

# **NEW MEXICO HEALTH INFORMATION COLLABORATIVE: BUILDING A VIRTUAL DATA WAREHOUSE**

Disease Management Colloquium  
Session: Tools and Technologies for  
Disease Management

Margaret Gunter, PhD  
Lovelace Clinic Foundation



Lovelace Clinic Foundation

# PRESENTATION OVERVIEW

- Introduction of New Mexico Health Information Collaborative (NMHIC)
- Early Lovelace Disease Management program
- Lovelace Clinic Foundation overview and community emphasis for data sharing
- Detailed description of New Mexico Health Information Collaborative
- Next Steps



# NEW MEXICO HEALTH INFORMATION COLLABORATIVE (NMHIC)

- \$1.5 million grant awarded from the Agency for Health Services Research and Quality
- \$1.5 million additional funding in cash and in-kind raised locally
- One of a few of over 1000 applications fully funded at the \$3 million level
- Legislative appropriation through UNM Health Sciences Center in 2005 Session



# NMHIC PROJECT TEAM

Project Director/PI

Medical Director

Project Manager

Technical Lead

Clinical Lead

Business Advisor

Evaluation Lead

Programmer Analyst

Data Analyst

Administrative Assistant

Maggie Gunter, PhD

Bob White, MD

Diane Fields, LISW/CCM

Tracy Smith, LCF/CIO

Shelley Carter, RN, MPH

Darwin Harrison, LCF/CFO

Eva Lydick, PhD

Kent Langsteinter

Jason Short

Kathy England



# NEW MEXICO HEALTH INFORMATION COLLABORATIVE

- A community-wide effort to build a health information exchange to allow the sharing of timely and privacy-protected health care information among health systems and plans in Bernalillo and Taos counties
- Patients – web-enabled access to enhance self-management
- Providers – cross-system access to comprehensive information at point of service
- Employers – aggregate reports to inform worksite health promotion programs
- Initial data sources – claims and encounter data



# BACKGROUND

- Lovelace Episodes of Care® pioneering disease management program (1993 – 2000)
- Focus on provider education, reminders, feedback
- Exciting time, positive outcomes
- Issues of sustainability
  - Large-scale funding ended
  - Lack of integration into Quality department
  - No clinical decision support system to help assure ongoing reinforcement and sustainability



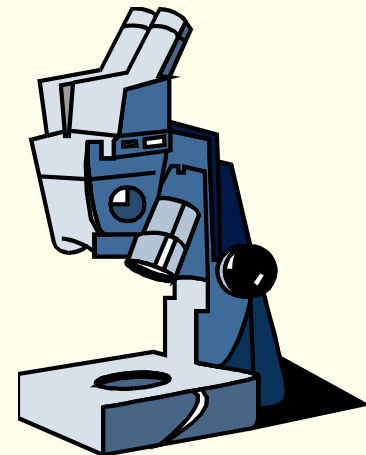
## BACKGROUND (cont.)

- Current status
  - Some remaining disease management programs in delivery system (diabetes, asthma, anticoagulation clinic)
  - Health plan more active now – diabetes, asthma, tobacco cessation, COPD, lipid telemanagement, CHF telemanagement



# LOVELACE CLINIC FOUNDATION OVERVIEW

- Incorporated December, 1990
- Type: 501(c)(3) tax-exempt, non-profit New Mexico corporation
- Purpose: health care delivery research, medical education, and environmental health research





# LOVELACE CLINIC FOUNDATION DIVISIONS

- Health Services Research
- Medical Education
- Environmental Health Research
- Community Outcomes Initiatives



# EXPANDING FOCUS AT LCF

- Continuing close relationship with Lovelace Health Plan and Lovelace Delivery System
- But – recent expansion into the community – research across health systems (2001 on)
- Medicare Case Management Demonstration (diabetes and CHF)
  - 3 locally competing health systems enrolled patients
    - Lovelace, Presbyterian, St Joseph's
- Community expansion made fiscal sense and fit our non-profit mission



# IMPETUS FROM LCF COMMUNITY BOARD

- Historical Board – mostly Lovelace physicians
- Expanded Board – added banker, Intel, Majority Leader of NM House of Representatives, University of New Mexico
- Expanded Board (employers especially)
  - Why is healthcare so behind in IT?
  - Why aren't all the health systems sharing data?
  - Can LCF help address this issue?



