From Database to Information

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Using Hospital Discharge Data to Identify, Measure, and Monitor Chronic Conditions and Chronic Comorbidities in Mississippi

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THE CALL FOR CHRONIC DISEASE MONITORING

In 2010, 84% of health care spending was for chronic illnesses. In 2011, the national health expenditure reached $2.7 trillion (18% of GDP). In 2012, 117 million Americans (~1/3) had at least one chronic illness.

While there is an urgent call for building chronic disease surveillance systems there are challenges such as:

1. A PAUCITY OF CHRONIC DISEASE DATA SOURCES

MISSISSIPPI DATA SOURCES FOR MONITORING CHRONIC DISEASE

Vital Records	**Hospital Discharge Data**	**BRFSS**
ICD-10	ICD-9-CM	Self-Report
Mortality Data	Morbidity Data	Survey Data

2. ISSUES OF UNDERUTILIZATION OF VALUABLE DATA AND ACCESS TO EXISTING DATA SOURCES

CAN WE EXTRACT CLINICAL INFORMATION FROM ADMINISTARTIVE DATA?

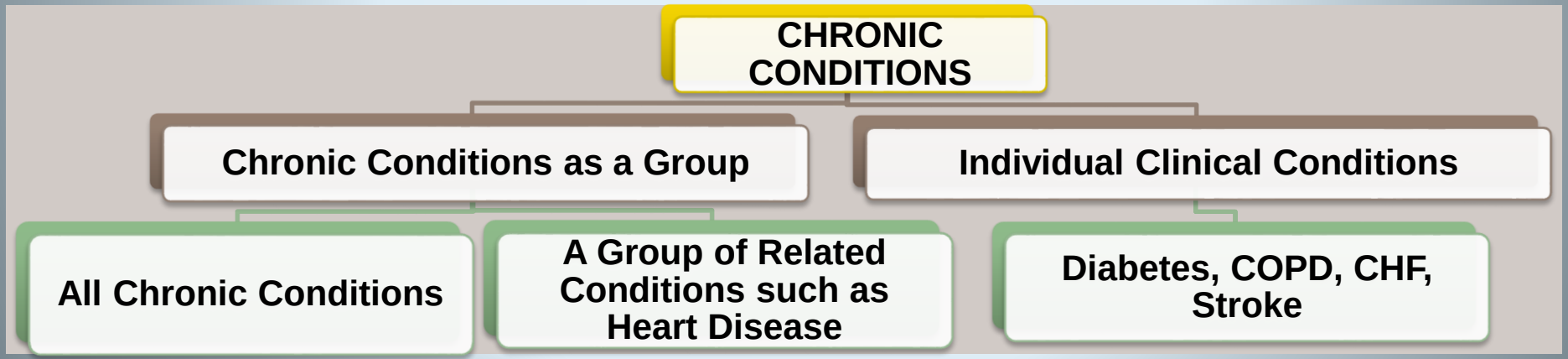
MEDICAL RECORDS
CLINICAL INFORMATION

HOSPITAL DISCHARGE DATA
ICD-9-CM CODES

THE CHALLENGE OF CHRONIC DISEASE MONITORING

Traditionally, the focus has been on studying and monitoring individual, high-prevalence chronic diseases. This approach does not allow for:

- *Comprehensive monitoring of all chronic conditions*
- *Capturing of chronic disease-related disabilities*
- *Accounting for chronic behavioral health problems*
- *Evaluating chronic comorbidities and multiple chronic conditions*

