Health Information Technology Initiative
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Director: Dr. Naphtali David Rishe

NHIN-CONNECT Code-a-Thon Challenge

Co-Hosted by:
NSF FIU-FAU I/UCRC – CAKE, OHT and AAFP NRN

April 28 thru April 29, 2010
Miami, Florida

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This document is intended to provide a overview of the CONNECT Code-a-Thon Challenge being hosted at Florida International University in partnership with Open Health Tools and the American Academy of Family Physicians National Research Network.

1.2 PURPOSE

1.3 RELATED DOCUMENTS & REFERENCES


### 1.4 Audience

This document is intended for use by the FHA CONNECT group. FIU, OHT and AAFP NRN as a working document for planning the CONNECT Code-a-Thon Challenge.

### 1.5 Revision History

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<th>revision</th>
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<td>Feb 08, 2010</td>
<td></td>
<td>Tom M. Gomez (FIU)</td>
<td>Use Cases, Program Schedule, Judging Criteria</td>
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<td>Ivy Eckerman – FHA</td>
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<td>Tom M. Gomez (FIU)</td>
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2 Host Organizations

The following organizations are the co-hosts for the NHIN-CONNECT Code-a-Thon Challenge to be held in conjunction with the CONNECT Code-a-Thon which will be hosted at Florida International University in Miami, Florida April 28th thru April 29th, 2010.

2.1 Florida International University (FIU)

Florida International University’s National Science Foundation Industry/University Cooperative Research Center for Advanced Knowledge Enablement (NSF FIU-FAU I/UCRC-CAKE) is focused on conducting research in partnership between industry, academe, and government. A major focus at the NSF FIU-FAU I/UCRC is the Health Information Technology (HIT) Initiative.

The program is premised on an interdisciplinary approach to HIT as envisioned by Florida International University (FIU), and in support of the objectives outlined in the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH Act), and guided by the steering committee comprised of the FIU Deans of Medicine, Business, Nursing, Public Health, and Engineering & Computing.

The HIT Initiative and the NSF Center are directed by Naphtali David Rishe, PhD, the inaugural Outstanding University Professor of FIU and the principal investigator of $45M in grants, including $7M in current NSF grants.

Tom M. Gomez is Entrepreneur-in-Residence and Director of Program Management for FIU HIT Initiative.

http://hit.fiu.edu/

2.2 Open Health Tools (OHT)

Open Health Tools is an international open source community with a vision of enabling a ubiquitous ecosystem where members of the Health and IT professions can collaborate to build interoperable systems that enable patients and their care providers to have access to vital and reliable medical information at the time and place it is needed.

The OHT Academic Outreach Project is an open software research and development project modeled on similar outreach activities at the Eclipse Foundation. The Project encapsulates three related activity streams, each of which is based on, or uses the OHT Platform and/or Open Health Tools:

1. Student research projects and other exploratory investigations ("Research Stream")
2. Development of educational materials, teaching aids, and courseware ("Education Stream")
3. Incubation of small-scale, innovative platform and tools projects ("Incubators Stream")

OHT is directed by Skip McGaughey, one of the founders of the Eclipse Foundation. OHT is the first organization to apply Eclipse-based open source concepts and learnings in a specific industry vertical open source community.

Dan Russler, MD, VP of Clinical Informatics at Oracle leads the OHT Academic Outreach Project.

http://www.openhealthtools.org/

2.3 American Academy of Family Physicians National Research Network (AAFP NRN)

The American Academy of Family Physicians is the national association of family doctors. It is the third largest national medical organization, with more than 94,600 members in 50 states, D.C., Puerto Rico, the Virgin Islands, and Guam. The Academy was founded in 1947 to promote and maintain high quality standards for family doctors who are providing continuing comprehensive health care to the public.