# EMERGING ANSWER

- Establish a cross-system community-wide health information exchange
- Benefit and empower providers, patients, employers (eventually policy makers and researchers)
- Support community-wide disease management program



# **NEW MEXICO HEALTH INFORMATION COLLABORATIVE**

## **VISION**

To provide a sustainable statewide health information exchange that transforms health care quality, safety, efficiency and outcomes.



# **NEW MEXICO HEALTH INFORMATION COLLABORATIVE**

## **MISSION**

To create a community-wide health information exchange organization that is sufficiently trusted and valued by all stakeholders (employees/patients, employers, physicians, health systems and health plans) to improve care coordination and create a foundation for sustainability



# HEALTH REGISTRY

- General Health Registry
  - Laboratory results
  - Pharmacy data
  - Encounter data
- Disease-Specific Health Registry
  - Diabetes – Practice Guidelines, trends in HA1c and lipid profiles
  - Pediatric Asthma – Practice Guidelines, use of medications, use of acute health services



# PARTNERSHIPS

- All Albuquerque Hospitals, Health Systems and Health Plans
- Major Albuquerque Employers such as Intel, PNM, Wells Fargo, Don Chalmers, etc.
- United Way, McCune Foundation
- All Major New Mexico Medical Associations
- Albuquerque Public Schools
- Taos Community Hospital and Physicians - rural pilot





# GOALS

- Lay groundwork and cooperation for a full healthcare data information exchange for *ALL* of New Mexico
- Improve the care and outcomes for 2 diseases
- Advance a culture of personal health responsibility
- Assist in controlling the healthcare cost spiral through increasing implementation of information technology to healthcare
- Make New Mexico a model for the nation in healthcare information technology innovation
- Collaboration with other state-wide HIT projects and assist in the development of a NM RHIO
- Position NM for future HIT grants to continue infrastructure development



# COUNCILS AND GOVERNANCE

- Initiator and Grant Awardee- Lovelace Clinic Foundation
- Steering Committee made up of data sharing partners and other stakeholders
- Steering Committee eventually becomes the community governance mechanism for the NMHIC
- Clinical Councils by disease to develop standards of care and review web site materials
- Workplace Council to assist in development of health promotion/disease prevention tools and materials in the workplace



# EARLY TASKS AND CHALLENGES

- Scope of project
  - Managing expectations
  - Short-term achievable goals vs. long-term vision
  - Sequential vs. comprehensive rollout
  - Lessons learned from other projects
- Issues around data sharing
  - HIPAA/Privacy/Security
  - Sharing data with competitors
  - IT Architecture
    - Repository vs. Distributed Database Model
- Sustainable Business and Governance Model



# NMHC TECHNICAL OVERVIEW

- HIPAA compliant for both security and privacy
- Compliant with State privacy laws
- Access secured patient data
  - Correct and comprehensive information
  - Timely manner
  - Appropriate format
  - Irrespective of location
- Create an information sharing infrastructure and environment acceptable to all stakeholders and data providers
- Initial version utilizes existing data sources (e.g., Claims, Encounter, Laboratory, Pharmacy)
- Web-based access model
  - Access to comprehensive individual patient information across health systems
  - Provider access at Point of Service (including school nurses)
  - Patient Portal
- Patient matching software (CDC product – Link Plus 1.0)



# GENERAL FEATURES

- Security

- SSL 128Bit Encryption
- User login (logout – slow down)
- User registration and authentication process
  - Provider Verification
  - Patient self registration
- Role-based security →
- Independent review
  - External consultants
  - Privacy and security officer audits

- Patients
- Providers
- School Nurses
- Employers
- Administrators



# VIRTUAL DATA WAREHOUSE STRUCTURE

- No centralized data repository
- Data accessed only at time of request
- Utilization data returns to source
- Site maintains control of data
- Minimal centralized data
  - Demographics and/or identifiers needed to build master patient and provider indexes



