



# eHealth in Utah:

## Improving Patient Care Through Health Information Exchange

AHRQ Patient Safety and Health IT  
Annual Conference, June 2006

“From nearly anywhere in the world, we can withdraw money from our bank accounts, pay bills, apply for a mortgage, book airline tickets and even order groceries online. But more often than not, we can’t share an X-ray digitally from one hospital to another, even if they are on opposing street corners.”

*Michael Leavitt, Secretary for the U.S. Department of Health and Human Services (Former Utah Governor)*

# Benefits of eHealth

- Improve access to care
  - Remote diagnosis
  - Long distance consultation
- Improve quality of care
  - Clinicians access complete patient information for better quality, continuity of care
  - Reduce errors
  - Decision support systems
- Reduce cost of care
  - Reduce unnecessary tests
  - Reduce administrative/reporting burden
  - Improving quality reduces overall cost of care

eHealth = Utah?

# eHealth = Utah

- Goals:
  - Electronic medical records for all patients
  - Inter-connected information systems
  - Timely public health surveillance
  - Robust Regional Health Information Organization (RHIO)

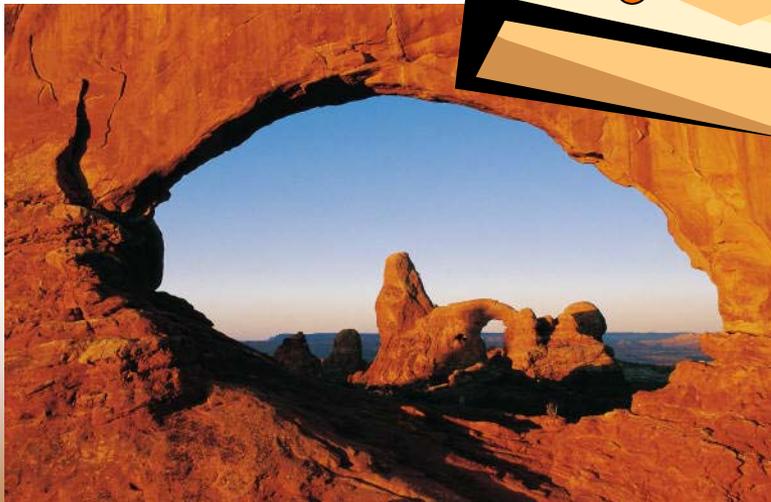
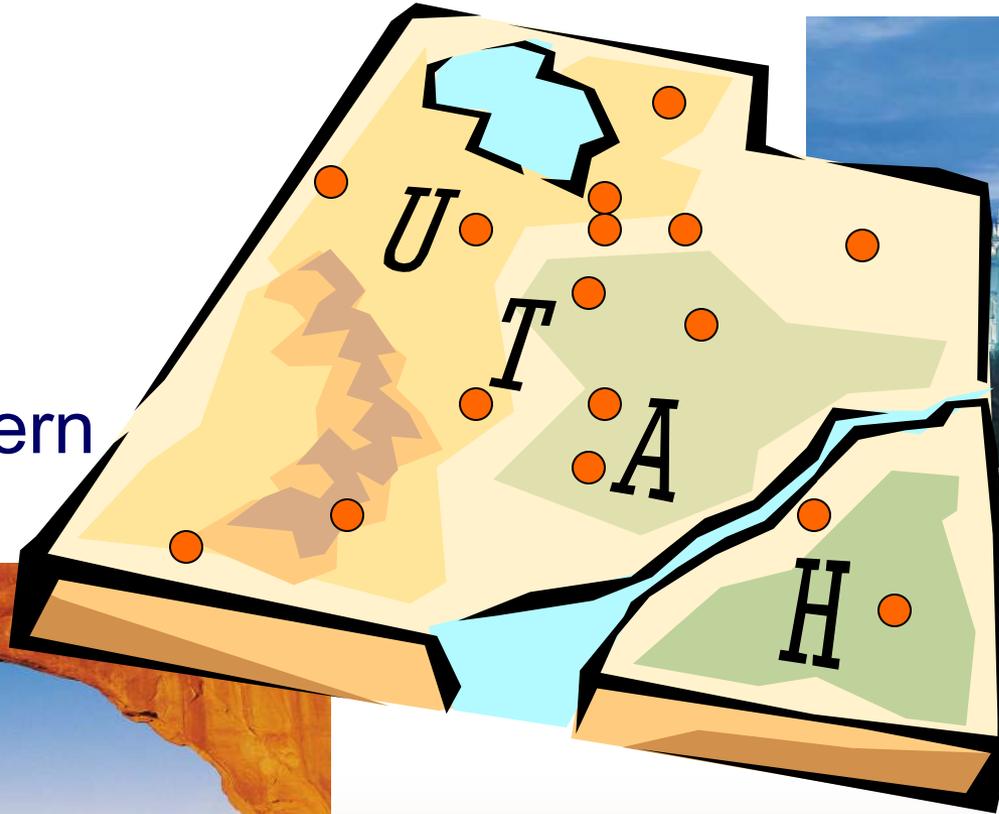
# Where We Are:

- Functioning, self-sustaining RHIO  
(the Utah Health Information Network - UHIN)
  - Statewide network
    - 90+% of all UT providers
    - All Medicaid health claims
  - Not for profit
  - In operation since 1993
  - Federated Community Model (all included)
    - Standards-based
    - No centralized data storage

# UHIN: Linking Communities

To Salt Lake City

From Southern  
Utah



And all points between. . .

