TATRC's Strategy for the Research and Development of Mobile Health Applications

Colonel Ronald Poropatich, MC, USA

Deputy Director

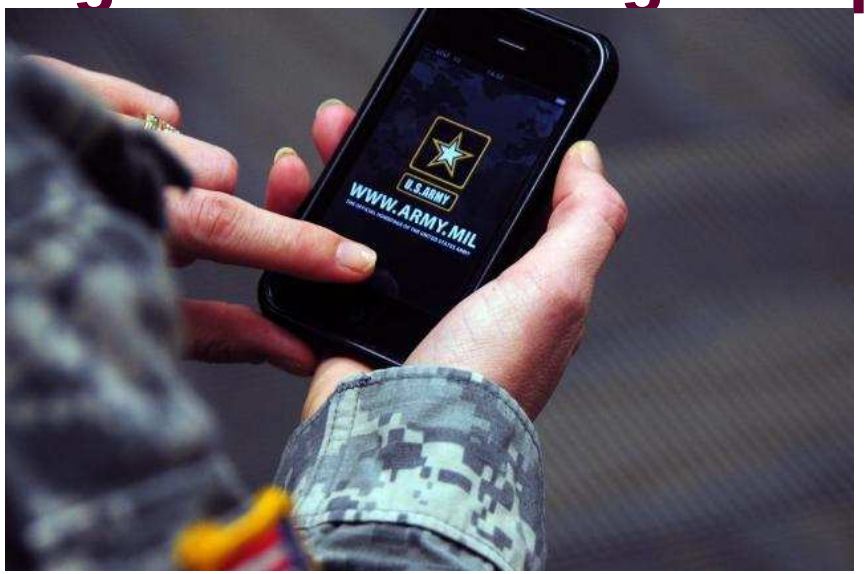
Telemedicine and Advanced Technology Research Center (TATRC)

U.S. Army Medical Research and Material Command

Fort Detrick, MD

26 July 2010

“Army, Apple meet to discuss hand-held solutions for Soldiers”
Connecting Soldiers to Digital Application



-US Army Research & Development Command (RDECOM) is evaluating commercial handheld solutions such as iPad, iPhone, iPod, and MacBook platforms
– “to leverage commercial technology for battlefield uses”.

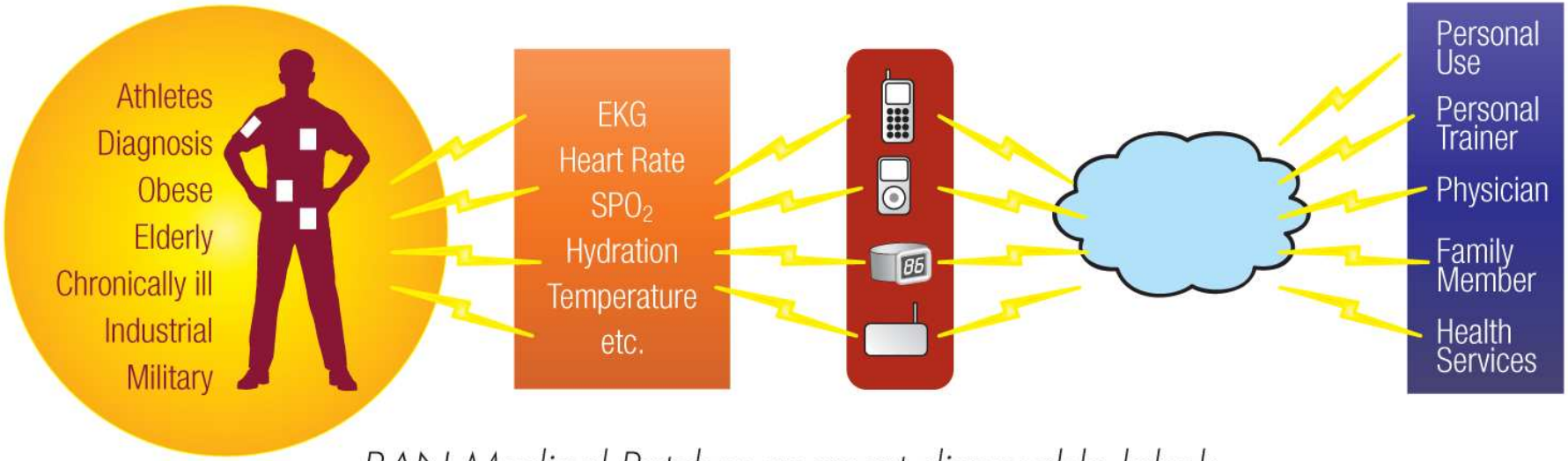
- Within RDECOM, CERDEC has developed numerous handheld command & control solutions and is supporting the development and transition of MilSpace, a combined planning & social networking environment.

http://www.army.mil/-news/2010/03/22/36178-army-apple-meet-to-discuss-hand-held-solutions-for-soldiers/ Mar 22, 2010

