Connecting Healthcare Stakeholders Through HIT and Health Information Exchange

The Inland Northwest Health Services Story

Thomas Fritz, CEO
Frederick Galusha, CIO
Jac Davies, Director
INHS is a not-for-profit 501(c)3 corporation created in 1994, owned by the hospitals in Spokane and serving residents of WA, ID, MT, OR and Canada. We facilitate clinical care by:

- Improving clinical outcomes through information access and integrated clinical systems for physicians, hospitals, clinics and other health providers
- Acting as the “trusted party” and secure custodian for the regional clinical data repository and a community-wide electronic medical record and serving as a neutral party for all hospital-based collaboration
- Leveraging collaborative assets to control costs and provide high levels of expertise using shared resources
Drivers of Collaboration

- Financial savings
- Community pressure (physicians)
- Focused expertise
- Most of the same forces exist in other communities today
INLAND NORTHWEST HEALTH SERVICES
2 EHS Trustees & CEO
2 PHC Trustees & CEO
2 At Large Trustees
PS CEO
Past President Spokane Co Med Society

Empire Health Services

Partner's Leadership Council
- EHS CEO, CFO, COO
- PHC CEO, CFO, COO

Executive Director

Finance Committee
- EHS CFO, 1 Trustee
- PHC CFO, 1 Trustee
- INHS CEO, CFO

Information Resource Management
CIO

Inland Northwest Health Partners
COO

St. Luke's Rehabilitation Institute
Administrator

Providence Health Care
Scope of System

• 32 hospitals, with over 3,000 beds, participating in the integrated information system

• More than 400 Physician practices are able to view hospital, laboratory and imaging data via a private network.

• More than 700 physicians accessing patient records and 225 wirelessly in hospitals via personal digital assistants

• 67 hospitals, clinics and public health agencies connected to the region’s telemedicine network

• 180 member technical staff serving over 18,000 end users
"America needs to move much faster to adopt information technology in our health care system. Electronic health information will provide a quantum leap in patient power, doctor power, and effective health care. We can't wait any longer."

Tommy Thompson, Secretary, DHHS
July 21, 2004
National Strategic Framework

• Goal 1. Inform Clinical Practice
• Goal 2 – Interconnect Clinicians
• Goal 3 – Personalize Care
• Goal 4 – Improve population health
Community RHIO Governance

• Inland Northwest Community Health Information Project (INCHIP)
  – Advisory and decision-making body on community-wide health information standards and processes
  – Voluntary coalition, with members meeting regularly to discuss and make recommendations and decisions
  – Governed by Board of Directors with physician, non-physician, and community representatives
  – Obtain agreement on key issues, i.e. data exchange processes and standards
500,000 Local Area Population
Largest Healthcare Service Availability Between Seattle and Minneapolis
9,000,000 Regional Population
INHS Regional Network 3 to 5 Years
Regional Collaboration

Source: INHS/IRM – What if? INHS Collaboration

INLAND NORTHWEST HEALTH SERVICES
Feedback From Recent Site Visit

I might still be seeing patients... Your institution has what I would consider one of the most sophisticated informatics infrastructures in the entire US. That's saying something...

I've worked at Brigham and Women's, Mass General, University of Pittsburgh and the Pittsburgh VA as well as several other hospitals on the east coast - from my perspective, your program can stand on equal footing to any of these places – surpassing...

Pfizer Pharmaceuticals, Steve Labkoff, MD  --  27 October 2004
The integrated information systems and common MPI gives the region the **infrastructure** for innovative tools, including:

- Computerized Physician Order Entry (CPOE)
- Clinical Documentation Systems for Nursing Notes
- Decision-Support Tools
- Anywhere, Anytime Physician Access to Images
- Remote Consultations and Support for Rural Residents
Patient selected by ALL or specific facility.
Mobile Systems – Clinical Focus

Palms OS – 2002
Microsoft
PP/PC - 2003

Clinical Laboratory Data
Summary
Detail
EMR Usage Statistics

**USER NUMBERS per Month:**
INHS/Meditech PCI

**EMR Access and Usage**
- Office Staff = 900 users
- Physicians = 700 users
- Phys E-Sign = 450 users
- MercuryMD = 225 users
Physician EMR Views per Month

EMR Views per Month
Office Staff = 36,000
Physicians = 49,000
• Patient Safety
  – Bar-Coded Medication Verification (BMV) Systems in two hospitals to assure appropriate medication administration
  – Computerized Physician Order Entry (CPOE) using Evidence Based Medicine (EBM) to establish standard orders-sets
  – Mobil Chart on PDA (handheld) providing physicians and clinicians with the latest clinical results (Labs, Rad, Medications, Vitals and I/O) using decision support tools
Direct Cost of Preventable Drug Errors = $177 billion per year