# Where We Are:

- UHIN *eCoverage*
  - 3rd Party payers' claims (450+ payers)
  - Medicaid and Medicare
  - Hospitals (100%)
  - Physicians/clinics (85-90%)
  - Laboratories (100%)
  - Local health departments (100%)
  - Mental health centers (100%)
  - Chiropractics (90%)
  - Dentists (some)

# UHIN Clinical Pilot Projects (beginning *now*)

- Discharge summaries
  - Hospitals to physicians
- History and physical
  - Physicians to hospitals; hospitals to physicians, referrals
- Laboratory results
  - Labs to physicians/pharmacies,
- Medication histories
  - Payers to physicians, hospitals, & pharmacies

# Moving to 'Clinical' Exchanges

- Goal: Move health care into electronic health information exchange (HIE)
  - Fact: Majority of health care still uses paper
    - Allow pdf
  - Fact: Need to move to formatted messages
- Objectives:
  - Create an evolutionary EDI path that allows paper (via pdf) but encourages user to migrate to formatted files (HL7, NCPDP, etc.)

# Where We Are:

- USING DATA for patient safety, quality reporting
  - Utah's 2002 AHRQ grant
  - Quality Indicators
  - Samore, Bateman, et al., JAMA 2005

# 8<sup>th</sup> Leading Cause of Death

Leading Causes of Death and Estimated Medical Injuries That Contributed to Death: Utah, 2001

<b>Cause of Death</b>	<b>Deaths</b>
1 Diseases of heart	2,875
2 Malignant neoplasms	2,304
3 Cerebrovascular diseases	867
4 Unintentional injuries	631
5 Chronic lower respiratory diseases	522
6 Diabetes mellitus	509
7 Influenza and pneumonia	412
<b>Medical injuries that contributed to deaths (estimate)</b>	<b>407</b>
8 Intentional self-harm (suicide)	316

Source: The Final Report of the Utah/Missouri Patient Safety Consortium (AHRQ Grant No. H11885).

# 3<sup>rd</sup> Leading Reason for Hospitalization

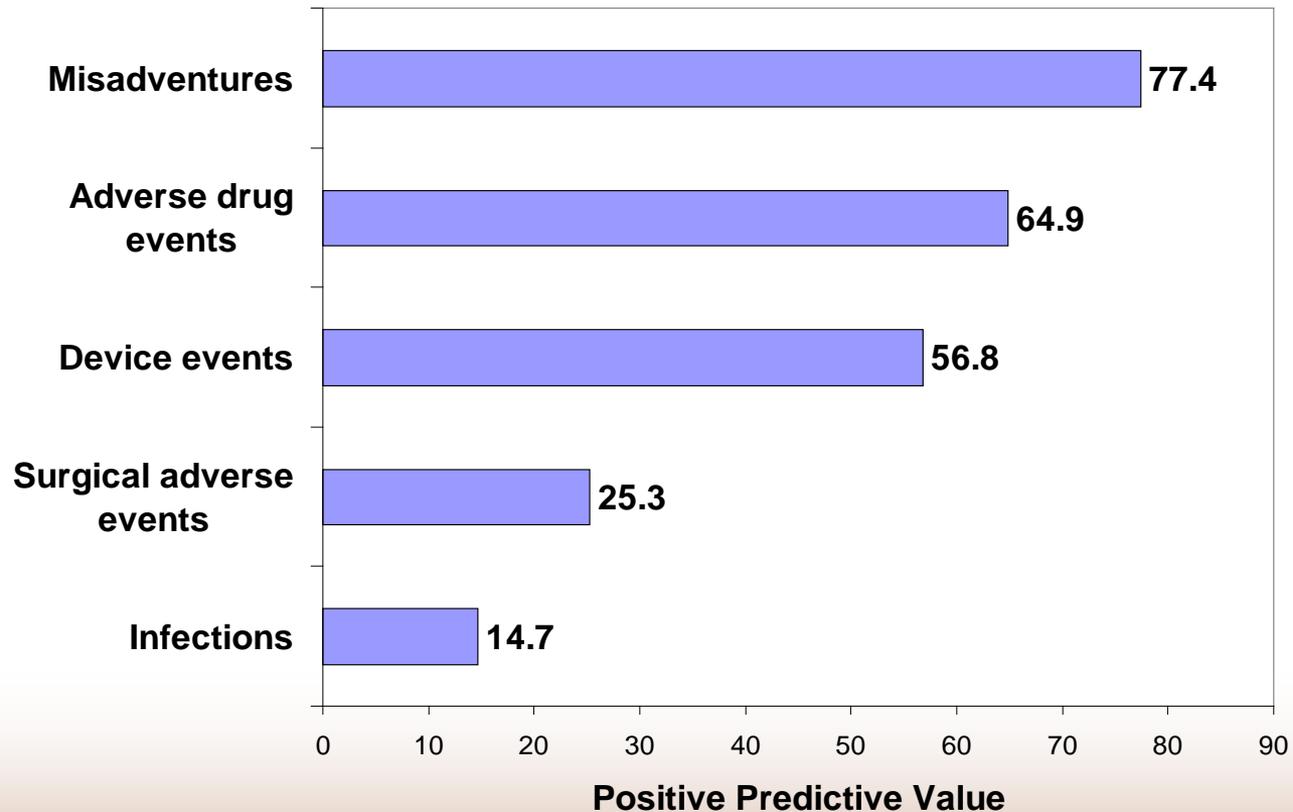
Leading Reasons for Hospitalization and Estimated Adverse Events (AEs) That Led to Admission Among 41 Utah Acute Care Hospitals: 2001

