MD PnP™
Getting Connected for Patient Safety™
www.mdpnp.org

PARTNERS® HEALTHCARE

MGH 1811

SMART AMERICA

SmartAmerica EXPO – June 11, 2014 Washington DC
Convention Center

Bit.ly/samhac

Smart America
MD PnP Program
App Challenge for Healthcare

Made possible by a gift from the

Patient Care Program of the

Gordon and Betty Moore Foundation

Development Collaborators

DOCBOX

NIST

(intel)

ViTel Net
Your Future Telehealth Solutions - Today

Military OR - Iraq

Reality of healthcare delivery

"Routine'" Operating Room
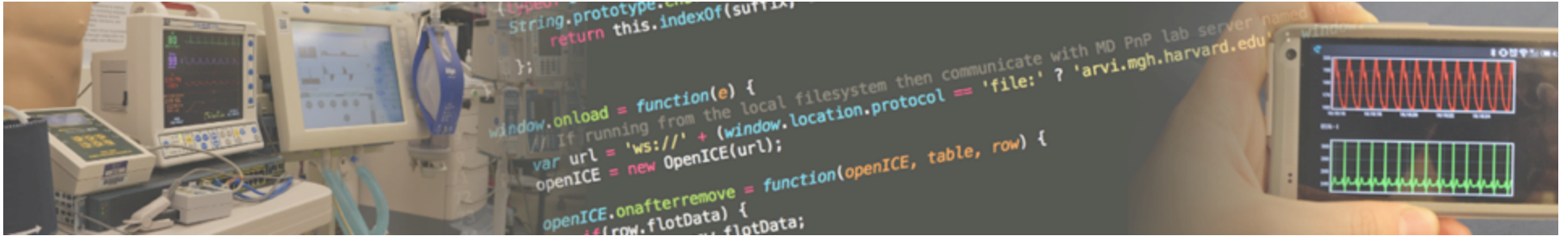
Pediatric ICU

Cardiac Surgery

CCAT

Barriers to Medical CPS* innovation

How can the computer science and engineering CPS communities develop healthcare solutions to improve <u>patient safety</u> and healthcare efficiency?

Access to physiological and medical device data is complicated by issues such as:

- Protected health information (privacy)
- Proprietary device interfaces (subject matter expertise)
- High cost and complexity of obtaining and using medical equipment (medical license to purchase, $$)
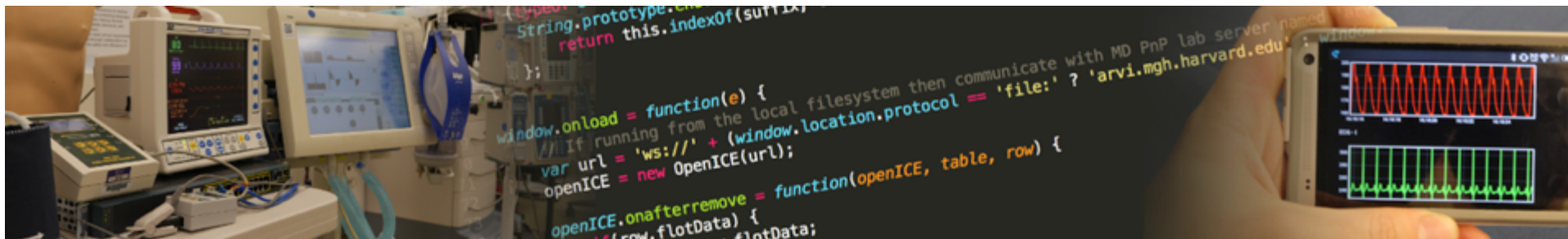- Complexity of simulating clinical scenarios that contain rich and useful data sets

*Cyber Physical System

Which research areas would be enabled if the CPS community had access to real-time streaming medical data?

