



Clinical Messaging in Mendocino and Lake County

Carl Henning, M.D.
Will Ross

Ukiah, California
November 2004



Improving Patient Care

A new generation of Health Information Technology (HIT) is emerging

- Real-time access to off-site clinical records
- Robust clinical decision support at the point of care
- Accelerated dissemination of evidence-based clinical practice guidelines
- Streamlined public health status monitoring and enhanced epidemiologic responsiveness
- More informed consumer choice
- Improved patient health outcomes



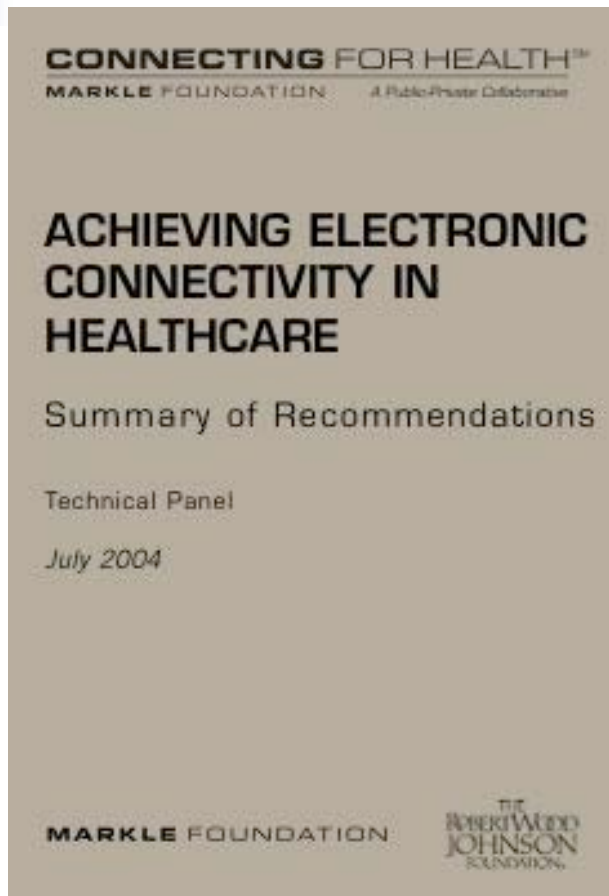
NHII Framework

- **Inform Clinical Practice**
 - Incentivize EHR adoption
 - Reduce risk of EHR investment
 - Promote EHR diffusion
- **Personalize Care**
 - Encourage use of Personal Health Records
 - Enhance informed consumer choice
 - Promote telehealth solutions
- **Interconnect Clinicians**
 - Foster regional collaborations
 - Develop a national health information network
 - Coordinate federal health information systems
- **Improve Population Health**
 - Unify public health surveillance architectures
 - Streamline health status monitoring
 - Accelerate dissemination of evidence

[Brailer, July 2004]



Collaborative Road Map



www.connectingforhealth.org

- Public – Private partnership
- Developed by all major stakeholders
- Shared vision of next steps
- Practical actions, achievable goals
- Provides cohesion for multiple stakeholder efforts
- Seeks incremental improvements
 - Build on where we are instead of overhauling everything at once