Major Diagnosis Category (MDC)	Discharges
1 Pregnancy, childbirth and puerperium	50,445
2 Newborn and other neonates (perinatal period)	49,139
<b>AEs that led to admissions (estimate)</b>	<b>25,918</b>
3 Circulatory system	24,559
4 Musculoskeletal system and connection tissue	19,887
5 Digestive system	16,624
6 Respiratory system	16,123

Source: The Final Report of the Utah/Missouri Patient Safety Consortium (AHRQ Grant No. H11885).

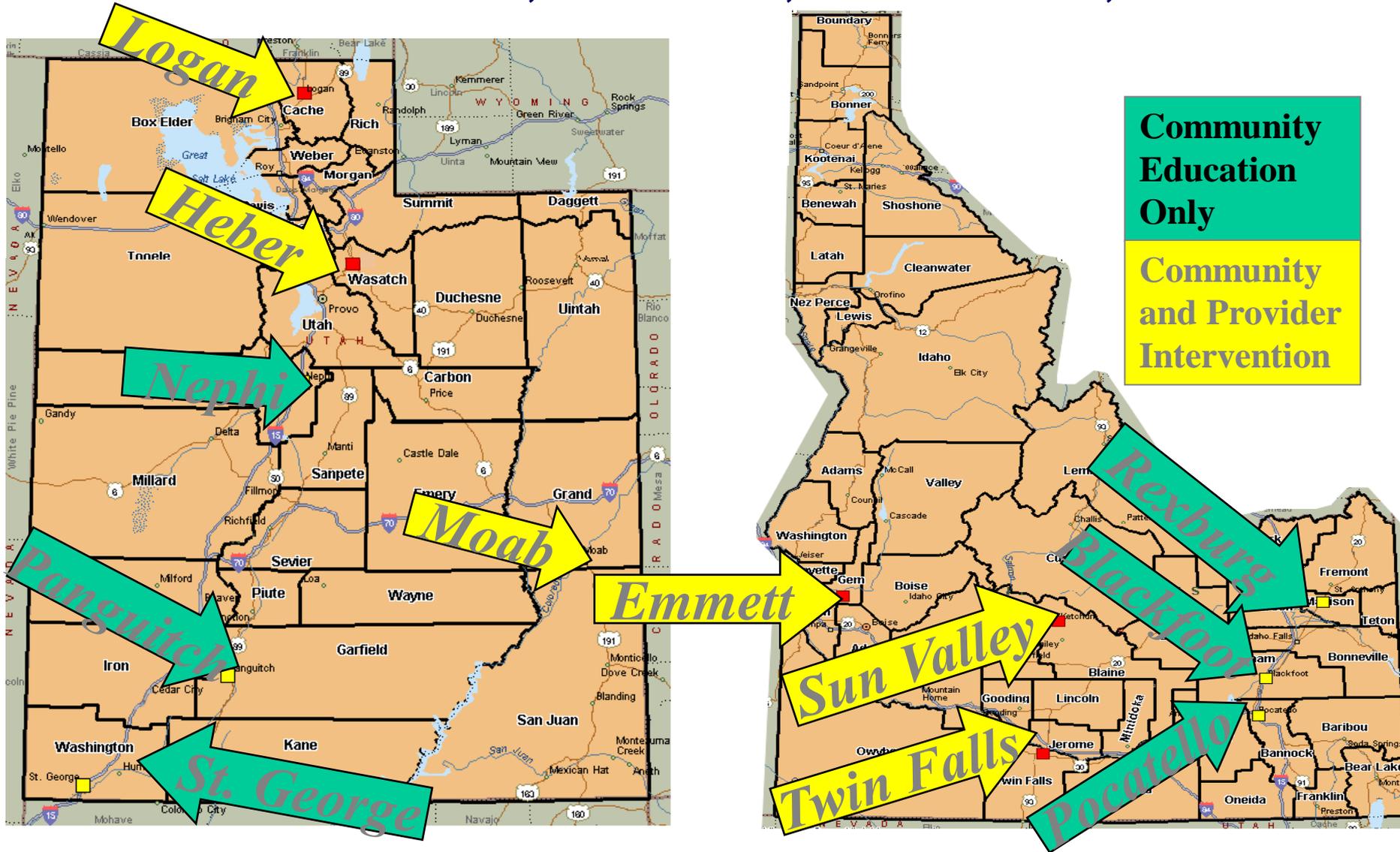
# Using Administrative Data for Detecting Adverse Events