The AAFP National Research Network (AAFP NRN) is a nationwide practice-based research network with primary care clinician members representing 48 U.S States and 4 Canadian provinces. It is a voluntary research association of primary care physicians who collaborate on studies to describe and improve upon the phenomenon of primary care practice. The AAFP NRN assists in realizing overall strategies for achieving improved primary care for the nation. These include, but not limited to, initiatives in advancing the Patient Centered Medical Home (PCMH), promoting ongoing imperative for practice change through improved use of technology, education and communication, assisting
our members to achieve financial success through optimal practice management, involving family physicians in targeted public health activities, specifically tobacco, obesity, exercise and immunizations, and increase member and patient awareness of resources through our educational programs.

Wilson Pace, M.D., is Director of the AAFP National Research Network. Dr. Pace is a professor of Family Medicine at the University of Colorado Denver (UCD) and the Green-Edelman Chair for Practice-based Research. He is also the principal architect for a network of EHR enabled primary care practices, the Distributed Ambulatory Research in Therapeutics Network (DARTNet) using both technology and shared learning to help them transform towards a PCMH. His current work is focused on advancing the development of a National Infrastructure for Clinical Translational Research.

3  NHIN-CONNECT – An Overview

The CONNECT solution was built by federal agencies in response to their need to share health data among themselves and with other levels of government and the private sector using the Nationwide Health Information Network (NHIN).

Rather than have each federal agency independently build its own NHIN-compliant gateway solution, they banded together through the Federal Health Architecture (an E-Gov initiative) to build CONNECT. The CONNECT project team brought together more than 20 federal agencies to define project needs, it developed the solution, demonstrated its viability for connecting federal and non-federal health organizations, and it made the solution available to the public in less than a year.

CONNECT is an open source software gateway that supports health information exchange – both locally and at the national level. CONNECT uses NHIN standards and governance to make sure that health information exchanges are compatible with other exchanges being set up throughout the country.

CONNECT is now available to all organizations and can be used to help set up health information exchanges and share data using nationally-recognized interoperability standards.

Vish Sankaran is Director of the Federal Health Architecture (FHA) program in the Office of National Coordinator for Health Information Technology in the Department of Health and Human Services (HHS).

Vanessa Manchester is Program Manager for NHIN-CONNECT, Federal Health Architecture (FHA) in the Office of National Coordinator for Health Information Technology in the Department of Health and Human Services (HHS).

Visit www.connectopensource.org to learn more about the CONNECT solution, join the CONNECT Community or download the software.
4 NHIN-CONNECT Code-a-Thon Challenge – An Overview

4.1 BACKGROUND INFORMATION
The “challenge” is to take a well-known example of the HL7 CCD, the John Halamka CCD published by HITSP, and create innovative stylesheets for display of the CCD contents to a primary care physician taking calls from patients after office hours. The challenge is to improve the functionality of the CDA stylesheet produced by HL7 for use in NHIN-CONNECT Universal Client applications that display CCD for different modalities and form factors - smartphones, netbooks, and full size displays.

http://services.bidmc.org/geekdoctor/johnhalamkaccddocument.xml

Note: Depending on the numbers of responses to this challenge, judging may be segmented by device type and/or author type in order to create multiple categories for winners. Entrants should create a different entry for each device type.

4.2 ELIGIBLE INDIVIDUALS
1. Current Students
2. College and University Faculty
3. Professionals who devote individual effort

The Open Health Tools Academic Outreach Project strongly encourages students to participate in the Challenge.

4.3 KEY CONSIDERATIONS FOR DEMONSTRATIONS
1. An error-free demonstration
2. A clear presentation of the improved value for the primary care physician working outside of office hours
3. An attractive and appealing GUI display
4. An efficient use of the physician’s time
5. Improved physician decision making with innovative data display capabilities illustrated with data from the Halamka CCD

4.4 COPYRIGHTS
All participants will be required to donate the stylesheet copyrights to the NHIN-CONNECT Open Source Community.

