

Moving From Administrative Data To EHR: *Data As A By-Product Of Care*

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Presentation to:
National Committee on Vital and Health Statistics (NCVHS)
Quality Work Group Hearing

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Testimony will include:

- Describe the Niagara Health Quality Coalition.
- Describe the New York State Hospital Report Card^(SM) initiative.
 - What data elements were used, e.g. chart abstraction, electronic data, administrative data, etc?
 - What were the factors that led you to select these data sources and elements?
 - What resources were needed for this project (e.g. cost, labor, EHR or infrastructure)?
 - How did you ascertain the reliability of your data?
 - How did you use the data (e.g. internal QI, public reporting, pay for performance)?
 - What interventions were triggered by these data and how did it affect quality of care?
 - What were the outcomes? At what level did the improvements occur—systems, groups of patients or individual patients?
 - Do you anticipate or have you achieved savings?
- What are you going to do next?
- Suggestions / Lessons Learned

Describe the Niagara Health Quality Coalition (NHQC).

- GOALS: Empower patients and drive measurable CQI
- Private sector/public sector collaboration
- Members include:
 - 2000+ employers state-wide
 - 30 health plans
 - Government (state and regional)
 - Hospital CEOs
 - Health plans' CEO/COO/CMO
 - Physician leaders
- Initiatives include:
 - Disease management (e.g., CKD and eGFR on lab reports to MDs nationally, MRSA, asthma, women's health, etc.)
 - Barriers to quality (e.g., excess hospitals)
 - NHQC Patient Survey Project^(SM)
 - ★ – www.myHealthFinder.com^(SM)
 - ★ – New York State Hospital Report Card^(SM)

The NEW YORK Sun

MONDAY, NOVEMBER 25, 2002



M.E. COHEN

Question: Do people actually use health care performance reports?

- www.myHealthFinder.com reaches up to 15,000 people per hour
- Up to 3 million hits per day
- “One of the Internet’s top 10 healthcare information sites” *Medica*
- NY Times
- Wall Street Journal
- 60+ Regional And Local Papers
- Dozens of electronic media outlets



myHealthFinder.comSM
Helping you find high quality health care

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Public performance measurement systems must be judged by the degree to which they improve the status quo

NHQC Patient Survey Project Results (1998-2004)

1998

- Medical Care: *
- Surgical Care: *
- Childbirth: **

2004

- Medical Care: **
- Surgical Care: ***
- Childbirth: ***

* = worse than the U.S. average for patient quality

** = average for patient quality

*** = better than the U.S. average for patient quality

Source: National Research Corporation / Niagara Health Quality Coalition research

New York State Hospital Report Card ©

Prominent Coverage In Every
New York State Media Market

Frequent National Coverage



The Post-Standard on Death Rates



The New York Times



Consumer Reports



Wall Street Journal



Electronic: WNBC, WABC, etc.



National Public Radio



The Buffalo News

See Appendix

Sample: Risk Adjusted Mortality Rate



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Graph : Acute Stroke Mortality

A stroke is a disruption in the blood supply to the brain. A stroke occurs when a blood vessel bringing oxygen and nutrients to the brain bursts, or is clogged by a blood clot or some other particle. Because of this rupture or blockage, part of the brain doesn't get the flow of blood it needs, and the nerve cells in the affected area of the brain cannot function. When nerve cells cannot function, neither can the part of the body they control. The effects of stroke often are permanent because dead brain cells are not replaced. Mortality rates will vary based on the cause of the stroke, the severity of the stroke, other patient illnesses and speed of arrival at the hospital. Some advanced treatments may be helpful only in the first few minutes or hours following the onset of the stroke, and administrative data do not provide this information.

