Community Stakeholder Meeting  
November 15, 2012  

Participants

<table>
<thead>
<tr>
<th>Name</th>
<th>Organization</th>
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<tbody>
<tr>
<td>Paul Alcala</td>
<td>NorthBay Healthcare</td>
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<tr>
<td>Juel Bortolussi</td>
<td>St Joseph Health System</td>
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<tr>
<td>Sarah Carrillo</td>
<td>CHHS / UCSF</td>
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<td>Gary Crossan</td>
<td>Healdsburg District Hospital</td>
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<tr>
<td>Lyman Dennis</td>
<td>ConnectHealthcare</td>
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<td>Deb Dennis</td>
<td>ConnectHealthcare</td>
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<td>Kathy Ficco</td>
<td>St Joseph Health System</td>
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<td>Frank Hayes</td>
<td>Clinic Ole</td>
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<td>Dan Hull</td>
<td>Healdsburg District Hospital</td>
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<td>Susan Hull</td>
<td>Diversinet</td>
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<td>Robert Moore, MD, MPH</td>
<td>Partnership HealthPlan of California</td>
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<td>Jerry Rankin</td>
<td>Orion Health</td>
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<td>Will Ross</td>
<td>Redwood MedNet</td>
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<td>Anthony Stever</td>
<td>AWS Consulting Services</td>
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<td>Mitch Wippern</td>
<td>Napa County Health and Human Services Agency</td>
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<td>Tristan Van Horne</td>
<td>Orion Health</td>
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<td>Ben Vigil</td>
<td>Orion Health</td>
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Review Agenda

Introductions  
Update from ConnectHealthcare  
Upcoming Presentations
- Redwood MedNet
- Orion Health  
Future Meeting Formats
Introductions
The participants introduced themselves. The speaker phone used for recording did not pick this up because the speakers did not project as if speaking to the entire room.

Update from ConnectHealthcare

Provider Surveys
ConnectHealthcare surveyed its three hospital systems, NorthBay Healthcare, St Joseph Health Systems, and Adventist Health and has received responses from the first two. There was some confusion about the survey for Adventist Health and that survey is expected. Surveys were sent to 27 medical groups in Sonoma, Napa and Solano. Only two responses were received, one with little data. The surveys were extensive and the groups had not been involved directly with ConnectHealthcare before, just through the medical societies. We will pursue other ways to get the data.

501(c)(3) Application
ConnectHealthcare is completing its 501(c)(3) application. [This was mailed to the IRS on November 21.]

Fidelity Account
This account setup was completed. Accounts with multiple signers are unusual for Fidelity and it took them some time to accomplish the setup.

Insurance
Insurance was arranged and is in force:
- General Liability
- Directors and Officers
- Commercial Insurance

New Participants
The following organizations have joined ConnectHealthcare:
- Solano County Health and Social Services
- Sonoma County Department of Health Services
We are pleased that these two organizations are now participating. We anticipate that both will bring value to the group.

ConnectHealthcare Retreat
ConnectHealthcare held a strategic planning retreat October 26 at the Solano Coalition for Better Health. Liz Gibboney served at facilitator. We had good discussion of alternatives and priorities.
Emerging HIE Session at HIE Stakeholder Summit
Lyman Dennis was moderator of an HIE session at the HIE Stakeholder Summit for Emerging HIEs. Ten of the 12 startup HIE efforts made short presentations. There was preliminary discussion about the possibility of some of the organizations working together to avoid unnecessary pioneering effort. Lyman is working with the California Health eQuality (CHeQ) to help coordinate this initiative.

ConnectHealthcare Upcoming

Soliciting HIE Priorities from Participants
Each ConnectHealthcare participating organization is developing a list of its priorities and the business case supporting each, as suggested by Keith Hepp of HealthBridge.

CHeQ Planning Grant
ConnectHealthcare has received a $25,000 planning grant and anticipates its commencement shortly, when paperwork is received.

Lyman Dennis Consultant to CHeQ
Lyman has been asked by CHeQ to provide technical assistance to CHeQ planning grantees over the next six months and the ConnectHealthcare board has approved his taking this assignment, in addition to his ConnectHealthcare grant and administrative duties.

Redwood MedNet Presentation
Will Ross, Project Manager

In this presentation and that of Orion, material in italics was provided from the tape of the meeting.

