

DRAFT #4: For Committee Discussion Only

MN - RHIO

Data Standards and
Technical Architecture Workgroup of the
Minnesota e-Health Initiative Steering Committee



Workgroup Charge

- Examine EHRs and tech architecture used by working health info exchanges
- Address challenges and organizational barriers to sharing data
- Identify ways to interconnect
- Propose a model for a RHIO
- Adopt principles
- Adopt minimum standards for data and technical architecture
- Monitor national standards
- Develop a model implementation guide & process for prioritization, adoption and assistance
- Coordinate with Finance and Governance workgroups
- Present findings

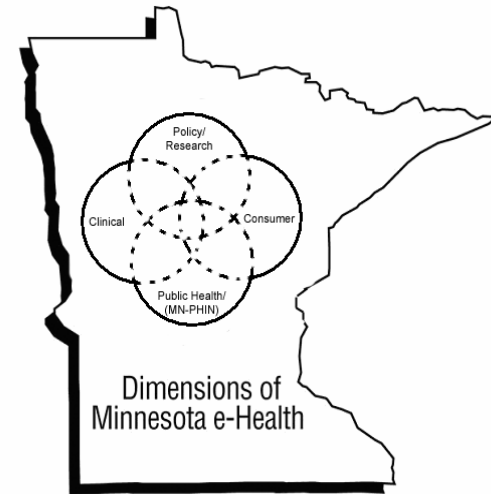
e-hit Today in Minnesota

- Lab and Rx wide-area networks
- Many Hospitals/M-S clinics have systems or installation is planned
- Departmental Systems
- Most small/rural MDs have legacy systems with no/limited clinical data
- Islands of information



Vision For Minnesota e-Health

The Minnesota e-Health Initiative will accelerate the adoption and use of Health Information Technology to improve healthcare quality, increase patient safety, reduce healthcare costs and enable individuals and communities to make the best possible health decisions.





Vision For Minnesota e-Health

We will do this by:

- Connecting healthcare providers – clinicians and facilities – to assure continuity of care for every patient
- Using national standards to guide electronic data interoperability, quality measurement and community health improvement and reduce the risk of investment
- Empowering consumers to understand and access personalized health information to facilitate active management of their health
- Improving public health, primary prevention and enabling community preparedness
- Informing health research and policy development
- Leveraging existing information systems and incrementally adding improved ones
- Increasing adoption of health information technology and levels of informatics skills, knowledge and competencies
- Safeguarding privacy and confidentiality of information
- Maintaining outcomes that focus on the patient/person
- Contributing to the development of federal standards efforts



Guiding Principles

- MN HIE will adopt standards implemented by federal government as part of the National Health Information Network (NHIN) to ensure interoperability among stakeholders
- MN HIE will use only vendor products and technologies that meet federal certification standards
- Development and Implementation of MN HIE will involve all stakeholders
- Adoption of standards will be balanced with business and patient care requirements
- MN HIE technical design will support a 'consumer-centric' philosophy of health care
- MN HIE will support clinical, administrative and research functions for both the public and private sector



Guiding Principles *(continued)*

- In general, clinical information will be decentralized. The MN HIE will provide the capability to move and receive data within and across regional information exchanges
- MN HIE will support universal access for all stakeholders to input or retrieve appropriate health care related information
- Patient electronic health information will be kept confidential in accordance with federal and state regulations in matters of privacy and security



Successful EHRs & Architecture

- There are no fully operational RHIOs at this point in time, meeting all criteria
- There are examples of successful Governance models, successful data sharing models, standards models, and (a few) successful EHRs
- No examples of all of these together with adequate operational financing
- There are several alternative approaches to Architecture and Standards