State total in cases: 30,114

State risk-adjusted mortality rate: 11.3%

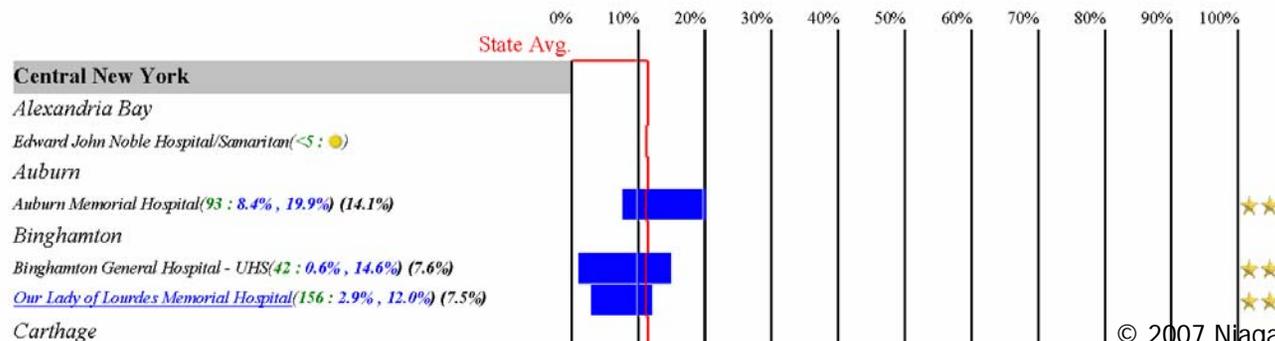
[Click here for instructions on interpreting this graph](#)

For technical information on the relationship between the indicator and quality of health care services, go to the AHRQ detailed evidence on Acute Stroke Mortality : [HTML](#) or [DOC](#)

- ★★★★ Better than state average
- ★★★ At the state average
- ★ Worse than state average

There are 214 hospitals in this table.

Acute Stroke Mortality



Sample: Volume Indicator



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Graph : Carotid Endarterectomy Volume

The carotid arteries are the major arteries in the neck, which carry blood from the heart to the brain. If blockages develop in these arteries, stroke or other brain problems can result. Carotid endarterectomy is a surgery to remove blockages from these arteries and reduce the chance of stroke.

State total in cases: 6,338

Minimum Threshold: 50

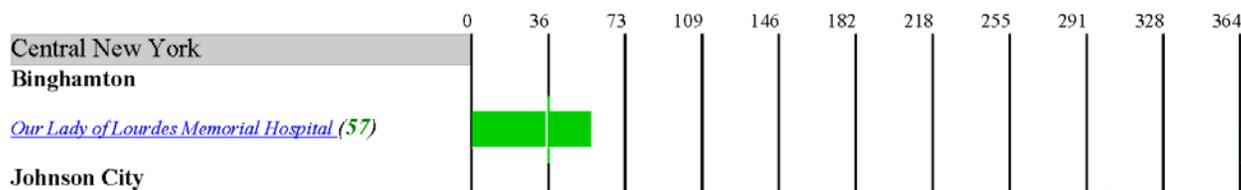
[Click here for instructions on interpreting this graph](#)

For technical information on the relationship between the indicator and quality of health care services, go to the AHRQ detailed evidence on Carotid Endarterectomy Volume : [HTML](#) or [DOC](#)

There are 149 hospitals in this table.

This indicator has substantial published evidence suggesting that providers performing more than 50 procedures (i.e., minimum threshold) have better patient outcomes. Those hospitals which have met these minimum thresholds are displayed as a **green** bar graph . Those hospitals which have not met these minimum thresholds are graphed in **yellow** . Thus, hospitals with green bar graphs generally are associated with better patient outcomes.

Carotid Endarterectomy Volume



Sample: Prevention Quality Indicator



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Graph 05 : Chronic Obstructive Pulmonary Disease (COPD)

As defined by the American Thoracic Society and the European Respiratory Society, COPD is a disorder that is characterized by decreased expiratory flow in the airways of the lungs. It consists of three related diseases: asthma, chronic bronchitis and emphysema. COPD is one of the leading causes of illness and death in the U.S. causing substantial economic burden on individuals and society. Because existing medications cannot modify the progressive decline in lung function, the goal of drug therapy is to lessen symptoms and/or decrease complications. Patient education on smoking cessation, minimizing shortness of breath, and seeking medical attention can improve quality of life.