Positive Predictive Values of ICD-9 Adverse Event Codes



Source: The Final Report of the Utah/Missouri Patient Safety Consortium (AHRQ Grant No. H11885)

# Clinical Decision Support & Appropriateness of Antimicrobial Prescribing: A Randomized Trial in Utah and Idaho -- Samore, Bateman, et al. JAMA, 2005



### Respiratory infection v3.13.02

- Lower respiratory infection
- Upper respiratory infection

Age Group:

- Adult (18+ years)
- Pediatric

Restart

Next->

Navigation area with icons: Home, List, Search, and a numeric keypad (123).

### Signs and Symptoms

Suspect strep throat

Strep signs (check all that apply)

- Temp > 101 degrees F or Hx
- Exudate
- Tender nodes
- No cough or coryza

- Hx of rheumatic fever
- Documented household exposure (4 hrs close contact w/in 4 days of sx onset)

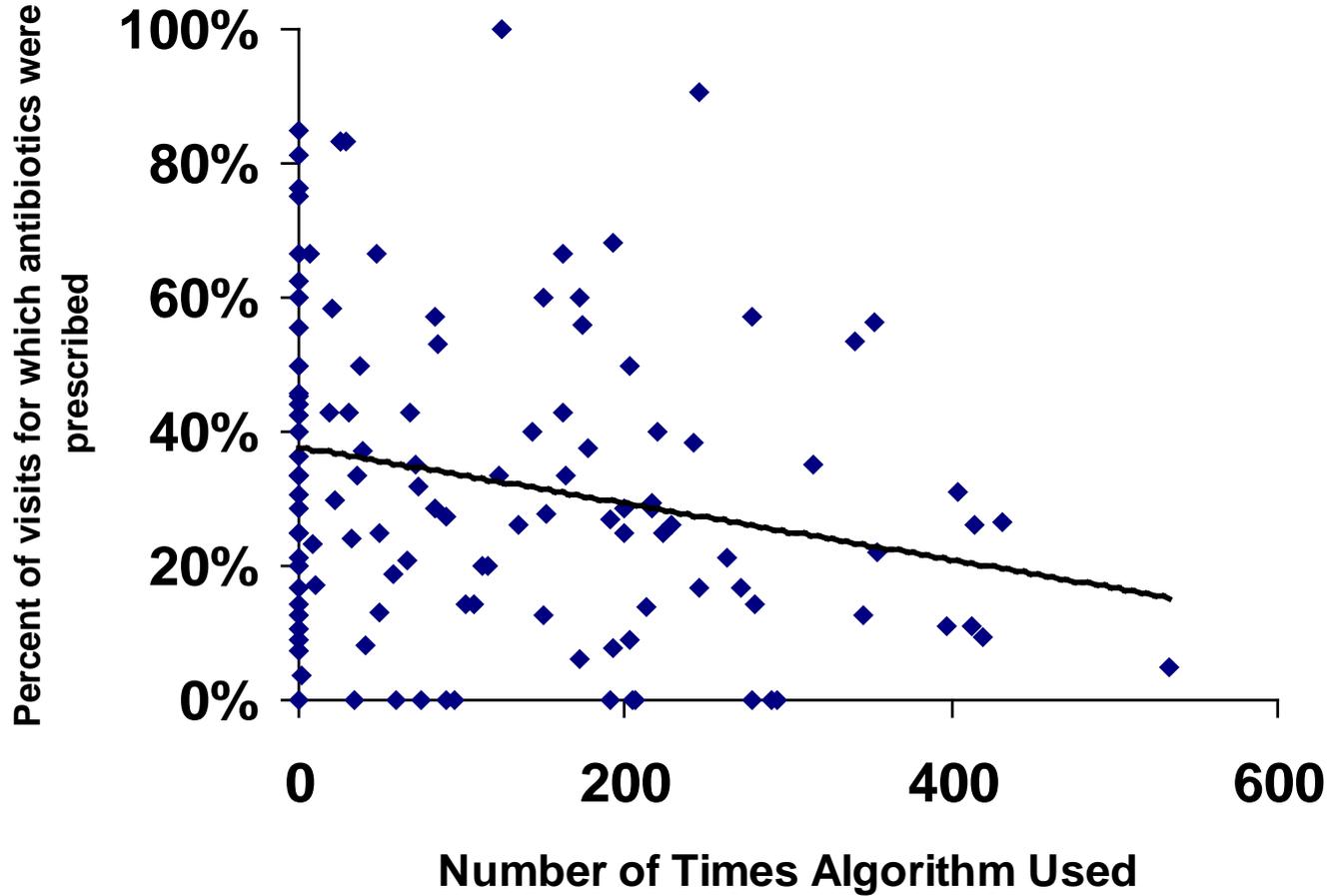
Restart

<-Back

Next->

Navigation area with icons: Home, List, Search, and a numeric keypad (123).

Providers using the algorithms more tended to prescribe fewer antibiotics for viral diseases...



# Where We Are:

- Public Reporting, community health information dissemination
  - IBIS-PH
  - MyHealthCare, SB132

# Public Health Data Dissemination Website

**IBIS-PH** Utah's Indicator-Based Information System for Public Health

IBIS-PH Home Indicator Profiles Custom Query Maps