Four Alternative Architectures

1. **Common community EHR**

- ❑ U.K. NHS
- ❑ Winona Minnesota Community

2. **Shared repository of summary EHR data**

- ❑ Indiana Health Information Exchange

3. **Shared access to multiple EHRs**

- ❑ Mass. eHealth Collaborative/MA-SHARE

4. **Shared electronic clinical transactions – no EHR**

- ❑ Santa Barbara County Care Data Exchange



U.K. National Health Service

- **Phase 1: Summer 2004 – Summer 2005**

- Choose and Book service
- Basic patient demographic information
- Birth and death notification
- Recording of allergies
- Beginning of summary health record
- Electronic Transmission of Prescriptions

- **Phase 2: Summer 2005 – Summer 2006**

- Health record grows
- Orders and results for diagnostic images and pathology
- Support for care pathways
- GPs notified of emergency and out of hours encounters

- **Phase 3: 2006 – 2008**

- Support for all doctors and nurses to help with decisions
- Electronic prescriptions
- Care at home via remote links to healthcare professionals
- Better healthcare planning via NHS CRS data

- **Phase 4: 2008 – 2010**

- Final features incorporated to complete a fully integrated service across NHS in England



Indiana Health Information Exchange

- **Origins** IHIE is a non-profit company incorporated in the state of Indiana on February 24, 2004 . It was founded by a unique collaboration of 13 institutions representing hospitals, providers , researchers, public health organizations, and economic development groups, including: BioCrossroads, the Central Indiana Corporate Partnership, the City of Indianapolis, Clarian Health Partners, Community Health Network, Health and Hospital Corporation of Marion County, Indiana State Department of Health, Indiana State Medical Association, Indiana University School of Medicine, Indianapolis Medical Society, Marion County Health Department, Regenstrief Institute, St. Francis Hospital and Health Centers, and St. Vincent Health.
- IHIE will extend the infrastructure already built by the Regenstrief Institute, Inc (<http://www.regenstrief.org>) an internationally recognized pioneer in the field of clinical informatics whose efforts in Indiana have already garnered considerable national attention. Key support has also come from BioCrossroads, who have provided capital and in-kind resources, and the five charter hospital systems, who are IHIE's first large customers. With access to extensive expertise, committed long-term customers, and broad community support, IHIE has launched with much early momentum.
- Indiana Health Information Exchange
351 West 10th St.
Suite 252
Indianapolis, IN
46202
(317) 278-4760



Mass. eHealth Collaborative

- Alliance for Health Care Improvement
- Associated Industries of Massachusetts
- Baystate Health System
- Beth Israel Deaconess Medical Center
- Blue Cross Blue Shield of Massachusetts
- Boston Medical Center
- Caritas Christi
- Executive Office of Health and Human Services
- Fallon Clinic, Inc.
- Fallon Community Health Plan
- Harvard Pilgrim Health Care
- Health Care for All
- Lahey Clinic Medical Center
- Massachusetts Coalition for the Prevention of Medical Errors
- Massachusetts Health Quality Partners
- Massachusetts Medical Society
- Massachusetts League of Community Health Centers
- Massachusetts Nurses Association
- Massachusetts Council of Community Hospitals
- Massachusetts Association of Health Plans
- Massachusetts Business Roundtable
- Massachusetts Chapter American College of Physicians
- Massachusetts Health Data Consortium
- Massachusetts Group Insurance Commission
- Massachusetts Hospital Association
- Massachusetts Taxpayers Foundation
- Massachusetts Technology Collaborative
- MassPRO, Inc.
- New England Healthcare Institute
- Partners Healthcare
- Tufts Associated Health Maintenance Org
- Tufts-New England Medical Center
- University of Massachusetts Memorial Medical Center