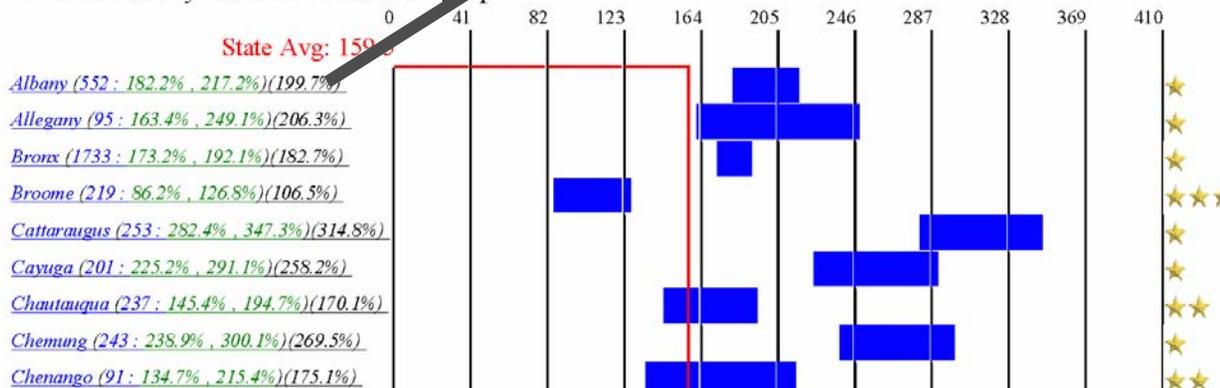
State total admissions: 26,901

[Click here for instructions on interpreting this graph](#)

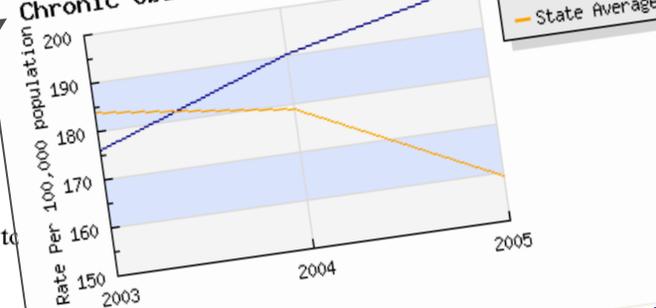
For technical information on the relationship between the indicator and quality of health care services, go to detailed evidence on Chronic Obstructive Pulmonary Disease (COPD): [HTML](#) or [DOC](#)

Chronic Obstructive Pulmonary Disease (COPD)

*Click a county name to see a trend graph



Chronic Obstructive Pulmonary Disease (COPD)



Sample: Area Utilization Indicators

See Appendix



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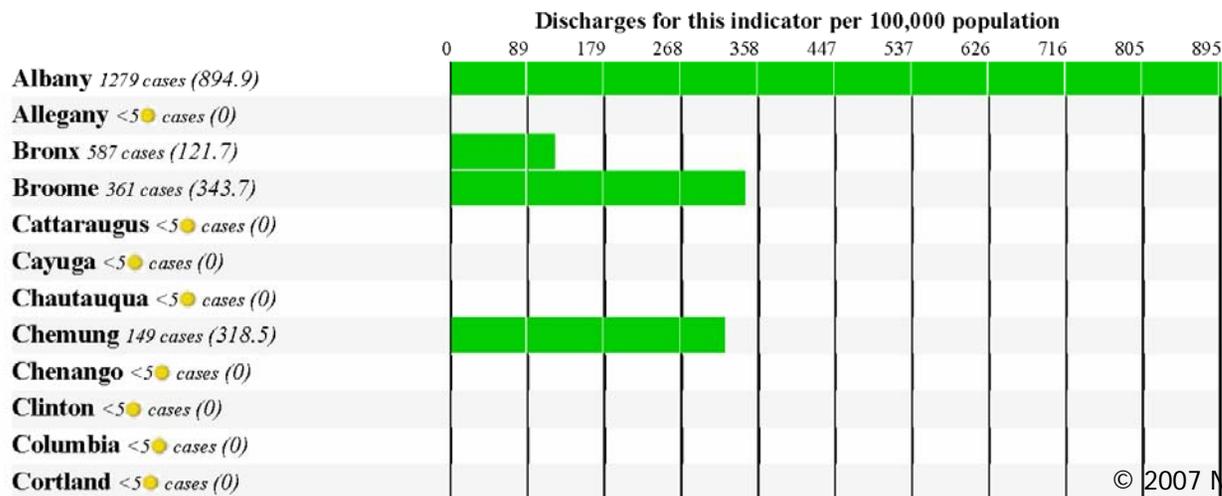
Graph : Coronary Artery Bypass Grafts

Coronary artery bypass graft (CABG) is the surgical restoration of blood flow to the vessels serving the heart. It is a commonly used approach for those with obstructions of the heart vessels. Substantial variations in the rate at which this procedure is performed have been noted, and may reflect the availability of other revascularization techniques, the availability of surgeons and other skilled personnel, or variations in the way patients are chosen for the procedure. There is evidence to suggest that those facilities and surgeons that perform a larger number of such procedures may have better results. Inpatient discharges related to pregnancy and childbirth (maternal discharges) are excluded from the table.