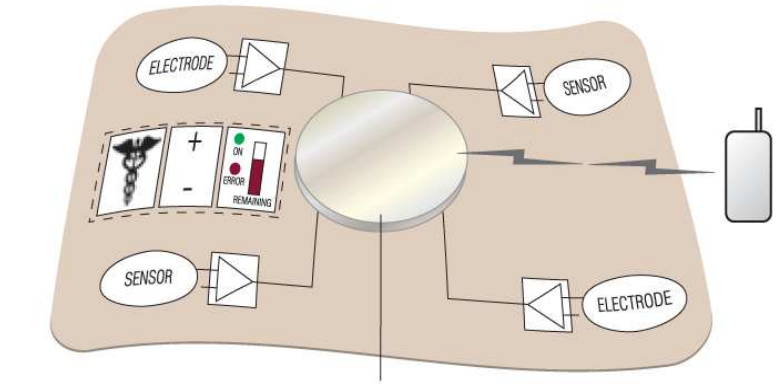
Cell Phone Applications for mHealth

- Clinical consultation
- Education
- Research
- Biosurveillance
- Disease Management

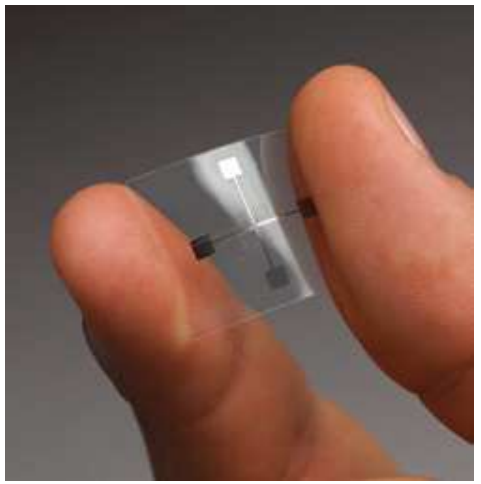
Wireless Body Area Network (wBAN)



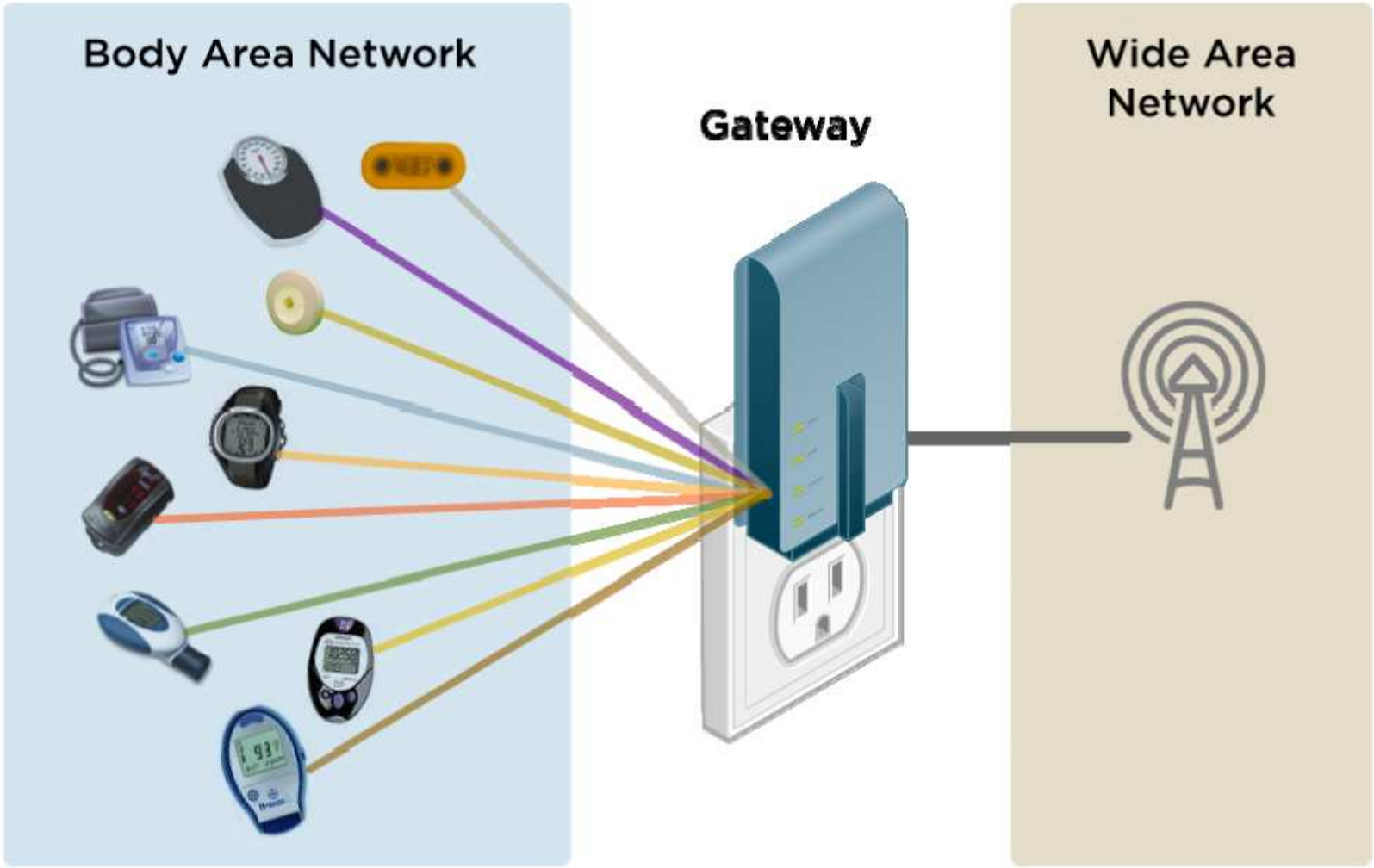
BAN Medical Patches as smart disposable labels.



