

John Pilutti
Student, Master of Healthcare Administration
pilutt02@email.franklin.edu

Dr. Leslie King
Program Chair, Master of Healthcare Administration
leslie.king@franklin.edu