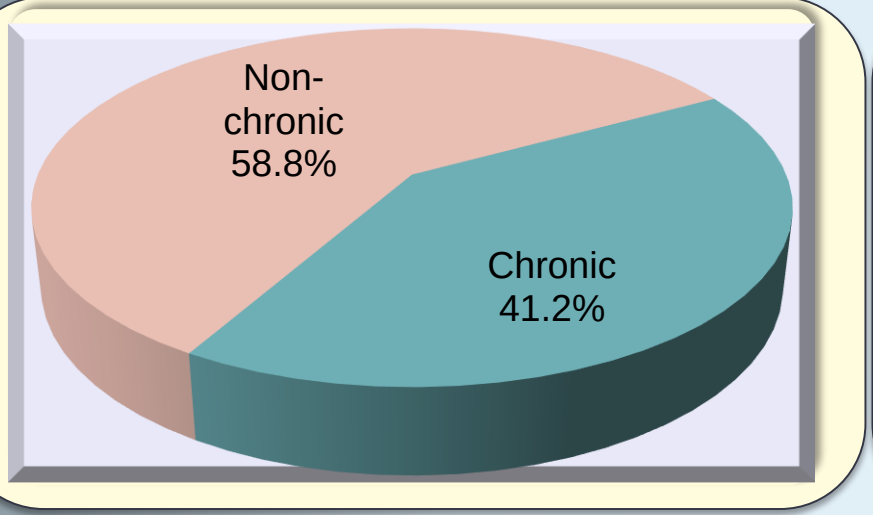


Presented here are two projects that were implemented in Mississippi to:

1. Identify and cluster together all hospitalizations due to chronic conditions
2. Evaluate the number of comorbidities among hospitalized patients

THE CHRONIC CONDITION INDICATOR: MISSISSIPPI, 2010

The Chronic Condition Indicator classifies ICD-9-CM diagnoses into two mutually exclusive groups, chronic and non-chronic, based on duration and need for ongoing care. The principal diagnoses were used for this project.



Top Five Chronic Conditions

1. Mood disorders: 7.6%
2. Congestive heart failure: 7.2%
3. COPD: 5.9%
4. Coronary atherosclerosis: 4.6%
5. Diabetes with complications: 4.4%

Circulatory system diseases and mental disorders accounted, respectively, for 32% and 20% of all hospitalizations due to chronic conditions.

Clinical conditions (CCS)	DISCHARGES		AVERAGE		TOTAL	
	Number	%	LOS	Charges	LOS	Charges
Non-chronic conditions	221,831	58.8	4.8	$22,469	1,070,169	$4,984,270,081
Chronic conditions	155,629	41.2	6.4	$29,829	998,134	$4,642,226,484

