

**Quality Improvement via Health Information Exchange**

# **Re-Engineering Communities**

**Dick Thompson, Executive Director**



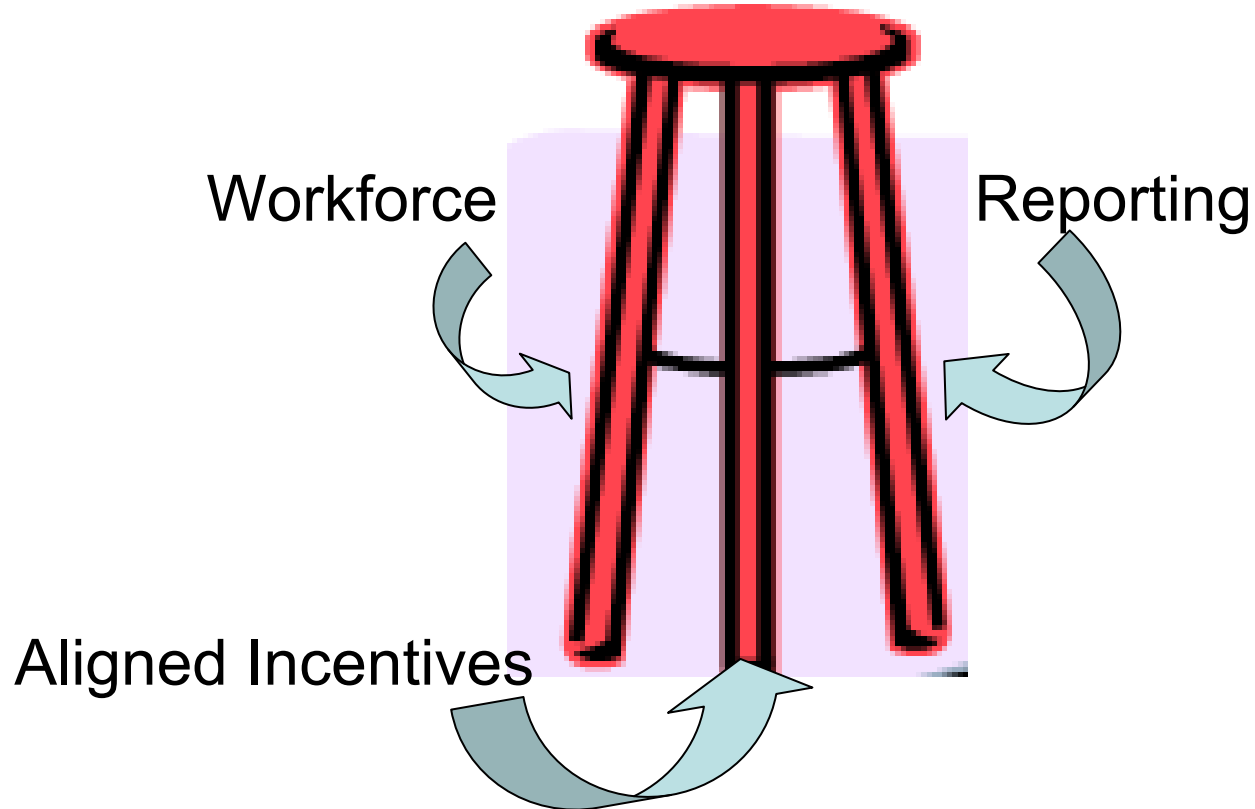
**HIMSS Chapter HIE Liaison Roundtable Open Call  
October 15<sup>th</sup>, 2009**



## Simple Answers to Complex Questions



# High Performing Organizations Common Elements



# Dual Focus: Cost & Quality

- Health Plan and Physician's Association
  - Shared Risk Agreement Aligns Incentives
- Focus on Quality & Costs
  - Peer Review Committee on Quality
  - Peer Ranking (Reporting) on Costs
    - Cost Effectiveness Rating
    - Length of Stay Comparisons
    - Comparative Laboratory Costs
    - Generic Utilization & Formulary Cost Effectiveness
    - Comparative Data on Diagnostic Modalities
      - MRI vs CT vs Ultrasound
    - Avoiding the Emergency Room
- Improve Clinician Access to Data

Wall Street Journal October 5, 2007

**Bill Gates:**

“Few Industries are so information-dependent. But today, **isolated systems make it impossible** for your doctor to see your complete medical picture”

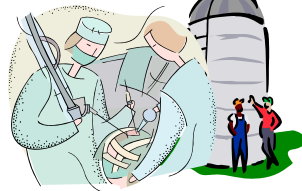


## Clinical Data Transition Problem

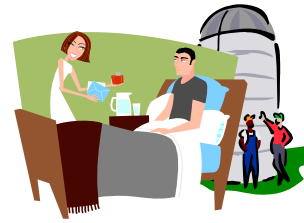
- Patients Move between Providers . . .  
. . . . But the Data Doesn't!