Lyman Dennis introduced Redwood MedNet and Will Ross, who was at that moment driving from Sacramento airport to the meeting site:
Background

Incorporation, August 2005
Series of Grants and Contracts through its growth
Use of Mirth open source data integration engine April 2007
First Annual HIE Conference July 2007
UnitedHealth Group / Pacficare Expansion Grant Jan 2008
Clinical messaging, lab results delivery Nov 2008
Demo of NHIN CONNECT exchange of patient data with Thayer County Health Services in Nebraska Feb 2010
Production ePrescribing at Alliance Medical Center June 2010
Invited to exchange data with VA and approved by NwHIN Dec 2011
Sixth annual conference on HIE July 2012

Redwood MedNet
Established 2005

Provides Health information exchange (HIE) services for healthcare facilities in Northern California

40 Outpatient Practices
5 Hospitals
1 Outpatient Surgery Center
5 Independent Laboratories
2 Imaging Centers
2 Public Health Departments
1 Skilled Nursing Facility

www.redwoodmednet.org
Service Locations

As of 31 October 2012

Redwood MedNet Core Services

[1] Provide health data informatics expertise for under-resourced sites
[2] Focus on electronic clinical data
[3] Integrate gracefully with individual user work flow at each facility
[4] Establish and maintain secure data network (i.e., “transport”) services
[5] Establish and maintain clinically rigorous content delivery services (i.e., “interfaces”)

Redwood MedNet History

2004 - Community steering committee
2005 - Incorporated as 501(c)(3) nonprofit
2007 - Test initial data circuits in northern Sonoma County
2008 - Begin clinical data delivery in northern Sonoma County
2009 - Expand data services to Mendocino County
2010 - Add radiology report narratives, medication history
2011 - Expand data delivery to Marin County, add immunizations
2012 - Expand to Lake & Humboldt Counties, add referrals

Redwood MedNet Governance

Nine (9) member Board of Directors (BOD)

No carve-out seats or specified BOD member categories

New bylaw proposal drafted to expand BOD to 11 members

BOD meets monthly in conference room at Ukiah Valley Medical Center

Twelve meetings per year

Special meetings called as needed

One special meeting in 2011, no special meetings yet in 2012

Next meeting Friday November 16, 2012

Redwood MedNet Charitable Purpose

The purpose of Redwood MedNet is to investigate and support optimal workflow solutions for the secure and appropriate sharing of electronic health files and clinical data, and to develop, improve and assist in the implementation of health information technology for health care providers, their business associates, and health care consumers.

-- Adopted by Board of Directors, February 2011

2005 (original) charitable purpose limited business services to “physicians” and business operations to “Lake and Mendocino Counties”

2007 revision expanded territory to “Northern California”

2011 revision expanded service categories and removed geographic boundaries

Redwood MedNet Strategic Assumptions

Traditional HIE assumes operation of a single clinical data repository (CDR) for all healthcare facilities in a single region
Redwood MedNet assumes the topology of a single community data repository is a legacy artifact of early HIE experiments (e.g., Indiana Network for Patient Care, HealthBridge, etc.)

Redwood MedNet assumes the single data repository model will not work in California (e.g., imagine Kaiser, Sutter, Dignity, etc. in a single repository? NOT!)

HealthShare Bay Area is assuming that each major system in its service area will have a vertical HIE – Sutter, Dignity, Kaiser – and the role of HSBA will be to move data between those systems. HSBA does not plan to have a record locator service but will have an master person index.

Therefore Redwood MedNet assumes the strategic priority for HIE services is data transport agility between healthcare facilities in overlapping geographic territories and not data content aggregation into a single repository

**Redwood MedNet Validation of Strategy**

Demonstrated bidirectional interoperability with Kaiser Permanente in 2009

In 2012 Dignity Health adopted the same strategy (i.e., onboarded directly with national eHealth Exchange)

HealthShare Bay Area is proposing the same strategy

- Same lightweight gateway approach
- No Record Locator Service and no portal, just an MPI with clinical data transport between enterprise HIE systems

Veterans Administration and other federal facilities are building for the interoperability approach to support care coordination, and are not forwarding their patient data to a community CDR

**Redwood MedNet Tactical Operations**

Redwood MedNet operates as a business neutral clinical data network Redwood MedNet has no “members,” just network participants

Participating facilities sign a Network Participation Agreement

- Agreement derived from Markle Model Agreement Functionally identical to the new CHHS Model Agreement
Redwood MedNet signed the Federal DURSA, November 2011
Onboarded with national eHealth Exchange, September 2012