COMORBIDITY BURDEN AND PATTERNS, MISSISSIPPI 2011

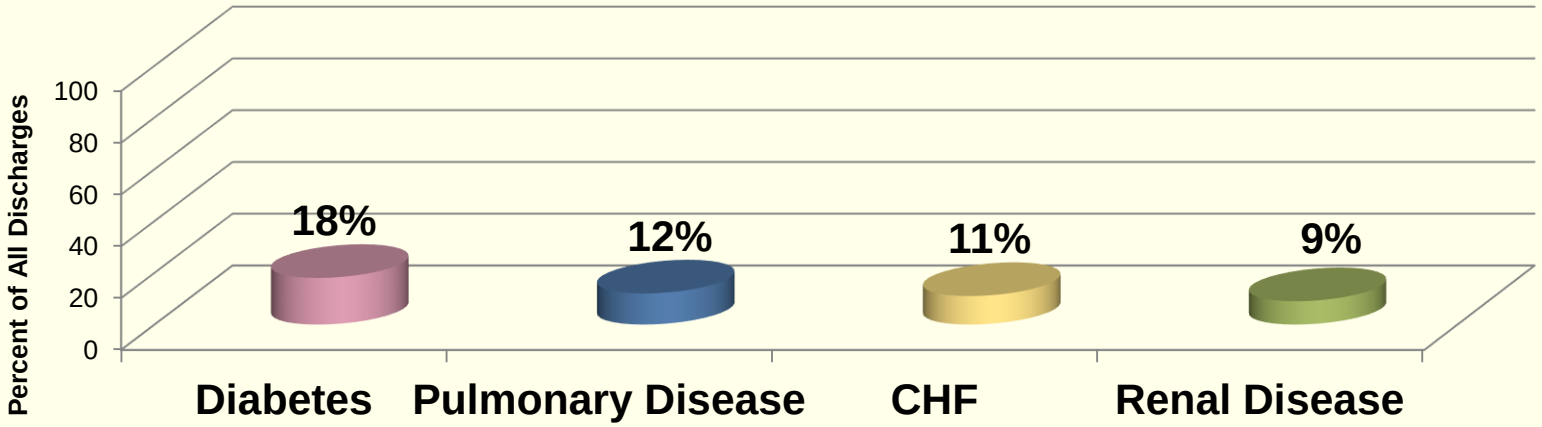
THE CHARLSON/DEYO COMORBIDITY INDEX

- A risk-adjustment algorithm based on 17 major chronic conditions.
- Each condition is assigned a score (weight) that is proportional to the disease-relative risk of death or the severity of the illness.
- Allows for computing the weighted scores and number of comorbid conditions (secondary diagnoses).

In Mississippi during 2011:

- 45% of all hospitalizations had a weighted comorbidity score ≥ 1
- 25% of all hospitalizations had a weighted comorbidity score ≥ 2
- 13% of all hospitalizations had a weighted comorbidity score ≥ 3

Major Comorbidities in Mississippi: Percent of All Discharges



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TRUVEN HEALTH ANALYTICS

Comments on Building and Using APCDs

William D. Marder, PhD

NAHDO October 2014

The Potential

- Experience building multi-payer claims databases (MPCDs)
- What we do with MPCDs (without the “All Payer” assets)
  - Population health management
  - Cost of treating different conditions
  - Variations in quality
- What else can you do with an All Payer Claims Database (APCD)?
  - Provider-focused analyses
  - Risk adjustment for mobile populations
- Key elements needed to drive the value from these five applications
  - Patient identification
  - Provider identification

Realizing the Potential

- All payer claims databases have the potential to improve:
  - Population health management (cost and quality)
  - Provider network design
  - Efficiency of insurance exchange/Medicaid interface
  - Price transparency (antitrust?)
  - Policy development
- To realize this potential we need:
  - Patient identifiers
  - Hospital identifiers including system affiliations
  - Physician identifiers including group practice and hospital affiliations
  - Since things change over time we need ongoing maintenance
- Following MITA – it is better to design it well up front than to retrofit
- For data quality improvement – “use it or lose it”

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TRUVEN HEALTH ANALYTICS

ONPOINT Health Data

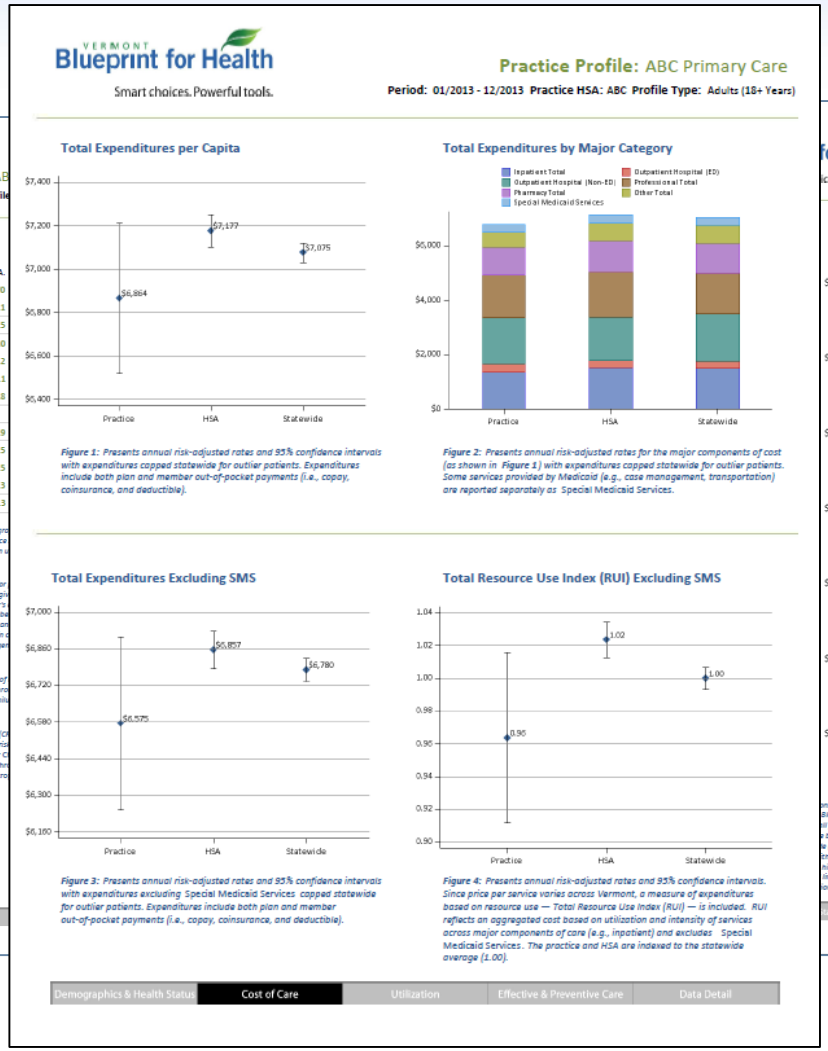
All-Payer Primary Care Profiling for Vermont's Blueprint for Health