**Urgent Care**



**Acute Care**



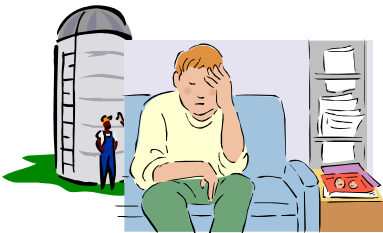
**Extended Care**



**Primary Care**



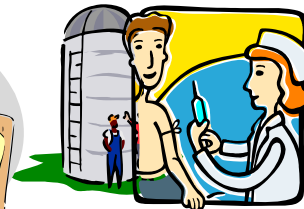
**Specialists**



**Behavioral Health**



**"Doc in the Box"  
& Pharmacies**



**Home & Public Health**



**Hospice**

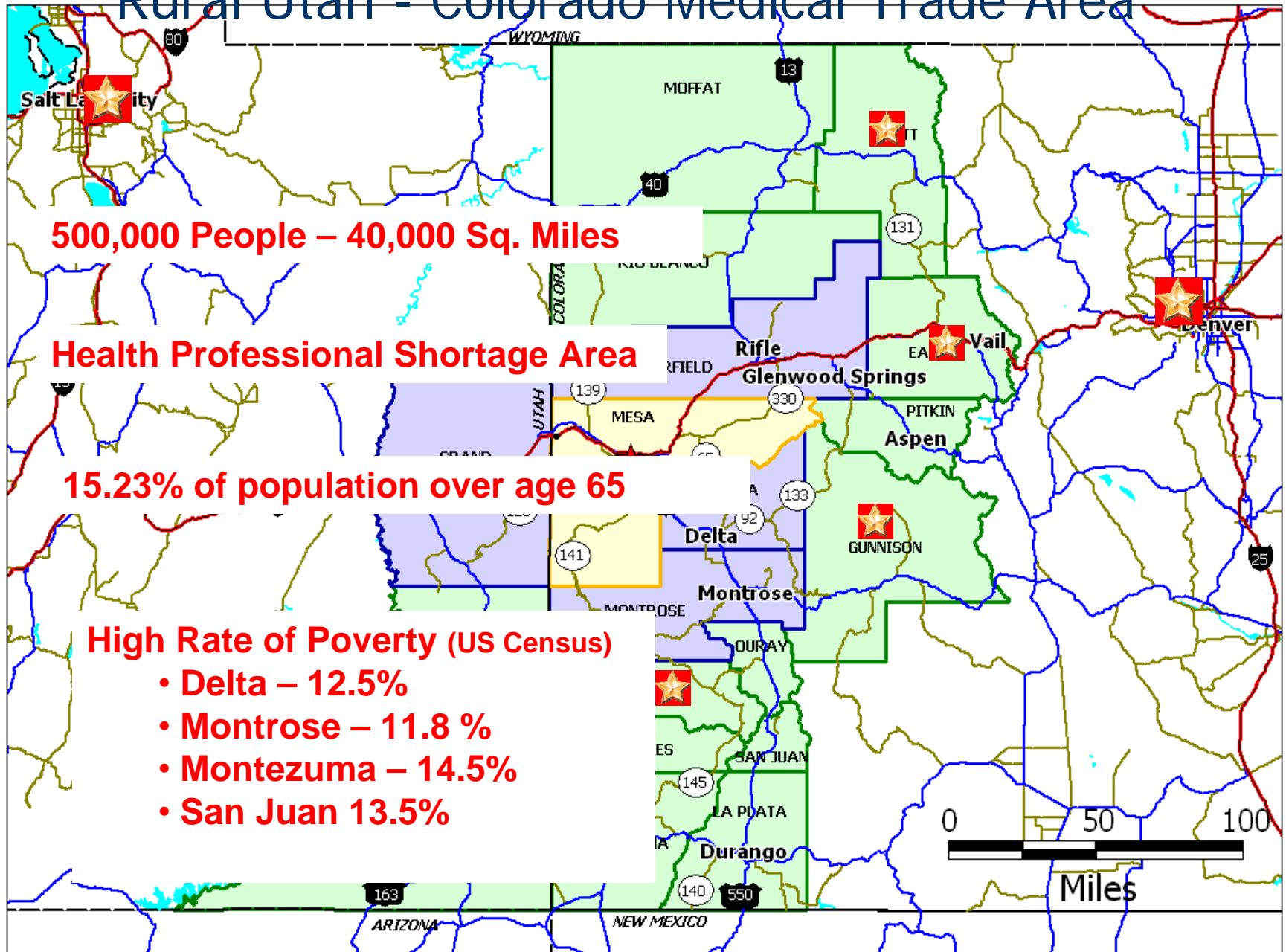
# 2004 Funders & Founders

(Competitors . . . & . . . Collaborators!)

**\$2.75 Million Initial Private Funding**

- Mesa County Physicians IPA - \$1,050,000
- Hilltop Resources - \$50,000
- Rocky Mountain Health Plans - \$1,550,000
- St. Mary's Regional Medical Center - \$50,000
- Community Hospital - \$50,000
  
- **Quality Health Network Inc. – 501(c)3**
  - Quality Improvement Focus
    - “A-political, Non-exclusive, Trusted Organization”

# Rural Utah - Colorado Medical Trade Area



**500,000 People – 40,000 Sq. Miles**

**Health Professional Shortage Area**

**15.23% of population over age 65**

**High Rate of Poverty (US Census)**

- Delta – 12.5%
- Montrose – 11.8 %
- Montezuma – 14.5%
- San Juan 13.5%

# The QI Plan: Improve Access to Data

## 1. **Electronically Receive & Ship Clinical Data**

- Single Point of Entry for all Sources & Receivers
  - Physician Centric as well as Patient Centric Data Views

## 2. **Electronically Link Participants Together**

- Simple & Low Cost Access for All
  - Clinical Data at the Point of Care
  - EMR-exchange & e-Prescribing Tools
- Route Data to/from EMR Systems