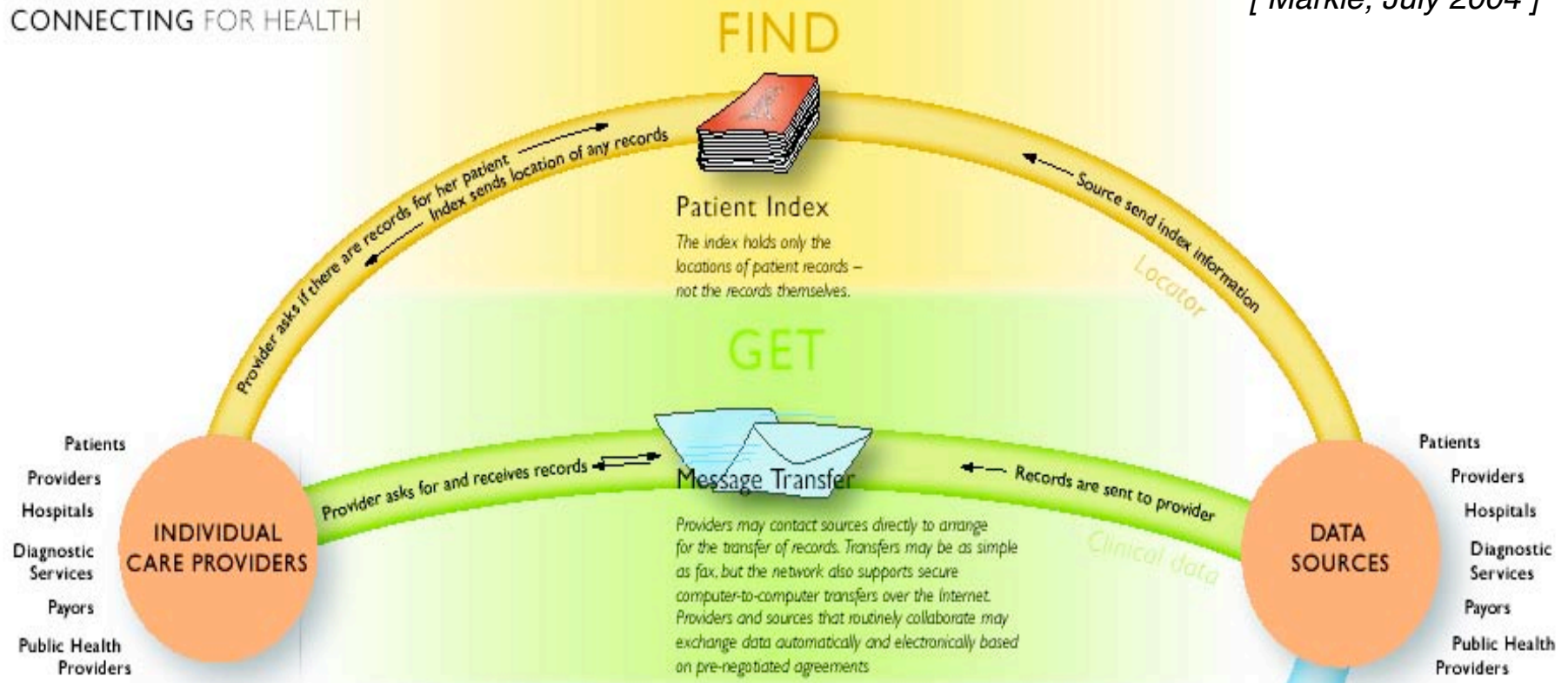
[Lumpkin, 2004]

Health Records Exchange

HIT Infrastructure Model

THE MARKLE FOUNDATION
CONNECTING FOR HEALTH

[Markle, July 2004]



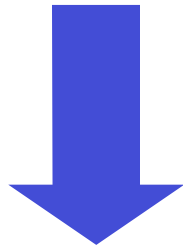
Henning & Ross, November 2004

[5]