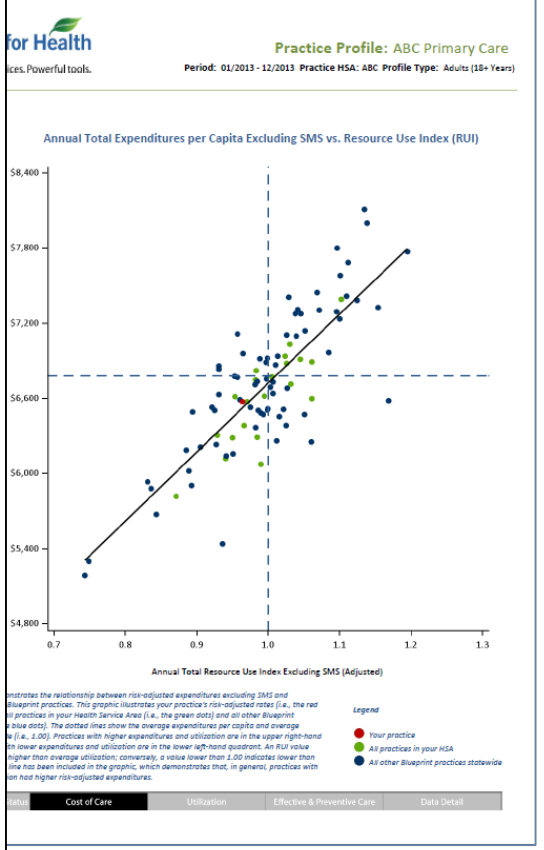
Combining Commercial, Medicaid, & Medicare

