

Non-Intrusive Health Monitoring & Alerting

Cindy Crump, CEO - AFrame Digital, Inc.

**Sunil Saxena, MD, FACEP
Chief Medical Officer – Aframe Digital, Inc.**

**Loretta Schlachta-Fairchild, RN, PhD, FACHE, LTC (Ret), AN
iTeleHealth, Inc.,**

**Kathy Martin, RN, MSN, RADM (Ret) –
CEO, Vinson Hall Corporation**



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Agenda

- **AFrame Update & System Overview**
- **Research**
 - DARPA
 - NIH
- **Eldercare Field Trials**
- **Q&A**

**Special Acknowledgement to:
Tom Wagner, PhD - DARPA Program
Manager**



Who is AFrame Digital, Inc?

- **Dynamic health monitoring, alerting and trending**
 - Safety net for at-risk patient populations
- **DARPA research**
 - Support for injured warfighters in outpatient settings
- **NIH research**
 - Fall prevention & gait stability
- **CCRC Field Trials**
- **Founded 2005 in Virginia**
- **Strong Research Partnerships**



Senior Safety Net

Directed Alerts & Status to Healthcare Professionals



Family Members/Caregivers



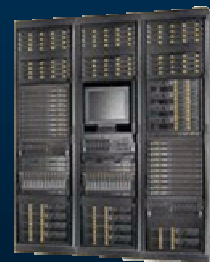
Securely uses available communication methods



Cellular

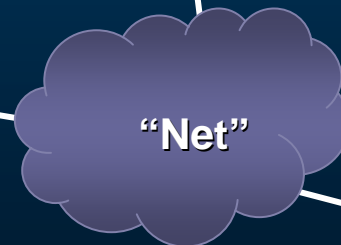
**Personal Help Device (PHD)
Wearable Sensors**

- Monitors Heart Rate
- Detects Impact of Force & Activity Levels
- Provides Location
- Nurse Call & Privacy Options
- Measures Ambient & Skin Temp

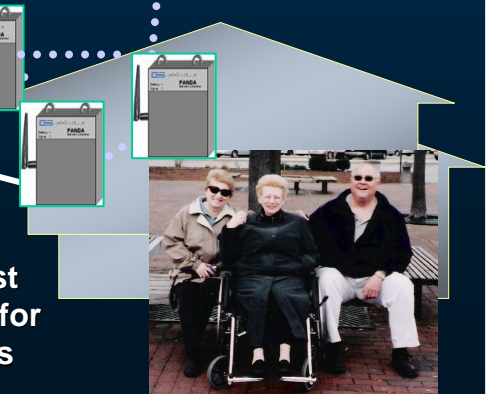


Secure Application Server

- Event Data
- Personalized Trending & Alerting Models
- Caregiver alerting



Secure, Low-Cost Mesh Networking for Campus Settings



Applying Technology to the Military Health System (MHS)

Double amputee Sgt. Christian Bagge prepares to jog with President Bush, June 2006.



Source: Time Magazine 011807

**Loretta Schlachta-Fairchild, RN, PhD, FACHE, LTC (ret), AN
President & CEO iTelehealth Inc.**



Mobilecare Monitor™ Mobility Network for Monitoring & Alerting – Military

Directed Alerts for Caregivers
& Medically Approved, Protocol-based Care

Securely uses available
communication methods

Monitor Warriors in Outpatient,
Medical Hold, Barracks, Home

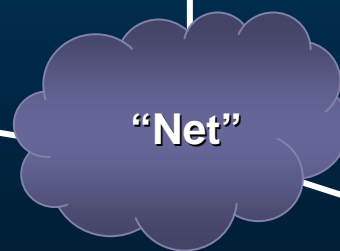
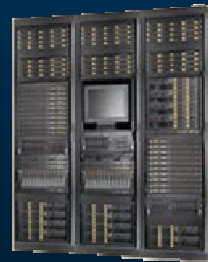
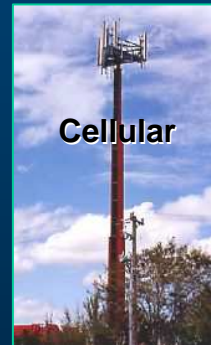
Care Triad Providers: NCM, PCM