HIT Evolutionary Taxonomy

**Where
We Are
Now**



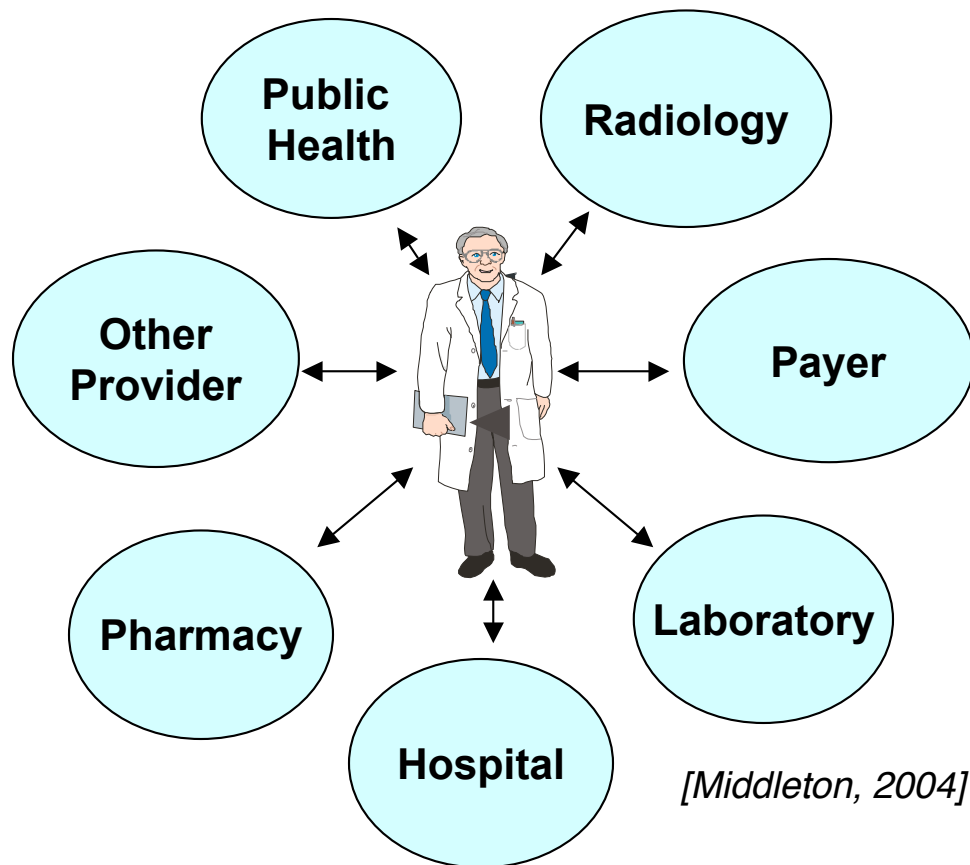
**Where
We're
Going**

Level	Description	Examples
1	Non-electronic data	No PC or Information Technology
2	Machine-transportable data	Fax, E-mail
3	Machine-organizable data	Structured messages, non-standard content, custom data
4	Machine-interpretable data	Structured messages, standardized content and clinical data

90% of Offices (Levels 1-2)
10% of Offices (Levels 3-4)

[Overhage, October 2004]

Flow of Healthcare Information



Work Flows Unchanged

- Provider-centric encounter-based clinical information work flow
- Utilize incremental, non-disruptive steps to transition work flows from paper processes to electronic health information exchange



Common Themes

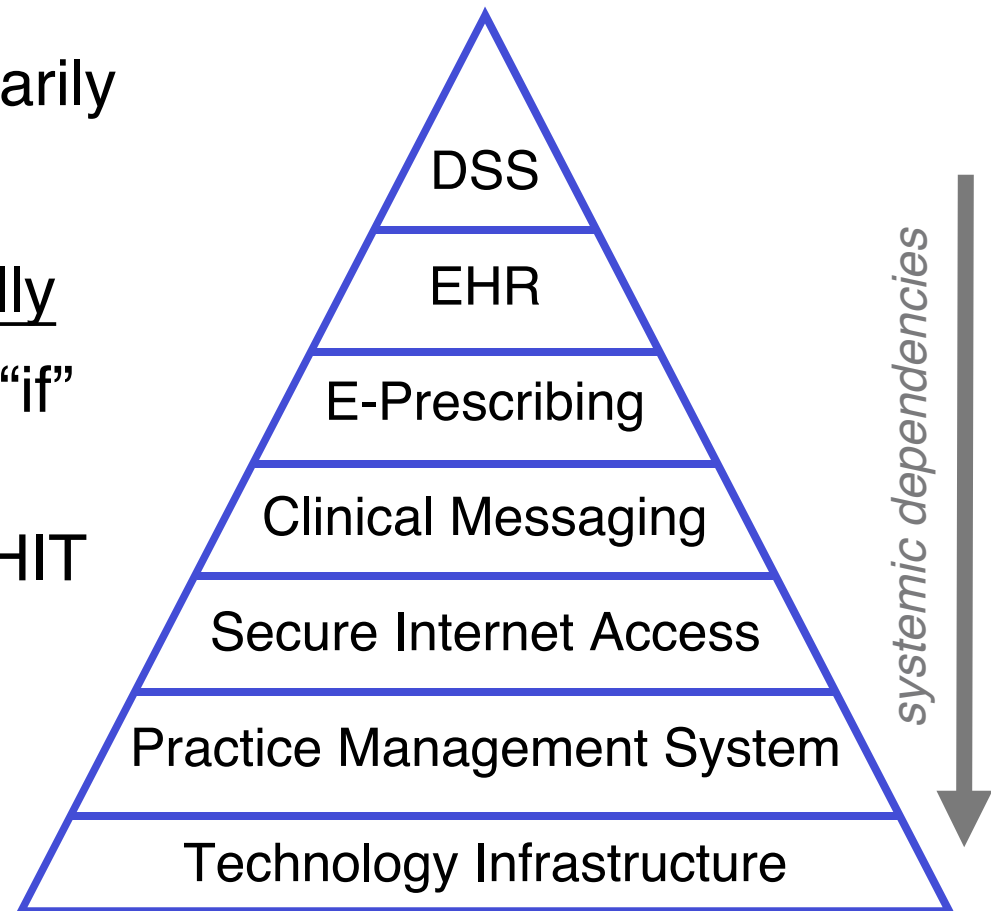
To ensure HIT success

- Collaborate
 - Use shared development
 - Share intellectual property
- Standards-based
- Secure
- Cost-saving rather than revenue-generating business model
- Decentralized / Federated
- Non-Intrusive
- Integrated with enterprise applications
 - Avoid double keying
 - Integrate with existing work flows and processes
 - Minimal intrusion into enterprise strategies and architecture