Katharine McGraves-Lloyd, Health Data Analyst
Onpoint Health Data

Practice Profiles Evaluate Care Delivery

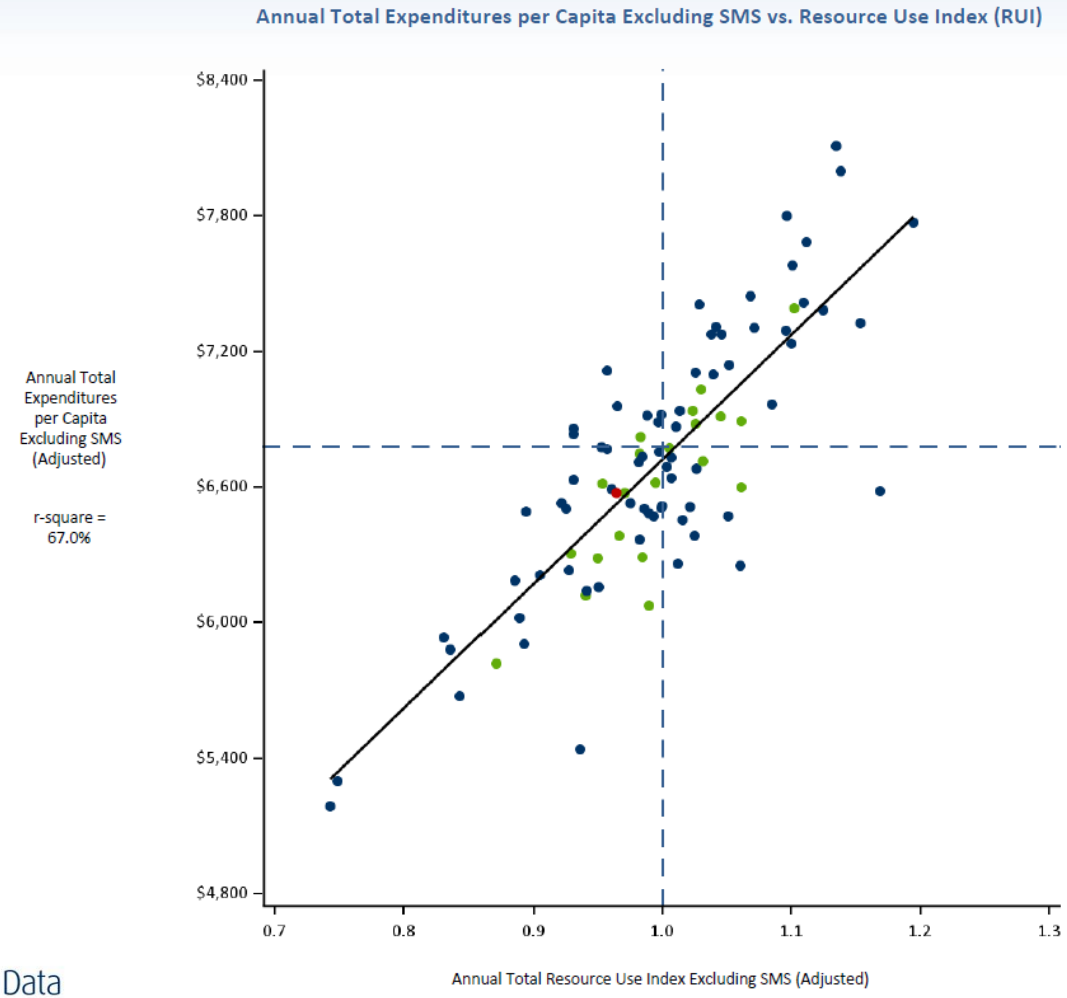
Commercial, Medicaid, & Medicare





Practice Profiles Evaluate Care Delivery

Actionable Analytics



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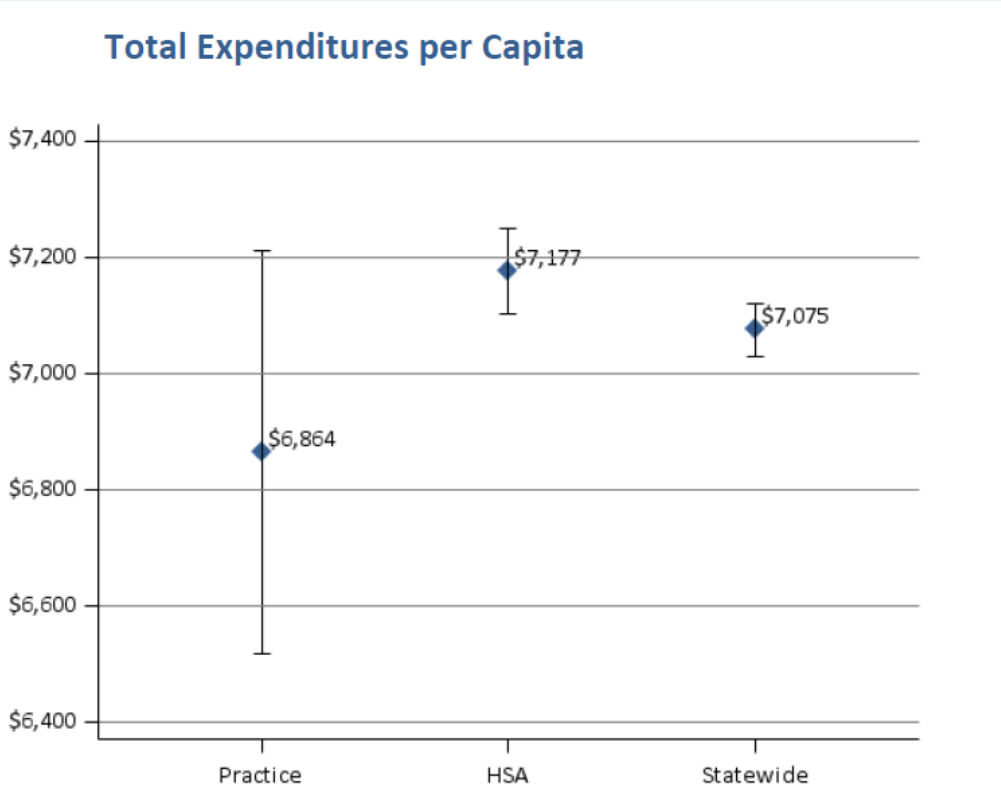