## 3. **Deploy Web-based Clinical Registry(s)**

- Collect Practice Data & Report Outcomes

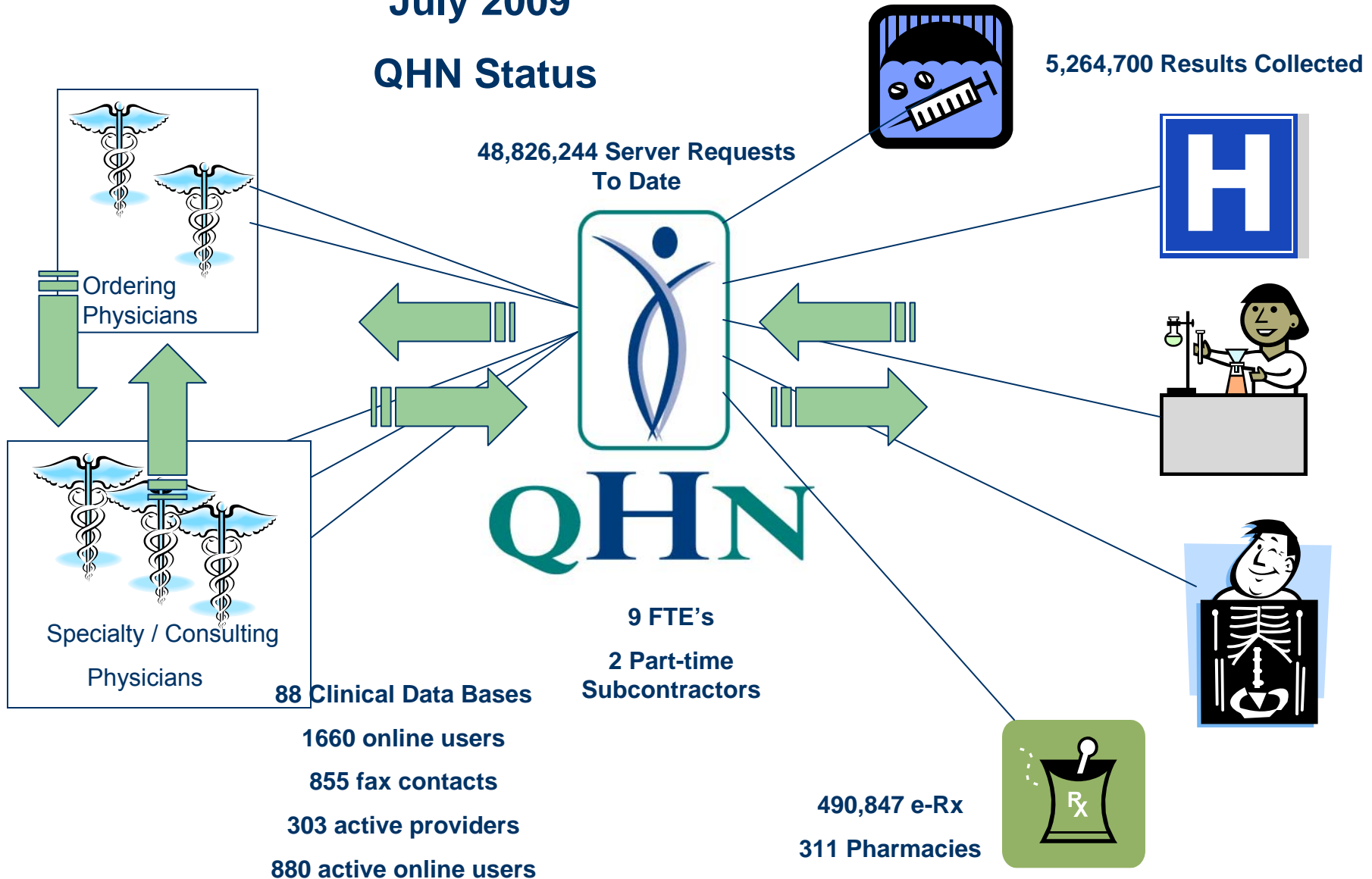
# QHN Clinical Message Services

- Direct Results Delivery to Physician or EMR
  - Results Tied to Master Patient Index
- Ambulatory Order Entry
- Online Referrals
- Insurance Eligibility
- Automated Public Health Reporting
- EMR-Xchange
  - CCHIT Certified EMR & e-Rx
  - Quality Improvement & Reporting Tools
    - Registry
- Shared Problems, Meds, Allergies, Immunizations
- Virtual Health Record (Longitudinal Patient Record)

# Establishing Standards

July 2009

## QHN Status



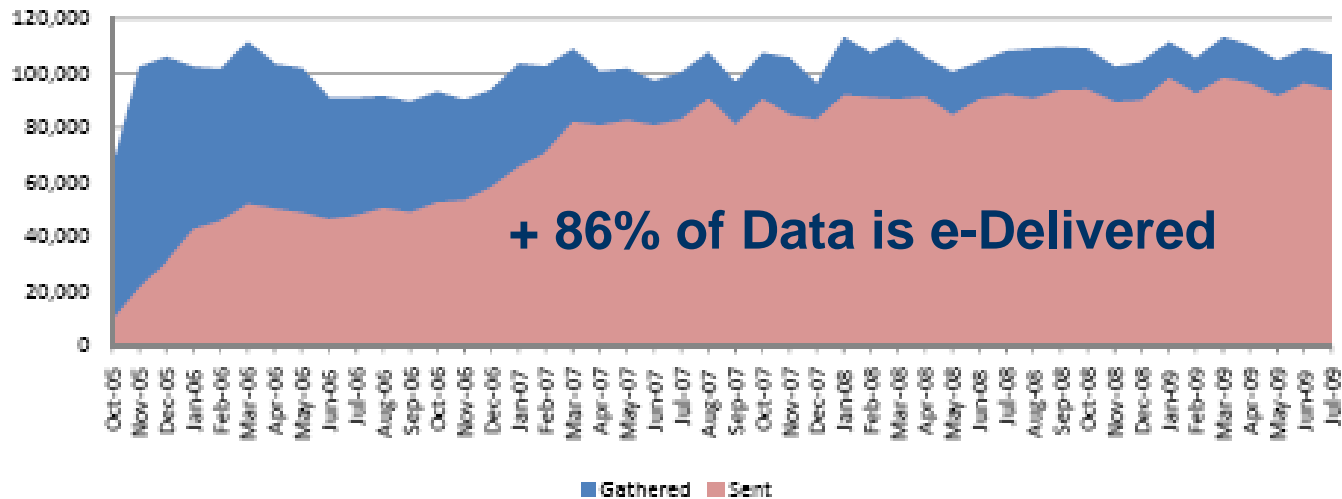
# The Value Proposition

- Healthbridge – Cincinnati, OH Cost Study – 2000
  - Average Result Delivery Cost @ \$.75 each
- QHN Delivery Costs 2008
  - \$.38 each
- One Year Return
  - \$1,110,000.00
- This Return does NOT Factor In:
  - Difference in Cost of Living
  - Inflation
  - Physician Office Efficiency Gains
  - Quality of Care Improvements

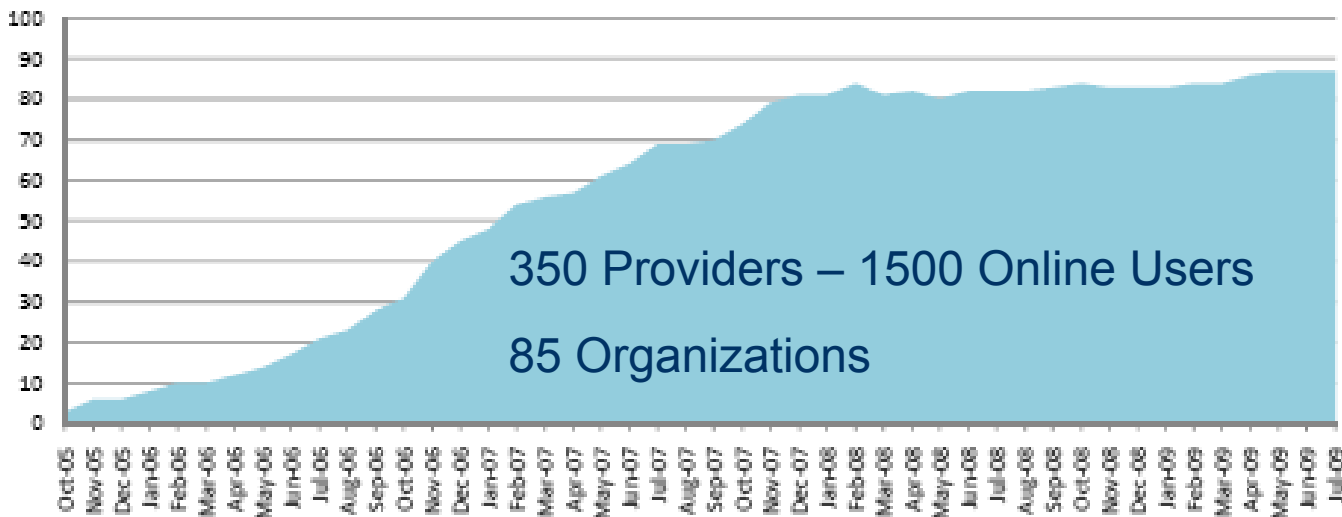
# Additional QHN Value to Physicians

- Physicians
  - Faster Delivery of Results
    - Quicker attention to Patient Problems
  - Less Time Spent by staff looking for Results
    - Lower Administration Costs
  - Fewer Missed Results
    - Fewer Medical Errors