Format this page for printing

**Welcome to IBIS-PH; Utah's Public Health Data Resource**

Welcome to Utah's Indicator Based Information System for Public Health (IBIS-PH). This site provides information on the health status of Utahns, the state of the health care system, and Utah public health activities. You can access [published reports](#), [indicator profile reports](#), and [query health data](#) directly. For an overview of the information available on this site, go to the "[Contents and Usage](#)" page.

The latest publications and data updates available on this site are listed below in the "Website Updates". The "News" section contains the latest web site functional changes and any IBIS-PH related news.

**Website Updates**

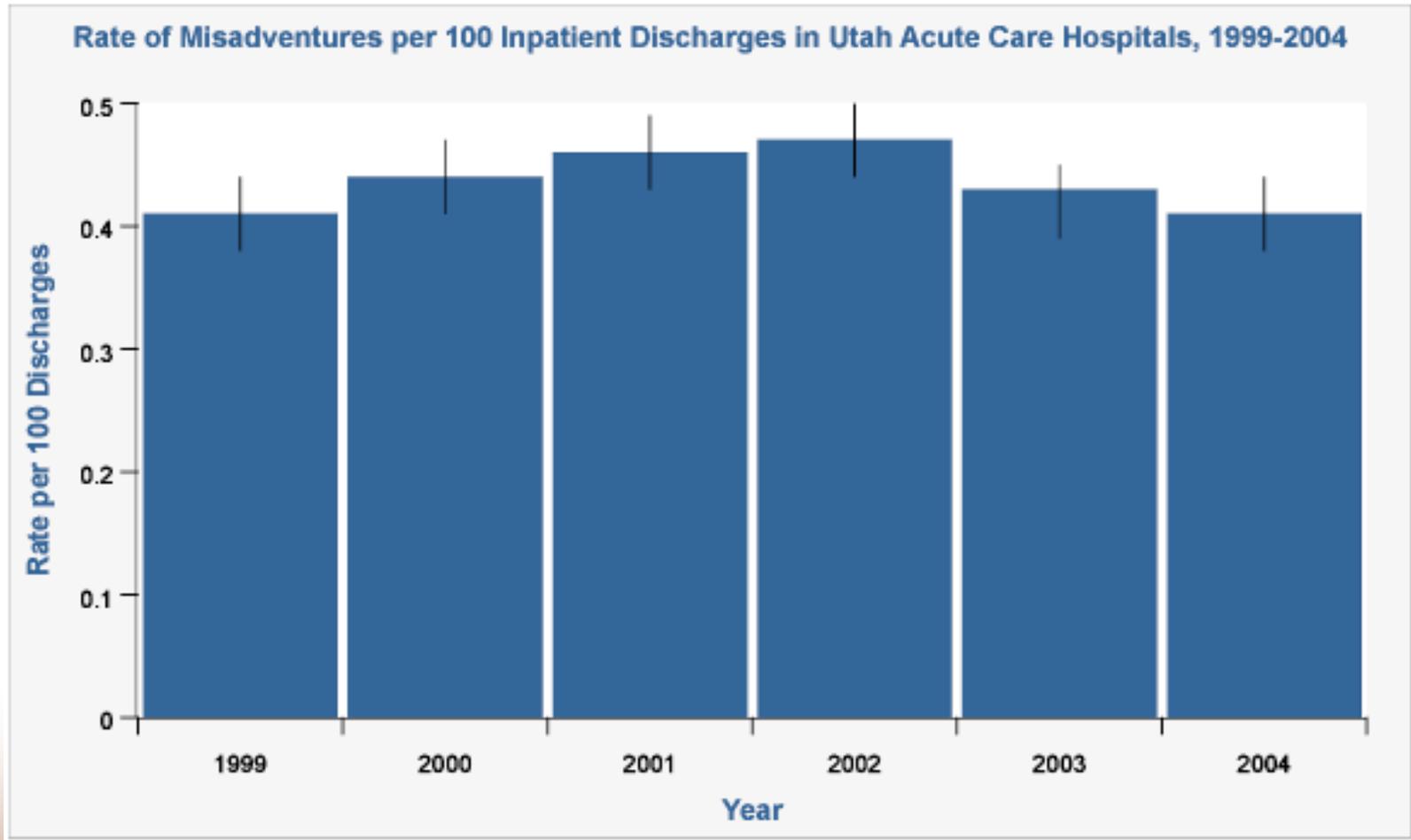
- ◆ **New Publications**
  - ◆ [Tipping the Scales Toward a Healthier Population: The Utah Blueprint to Promote Healthy Weight for Children, Youth, and Adults](#) (5-3-2006)
  - ◆ May Health Status Update: [Uninsured in Utah 2005](#) (5-2-2006)
  - ◆ 2004 Health Status Survey Report [Health Insurance Coverage](#) (4-10-2006)
  - ◆ April Health Status Update: [Measuring Depression Among Utah Adults](#) (4-10-2006)