Figure 1: *Presents annual risk-adjusted rates and 95% confidence intervals with expenditures capped statewide for outlier patients. Expenditures include both plan and member out-of-pocket payments (i.e., copay, coinsurance, and deductible).*

HSA Profiles Evaluate Care Delivery

Integrating Claims & Clinical Data

Hospital Service Area	ACO22: Number of members with diabetes who had a valid HbA1c measurement in DocSite	ACO22: Number with HbA1c in control (<8%)	ACO22: % in control
HSA 1	313	267	85.3%
HSA 2	2,194	1,614	73.6%
HSA 14	478	361	75.5%
Total	**5,109**	**3,847**	**75.2%**

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Issues and Opportunities in Adopting a National Quality Measure for Statewide Reporting

NAHDO Annual Meeting, October 7, 2014

Joseph Parker, PhD, OSHPD

Background

- The CA mandate for public reporting, 1992
- A high bar for measure validity and data reliability
  - Risk model performance, data accuracy and reliability, process-outcomes association, clinical measure comparison, external validation
- Four outcome topics developed – 2 produced
  - Heart Attack (1991-1998): Role of Present on Admission
  - Community Acquired Pneumonia (1999-2006): DNR coding issues
- AHRQ IMIs as an alternative, 2001
- OSHPD Advisory Panel debate, 2008
  - Inpatient vs 30-day mortality, lack of POA, no data validation, all strokes vs ischemic, ruptured vs. non-ruptured AAA

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Reporting the Inpatient Mortality Indicators

- First IMI report released w/o modifications, 2008
- CA modifications to IMI software after first report
  - Exclude AAA ruptures, exact method to calculate confidence intervals, proportional method to improve model recalibration,
- Later CA modifications to IMI software
  - Replace all national references/benchmarks with state benchmarks
  - Use actual CA POA values instead of imputed POA values
- AHRQ Improvements to IMIs over time
  - New stroke subcategories (ischemic, hemorrhagic, subarachnoid)
  - New AAA subcategories (ruptured vs. non & open vs. endovascular)
  - Incorporated POA in risk adjustment

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Inpatient Mortality Indicators "Scorecard"

The Good

- Consistency of indicator performance within hospitals
  - Only 3 out of 330 (1%) hospitals had "mixed" results
- Consistent hospital performance year to year
  - "Better" or "Worse" hospitals 7X more likely to repeat performance in subsequent year compared to non-outlier hospital
- Significant correlation between stroke sub-measures
  - Coefficients ranged from 0.17 to 0.41 ($p<.001$)

The Worrisome

- Possible bias against safety net hospitals
  - No city, county, or district hospitals (n=55) rated "Better" on any indicator over 2 years but highest avg. number of "Worse" indicators
- Bias against low volume hospitals
  - No frontier hospitals and very few rural hospitals or hospitals with bed size less <100 (n=82) rated "Better" on any indicator

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