## Process Transformation Electronic Data Delivery--Physician Practices



## Electronic Databases--Provider Practices



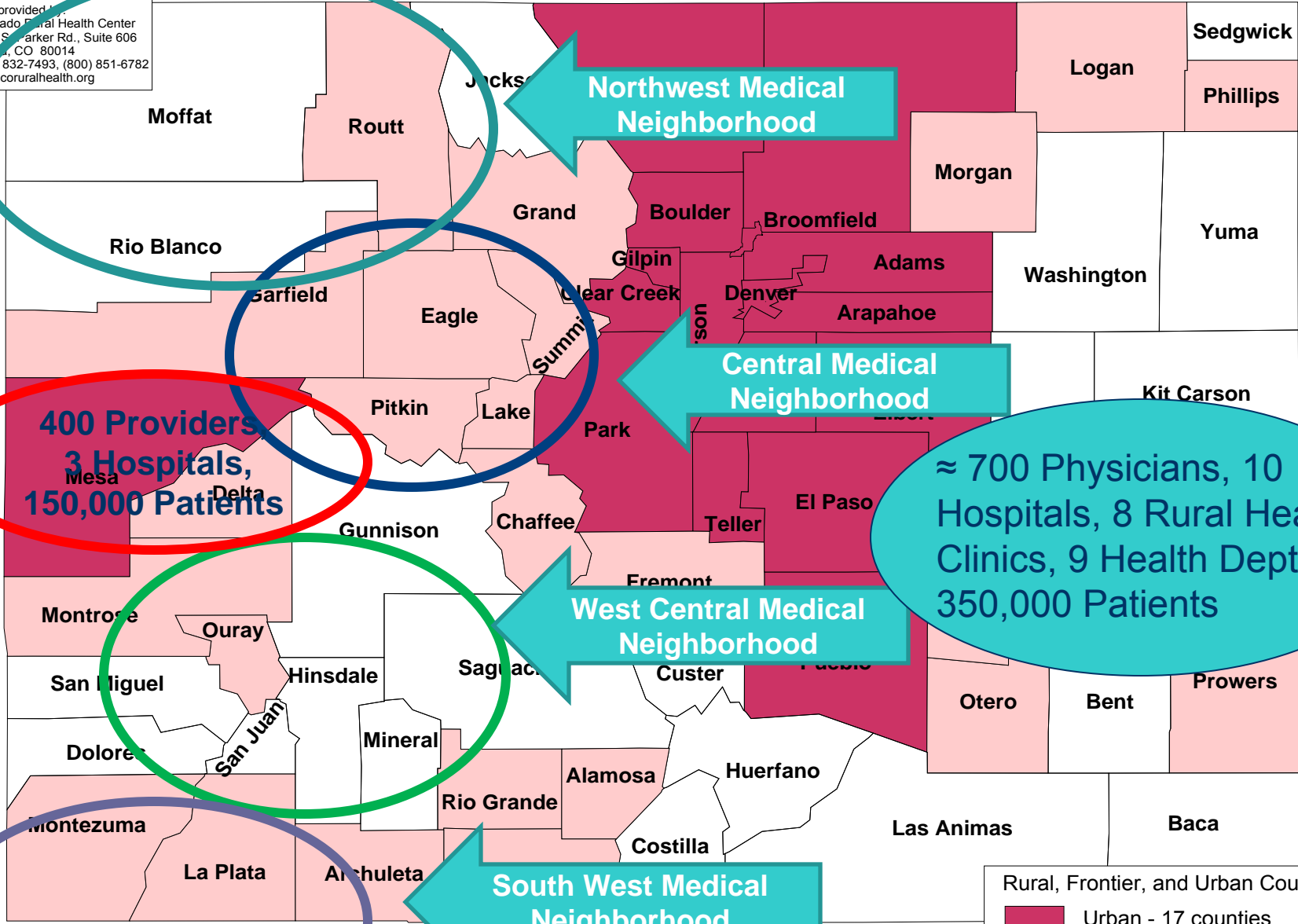
# QHN “Connected” Participants

**300+ Providers – 1500+ online users**

- Acute Care Hospitals
- Ambulatory Care
  - Primary & Specialty Care
- Urgent Care
- Extended Care
- Behavioral Health
- Public Health
- Surgical Centers
- Specialty Hospitals
- Reference Labs
- Home Health
- Pharmacies
- Payer
- Safety Net Providers
- Hospice
- . . . And Many more!

# Western Colorado Medical Neighborhoods

Map provided by:  
 Colorado Rural Health Center  
 3033 S. Parker Rd., Suite 606  
 Aurora, CO 80014  
 (303) 832-7493, (800) 851-6782  
 www.coruralhealth.org



**400 Providers,  
 3 Hospitals,  
 150,000 Patients**

**≈ 700 Physicians, 10  
 Hospitals, 8 Rural Health  
 Clinics, 9 Health Depts.,  
 350,000 Patients**

Please note that counties are technically designated as metropolitan or non-metropolitan, here, "urban" and "rural" serve as proxies for these designations. Frontier counties are a subset of rural counties.

## Colorado's Rural, Frontier and Urban Counties

Rural, Frontier, and Urban Counties	
<span style="display:inline-block; width:15px; height:15px; background-color:#800040;"></span>	Urban - 17 counties
<span style="display:inline-block; width:15px; height:15px; background-color:#FFC0CB;"></span>	Rural - 24 counties
<span style="display:inline-block; width:15px; height:15px; background-color:#FFFFFF;"></span>	Frontier - 23 counties