- Innovative data analytics

- Physiological signal analysis

- Information presentation: new graphical representations, improved clinical alarm and alerts

- Data availability: waveforms and data available wherever and whenever it is needed

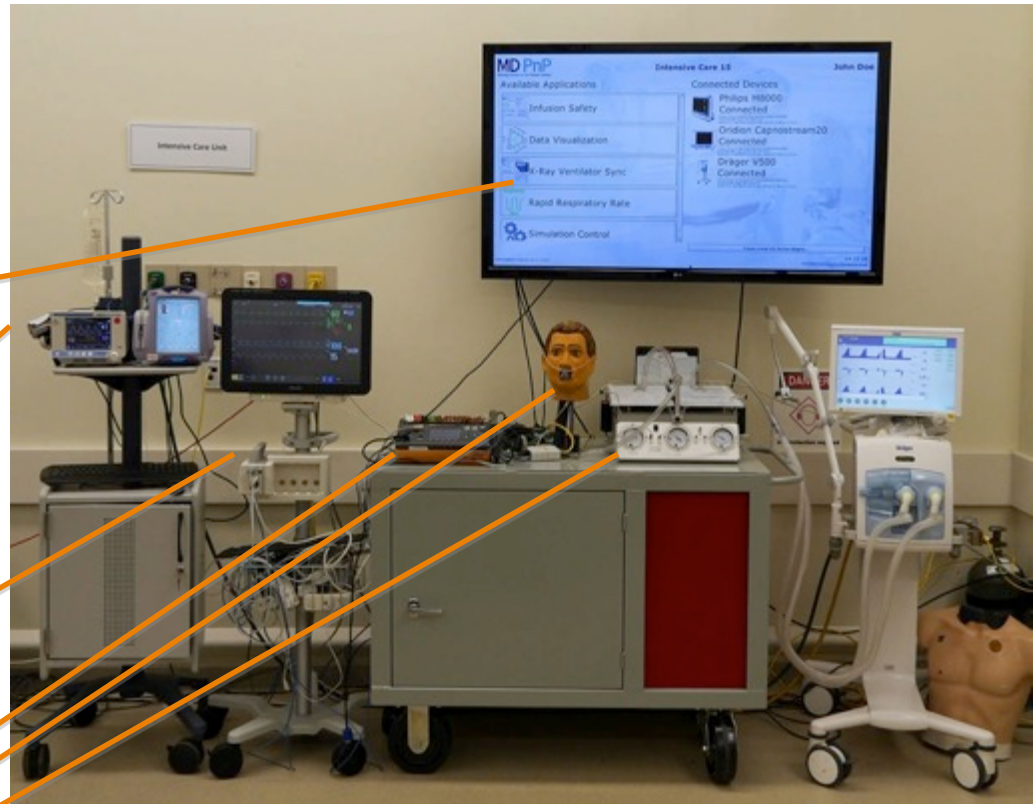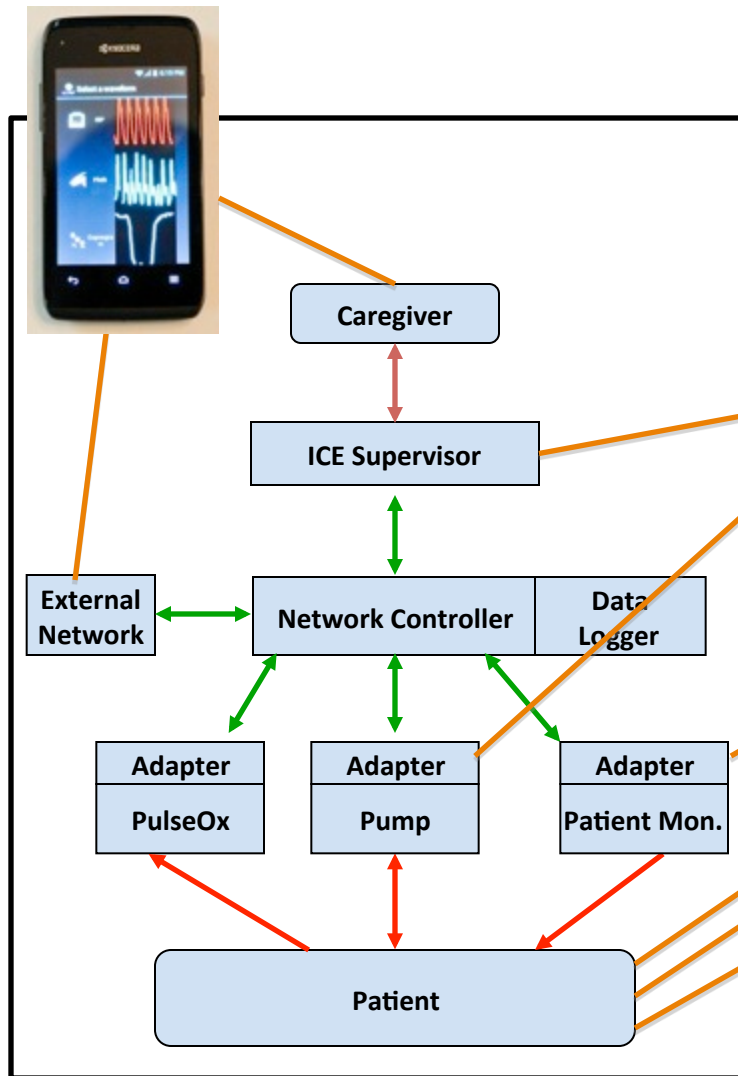- Create data toolkits for use by Medical CPS community and for STEM education