Sacred Heart Medical Center and St. Lukes Rehabilitation Institute use Barcode Medication Verification house wide
Executable Knowledge Manager™ (EKM™) is an Internet-based solution that contains standardized order sets and rules, and the clinical evidence upon which the order sets and rules are based. The EKM™ comprises the following conditions:

- Acute Myocardial Infarction
- Asthma - Adult
- Asthma - Pediatric
- Atrial Fibrillation
- Bronchitis - Pediatric
- Cancer - Breast, Screening
- Cardiac Surgery - Pediatric
- Carotic Endarterectomy
- Cesarean Section
- Chest Pain - Low Risk
- Chronic Obstructive Pulmonary Disease
- Congestive Heart Failure
- Coronary Artery Bypass Graft Surgery
- Cranectomy - Adult
- Cystic Fibrosis - Pediatric
- Diabetes Mellitus - Adult
- Diabetes Mellitus - Pediatric
- DKA/HHS - Adult
- DKA/HHS - Pediatric
- Fracture - Hip
- Pneumonia - Nosocomial
- Prematurity - Neonatal
- Renal Failure - Acute
- Resection - Appendix (Appendectomy), Pediatric
- Resection - Bowel
- Resection - Breast (Mastectomy)
- Resection - Gall Bladder (Cholecystectomy)
- Resection - Lung (Pneumonectomy)
- Resection - Thyroid (Thyroidectomy)
- Resection - Ureter (Hysterectomy), Abdominal
- Stroke - Ischemic
- Stroke - Ischemic, Elevated ICP
- Stroke - Ischemic, Thrombolysis
- Surgical Antimicrobial Prophylaxis
- Term Pregnancy
- Total Hip/Knee Replacement
- Transient Ischemic Attack
Quality and Efficiency Measures

• Quality Performance and Real-time Monitoring Dashboards
  – Reduced ER wait time 1.5 hours
  – Improved resource allocations
  – Increase in customer satisfaction to 90th percentile
  – Transparent accountability – everyone sees what is working and what is not
  – JACHO accredited “core measures” vendor
  – Developer of Critical Access Hospital quality benchmark system
Voice Recognition Success

87% Voice Recognition

56 Minutes

KMC Radiology - Powerscribe VR

Faster turnaround time 50% of the cost

Systems Driving Efficiency

Voice Recognition Success

87% Voice Recognition

56 Minutes

KMC Radiology - Powerscribe VR

Faster turnaround time 50% of the cost

Systems Driving Efficiency
Community-wide EMR

- **Electronic Clinical Data**
  - Longitudinal inpatient record for 32 hospitals
  - 2.6 million unique patient records
  - Community digital image store
  - Reduced test duplication
  - Inpatient and outpatient lab results available
  - Electronic data availability (Hospital, Office, Home…)
  - More complete clinical data improves clinical results
### Advanced Clinical Displays - EMR

**Efficient display of clinical results**

#### Patient Information
- **Name:** Downer, Emma S
- **MRN:** Z21263038
- **Age:** 03M 19D
- **Sex:** F

#### PICU Vital Signs

<table>
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<th>Time</th>
<th>HR</th>
<th>Temp</th>
<th>Resp</th>
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<td>184</td>
<td>97.6</td>
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<td></td>
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#### Ventilation
- **Actual Resp Rate:** 28
- **Respiratory Rate:** 28
- **Respiratory Rate:** 28

#### Circulation
- **Circulation Status:** Y
- **Neuro Status:** Y

#### Gastrointestinal
- **Gastrointestinal Status:** Y
- **Stool Color:** Yellow
- **Stool Consistency:** Soft

#### Urinary
- **Urinary Status:** Y
- **Urine Color:** Yellow
### New Advanced Clinical Displays

#### Point-Of-View

<table>
<thead>
<tr>
<th>Patient List</th>
<th>List Menu</th>
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</thead>
<tbody>
<tr>
<td><strong>my InPatients/consults</strong></td>
<td><strong>my In-Patients/consults</strong></td>
</tr>
<tr>
<td><strong>my Out-Patients</strong></td>
<td><strong>my Out-Patients</strong></td>
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<td><strong>my ER Patients</strong></td>
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<tr>
<td><strong>my Group's In-Patients</strong></td>
<td><strong>my Group's In-Patients</strong></td>
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<tr>
<td><strong>my Group's Out-Patients</strong></td>
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<td><strong>Patient Unit #</strong></td>
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<tr>
<td><strong>Out Patient Location</strong></td>
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<td><strong>Other Providers In-patients</strong></td>
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<td><strong>Round List</strong></td>
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#### Patient List