# QHN Core Competencies

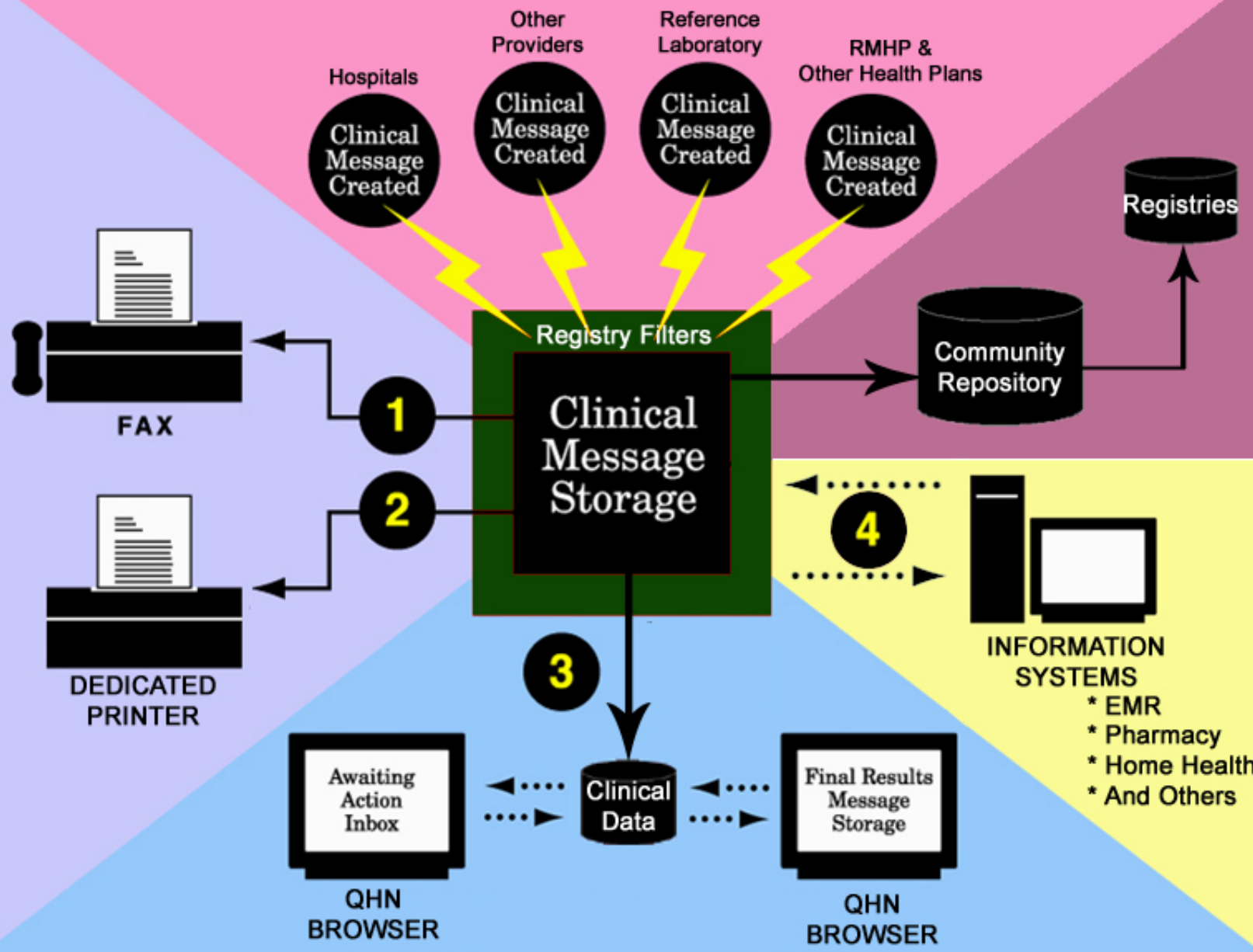
- Clinical Data Shipping & Receiving
  - Secure Provider Communications Network
  - Electronic Medical Record, e-Rx, e-Ordering
- Clinical Data Warehouse & Mining
  - Longitudinal Patient Record
  - Integrated Preventative & Chronic Care Registries
- Workflow & Clinical Support Expertise
  - Electronic Process Management & Support
  - Toyota Lean Process Improvement
- Change Management Experts

# Change: Choice is Important!

- Courier or Fax (Paper)
- Print Reports (Paper) at Location
- Web Access to Data (EMR-Xchange)
  - Mix of print & electronic
  - Move to full electronic
    - Medications, Orders, Referrals, Authorizations
  - Move to Registry
- QHN Data to/from EMR Systems

# QHN Clinical Messaging System Overview

Physician Office



Physician Office, Home, Any Web Access

# The Value of the Data Backload!

- ✓ 24 months back load of lab, radiology and transcription helps physicians!



[Clinical Docs.](#)  
[Patient Index](#)  
[Patient's Results](#)  
[VHR](#)  
[Patient's Rx](#)

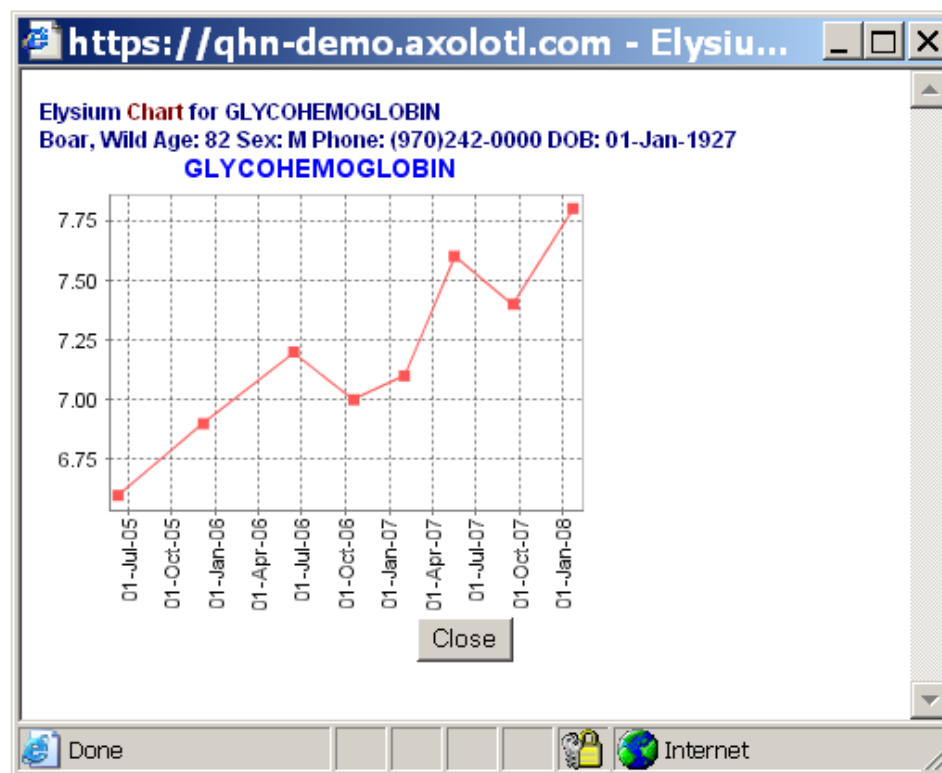
▶ **Boar, Wild** DOB: 01-Jan-1927 Age: 82 Sex: M Phone: (970)242-0000

Group/Element:
 

CBC (Customized)  
 Glucose (Customized)  
 Basic Metabolic Panel  
 Coagulation  
 Comprehensive Metabolic Panel

Time Axis: 
Time Range:

Elements	01/21/08 08:04 AM	09/18/07 06:35 AM	05/17/07 06:28 AM	02/01/07 07:08 AM	10/18/06 07:01 AM	06/14/06 06:35 AM	12/06/05 06:35 AM	06/10/05 07:30 AM	<a href="#">Next</a>
<b>GLYCOHEMOGLOBIN</b>	<a href="#">7.8</a>	<a href="#">7.4</a>	<a href="#">7.6</a>	<a href="#">7.1</a>	<a href="#">7.0</a>	<a href="#">7.2</a>	<a href="#">6.9</a>	<a href="#">6.6</a>	





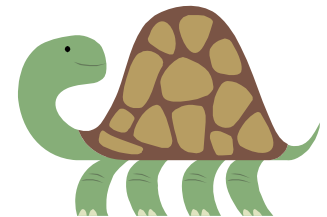
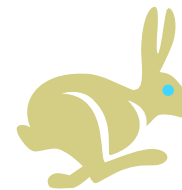
# Auto-processing is **CRUCIAL**

- Too much information is paralyzing...
- Detailed time in work flow planning produces big dividends.