*Cyber Physical System

Announcing:
The Smart America
MD PnP Program
App Challenge for Healthcare

Massachusetts General Hospital MD PnP testbed
Open platform "OpenICE", based on ASTM F2761 "ICE"

ICE – Integrated Clinical Environment
Architecture standard for safe medical
device integration and app implementation

MD PnP research is supported in part by NIH/NIBIB, NSF, and DoD

Real-time data from Lab to Expo hall

In Expo:

ECG (multiple)
Blood pressure
Pulse Oximetry

Ventilator airway pressure
Airway Flow
Capnogram (exhaled CO2)

OpenICE

Bitly.com/open_ice

- OpenICE encompasses
  - Medical Device Interfaces
  - Patient Simulation
  - HIS Connectivity
  - Safety Assurance
  - Validation and testing
  - Regulatory Pathway
  - Standards (ref implementation/inputs)
  - Accepted architecture for med devices
  - ICE Application eXchange (ICE AX)
    - Med apps, device management
- Everything is open source
- OpenICE™ is a work in progress
  - Now at an beta level of development
  - Currently useful for clinical and CS research

Smart America
App Challenge for Healthcare

MGH
Testbed

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Development Collaborators Participating in Smart America Expo

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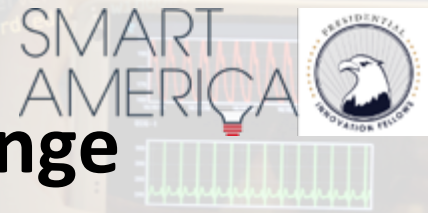ViTel Net
Your Future Telehealth Solutions - Today

Apps to advance healthcare outcomes

$30,000 in cash prizes made possible by a generous gift from the Patient Care Program of the Gordon and Betty Moore Foundation

GORDON AND BETTY MOORE FOUNDATION

MD PnP
Getting Connected for Patient Safety

SMART AMERICA

SmartAmerica
MD PnP Program - Healthcare App Challenge

1 **Phase I: Submission of App Development Proposals**

June 11th: Announce the App Challenge at the Smart America Expo
June 16th: Rules and requirements for app proposals will be publicized
July 14th: Submission deadline for app proposals

2 **Phase II: Collaborative Prototyping**

Projects selected for Phase II will be announced July 23rd at the
MD PnP 10th Anniversary event in Boston.
MD PnP Team will support prototyping through August 31, 2014

3 **Phase III - App Development & Submission**

Deadline: October 17, 2014

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4 **Announcement of Winners and Awards**

October 31, 2014

Impact

- The app challenge will demonstrate the ability of an open "IoT* for Health Care" platform to empower the building of innovative medical apps by a large development community:
  - Engineers, computer scientists, software developers
  - Small and large companies
  - Federal agencies
  - Students in STEM programs

*Internet of Things
http://www.whitehouse.gov/blog/2014/06/10/smartamerica-challenge-harnessing-power-inter

Which apps will you build?

- Novel BIG data analytics?

- Physiological signal analysis to detect cardiac arrest?

- Reduce false and nuisance alarms (alarm fatigue)?

- Full data availability for remote access and consultation?

- A "medical app" toolkit for STEM education

- A better way to visualize data from many patients in a disaster management scenario?

- More accurate and complete EHR data?

Visit our Expo exhibit

View the data on your mobile device