Standardized, detachable, re-usable radio



Low Cost, Easy to Deploy Health Gateway



TATRC Mobile Health Projects

"Agents for Behavior Change"

- Diabetes patients with video clips – improve compliance with meds and glucose monitoring
- Text4Baby – improve maternal/fetal health
- Sleep apnea – improve compliance with nasal CPAP use
- USUHS medical student applications for daily use – educational & administrative
- Mild Traumatic Brain Injury – Reserve/National Guard patients – secure messaging
- Guideview – decision support tools derived from the Special Forces Medical Handbook for remote providers on a mobile device
- Use of Open Source Software for Disease Biosurveillance

Open Source mHealth Data Collection Information & Communications Technologies (ICT's)

Open Data Kit (ODK) - Developed by University of Washington engineering students
- Complete end-to-end suite of tools for data collection and device management
- Leverage's Google's free and robust web services (only works on Android phones)
- Phones require a SIM card with an active data plan

FrontlineSMS
- Open source Java software that transforms any computer and a GMS mobile device into a bulk SMS messaging center (hub to many mobile devices)
- Uses: alerting, surveys, voting based competitions, & entry level data collection on a large scale

EpiSurveyor - Developed by DATADYNE
- Goal: freely hosted web application with a mobile phone based component for data collection to empower global health & international development initiatives
- WHO uses this application in 13 African countries

GATHERdata - Contributors: AED, AED SATELLIFE, Rockefeller Foundation (funding)
- code publicly released November 2009
- applications range from rural health centers doing routine data collection and community health workers surveying at the field level

eMOCHA - Developed by Johns Hopkins University
- Designed to assist health programs in developing countries improve provider communication and education as well as patient care
- Uses the ODK Collect application & transforms smart phones into GPS-linked clinical gathering tools, interactive training devices, and medical consultation systems

Military Medical Stability Operations
- Role of Cell Phones in International Health

- Role of the U.S. Military Health System (MHS) in humanitarian assistance is evolving with changes in U.S. government policies & military doctrine

- Department of Defense Directive 3000.05: Military Support for Stability, Security, Transition and Reconstruction (STTR) Operations*
  - "stability operations…shall be given priority **comparable to combat operations** & be explicitly addressed & integrated across all DOD activities".

- Department of Defense Instruction 6000.16 (approved 17 May 2010):Military Health Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations – now called **"Medical Stability Operations"**
  - establishes policy, assigns responsibilities, and provides instructions for Medical Stability Operations

* DOD 3000.5, November 28, 2005 "Military Support for Stability, Security, Transition, and Reconstruction (SSTR) Operations", Section 4.1

Mobile Health critical challenges

1. Integration of mobile applications with legacy information systems/EMR's;
2. Information overload to providers – how best to manage?
3. Support for a variety of handheld devices (e.g., iPhone, Droid, Blackberry) and a variety of network connections (e.g., 802.11b wireless LAN, Bluetooth PAN, wireless WAN, UWB);
4. Security, privacy and confidentiality of patient data on the handheld and during transmission
5. FDA impact – mobile phone vs. medical device?
   - FDA role is evolving
   - http://www.scientificamerican.com/article.cfm?id=medical-apps-regulation (April 10, 2010)

mHealth Strategy

Future perspective

- Role in Humanitarian Assistance/Disaster Relief?
- Open source vs. Commercial product?
- Integration into the EMR (AHLTA & VISTA) – role for a test environment (CDE)?
- Body Area Networks & Home Telehealth
- Application Development
  - MilSpace Apps Store for Medical applications?

Summary

- Innovations in wireless are influencing all aspects of our lives.
- The convergence of healthcare and mobile technologies has the potential to change the lives of individuals & to contribute to better care, healthier choices and increased quality of life.
- Mobile health is the future of Telemedicine and will continue to grow as inexpensive open source software is developed
- US Army Medical Department has a strong interest in mHealth and an active research portfolio
- Military Medical Stability Operations R&D should include mHealth applications

Questions?

COL Ron Poropatich, MD
ronald.poropatich@us.army.mil
301-619-7967

www.tatrc.org