**Redwood MedNet Sustainable Business Model**

Earlier this year, Redwood MedNet attained $2 million in revenue founding-to-date. Of that, 30% was from government sources and 70% from the private sector. Of the 70%, 10% was for pay for participation (e.g., Sonoma Valley Hospital, St. Joseph Health System) and 60% from philanthropies, e.g., California Health Care Foundation, United Healthcare (from retirement of Pacificare Foundation when United Healthcare purchased Pacificare – two $380k grants)

**Tactical Plan**
- Leverage grant funding to capitalize business operations
- Use technical support subscription revenue to operate business

**Sustainability Phases**
- 2005 to 2007 = Community needs assessment & HIE technology planning
- 2008 to 2011 = Build (rather than buy) prototype technology platform. *Made decision to build rather than buy. Did not charge providers for the HIE services. Gave it away for free.*
- 2012 to 2014 = Drive operating revenue to sustainability level. *Our first invoice was in December 2011.*

**Revenue Model**
- One time charges to establish interfaces
- Flat rate annual charges for subscription to basic HIE services
  - **Outpatient Practice:** $200 per provider per year
  - **Hospital:** from $6,000 to $18,000 per year ($500 to $1,500 per month)
  - **Other:** flat rate services quoted per participant
  - CFOs want to be able to budget flat amount for a year at a time.

Premium services also available

**Redwood MedNet Business Operations**
Currently operating as a “Virtual Corporation”

Redwood MedNet operates without employees
Each capitalized business development project is contracted out

- *Mendocino Informatics* = general project management contractor
- *Mirth Corp.* for technology services
- *Pillsbury, Winthrop, Shaw, Pittman* for legal services
- *Pam Rones, CPA* for checkbook, accounting and tax returns

BOD may approve hiring employees to move contract work in house after achieving sustainable revenue, or may not

**Redwood MedNet Enterprise Applications**

*mirthconnect*

Open-source comprehensive health data integration engine to filter, transform and route clinical messages

*mirthresults*

Proprietary clinical data repository (CDR) to organize and aggregate health data, with audited user access and a portal

*NOTE: There is little interest to date in portal functionality because participants want direct clinical data integration with their certified EHRs*

*Specifically, over 400 physicians receive electronic clinical data via the HIE services, yet only one physician has a login account to the portal*

*Core product is results delivery into a provider’s EHR.*

**Redwood MedNet Technology Standards**

CDR consumes HL7 v2.x, HL7 v3, NCPDP and DICOM messages

CDR consumes CCD, C32, C37, C48 messages which adhere to the general CDA and HL7 v3 standards

HIE establishes flexible and practical integration services with EMR, EHR, LIS, PACS and other clinical data sources

HIE supports IHE standards for XCPD, XCA and XDS.b document submission and retrieval
HIE supports eHealth Exchange (i.e. “NwHIN”) Patient Discovery (PD), Document Query (DQ), Document Retrieve (DR) and Document Push (XDR) via integration with CONNECT gateway

HIE supports “Direct” (PKI secured SMTP) transport protocol

**Redwood MedNet Data Model**

[Diagram of Redwood MedNet Data Model]

rwmn.smart.20121105
Redwood MedNet Interfaces

Have between 68 and 70 interfaces in production.

Redwood MedNet Current Expansion Projects

[1] HIE Expansion (MUX-1)[Meaningful Use Expansion 1]

22 Participants  (13 new participants in RWMN)

64 Deliverables  (3 new data types - IZ, CalREDIE & syndromic surveillance)

[2] HIE Infrastructure (MUX-2)


[4] San Francisco VA Medical Center

Redwood MedNet Current Expansion Projects

[1] HIE Expansion (MUX-1)
Funded by contract with Cal eConnect/California Health eQuality

June 2011 to February 2013

Redwood MedNet Current Expansion Projects

[2] HIE Infrastructure (MUX-2)

9 Participants  (3 new to RWMN)

18 Deliverables  (1 new clinical data type - - visit summaries)

Funded by $90k contract with California Health eQuality

December 2012 to May 2013

Two projects

1. Lab results delivery – Data sources: 3 Sutter labs (Sutter Lakeside, Sutter Santa Rosa Medical Center, Sutter Shared Outpatient Labs in Livermore). Delivery of results to 5 current Redwood MedNet users. Next phase: expand delivery of results to other locations not current Redwood MedNet labs or consider another transaction like lab ordering, radiology.

2. St Joes: Northern Sonoma County visit summaries – 5 participants: Healdsburg District Hospital, Healdsburg Clinic, Alliance Medical Center and Santa Rosa Memorial Hospital. This will allow any of the participants to query for patient information among the participants.