# VIRTUAL DATA WAREHOUSE STRUCTURE

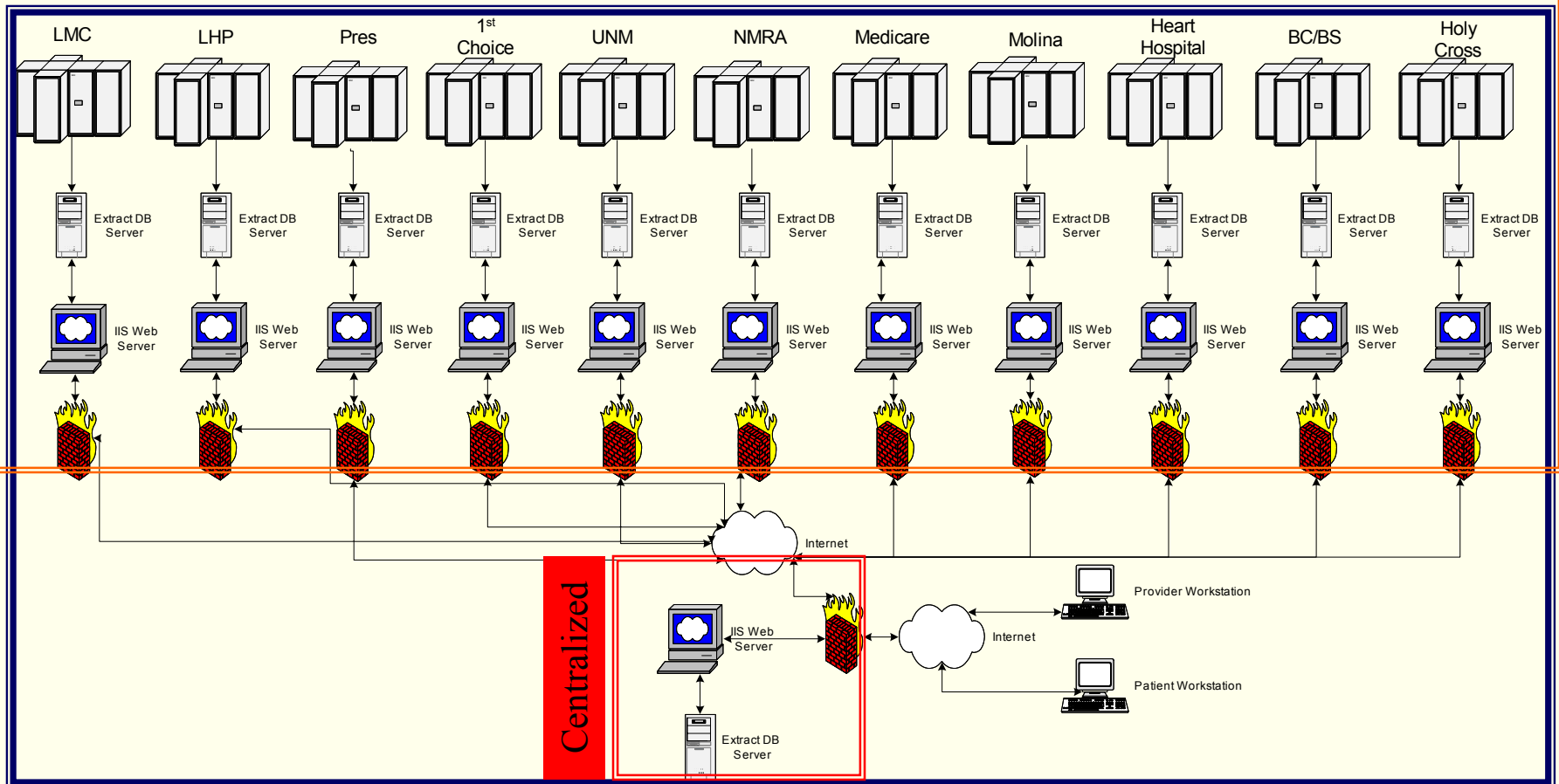
- Similar terms
  - Distributed Database
  - Peer-to-Peer Networks
  - Decentralized
  - Virtual Data Warehouse
  - Federated Database