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<th>Sex</th>
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## INLAND NORTHWEST HEALTH SERVICES
Physician EMR Server Farm

Collaborative server farm with 280 physician EMR systems managed by INHS:

Support 3 EMR systems
  • GE Logician
  • NextGen
  • LSS

Lower cost to physicians

Professional IT staff for implementation and local support

24 x 7 helpdesk

Interfaced with hospital HIS, PACS, Reference Lab

Momentum and community support

Source: INHS/IRM – Server Farm, Spokane Datacenter
INHS Telemedicine System

- Nursing courses and education with universities and community colleges addressing Nursing Shortages
- Rural hospital TelePharmacy program providing remote Pharmacist services
- TeleER program assisting rural trauma doctors with ER cases remotely
- Physicians provide remote Clinical Consults in Neurology, Pathology, Psychiatric services, and many other areas
- Prison Based Health Services receive specialist care
- Statewide Diabetes Education Program Including Native American Tribes
Telepharmacy in our Region

Source: INHS/IRM – Kristy Nielsen, and Othello Hospital
Accomplishments

• We have improved clinical outcomes through information access and integrated clinical systems for physicians, hospitals, clinics and other health providers.

• We have become the “trusted party” and secure custodian for a regional clinical data repository.

• We have leveraged collaborative assets to control costs and provide high levels of expertise using shared resources.
Accomplishments

• We established a regional Master Patient Index standard that has allowed us to gather and distribute patient data to the caregivers in our region.

• We established standard data sets, allowing comparison of clinical data and enhancing the longitudinal patient record.

• We created a regional integrated information system that connects hospitals, clinics and physician offices, providing a community Electronic Medical Record.
Accomplishments

• We connected Physicians throughout the region, directly in their offices and wirelessly within our hospitals, providing relevant clinical data when and where they need it.

• We enhanced care in rural areas by connecting residents and clinicians to specialists through an extensive regional telemedicine network.

• We increased patient safety by utilizing advanced systems.
Outcomes

• One hospital projected cost savings of $1.3 million over four years by implementing a new hospital IS within the INHS shared services model

• Participating hospitals spend 2.0% on HIT versus national average of 3.1%

• Pre-INHS, one hospital needed 98 FTEs for IS. INHS uses 57 FTEs to support that account, which now includes Meditech, approximately 200 other IT systems, and around 2500 desktop devices
Outcomes

• One hospital implemented bar-coded medication verification and found that 1% of its medication administrations would have resulted in errors without the intervention of the new system.

• The TelePharmacy program intervened in 3% of the medication administrations in a rural hospital to avoid medication errors.
Outcomes

• Air ambulance service – went from annual loss of more than $4 million to revenue of $1 million each year in net income

• Rehabilitation services went from more than $6 million in debt to $1 million in revenue

• In 2003, rural hospitals in Washington saved over $500,000 in travel costs by using the telemedicine network for training and meetings.
Obstacles and Challenges

• Limited funds from rural hospitals slows their adoption of key clinical systems
• Each new hospital brings new challenges – wanting everything for nothing
• Minimal physician office automation has slowed the longitudinal electronic medical record
• Poor IT investment decisions – hospitals and physicians are buying IT without knowing enough
What we have learned

• Creating a sustainable business model:
  – Leverage assets
  – Provide an efficient cost plus model
  – Create standardization
  – Assure value-added services
  – Assure quality of services
  – Get lowest cost from vendors

• If you do these things, customers will stay and the business will be sustainable
What we have learned

• Does the vendor matter?
  – No, doesn’t matter which vendor is used
  – Savings arise from standardization
  – Value is in having a core business function, and leveraging that core to provide other services
What we have learned

• Drivers are what affect joint ventures
  – Are the drivers financial? Probably should look at standardization of information systems
  – Are the drivers clinical (data exchange)? Can focus on data standards for information sharing
  – Identify the real business needs of the participants and their communities
What we have learned

• How do you create sharing among competitors?
  – Let competitors run on the same network
  – Governance needs to be neutral, not favoring any competitor
  – Neutral governance organization can promote agreements on common issues (MPI, network standards, etc)
What we have learned

• Joint ventures are hard
  – Every time there is a board or CEO change in a participating organization, have to re-justify the venture.
  – A joint venture does not institutionalize itself
What we have learned

• Community governance organizations take work
  – Members continuously jockey for position
  – Members have to be willing to set aside self-interest
  – Everyone has to keep working at it
  – Organization must have structure, expectations for conduct, and ground rules for communication and problem-solving
Thank You

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