State average: 200.8 per 100,000

[Click here for instructions on interpreting this graph](#)

For technical information on the relationship between the indicator and quality of health care services, go to the AHRQ detailed evidence on Coronary Artery Bypass Grafts: [HTML](#) or [DOC](#)



Said Donald M. Berwick about AQHC/NHQC's
New York State Hospital Report Card:

**“The public will not receive timely
information by waiting for perfection in the
data. It's time to step on the gas, not the
brakes, on this.”**

New York Times - 11/25/2002

Donald M. Berwick, MD is an esteemed member of the Institute of Medicine and President of the Institute for Health Care Improvement. Dr. Berwick never had supported such a public report of provider-specific quality prior to reviewing NHQC's.

New York State Hospital Report Card^(SM)

- Hospital Level:
 - Inpatient Mortality
 - Inpatient Volume
 - Inappropriate Procedure Utilization (e.g., incidental appendectomy in elderly)
 - Patient Safety Indicators (e.g., hospital infections, avoidable complications)
- County Level:
 - Prevention Quality Indicators + Trend
 - Area Indicators (i.e., Procedure Utilization)

What were the factors that led you to select administrative billing and discharge data?

- Not based on “secret” input factors
- Superior for public reporting because it is tied to something and is therefore more difficult to game
- Sustainable data platform because it is exempt from the [extensive] secrecy provisions in the *Patient Safety and Quality Improvement Act*
- Credible because it is replicable - Analysis which can not be replicated independently will remain in doubt, especially by employers
- Infinitely scalable and can be improved over time
- Cost effective

What resources and skills were needed for this project (e.g. cost, labor, EHR or infrastructure)?

- Independence
 - Funding independence
 - Governance independence
 - Independence from undue special interest pressures
 - Personal independence
- Clarity of purpose
- Track record with media leaders
- Exceptional in-house technology and writing skills
- Credibility with a broad base of leaders
- Integrity
- Money is important, but is not the limiting factor

How did you ascertain the reliability of your data?

- Simultaneous computations at multiple sites

How did you use the data (e.g. internal QI, public reporting, pay for performance)?

- Patient empowerment
- CQI
- P4P
- Public policy

What interventions were triggered by these data and how did it affect quality of care?

- Illustrations

- Stoke center
- Laparoscopic cholecystectomy
- Infection rate publication triggered region-wide MRSA conference with CDC and VA
- State-wide mortality
- Complex procedures at low volume hospitals

State-Wide Mortality

Niagara Health Quality Coalition New York State Hospital Report Card ^(sm) State-Wide Analysis

Mortality Rate for Inpatient Procedures	Risk Adjusted Mortality Rate (%)			Interpretation
	2005	2002	% Point Change	
<i>Abdominal Aortic Aneurysm (AAA) Repair</i>	2.6%	4.2%	1.6%	Improved
<i>Carotid Endarterectomy</i>	0.6%	0.8%	0.2%	Improved
<i>Coronary Artery Bypass Graft</i>	2.4%	3.5%	1.1%	Improved
<i>Craniotomy (Surgical opening of the skull)</i>	6.0%	7.1%	1.1%	Improved
<i>Esophageal Resection (Surgical removal of the throat)</i>	7.1%	7.0%	-0.1%	Worse
<i>Hip Replacement</i>	0.2%	0.3%	0.1%	Improved
<i>Pancreatic Resection (Surgical removal of the pancreas)</i>	6.1%	3.5%	-2.6%	Worse
<i>Percutaneous Transluminal Coronary Angioplasty</i>	0.7%	0.9%	0.2%	Improved

Mortality Rate for Inpatient Conditions	Risk Adjusted Mortality Rate (%)			Interpretation
	2005	2002	% Point Change	
<i>Acute Myocardial Infarction (Heart Attack)</i>	7.9%	9.9%	2.0%	Improved
<i>Acute Stroke</i>	11.3%	12.8%	1.5%	Improved
<i>Congestive Heart Failure (CHF)</i>	4.3%	5.8%	1.5%	Improved
<i>Gastrointestinal (GI) Hemorrhage</i>	2.8%	3.9%	1.1%	Improved
<i>Hip Fracture</i>	2.9%	3.9%	1.0%	Improved
<i>Pneumonia</i>	7.8%	10.2%	2.4%	Improved