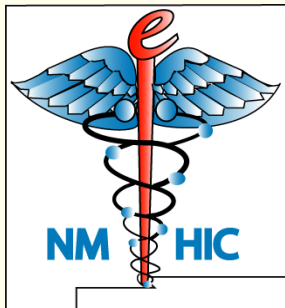
# Network Architecture

Located at individual sites

- Little Centralization
- On Demand only
- Web Services
- HL7







# LOGIN SCREEN

Login

Username:

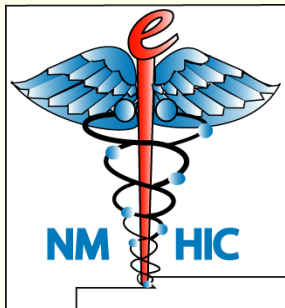
Password:

*Need to enroll? Click [here](#)!*

## New Mexico Health Information Collaborative

A new grant initiative has been awarded to foster the development of community-based medical information sharing. Lovelace Clinic Foundation (no legal or structural relationship to Lovelace Sandia Health System), a not for profit health services research organization, applied for and received a grant for \$3 million over three years (\$1.5 million from the Agency for Healthcare Services Research and Quality [AHRQ] and \$1.5 million matching and in-kind locally, some of which came from UWCNM's Corporate Cornerstone Special Initiative funds).

The funding established the "New Mexico Health Information Collaborative", which will build a disease management data warehouse focusing on diabetes, pediatric asthma, low back pain, and depression. It will create registries with appropriate HIPAA security and protections, and enable providers to obtain appropriate claims-based information on medications, lab results, and acute occurrences (ER visits, admissions, etc.). This will be particularly helpful to ER physicians and school nurses who encounter acute breathless children and often have no baseline or medication information to assess and treat them.



# ENROLLMENT SCREEN

## *Enrollment*

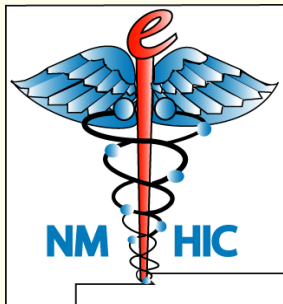
Provider Assigned Key:	<input type="text"/>
Medical Record Number:	<input type="text"/>
Social Security Number:	<input type="text"/>
Healthplan Member ID:	<input type="text"/>
Date of Birth:	<input type="text"/>
Address:	<input type="text"/>
Address:	<input type="text"/>
City:	<input type="text"/>
State:	<input type="text"/>
Zip:	<input type="text"/>

***At least three of the following are required in order to enroll:***

- Provider Assigned Key
- Medical Record Number
- Social Security Number
- Healthplan Member ID
- Date of Birth
- Current Mailing Address

**Submit**





# PASSWORD CREATION SCREEN

## *Enrollment*

Please enter a username and password. Usernames must be at least 8 characters long. Passwords must be at least 6 characters long. Both can be comprised of letters and/or numbers.

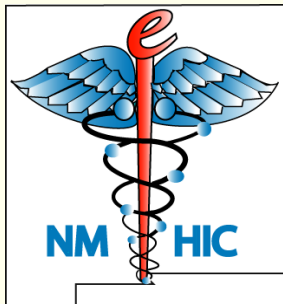
Username:

Password:

Re-enter Password:

**Submit**





# PATIENT DISEASE GUIDELINE SCREEN

Asthma

Diabetes

## **Patient Guidelines**

### ***Asthma Standards of Care***

Asthma is a condition that affects the air passages of the lungs. It is a two-step problem:

- When a person has asthma, the air passages are inflamed, which means that the airways are red and swollen.
- Inflammation of the air passages makes them over extra-sensitive to a number of different things that can "trigger," or bring on, asthma symptoms.

During breathing, air is normally brought in through the nose. After being warmed, filtered, and humidified as it passes through the throat and into the windpipe, called the trachea (TRAY-kee-a). The trachea divides into two large tubes called the right bronchus (BRONG-kus) and left bronchus. These then split up into much smaller tubes, which in turn branch into thousands of very small airways called bronchioles (BRONG-kee-olz). It is the large and small bronchi that are generally affected in asthma.

When a person is exposed to one of these irritants, or triggers, the oversensitive air passages react by becoming narrower, swollen, and even more inflamed. This obstructs airflow to and from the lungs and makes it very difficult for the person to breathe.