Unit Leaders/Buddies



Family Members/Volunteers



Secure Application Server

- Event Data
- Personalized Trending & Alerting Models
- Caregiver alerting

Personal Help Device
(PHD)
Wearable Sensors



Secure, Low-Cost
Mesh Networking for
Outpatient Settings



- Monitors Heart Rate
- Detects Falls/Impact of Force & Activity Level
- Provides Location
- Event/Mood Buttons for Feedback & Response
- Measures Ambient & Skin Temp
- Galvanic Skin Resistance

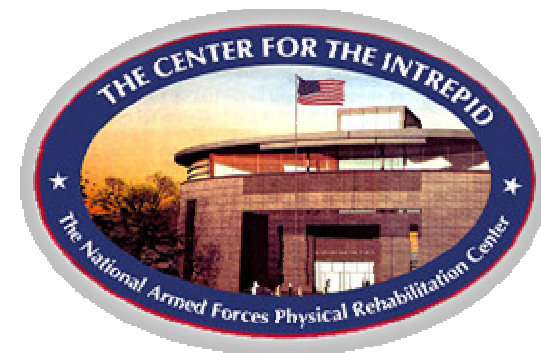
Delivering Care and Services across the echelons of MHS

- ┌ To date more than 20,000 men and women have been wounded in operations in Afghanistan and Iraq
- ┌ Over all 90 percent of soldiers wounded in Iraq survive. In Vietnam, only 76 percent of the wounded did so.
- ┌ According to U.S Senate research, is that the amputation rate has doubled: 6% of those injured in Iraq have amputations compared with 3% in previous wars.

BAMC & WRAMC

Retrospective & Prospective Studies

- Using existing Subjective & Objective Data to Model Specific Injury and Disease Processes
- Supports A Frame DARPA Phase II
 - Burns
 - Infection
 - Trauma/Major wounds
 - TBI
 - PTSD



Objectives & Research Questions

- ┌ **Objective:** Create specific disease models from the retrospective studies' data to **develop** and **evaluate** a prototype ambulatory monitoring and alerting system.
- ┌ **Retrospective Study Research Question:** What is the minimum set of key physiological and other data “event” indicators (subjective observations and other objective data including demographic data) that need to be tracked to accurately assess and predict changes in patient status, given a specific disease state or injury?
- ┌ **Prospective Study Research Questions:** What are the human factors, usability and protocol requirements for successful use of the system?

Expected Outcomes: Providers/Patients/Military Health System

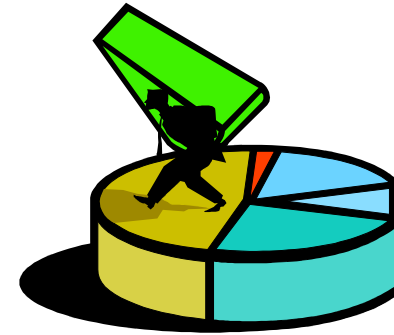
- Provides a new screening/detection and delivery system of care
- Allows comparison of current therapeutic approaches upon patient outcomes
- Improved Staff Efficiency – staff spends time on taking care of patient: not collecting data, documenting, tracking
- Surveillance and Early detection/control – monitor early indicators of infection, gait issues
- Patient Accountability – provide ongoing support/monitoring regardless of location (inpatient, outpatient, barracks, rural areas for returning NG/Reservists)
- Patient Outcomes: Earlier symptom detection; Earlier interventions; Speed return to normal life
- Continuity of care between physicians, rehabilitation, MHS and VA/civilian healthcare enterprise



Leveraging Technology to Meet MHS Challenges

A Frame approach USES
data acquired via
technology to create

ACTIONABLE
CLINICAL
KNOWLEDGE



Kathy Martin, RN, MSN, RADM (Ret)
CEO
Vinson Hall Corporation



A View from the Field

Time for fun....



Q&A

Contacts:

Cindy Crump – ccrump@afamedigital.com

Sunil Saxena – ssaxena@afamedigital.com

Loretta Schlachta-Fairchild – lschlachta@itelehealthinc.com

Kathy Martin – kmartin@vinsonhall.org

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