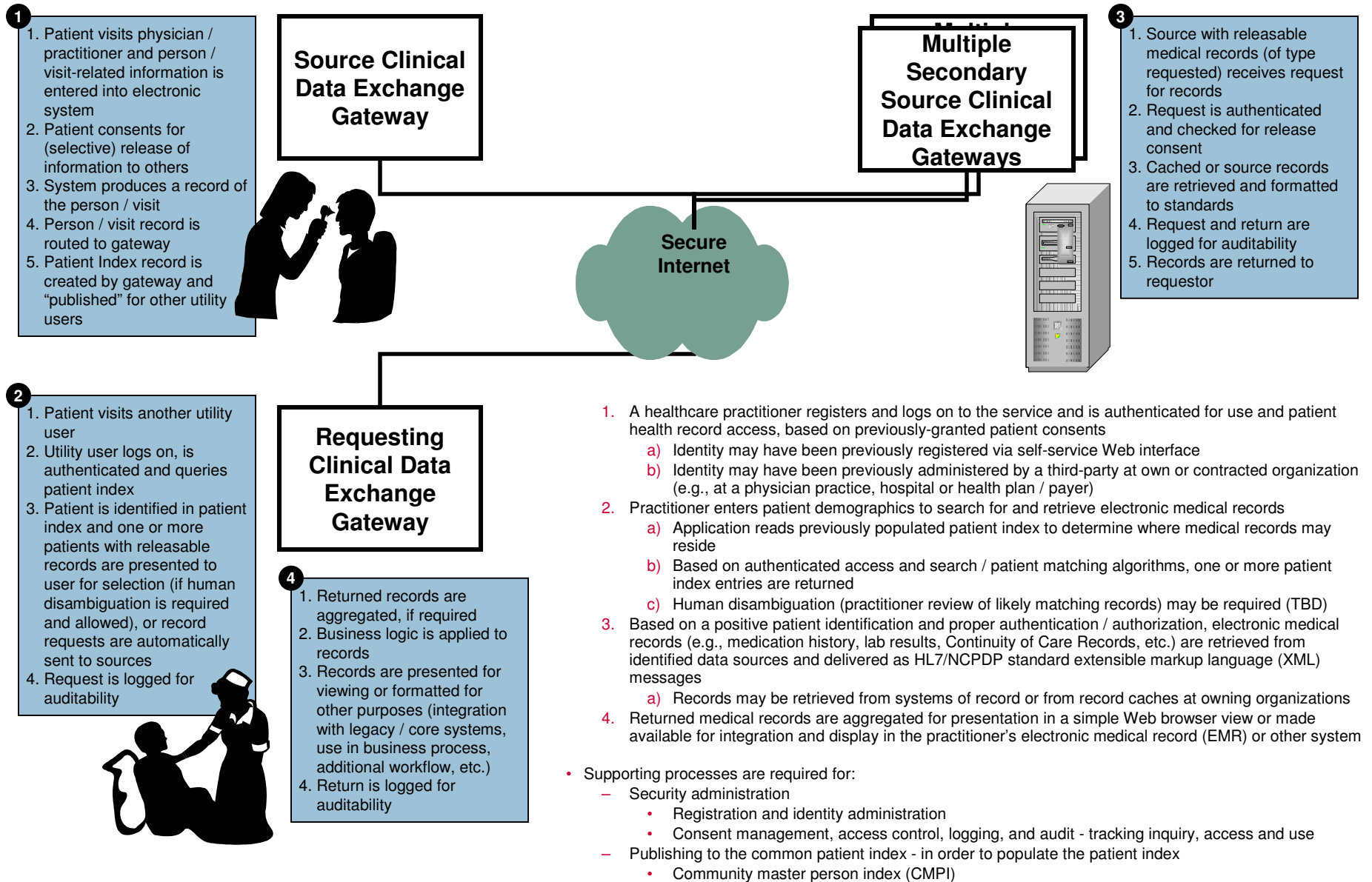


Mass. eHealth Collaborative

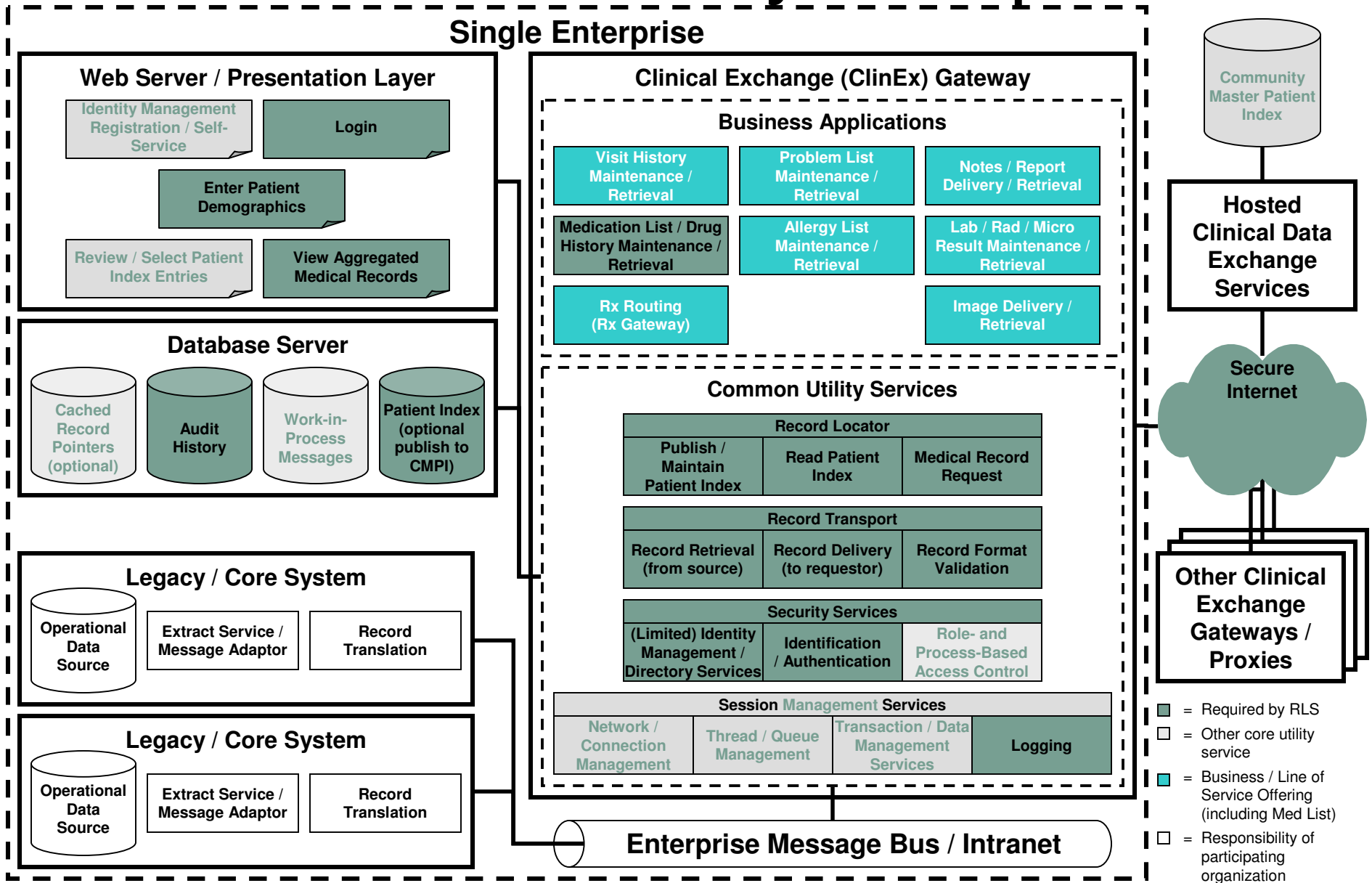
MA-SHARE Advisory Committee

- Chairman of the Board, Massachusetts Health Data Consortium
- 1 seat CIO Forum of the Massachusetts Health Data Consortium
- 3 seats representing hospitals in Massachusetts
- 3 seats representing health plans in Massachusetts
- 3 seats representing physicians in Massachusetts
- 3 seats representing State Government
- 3 seats for other healthcare organizations in Massachusetts
- 4 "other" seats (representing employers, academia, technology association, and the state legislature)