# Timeline to Electronic Ops???

- Too much → → too fast = poor adoption!
  - Incremental Improvement @ Appropriate Pace
- Caution!! Do not overload users.... Know them...  
... pace ... the team!!



- Teach “Provider-MA-Clerical” pods.

# Community Protocol Established for Referrals

## All Parties Request and Agree:

- ✓ A standardized process for creating and responding to referrals is best
- ✓ Each office should have a referral contact person
- ✓ Provide adequate information so both parties can treat the patient!!
- ✓ Use QHN when possible
- ✓ Use fax as second choice
- ✓ Use phone calls when in doubt

## Primary Care Practices Request the Following from Specialty Practices:

- ✓ Date and time of the appointment
- ✓ Notification if the patient was a “no show”
- ✓ Copy of transcription from the specialist, use QHN to cc the PCP!!
- ✓ Outline of the plan of care
- ✓ Communication about who will manage the medications
- ✓ When there are critical issues, pick up the phone and call!

## Specialty Practices Request the Following Information:

- ✓ Patient name
- ✓ Patient demographics
- ✓ Patient Insurance (if known)
- ✓ Diagnosis or symptoms
- ✓ Relevant notes, lab and radiology results
- ✓ Current medications list
- ✓ ICD-9 code, if possible
- ✓ Send in QHN





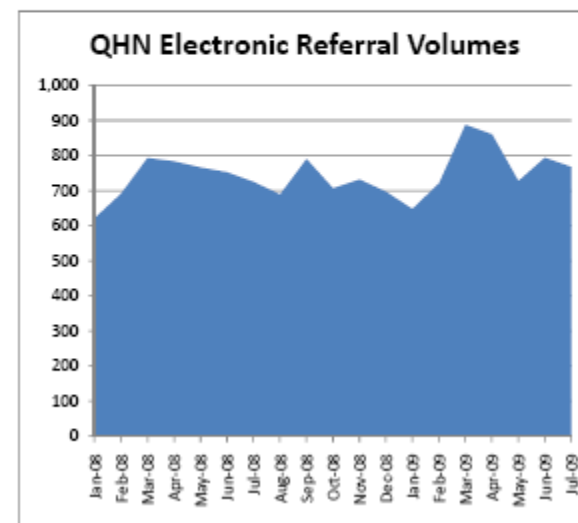
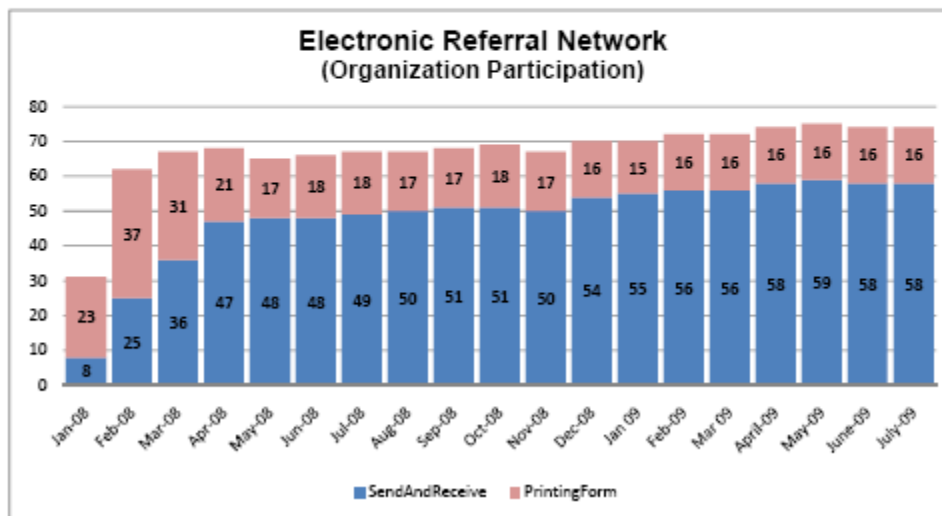
## QHN Results

QHN Confidential

Report for the Month of:

Jul-09

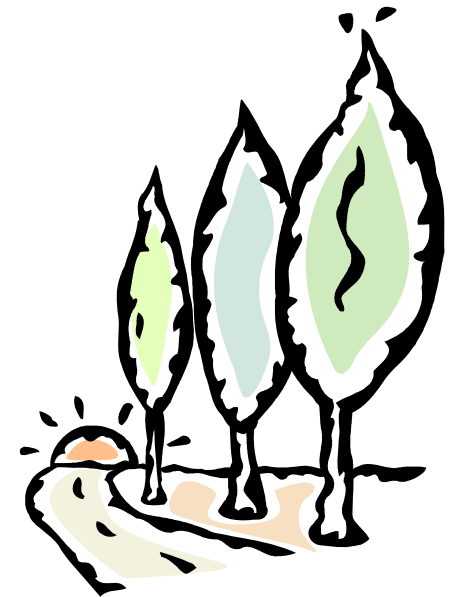
**Improve Provider Access to Data and Improve Patient Safety**



Each “Roundtrip” Electronic Referral (PCP to Specialist back to PCP)  
Can Save Up to 4 Chart Pulls!