12:14

Logoff

# PROVIDER MEDICAL DATA SCREEN

Lab

Pharmacy

Diagnosis

Procedure

## *Provider Area*

Patient Search

**Medical Data**

Demographics

Health Status Monitoring

Healthplan Information

**Smith, Jonathan Eric**  
**DOB: 08/01/1967**

Lab



Pharmacy



Diagnosis

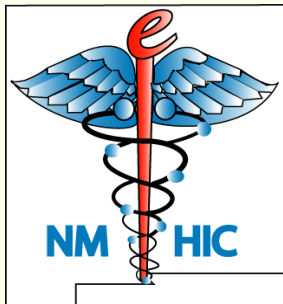


Procedure



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# PROVIDER HEALTHPLAN INFORMATION SCREEN

12:14

Logoff

Medical

Dental

Vision

Pharmacy

Contact  
Info

## *Provider Area*

Patient Search

Medical Data

Demographics

Health Status Monitoring

**Healthplan Information**

**Smith, Jonathan Eric**  
**DOB: 08/01/1967**

Medical



Dental



Vision



Pharmacy



Contact



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12:14

Logoff

# PROVIDER HEALTH TRENDING SCREEN

Weight

**BMI**

HgA1c

Cholesterol

Asthma  
Incident

## *Provider Area*

Patient Search

Medical Data

Demographics

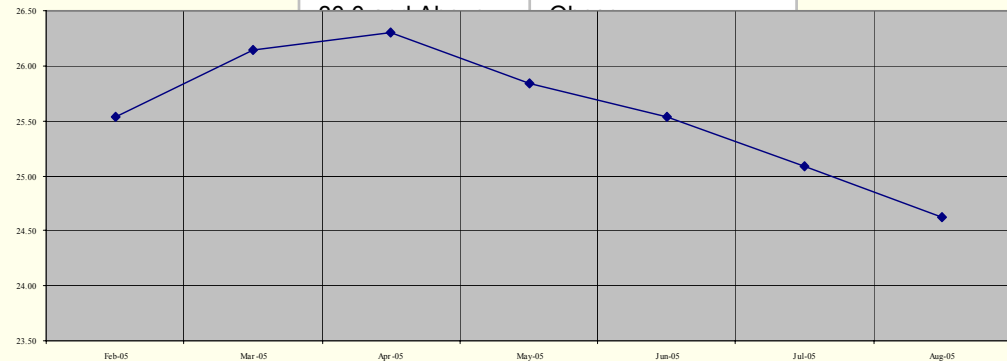
**Health Status Monitoring**

Healthplan Information

**Smith, Jonathan Eric****DOB: 08/01/1967**

## *Health Status Monitoring*

BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0 – 34.9	Obese
35.0 – 39.9	Extremely Obese
40.0 and above	Severely Obese



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# HEALTH STATUS MONITORING

Patient Search - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Reload Home Search Favorites

Address http://localhost/DotNetNuke/Default.aspx?tabid=65 Go Links

## NMHIC

New Mexico Health Information Collaborative

Home Provider Area Medical Guidelines NMHIC FAQ Privacy Statement Logout

Monday, January 24, 2005 Patient Search Search Provider One

Aggregate Reports Value Range Over Time Value Range By Grouping

Claims History Address

1265796

Hemoglobin A1C

Refresh

Reading Date	Reading Type	Value 1	Value 2
3/1/2004	HGAC	9.6	
6/11/2004	HGAC	9.2	
9/15/2004	HGAC	8	
12/10/2004	HGAC	7.3	

Enter Data

Date:

Time:

Reading Type: Blood Pressure (Sys)