Use case of RLS and Gateway



RLS and Gateway Components





MA-SHARE Transaction Standards

- RLS
 - HL7 2.x A28 for new patient registration
 - HL7 2.x A31 for patient demographic changes
 - HL7 2.x A19 for patient demographics query
 - HL7 2.x A04 for patient demographics response
- Medications
 - NCPDP Script 1.5 with NDC codes
 - RxNorm is not yet ready for prime time
- CCR, HL7 3.0 RIM are evolving

Source: MA-SHARE, John D. Halamka, MD



Santa Barbara County Care Data Exchange

- Peer-to-Peer (P2P)
- NO centralized database
- Not an EMR; rather, a community EMR broker/switch
- Think of as highly secured patient clinical search engine
- CDE-OOGLE.com – query for patient, then follow links (see ILS)
- “Look & Leave”

SBCCDE, Inc. aims to be a broker or switch for clinical data. This is not an EMR. SBCCDE opens doors to EMRs. The CareScience Data Exchange delivers workflow functionality to assist physicians and their staffs such as patient lists, pre-fetching clinical data, and secure consult communication between physicians. Perform a “search”, open the relevant “link”, evaluate the data, and exit the “link” – nothing has been uploaded to your computer.

Source: HIMSS 2/14/05 Mike Skinner, Exec. Director



RHIO Building Blocks: Summary of ONCHIT RFI Responses

- No national identifier
- No rip and replace
- Data lives in the community
- Regionally interoperable
- Nationally accessible
- Privacy and Security are key

Source: Halamka, CHIME 2/13/05



RHIO Building Block Standards

1. **Standardized Content**

- ASTM CCR E31.28
- HL7 CDA Release 1.x and 2.x
- NCPDP Rx
- LOINC Lab
- DICOM Digital Image

2. **Standardized data transmission**

- X.12, HL7 & NCPDP

3. **Standardized identification**

- Mass. eHealth Collaborative RLS
- NPI



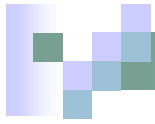
Barriers:

- Cost
- Uneven EHR adoption by providers
- Lack of a compelling benefit justification
- Fear of data misuse and privacy violations
- Legal barriers



Barriers in Minn. Statute:

- 145.30 permits transfer to photographic film
- 145.32 permits divestiture of paper records after 3 years provided they are first transferred according to 145.30
- 4642.1000 defines Individual Permanent Record
- In general, Minn. statute reflects pre-electronic era technology



Barriers: Myth-Busting

- Myth #1: A common vendor is required
- Myth #2: EHRs first, Interoperability second
- Myth #3: Unique Patient ID is required
- Myth #4: Technology first, Governance second



A model for a Minnesota RHIO

- Comparison of 4 alternatives
- Workgroup criteria
 - 11 dimensions
 - High (strong) to low (weak)
 - Scalability, ease of use, public health & research use, privacy & security, architecture, use of standards



A model for a Minnesota RHIO

1. **Common community EHR**

- ❑ High scores, but impractical due to replacement of existing investments

2. **Shared repository of summary EHR data**

- ❑ Medium scores, costly duplication of technology

3. **Shared access to multiple EHRs**

- ❑ Medium scores, practical solution in consumer-directed market

4. **Shared electronic clinical transactions**

- ❑ Low scores as sole solution, practical starting point while EHRs adoption matures
- ❑ Good starting point for immunization registries, Rx histories, medication reconciliation & e-prescribing



Next steps:

- Standardized survey of Minnesota providers -- current EMR status and plans
- April 5 and June 23 presentations
- Final Tech and Standards Workgroup recommendations



MN-RHIO Tech & Standards

- The end