4.5 PRESENTATION TOOLS
1. Any browser
2. Halamka CCD (as distributed for the challenge)
3. Author’s stylesheet
4. One device type, i.e. smartphone, netbook, or full-sized display
5. Must present work-flow diagram – explain the developers understanding of workflow/workflow re-design
6. Contestant will record a walkthrough of the application – max time allowed 5 minutes.

Note: no other applications, tools, or devices will be allowed.

4.6 CHALLENGE END-PRODUCT
1. One winner chosen from each category (based on device type or author type if more than one category exists)
2. A winning stylesheet for each category available from NHIN CONNECT open source community
3. Author pride and NHIN CONNECT community celebrations
5 Challenge Use Cases

5.1 Football Game Environment (Smartphone)

Primary Actor: Physician using device
Secondary Actor: Patient on phone
Organization(s): Primary Care Practice
Scenario: Call from Patient while Primary Care Physician at a football game
Prerequisites: The physician is taking calls overnight for his primary care practice. While the physician is at the local high school football game, a patient (John Halamka), whom the physician does not know (since the patient normally sees his physician partner), calls for help with “My heart is beating fast.”

Modalities, Form Factor: Patient on telephone; Physician on smartphone
Workflows: The physician answers the phone, listens for the patient's name, and looks up the patient on his device (smartphone). He reviews the data from the CCD, asks the patient some questions based on the data he is seeing, and then verbally tells the patient what to do (for this challenge, no physician data entry is included. Begin demonstration with physician viewing and then navigating through the Halamka CCD in order to view the detailed data).

5.2 Lake Cottage Environment (Netbook)

Primary Actor: Physician using device
Secondary Actor: Patient on phone
Organization(s): Primary Care Practice
Scenario: Call from Patient while Primary Care Physician at weekend cottage
Prerequisites: The physician is taking calls overnight for his primary care practice. While the physician is at his weekend cottage on the lake, a patient (John Halamka), whom the physician does not know (since the patient normally sees his physician partner), calls for help with “My heart is beating fast.”

Modalities, Form Factor: Patient on telephone; Physician both on telephone and netbook computer display
Workflows: The physician answers the phone, listens for the patient's name, and looks up the patient on his device (netbook computer). He reviews the data from the CCD, asks the patient some questions based on the data being displayed, and then verbally tells the patient what to do (for this challenge, no physician data entry is included; begin the demonstration with physician viewing and then navigating through the Halamka CCD in order to view the detailed data).

5.3 Home Study Environment (Full-sized Display)

Primary Actor: Physician using device
Secondary Actor: Patient on phone
Organization(s): Primary Care Practice
Scenario: Call from Patient while Primary Care Physician in his home study
Prerequisites: The physician is taking calls overnight for his primary care practice. While the physician is in his study at home, a patient (John Halamka), whom the physician does not know (since the patient normally sees his physician partner), calls for help with “My heart is beating fast.”

Modalities, Form Factor: Patient on telephone; Physician both on telephone and full-sized computer display
Workflows: The physician answers the phone, listens for the patient's name, and looks up the patient on his device (full-sized computer display). He reviews the data from the CCD, asks the patient some questions based on the data being displayed, and then verbally tells the patient what to do (for this challenge, no physician data entry is included; begin the demonstration with physician viewing and then navigating through the Halamka CCD in order to view the detailed data).
6 Challenge Evaluation Criteria & Categories

6.1 Point System: Each Topic Graded 1 to 10

1. An error-free demonstration
2. A clear presentation of the improved value for the primary care physician working outside of office hours
3. An attractive and appealing GUI display
4. An efficient use of the physician’s time
5. Improved physician decision making with innovative data display capabilities illustrated with data from the Halamka CCD