# The Road to Registry is . . . . . . “ a long and winding road ”

- Prerequisite: Integrate with Practice Workflow
  - Source data feeds automatically populate registry
    - Lab
    - Rad
    - Transcription – office data is key
  - QHN Chronic Care forms in use
    - Office Encounter Recording
  - E-Rx is preferable



- ▼ All Patients
  - Patients By PCP
  - Patients Sortable List
- ▼ Diabetes Patients
  - Patients by PCP
  - Patients Sortable List
  - BP > 130/80
  - No BP in last 6 months
  - HgA1c > 7
  - No HgA1c in 6 Months
  - LDL > 100
  - No LDL in 14 Months
  - Not taking Aspirin
  - No Eye Exam in 14 Months
  - No Foot Exam in 12 Months
  - No Neph Screening in 14 Months
  - Appt within 3 weeks-Diabetic
- ▼ CVD Patients
  - Patients by PCP
  - Patients Sortable List
  - BP > 130/80
  - No BP in 6 Months
  - LDL > 100
  - No LDL in 14 Months
  - Not Taking Lipid Lowering Meds
  - Not Taking Aspirin
  - Appt within 3 weeks-CVD
- ▼ Asthma Patients
  - Patients by PCP
  - Patients Sortable List
- ▼ Administration

Patient Report    Select all    Make Appt Letters    Make Appt Labels    Make PrePlan Letters

[Previous page](#)    [Next page](#)    [Collapse all](#)    [Expand all](#)

### Diabetic Patients Sortable List

		PCP ▲	Last Name ▲	First Name ▲	MI	Age	Aspirin ▲	BP ▲	BP Date ▲
<input type="checkbox"/>		JNF QHNAdmin	Apple	Candy		51			
<input type="checkbox"/>		JNF QHNAdmin	Boar	Wild		81	Yes	160/99	05/14/2008
<input type="checkbox"/>		JNF QHNAdmin	Chameleon	Lazy		40			
<input type="checkbox"/>		MAJ QHNAdmin	Allen	David	B	83	Yes	125/101	11/06/2008

Exception  
Items  
Indicated

Patient Co-morbidities  
Highlighted

Pre-selected Reports

# Office Staff “works” the Registry!

## Automated Reminder and Word Processing Tools



Select all

Make Appointment Letters

[Previous page](#)

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[Collapse all](#)

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### No HGA1c in last 6 months

	▲ Diab	CHD	Pt. Last Name ▲	Pt. First Name	Pt. MI	Pt. Date of Birth	Phone ▲	Last Appt	Next Appt Estim
<input type="checkbox"/>	»		Booboo	More	S	09/21/1952	4345301	11/13/2007 01:49:00 PM	
<input type="checkbox"/>	»		Test	Patient		01/01/2001	5551212	11/04/2007 08:00:00 AM	4/28/20
<input type="checkbox"/>	»		Test	Meditech		02/02/1902	2225456	11/08/2007 09:31:00 AM	2/6/200



Select all

Make Appointment Letters

[Previous page](#)

[Next page](#)

[Collapse all](#)

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### LDL > 100-Diabetic

	▲ Diab	CHD	Pt. Last Name ▲	Pt. First Name	Pt. MI	Pt. Date of Birth	Phone ▲	LDL Value ⇅	LDL Date ⇅	Glycoh.
<input type="checkbox"/>	»		Home	Goodtobe		01/01/1901	9999999	134 !	12/02/2007	

Editor: M Qhnadmin

▶ Home, Goodtobe ID: RMHP 777 [camp] DOB: 01-Jan-1901 Age: 106 Sex: U Phone: (999)999-9999

[Link to Flowsheet](#)

**Provider:\***

**Date of Service:\***    Time:  :

**Subject:\***

**LEGEND: \* = fields required for healthplan reporting. Form based on CCGC guidelines**

**Shaded boxes: Enter In-Office Labs only - Commercial Labs: See flowsheet**

<b>Blood Pressure:*</b>	<input type="text"/> / <input type="text"/>	Total Cholesterol	<input type="text"/>
Weight:(lbs)	<input type="text"/> <input type="checkbox"/> Refused	Triglycerides	<input type="text"/>
Height:(inches)	<input type="text"/>	HDL	<input type="text"/>
BMI(calculated from H & W)	<input type="text"/>	<b>LDL*</b>	<input type="text"/>
Tobacco Use	<input type="radio"/> No <input type="radio"/> Yes	Comp. Foot Exam	<input type="radio"/> No <input type="radio"/> Yes
Tobacco Counseling	<input type="radio"/> None <input type="radio"/> Level 1-Ask <input type="radio"/> Level 2-Advise <input type="radio"/> Level 3-Assess <input type="radio"/> Level 4-Assist <input type="radio"/> Level 5-Arrange	Foot Exam Comments	<input type="text"/>
<b>Daily ASA*</b>	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Contraind <input type="radio"/> Ticlid <input type="radio"/> Aggrenox <input type="radio"/> Other	Amputee	<input type="radio"/> No <input type="radio"/> Yes <input type="text"/>
Ace Inhibitors	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Contraind	MicroAlbumin	<input type="radio"/> Done <input type="text"/>
ARBs	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Contraind	Albumin/Creatinine	<input type="text"/>

Editor: M Qhnadmin

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[Link to Flowsheet](#)

Provider:\*

MAQ QHNAdmin ▼

Date of Service:\*

Oct ▼ 22 2007 Time: 10 : 33 AM ▼

Subject:\*

Office Note ▼ Regular ▼

**LEGEND: \* = fields required for healthplan reporting. Form based on CCGC guidelines**

Shaded boxes: Enter In-Office Labs only - Commercial Labs: See flowsheet

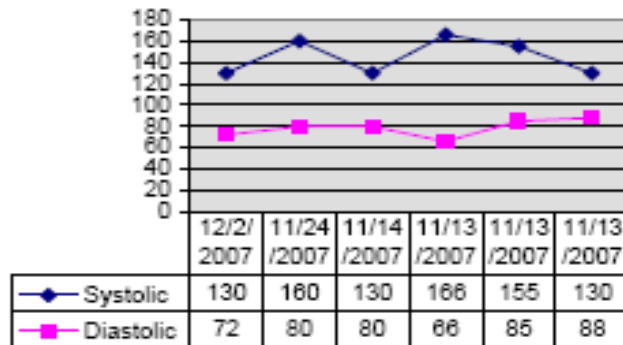
Blood Pressure:*	<input type="text"/> / <input type="text"/>	Total Cholesterol	<input type="text"/>
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BMI(calculated from H & W)	<input type="text"/>	LDL*	<input type="text"/>
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Daily ASA*	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Contraind <input type="radio"/> Ticlid <input type="radio"/> Aggrenox <input type="radio"/> Other	Amputee	<input type="radio"/> No <input type="radio"/> Yes <input type="text"/>
Ace Inhibitors	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Contraind	MicroAlbumin	<input type="radio"/> Done <input type="text"/>
ARBs	<input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> Contraind	Albumin/Creatinine	<input type="text"/>