[Halamka, October 2004]

HIT Reality Check

- Migrate from primarily paper to primarily electronic clinical records - eventually
- Not a question of “if” but of “when”
- Start with simple HIT foundations
- Add functionality incrementally





Barriers to Overcome

Technical

- Lack of HIT expertise at the practice level
- Legacy HIT obstacles to interoperability

Professional

- Reluctance to change workflow

Cultural

- Competitive resistance to collaboration (“trust issues”)

Financial

- Access to capital for up-front investment (“first mover” disadvantage”)



Mendocino Lake Survey

60 Physician responses out of 210 surveys sent

- 80% dictate some notes
- 78% use Practice Management Software
- 74% have Internet access (61% high speed access)
- 74% type some notes
- 59% handwrite some notes
- 55% are willing to change form of Practice Management
- 21% plan to change office software
- 10% use EMR
- 8% use electronic notes (Voice Recognition or Template)
- 5% use an e-Prescribing solution



Incremental HIT Opportunities

Establish secure HIT infrastructure in each office

- Adopt proven industry best practices
- Avoid complex or over-designed solutions
- Provide affordable on-site technical support

Deploy a Clinical Messaging middleware

- An incremental clinical informatics improvement
- Interoperates with CPOE / EHR
- Provides future transport layer for E-Prescribing
- Provides workflow automation for local consulting specialists



How To Do HIT

- Shift HIT focus from “if” to “how”
- Plan and execute carefully
- Adopt proven solutions
 - Install middleware foundations now to prepare for more advanced HIT solutions later
 - Clinical messaging is the middleware foundation underneath modern all-electronic HIT solutions
- Fund up-front costs with grants to incentivize site level adoption
- Work together as a community



What Is Clinical Messaging?

- Secure private clinical middleware
- A system for delivering documents to clinicians
- Single work flow queue with incoming labs, referrals, discharge summaries, etc.
- Installed in Indianapolis, Santa Cruz, Hudson Valley, Cincinnati and other communities
- Established Vendors
 - Axlotl, Docs4Docs, eMediary, InteGreat
- Mature, stable software (third generation code)



How Does It Work?