**News (1-12-2006)**

- ◆ **Browser Based Font Sizes (1-12-2006)**  
All IBIS-PH pages now use your browser's font size setting (typically the "View/Text Size" menu option) which allows the page's font size to be enlarged/reduced.
- ◆ **Preferences for Query Pages (1-5-2006)**  
Based on the Usefulness Survey responses it was clear that some users are not aware of some of the options that are available to them that controls how the query pages can be controlled. Please see the [Query User Preferences](#) page which shows the

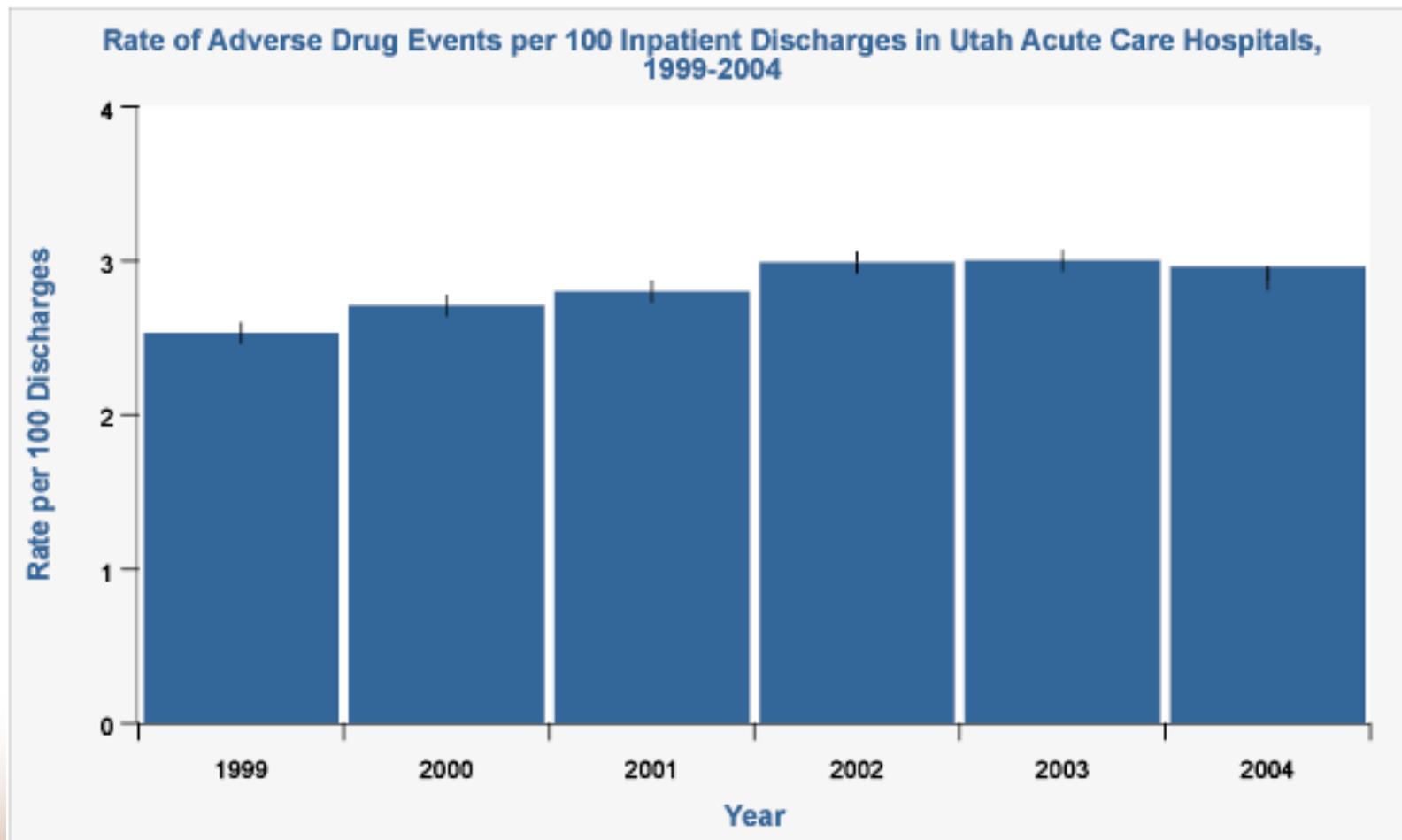
<http://ibis.health.utah.gov>

# Statewide Adverse Events Online Indicator



Source: Utah's Indicator-Based Information System for Public Health - <http://ibis.health.utah.gov>

# Statewide Adverse Events Online Indicator



Source: Utah's Indicator-Based Information System for Public Health - <http://ibis.health.utah.gov>

# SB132 – Healthcare Consumer’s Report

- Use “nationally recognized standards”
- AHRQ Patient Safety and Quality Indicators
  - Birth trauma
  - Obstetric trauma with 3rd or 4th degree lacerations
    - Vaginal delivery with and without instrument
    - Cesarean delivery
  - In-Hospital Mortality for Heart Patient
    - Coronary Artery Bypass Graft (CABG)
    - Percutaneous Transluminal Coronary Angioplasty (PTCA)
    - Acute Myocardial Infarction (AMI)
    - Congestive Heart Failure (CHF)



## Topics

Utahealthnet  
Patient Safety  
Find a Doctor  
Verify a License  
File a Complaint  
Related Sites  
Help Us Improve Our Website

MyHealthCare is designed to help consumers make informed decisions about their medical care.



## View Utah Hospital Comparison Reports



Please select a report from list:



Go