# Patient Care Report

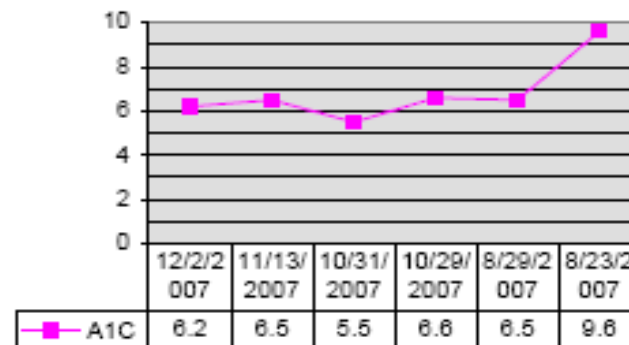
## Diabetes

**Patient:** Goodtobe Home  
**Birth Date:** 1/1/1901  
**Physician:** Jones

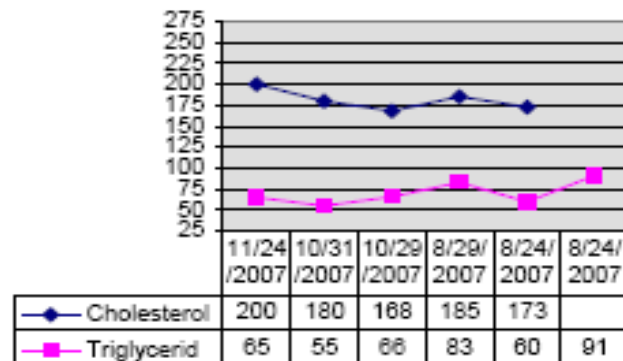
**Blood Pressure**  
 Goal is less than 130/80



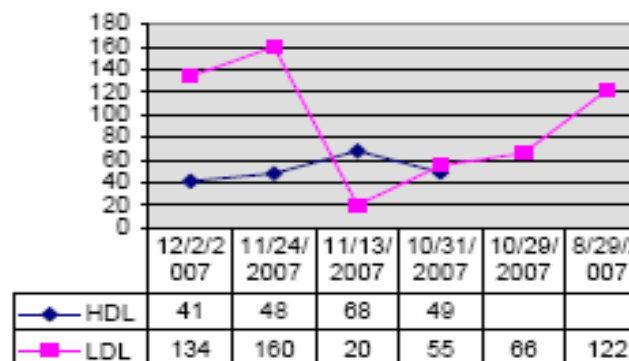
**Hemoglobin A1c**  
 Goal is less than 7



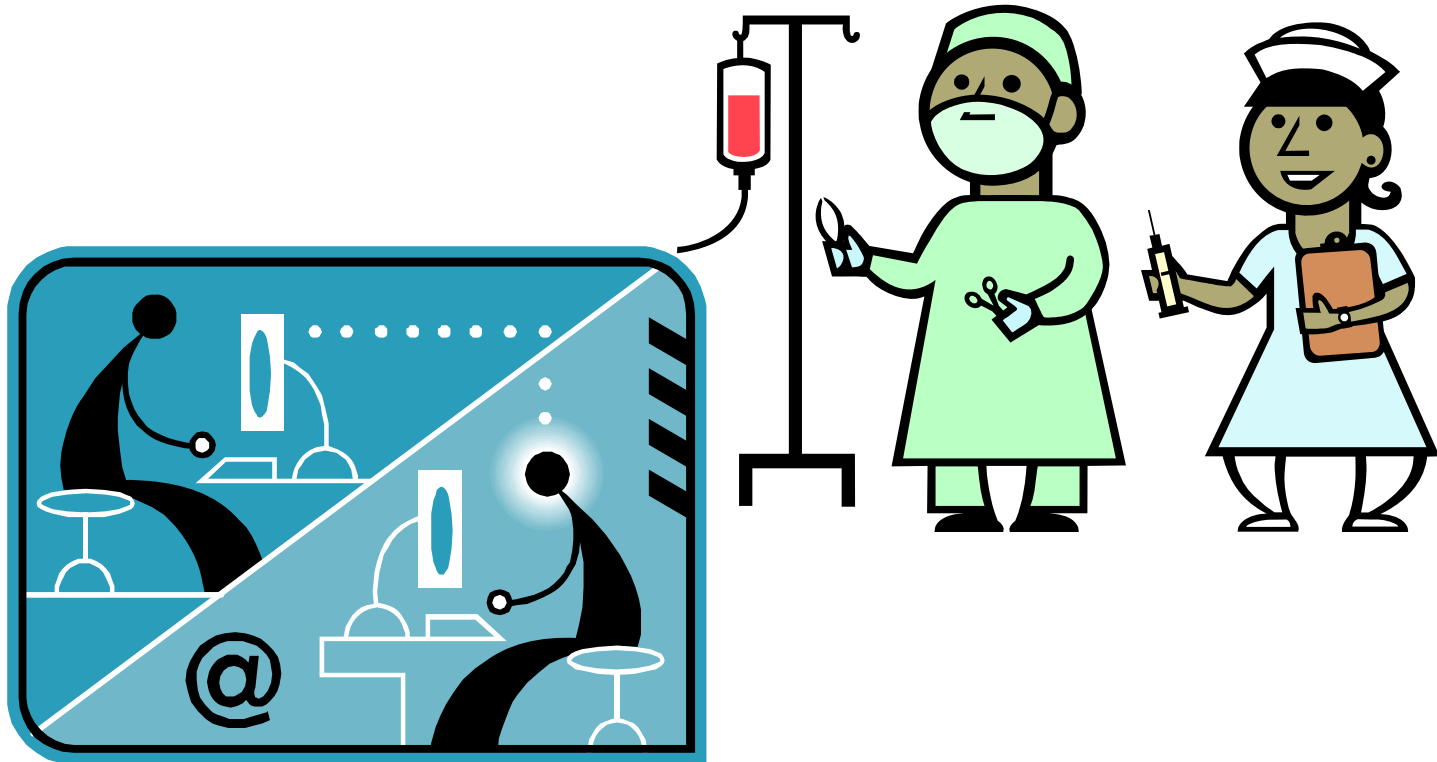
**Total Cholesterol: Goal is < 200**  
**Triglycerides: Goal is < 150**



**HDL (Good Chol.): Goal is > 45 for men, 55 or higher for women**  
**LDL (Bad Chol.): Goal is < 100**



# Physicians and Staff are the “Key Ingredients”





# Regarding the Stimulus Package:

“It would be breathtakingly stupid to put health care data on the computer and end up with the same sets of isolated, inaccessible, non-interactive information silos we have now with paper medical records.

We need all of the information about each patient. We need that information all of the time – whenever and wherever care is being delivered.”

George Halvorson,  
Kaiser CEO  
HIMSS Conference  
April 2009

## 2006 Dartmouth Atlas Conclusion

- “if utilization patterns across the country were to mirror those in an area like Mesa County, Medicare spending would be reduced by \$34.3 Billion”

# Leadership and Culture Change



# *Thank You! – Questions?*



**QUALITY  
HEALTH**

**N•E•T•W•O•R•K**

Improving care through shared technology