Value 1: Submit

Value 2: Help Info

HA1C

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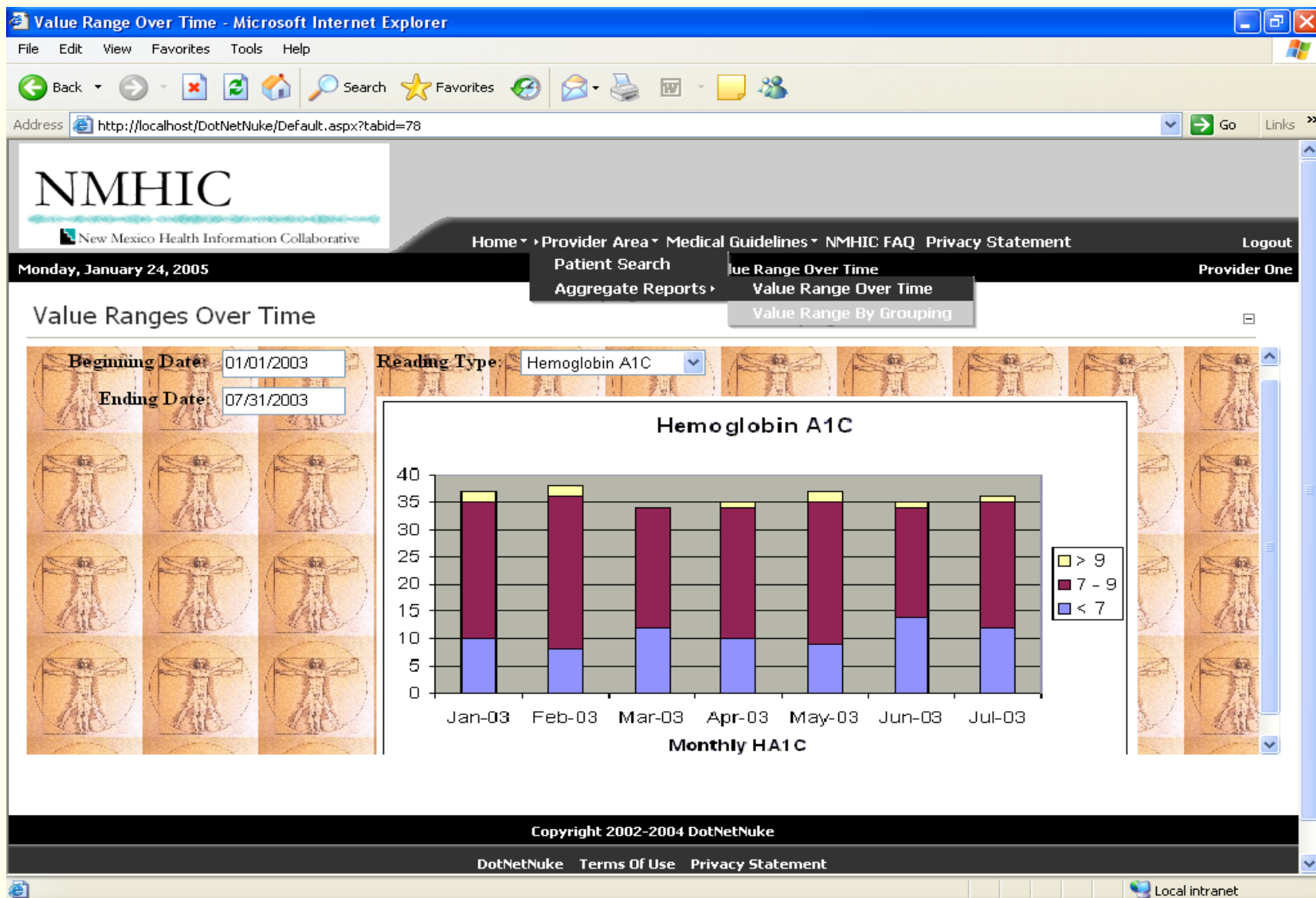
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Done Local intranet



# AGGREGATE DATA



# EVALUATION COMPONENTS

- Patient usage and satisfaction
- Provider usage and satisfaction
- Implementation process evaluation (technical, clinical, governance, etc.)
- Impact on disease-specific indicators
- Employer use and satisfaction
- Sustainable business model
- Ongoing governance structure



# NEXT STEPS

- Negotiate data sharing agreements
- Finalize design and scope of Version 1
- Define focus of initial implementation and training
- Initial reliability testing of master patient and provider index
- User review of initial web page designs



# ***NMHIC is just the Seed!***



**For the New Mexico Health  
Information Technology Tree to  
grow and achieve its promise...**

**We need to keep investing**



# QUESTIONS AND FURTHER INFORMATION

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