[New Consumer Report: Utah Hospital Comparison for Heart Surgeries and Conditions for Years 2002-2004](#)



▪ HOSPITALS



▪ HEALTH PLANS



▪ LONG TERM CARE

Click on one of the above images to view available resources

Please be aware that any links to external Web sites are provided as a courtesy. They should not be construed as an endorsement by the Utah Health Data Committee. [Click here to view the Utah Department of Health's disclaimer in its entirety.](#)



## About Us

The Utah Health Data Committee's (HDC) mission is to support health improvement initiatives through the collection, analysis, and public release of health care information.

[Learn more about the HDC](#)

# Utah!

Where ideas connect

# <http://health.utah.gov/myhealthcare/>

# Public Reporting on Quality and Safety

UTAH DEPARTMENT OF HEALTH

## Utah Hospital Comparison

A Report for Consumers...

Heart Surgeries and Conditions for Years 2002 - 2004



### Patient Safety



### Quality



### Charges

#### Heart Failure Deaths in Utah Hospitals

This table shows the percentage of deaths for patients with congestive heart failure. (IQI 16)

#### Rating System

- ★★★ Fewer deaths than expected (better)
- ★★ Same as expected
- ★

#### Table Description

**Red:** did balloon angioplasty and heart bypass surgery.

**Gray:** did balloon angioplasty but **not** heart bypass surgery.

**White:** did **neither** balloon angioplasty nor heart bypass surgery.

**Actual deaths:** are the percentage of patients who received care for this procedure or condition and died in this hospital.

**Expected deaths:** are the percentage of patients who died at this hospital if it performed the same as other U.S. hospitals that treated similar patients (age, gender, how ill the patients were). See **Glossary** for more details.