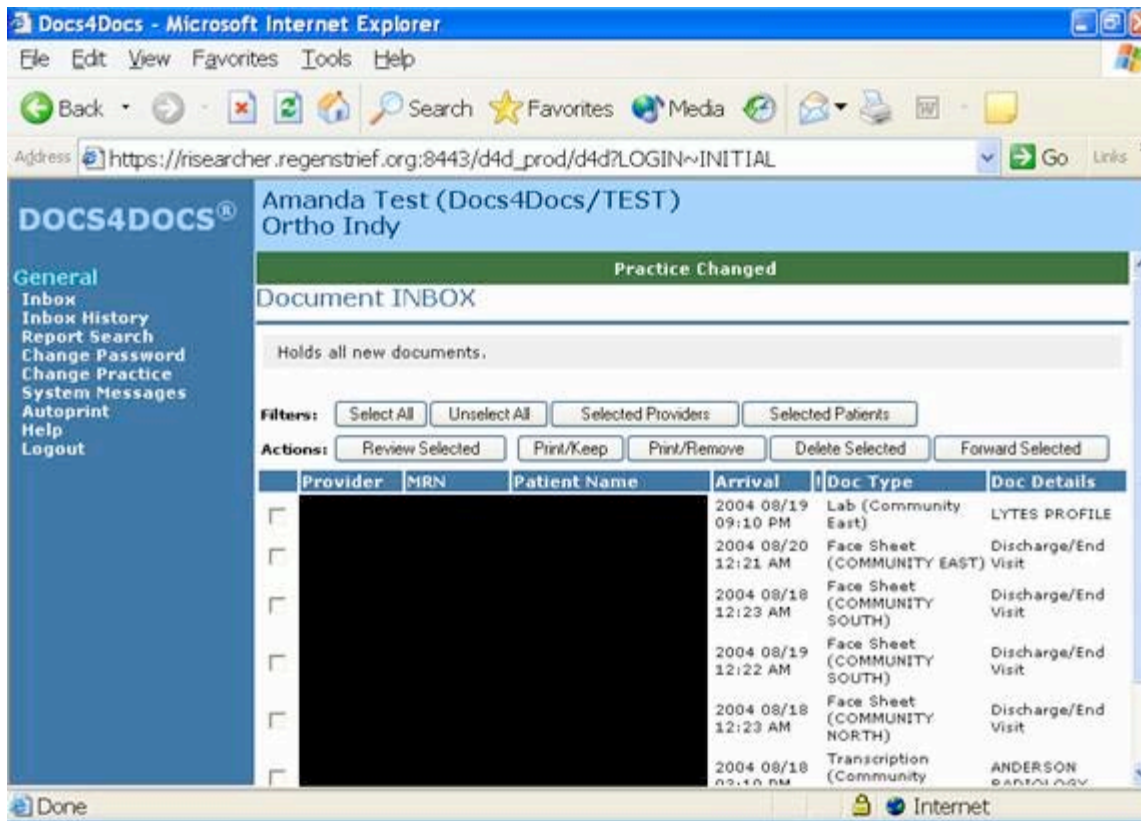
Office Level

- Web browser interface is familiar
- Nothing to download or install

Technology Infrastructure

- Secure web services
- User authentication and role based access
- Content management
- Failover capacity and system redundancy

What Does It Look Like?



Incoming messages look and feel like email

Easy Document Management

Docs4Docs - Microsoft Internet Explorer
Address: https://researcher.regenstrief.org:8443/d4d_prod/d4d?LOGIN=INITIAL

DOCS4DOCS® Amanda Test (Docs4Docs/TEST)
Ortho Indy

Practice Changed

Document INBOX

Holds all new documents.

Filters:

Actions:

Forward Selected Documents to another clinician

Forward documents to another clinician. Type in a partial name of a clinician to search for. Wildcards ("*" and "?") are allowed. Click on search to look for matches, then click on the correct provider. The forwarded document will be left in the INBOX.

To Clinician:

Matches: No matches

Message:

Provider	MRN	Patient Name	Arrival	Doc. Type	Doc. Details
<input checked="" type="checkbox"/>			2004 08/19 09:10 PM	Lab (Community East)	LYTES PROFILE
<input type="checkbox"/>			2004 08/20 12:21 AM	Face Sheet (COMMUNITY EAST)	Discharge/End Visit
<input type="checkbox"/>			2004 08/18 12:23 AM	Face Sheet (COMMUNITY SOUTH)	Discharge/End Visit
<input type="checkbox"/>			2004 08/19 12:22 AM	Face Sheet (COMMUNITY SOUTH)	Discharge/End Visit

Results can be forwarded to another clinician



Adapt to Local Office Needs

Clinical Messaging accommodates any workflow

- **Enterprise EHR sites** - Clinical messaging works in the background, feeds incoming electronic document content directly to the EHR system
- **Internet Access sites** - Clinical messaging unifies separate streams of incoming paper documents into a single queue of easily manipulated electronic content
- **Pure Paper Chart sites** - Clinical messaging is optional, non-intrusive; if utilized at all incoming clinical message documents arrive as faxes



Local HIT Goals

- Build clinic messaging infrastructure for 100% of local providers on a non-intrusive, opt-in basis
- Integrate clinical messaging with all local health care participants
 - Like Mendocino-SHARE, but extend to all clinicians
- Fund implementation costs with grants and in-kind donations
- Plan carefully to avoid surprises



Three Project Phases

1 - Planning

- Incorporate content sources (labs, referrals, consults)
- Identify non-intrusive and incremental steps
- Localize details per participating pilot site

2 - Pilot Project

- Implement clinical messaging in 30 - 40 sites
- Integration with enterprise HIT as appropriate

3 - Full deployment

- Extend clinical messaging to all interested sites



Planning Phase

Build business case

- Demonstrate value of Clinical Messaging
- Address misaligned investment incentives
- Identify ROI cycle

Set funding targets

- Develop local Public-Private partnership

Project organizational structure

- Form project Steering Committee
- Project governance to address community collaboration
- Future integration with Mendocino SHARE collaborative



Conclusion

- Clinical Messaging is an affordable, non-disruptive, incremental HIT project
- Clinical Messaging will accelerate local transition to an HIT enabled system
- Uniform local Clinical Messaging will improve local stakeholder collaboration
- Clinical Messaging will help keep the focus on improved health outcomes
- We can succeed at Clinical Messaging



References

- David Brailer, MD, PhD and Tommy Thompson, “Framework for Strategic Action”, July 2004
- John Halamka, MD, “Community Connectivity: The Massachusetts Experience”, October 2004
- John Lumpkin, MD, MPH. “What is Connecting for Health?”, October 2004
- Markle Foundation, “Achieving Electronic Connectivity in Health Care”, July 2004
- Blackford Middleton, MD, MPH, “The Value of EHR and Healthcare Information Exchange”, October 2004
- Marc Overhage, MD, PhD, “A Short History of the Indiana Health Information Exchange”, October 2004