Procedure Utilization	Risk Adjusted Utilization Rate (%)			Interpretation
	2005	2002	Increase/Decrease	
<i>Bilateral Cardiac Catheterization</i>	6.0%	7.2%	1.2%	Improved
<i>Cesarean Section Delivery</i>	26.7%	23.0%	-3.7%	NA *
<i>Incidental Appendectomy in the Elderly</i>	1.5%	1.9%	0.4%	Improved
<i>Laparoscopic Cholecystectomy (Gall bladder removal) (more=better)</i>	77.5%	76.5%	-1.0%	Improved
<i>Vaginal Birth After Cesarean (VBAC) (more=better)</i>	12.7%	19.2%	6.5%	NA *

Other Indicators	Risk Adjusted Mortality Rate (%)			Interpretation
	2005	2002	Increase/Decrease	
<i>Acute Myocardial Infarction w/"transfers in" excluded (Heart Attack)</i>	8.9%	11.2%	2.3%	Improved

* The trend toward increasingly invasive childbirth procedures (i.e., c-section & VBAC) is national.

NOTE: While year over year variances are not tested for statistical significance, positive movement in so many indicators is unlikely to be due solely to random chance.

S:\Hospitals\Hospital Profiles 2007\Media Release By NHQC\MediaPacket\Annual IQI Mortality&Utilization Comparisons 020107.xls

State-Wide Low Volume Procedures

Niagara Health Quality Coalition New York State Hospital Report Card ^(sm) State-Wide Analysis

Volume for Inpatient Procedures	# of Hospitals Doing < 5 Procedures				Interpretation
	2005	2002	Increase/Decrease		
			#	%	
1 Esophageal Resection (Surgical removal of the throat)	42	56	14	25.0%	Improved
2 Pancreatic Resection (Surgical removal of the pancreas)	48	57	9	15.8%	Improved
4 Abdominal Aortic Aneurysm	52	50	-2	-4.0%	Worse
5 Coronary Artery Bypass Graft	1	1	0	0.0%	No Change
6 Percutaneous Transluminal Coronary Angioplasty	9	12	3	25.0%	Improved
7 Carotid Endarterectomy	30	26	-4	-15.4%	Worse

Volume for Inpatient Procedures	# of Hospitals Doing < Threshold				Interpretation
	2005	2002	Increase/Decrease		
			#	%	
Esophageal Resection (Surgical removal of the throat)	46	58	12	20.7%	Improved
Pancreatic Resection (Surgical removal of the pancreas)	63	70	7	10.0%	Improved
Abdominal Aortic Aneurysm	76	84	8	9.5%	Improved
Coronary Artery Bypass Graft	8	5	-3	-60.0%	Worse
Percutaneous Transluminal Coronary Angioplasty	26	23	-3	-13.0%	Worse
Carotid Endarterectomy	106	112	6	5.4%	Improved

Do you anticipate or have you achieved savings?

- One Example: Fewer end of life patients coded/treated as ICU when they should be coded/treated hospice
- Others

SUGGESTIONS

“The first lesson that you must learn is, when I call for statistics about the rate of infant mortality, what I want is proof that fewer babies died when I was Prime Minister than when anyone else was Prime Minister. That is a political statistic.”

Winston Churchill 1874-1965

Government is susceptible to undue special interest pressures and therefore government policy should ensure all of its key measures are based on “billing and discharge data” sets which are improved continuously and which remain in the public domain. These measures should be based on methodologies which are replicable independently as well (e.g., AHRQ QIs)

“Measures which can not be replicated independently will remain in doubt.”

Current US health care policy is failing...

Stop Confusing Effort With Results

- To become effective, health care policy must reward continuously improving QUALITY*. This will lead to improving quality and reduced cost over time.
- **QUALITY = Results of effort / Cost*
- We must stop confusing effort with results
- Current health care policy focuses on reducing cost, which has caused declining quality and rising costs over time due to:
 - Not minimizing waste
 - Ignoring the amount of rework occurring
 - Taking staff for granted
 - Not rapidly resolving disputes
 - Failing to notice lack of product improvement
 - Making inappropriate concessions through compromise
 - And over time, loss of trust in the system

We are making progress, but too slowly. We should define what we need and work backwards rather than evolving endless patches to the current system in hopes of catching up with our information needs.