#### Heart Failure Deaths, 2002-2004

Hospital	Patients	Actual Deaths	Expected Deaths	Rating
Utah Overall	10,152	4.57%	5.03%	★★★
Dixie Regional	626	4.47%	5.63%	★★
LDS Hospital	1,192	4.61%	5.81%	★★
McKay-Dee Hospital	756	4.50%	5.22%	★★
Ogden Regional	325	2.46%	5.36%	★★★
Salt Lake Regional	299	4.01%	4.94%	★★
St. Mark's Hospital	1,082	4.34%	5.11%	★★
University of Utah	638	4.70%	4.54%	★★
Utah Valley Regional	880	5.34%	4.85%	★★
Veterans Administration	568	4.23%	4.93%	★★
Cottonwood Hospital	417	5.52%	6.83%	★★
Davis Hospital	299	9.03%	3.85%	★
Lakeview Hospital	271	4.43%	4.73%	★★
Mountain View Hospital	115	5.22%	4.44%	★★
Pioneer Valley Hospital	293	3.41%	4.91%	★★
Timpanogos Regional	176	5.68%	4.41%	★★
Allen Memorial Hospital	36	0.00%	2.43%	★★
Alta View Hospital	208	4.33%	8.61%	★★★
American Fork Hospital	231	5.63%	4.30%	★★
Ashley Valley Hospital	106	2.83%	3.77%	★★
Beaver Valley Hospital	75	0.00%	3.61%	★★
Castleview Hospital	151	5.96%	4.84%	★★
Central Valley Hospital	59	6.78%	4.76%	★★
Fillmore Hospital	40	15.00%	3.42%	★
Garfield Memorial	51	0.00%	3.32%	★★
Gunnison Valley Hospital	45	2.22%	1.81%	★★
Jordan Valley Hospital	163	7.36%	4.50%	★★
Kane County Hospital	41	2.44%	1.71%	★★
Logan Regional	283	2.83%	4.04%	★★
Mountain West Hospital	167	2.99%	5.41%	★★
San Juan Hospital	42	0.00%	2.35%	★★
Sanpete Valley Hospital	51	0.00%	5.52%	★★
Sevier Valley Hospital	133	5.26%	4.61%	★★
Uintah Basin Hospital	67	5.97%	1.82%	★★
Valley View Hospital	106	1.89%	4.10%	★★

Utah overall did better than expected compared to similar hospitals in the U.S.

QUALITY AND SAFETY OF HOSPITAL CARE

6/5/06

Health Data Committee Publication

David N. Sundwall, MD --

# Impact on Hospital Patient Safety Efforts

- Conducted chart reviews to verify the injury cases
- Improved coding accuracy
- Utah Hospital Association takes proactive approach to public reporting

# How We Got Here:

- UT eHealth benefited from projects in environment...
  - Secretary Leavitt (former UT Governor) was proponent of eGovernment while in Utah
  - 2002 Olympics
  - Innovations of private partners
    - Intermountain Healthcare's sophisticated systems
  - Medical Informatics Program at the U of U

# How We Got Here:

- ...and from specific initiatives
  - UHIN
  - Medicaid involvement
    - Require all Medicaid providers statewide to submit claims through UHIN
    - Roles in standards setting, UHIN
  - HealthInsight, DOQIT
  - Digital Health Services Commission
  - Health Data Committee

# Lesson Learned: Community-Based

- UHIN
  - Community-Based Development
    - Messaging standards established, agreed-upon by community members
    - Information/report content designed by community members
    - Community involved in setting priorities

# Lesson Learned: Incremental Change

- Evolution vs. Revolution
  - “Store and forward” is small modification to existing system
  - Primarily moving existing exchanges to electronic exchanges (few privacy challenges)

# Lesson Learned:

## KISS (Keep It Simple S...)

- Goals
  - Simplify routine document exchange
  - Send/receive documents through a single portal
- Most traffic is local: RHIO
  - Don't need to connect to the world to scratch 90% of the itch

# Lesson Learned:

## Create Value

- Greater value to the end user leads to greater adoption
- Create compelling, immediate administrative value to end user
  - Reduce cost and hassle of routine data exchanges
  - Value will drive adoption

# What Hasn't Worked (yet):

- Electronic laboratory reporting of notifiable diseases
  - Complex logic
    - serology versus culture
    - positive lab result is NOT diagnosis
  - Standards
    - Commercial labs have proprietary standards for message format and content
    - National HL-7 standards not yet ready for prime time
    - “Free text” used, data not coded, not machine-readable

# Implications for State / National Collaboration:

- National standard for privacy policies
  - NGA initiative – HISPC,
    - \$ by AHRQ, contract with RTI
- National patient safety policy
  - NGA “Policy Academy” – promote development of state “patient safety policy teams”
    - \$ ARHQ, contract with NGA
- Federal / State – conflicting perspectives:  
how sometimes we *can't* work with the federal gov't. – the Biosense example

# Implications for Public Health

- Don't let Public health be an afterthought
- Public Health “Value Added”
  - Giving information back to the community
    - Disease alerts, ‘disease de jour’
    - Decision support for management of public health problems (infection control, lead screening, tobacco cessation)
    - Automated tools for quality improvement
    - Accountable point of contact for community or political concerns

# Implications for Public Health

- Public Health Opportunities -- Use eHealth practices to leverage what we're trying to achieve
  - Assessment (monitor health status)
    - faster, more complete reporting
    - ambulatory care piece
  - Assurance (quality, safety, and access)
    - quality indicators
  - Policy Development
    - data for evidence-based decision making

# Final Thought

- Why isn't this a public utility?