6.2 Judges & Panelists - TBA

6.3 Awards - TBA
7 Planning, Logistics & Scheduling

7.1 Key Dates & Timelines

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<th>Tasks</th>
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<tr>
<td>01-Mar-2010</td>
<td>Announce the Code-a-Thon Challenge at HIMSS 2010 in Atlanta, GA</td>
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<td>11-Mar-2010</td>
<td>Planning Session – FHA – FIU - OHT</td>
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<tr>
<td>15-Mar-2010</td>
<td>Open for registration via website – Connect Community Portal, FIU, OHT</td>
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<td>15-Mar-2010</td>
<td>FHA - FIU- OHT - AAFP Technical Call</td>
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<td>02-Apr-2010</td>
<td>FHA - FIU- OHT - AAFP Technical Call – Re-broadcast</td>
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<td>07-Apr-2010</td>
<td>Announce Judging Panel</td>
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<td>07-Apr-2010</td>
<td>Finalize Awards, Categories, Sponsors</td>
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<td>15-Apr-2010</td>
<td>Challenge registration closed; Host discretion for late entrants</td>
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<tr>
<td>16-Apr-2010</td>
<td>Judging schedule posted on website – email notifications to entrants</td>
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<td>28-Apr-2010</td>
<td>Challenge – Qualifying Round</td>
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<tr>
<td>29-Apr-2010</td>
<td>Presentation by Finalist at the end of the CONNECT Code-a-Thon</td>
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7.2 Challenge Presentation Schedule

Early presentations will be conducted one-on-one with judges/panelists during the Code-a-Thon – on a schedule which we should remain flexible. Panels are planned for April 28th, 2010 after the Code-a-Thon programs and certain times in-between.

Five Finalists will be chosen in the qualifying rounds to present at the end of the CONNECT Code-a-Thon on April 29th, 2010. Each finalist will be given 5 minutes to present their work - strict adherence to allocated time of 5 minutes – no exceptions - 4 minute warning chime – 5 minute cut-off.
8 Appendix

8.1 RIGHTS AND PERMISSIONS
“When you submit an application for the challenge, you are agreeing for it to be promoted by NHIN-CONNECT and the hosts Florida International University, Open Health Tools, and American Academy of Family Physicians National Research Network (collectively referred to as the “HOST”). Your application, regardless of whether it wins a prize, may be featured as part of the "NHIN-CONNECT Code-a-Thon Challenge" archives on the HOST website(s) and as part of activities and displays in any media and the Internet.

By entering the challenge, you are giving the HOST the unconditional, royalty-free right and license to reproduce, encode, store, copy, transmit, publish, post, broadcast, display, publicly perform, adapt, edit, exhibit, create derivative works and otherwise use or reuse your application submission throughout the world in any media and the Internet. Anyone can view your application from the "NHIN-CONNECT Code-a-Thon Challenge" archives free of charge, and you will collect no royalties.

Your application submission must be your own original work and may not contain any commercial copyrighted material. By entering the challenge, you are agreeing that your application does not infringe on the intellectual property rights, copyright rights or moral rights on any third party. If you are using private data to demonstrate for NHIN-CONNECT Code-a-Thon Challenge, please obtain the appropriate permissions.”

All participants will sign a NHIN-CONNECT Open Source Community Contributors License Agreement which will be available when the Challenge registration begins on March 15, 2010.

8.2 CHALLENGE RULES
Coming Soon

8.3 NHIN-CONNECT UNIVERSAL CLIENT OVERVIEW
Coming Soon
9 Acknowledgements

NHIN-CONNECT Community, co-hosts Florida International University, Open Health Tools, and the American Academy of Family Physicians National Research Network would like to thank Dr. John D. Halamka who has very graciously contributed his personal CCD as the substrate for the Challenge, to be used by the Challenge Teams for CCD stylesheet development and presentations in Miami, FL.

John D. Halamka, MD, MS, is Chief Information Officer of Beth Israel Deaconess Medical Center, Chief Information Officer at Harvard Medical School, Chairman of the New England Healthcare Exchange Network (NEHEN), Chair of the US Healthcare Information Technology Standards Panel (HITSP)/Co-Chair of the HIT Standards Committee, and a practicing Emergency Physician.