Redwood MedNet Current Expansion Projects

[3] Safety Net Integration (MUX-3)Northern Sonoma County

3 Participants: Mendocino Coast District Hospital, Mendocino Coast Clinic, and Northern California Medical Associates (a NCMA cardiology oncology office)

18 Deliverables  (1 new clinical data type - - vitals), 4 types:

- MCC patient ED visit summary
- Discharge summary
- Referral from MCC to NCMA
- Consult report back from NCMA to MCC’s NextGen

Funded by grant from Blue Shield of California Foundation (Alliance for Rural Community Health - ARCH - is the grantee, RWMN the technology contractor)

December 2012 to May 2013: $82k
Redwood MedNet Current Expansion Projects

This is the 12-month timeline for the ARCH project.

**Direct Project**

*Built into Stage 2 MU.*

**Alliance Medical Center.** Uses OCHIN Instance of Epic Ambulatory. Redwood MedNet has written dozens of interfaces.

$200 per provider = $800 per year to Redwood MedNet.

$30k for Epic interface.

**HIE Ready.** Potential to bring down interface cost.

**Employees.** Mirth writes interfaces. Transitioning to Redwood MedNet writing these.
4% of contract revenue for fiscal services.

In 2006, RFP for technology vendor: Sun SeeBeyond, IBM, Axolotl, Kryptiq, 2 others.

Selected an EHR vendor that promised to develop. Was not successful.

WebReach – Seen at conference with Mark Street. Purchased a MirthConnect product and 40 hours of a Mirth engineer. Worked.

**MPI.** Do not use an MPI yet. For NwHIN, require Mirth Match and MPI. In testing now. Not in production.

**Question:** Mitch Wippern: Can your system handle social services data?

**Response:** Will described the use case at Solano County Health and Social Services of lab results being sent to Mirth Connect and then to either the Avatar behavioral health system or to NextGen, the EHR for the health clinic.

**Discussion of policing data.** Will. Easy to police data that is properly structured. Hard to do if diagnoses are embedded in text.
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Will Ross
Project Manager
wross@redwoodmednet.org

www.redwoodmednet.org
www.youtube.com/user/redwoodmednet
Orion Health
Tristan Van Horne
- Sales Director
- 10 years in Health Information Exchange

Jerry Rankin
Ben Vigil
- Solution Consultant
- 13 years in Information Technology
- 5 years in HIE

Background

Founded in 1993 by Ian McCrae
20 years in healthcare
Offices in US (Santa Monica in CA), Canada, UK, Spain, Australia and New Zealand, Japan, Thailand, Singapore, Dubai, and France
Products
- HIE
- Rhapsody Integration Engine
- HIS
- Symphonia Messaging and Mapping
680 employees

Revenue of $100M USD per annum
Customers: 1000+, 5 continents, 30 countries. 25+ large HIE deployments globally
Goal: Comprehensive, patient-concentric integrated healthcare.
Purchased HIS from Microsoft now used in Asia Pacific area. Not yet used in US.
Provide HIE (EHR) services in many of the Canadian provinces.
In US:
  • Inland Northwest in Washington State, a Beacon Community
Flagship HIE Customers in NA

USA HIE Customers
- Maine HealthInfoNet, ME
- Alaska eHealth Network (AeHN), AK
- Lehigh Valley Health Network, PA
- Louisiana Health Care Quality Forum, LA
- North Carolina DHHS, NC
- Lahey Clinic, MA
- Idaho Northwest Health System, ID & MT
- Western Washington Rural Health, WA
- Shared Health, TX
- Advocate Health, IL
- Octiner Health System, LA
- North Texas accountable healthcare Partnership, TX
- St. Vincent’s Medical Center, FL
- Inland Empire HCC, CA
- Catholic Health Initiatives, CO
- New Mexico Health Information Collaborative, NM
- District of Columbia, DC
- Commonwealth of Massachusetts Executive Office of Health and Human Services, MA
- New Hampshire Health Information Organization (NHHIO)

Canada HIE Customers
- New Brunswick Department of Health, NB
- Quebec Department of Health, QC
- British Columbia Department of Health, BC
- The Northwest Territories, NT
- Ministry of Health & Long Term Care, ON
- Newfoundland & Labrador Centre for Health Information, NL

Solution Offerings

Rhapsody Integration Engine
for Data Exchange or Public Health Reporting
Secure Messaging Hub

Hospital for Enterprise Single View
Unified view of the patient record
Supporting clinical workflows
Built by physicians for physicians

Health Information Exchange
Enterprise or Public
Large regional deployment
Includes a terminology server for Semantic Interoperability. Also partner with Microsoft and MediAnalytics for analysis. California and 49 of the 50 states use Rhapsody integration engine for public health reporting. CDC uses it for phase 1 of its BioSense as well.
Where we host the solution ourselves in our data center, we can implement this in 90 days and connect two sites. Additional sites can be added as Will discussed by adding interfaces.