EXTERNAL DATA (EXAMPLES)

U.S. HEALTH CARE DATA

Essential public data submission systems remain anemic and poorly organized for:

- Physicians
- Hospitals
- Health Plans
- Pharmaceutical Manufacturers
- Device Manufacturers
- Pharmacy Retailers
- Dialysis Centers
- Imaging
- Ambulatory Surgery Centers
- Others

- Billing and discharge data elements (BDD)
- Clinical elements added to improve BDD
- EHR elements (owned by patient)
- Compliance reporting (e.g., government)
- Pricing information
- Device safety
- Pharmaceutical and medical device safety
- Lab results
- Prescriptions
- Credentialing/CME
- Clinical efforts measures elements
- Clinical results measures elements
- Safety/Errors measures
- Utilization measures
- Infection reporting
- P4P
- Lifestyle and LT Drug impact

Make Needed Data A Byproduct Of Care

- Physicians
- Hospitals
- Health Plans
- PBMs
- Pharmaceutical Companies
- Device Manufacturers
- Pharmacy Retailers
- Dialysis Centers
- Imaging
- Ambulatory Surgery Centers
- Others

US Health Care Data Highway

- EHR
- Performance Reporting
- Population Monitoring

Get Started Now: Hybrid Data System

- 3NF Normalization required right now – really, now
- U.S. data highway = “billing and discharge data”
- Require strong case before defining any data element as secret
- Do not twist needed reporting to fit existing systems. Rather, assume systems will be continuously improved to maximize the effectiveness of needed data
- Build embryonic, hybrid systems and begin integrating
 - Build best possible EHR by middle of next week
 - Build best possible integrated population screening reporting system by the week after that
 - Note: AHRQ already has built the best possible performance reporting structure for hospitals and key aspects of community health, so take a vacation in week 3

Without HHS leadership, progress toward a worthwhile, integrated U.S. health care data highway will be like digging the Erie Canal with a teaspoon. Some needed bold steps include:

1. Produce a universal, portable, web-based EHR which is part of “billing and discharge data” as a byproduct of every type of care and mandate its use for those receiving any federal funding
 - Define and mandate the use of one integrated “billing and discharge data” highway for all providers, payers, patients, manufacturers, watchdog groups, regulators etc. Begin now by defining/mandating a hybrid system.
 - Define universal data storage and transmission protocols
 - Demand mandatory submission of all-payer and all-claims billing and discharge data from all providers in all states
 - Include interactive patient-input and MD reminder sections where appropriate
 - Include all key elements into a patient-owned EHR including lab results, pharmacy, imaging tests (actual scans + results), notes, etc.
 - Make population-based surveillance mandatory as a byproduct of care (e.g., chronic conditions, lifestyle, pharmaceutical and device manufacturer safety, infections, disease management and other needed surveillance systems.)
2. Produce needed public *billing and discharge data* for provider and payer performance reporting as a mandatory byproduct of care
 - Ensure robust, de-identified databases with provider and payer IDs are public
 - Require **normalization** for all input fields and in all database designs

Definition: Normalization

In relational databases, normalization is a process created by mathematicians that eliminates redundancy, organizes data efficiently, reduces the potential for anomalies during data operations and improves data consistency. The formal classifications used for quantifying "how normalized" a relational database are called **normal forms** (abbrev. **NF**).

Normalization History

- Prior to normalization:
 - “Spreadsheet syndrome”
 - Lack of scalability
 - Lack of flexibility
 - True data destroyed and false data created
- Edgar F. Codd first proposed the process of normalization in 1970 (i.e., 1st normal form)

“A Relational Model of Data for Large Shared Data Banks”, Communications of the Association For Computing Machinery, Vol. 13, No. 6, June 1970, pp. 377-387[1].
- Normalization has grown to become the information systems standard for designing, compiling and using large data sets within relational databases

Possible Future Topics

- Web-based, national decision-tree for primary care triage
- Web-based, national decision-tree for key specialty area triage
- In the absence of universal coverage with global budgets, define “soft” global budgets as a means to prioritize

QUESTIONS

Recognition

- National Healthcare Quality Report To Congress: National Advisory Board
- Health Affairs: “Feds Need To Create Standards and Databases”
- Institute of Medicine: External Reviewer on 2 recent reports to Congress
- National Consumer/Purchaser Disclosure Project
- National Healthcare Disparities Report To Congress: National Advisory Board
- New York State Pay-For Performance Task Force
- Centers for Medicare and Medicaid Services (CMS): Technical Advisor
- Ford, GM, DC, Autoworkers’ National Hospital Profiling Project: National Advisory Panel
- SOS Rx Board Member
- Multiple scientific journal and media press
- Interstate and International Research Collaborations
- National Quality Forum (Representing 80 Employers of NBCH)
- Alliance for Quality Health Care, Founding President
- National Nephrologists’ Toolkit Task Force Member
- Received HHS Secretary’s Designation as Community Leader
- Applied to be designated as Value Exchange Organization (VEO)

Contact Information

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