Ben Vigil took over the presentation at this point.
Question: Paul Alcala. Do you have all the modules shown above.

Response: Yes.

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Seamless Integration With EHRs

Orion Health’s methods of delivering seamless clinical workflow between HIE and EHR...

- Notification and Subscriptions: Controlled seamless flow of data into EHR from HIE (Automated CCD/HL7 push)
- Send to my EHR: When browsing the Clinical Portal this provides Adhoc push into EHR (Manual CCD/HL7 push)
- HIE lookup from within EHR (XDS query/response)
- HIE embedded inside the EHR: One click access to HIE patient record (SSO)

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Question: Susan Hill. Do you provide patient access?

Response: We have a pilot now.

Question: Who use the portal?

1. Providers who do not have an EHR.
2. Look to see if there is data on the patient that has not been routed to the local EHR.

Centralized data in 90+% of client settings.

Question: Paul Alcala. I make a query and there are three CCDs.

Response: You don’t have three CCDs. The data have been integrated in the record. By data element, know source of each data element.
**Integration with EMR’s**

**Data Integration (HL7 and CCD)**
- Integration effort can be completed by either Orion Health or the customer
- **Systems:** Cerner, Epic, McKesson, Meditech, Allscripts, Eclipsys, Siemens, Healthland, Quest Lab, Lab Corp, Cerner Lab, Sunquest, Misys Lab, CoPath, Dictaphone, Nuance, GE/Agfa, IDX, Phillips, FujiFilm, Deio, Omnicare, Merge, eClinicalWorks, NextGen, Allscripts, Misys, Cerner EHR, Meditech, LSS, Sage, Greenway and many more.

**Question:** What do providers prefer?

**Response:** Providers prefer to see patient data in their own EMR. If their EMR will do XDS, query can bring in that patient’s record from the HIE CDR. Button on EMR that indicates that EHR has additional information.

**Question:** Anthony Stever. What EHRs support this?

**Response:** Epic can do this quite well. Working with Allscripts now.

In Massachusetts, State giving grants to dominant EHRs to build interfaces with Orion, the State’s chosen vendor.

At this point, Orion demonstrated its HIE system.

**Question:** Susan Hull. Are these available to mobile devices?

**Response:** This hosted so web access is normal. Views are available for the iPhone and iPad.

**Demographic search:**

- Retain all data that may help identify the patient.
- Relationship score – if patient sees the physician, higher score
- **Structures**
  - If no relationship, may not see.
  - If no relationship, may see so know patient is there. Break-the-glass may apply, e.g., in ED.

**Privacy Levels**
- Sexual heath
- Behavioral health
- Alcohol & drug
- AIDs status
- Other levels

Problems re privacy levels. Data on an image (like an x-ray) cannot be screened out.

Could have social history

**CCR** – generated automatically from data available

Integrating Direct so all data comes to same mailbox.

**Paul Alcala.** Need quality control so when bring in data need to assure that the data is not there already. Same with medications. You want to see the medications for the patient from other sources. You may or may not want to upload them. Part of medication reconciliation.

**Demo of Patient Portal**

Tethered portal

Can provide the same CCD to patient as transfer in the provider portal. Satisfies Stage 2 MU.

Circle of care – lists all caregivers that have seen the patient, including nurses, etc. Generated by the system itself.

Not much data entered by the patient.

Case management – patient can see what is recommended for him/her

**End of Demo**
Additional Technical Material

Physical Architecture

Active-active dual firewalls, Intrusion detection

Production and Disaster Recovery

MPIs used: NextGate (KLAS #1), Initiate
Bob Moore: Imported data needs to be checked that it is not duplicate or almost the same.

Future Meetings
What should be the locations for Community Meetings?

- Paul Alcala. Consider who is most active and select locations that allow them to participate.
- Anthony Stever. In another group, they hold meetings by webinar with an occasional face-to-face meeting.
- Lyman. Our Planning Grant requires that we have three community meetings. We will solicit feedback from CHeQ.
- Paul Alcala. We should send a short survey to all on the email list.