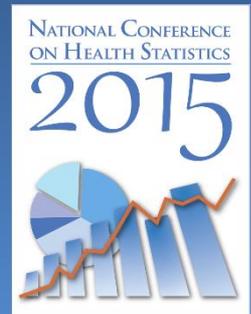


# “Changing Patterns in Hospitalization and Inpatient Surgery of Rural and Urban Residents”

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## Objective #1

Determine how much inpatient hospital care is provided in rural as opposed to urban hospitals, and how rural hospital patients compare to urban hospital patients.

## Objective #2

Determine the share of, and the characteristics of, rural residents who are hospitalized in rural hospitals compared to those who are hospitalized in urban hospitals.

## Objective #3

Present data on the surgeries commonly performed in rural and urban hospitals.

## Objective #4

Discuss how changes in the health care coverage and delivery systems in the past few years have affected rural and urban hospitals.

# Source of the Data

- National Hospital Discharge Survey (NHDS), 2001 and 2010
- Based on a national sample of non-Federal, short-stay hospitals
- Data abstracted from the medical records of a sample of discharges
- 448 hospitals provided data for about 330,000 discharges in 2001. In 2010, 203 hospitals provided data for about 152,000 discharges.
- The smaller numbers in 2010 were due to budget constraints, and funding the development of a new hospital survey.

# **Data represents trends over the past ten years**

Research on these topics has been conducted over 10 years. These two years represent what has been occurring over the entire period.

# Definition of Urban and Rural

- Urban includes Metropolitan counties, that is, large central cities, fringes of large cities (suburbs), medium cities, and small cities.
- Rural includes Non-metropolitan counties, that is micropolitan and non-core.
- The reason only these 2 broad categories are used in this research is that the NHDS is a sample survey and does not have reliable data for more refined levels.

# Patient-level variables studied include

- age
- sex
- expected source of payment
- disposition upon discharge
- average length of stay
- numbers of procedures
- types of procedures

# Data analysis

- Sample data were weighted to produce national estimates using multistage estimation procedures.
- Standard errors were derived using SUDAAN, which takes into account the complex design of the NHDS.
- Two-sided t-tests with a critical value of 1.96 (0.05 level of significance) were used to determine statistical significance.

# Background

- Disparities in health care access between rural and urban areas have been the focus of considerable research.
- Research has found that there is a long-standing shortage of physicians, especially specialists, in rural areas.
- But access to hospital care is generally not a problem. Of the 5,000 short-term, acute care hospitals in the US, half of them are in rural areas.

# Rural hospital closure

- There was a period beginning in the mid-1980's when access to hospital care in rural areas was a concern.
- At this time the Medicare hospital prospective payment system went into effect, and many rural hospitals, due to their small size and low volume of services, had difficulty remaining financially viable.
- Some rural hospitals were forced to close.

# Effects on the rural community of hospital closure

- Loss of a hospital, especially if it is the community's only hospital, affects access to inpatient care, but also to outpatient, 24-hour emergency room, long term care and other services the hospital provides or coordinates.
- The supply of physicians and other health care professionals may decrease in areas which lose their hospitals, and recruitment efforts, already difficult, may become even harder.
- Hospital closure could have an adverse effect on the community's economy, e.g. higher unemployment.
- Absence of a hospital could make the area a less popular location for new businesses whose employees want to have access to health care services in the local community.

# Medicare's special payment policies for rural hospitals

- Special Medicare payment categories were established to take into account the unique financial problems rural hospitals face largely due to their low volume of patients.
- Among the payment options which were available for rural hospitals were designation as a sole community hospital, a rural referral center, or Medicare dependent hospital.
- The most popular of these programs is the critical access hospital (CAH) program which began in 1997. Over half of rural hospitals are now CAHs.

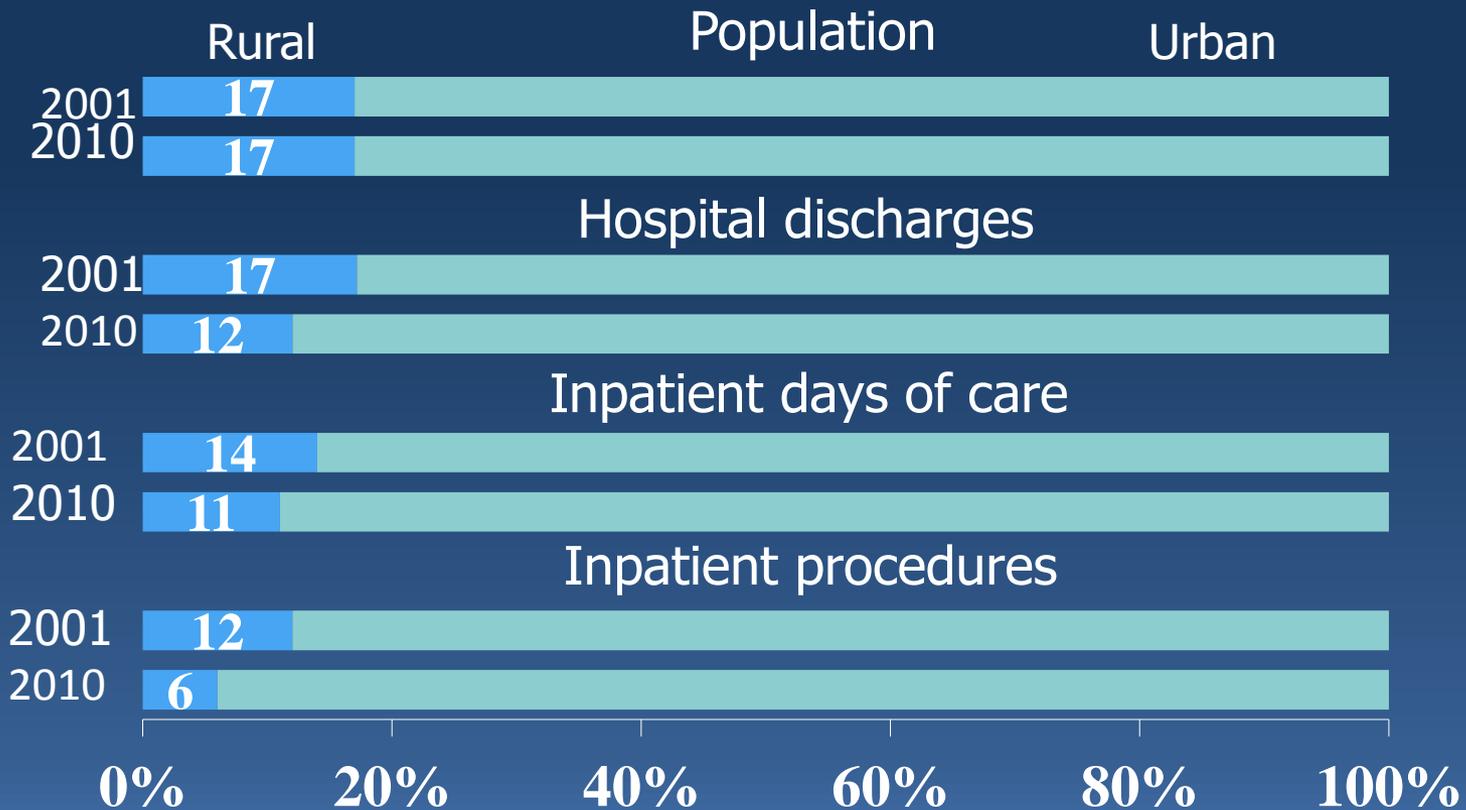
# Critical Access Hospitals are required to have

- fewer than 25 inpatient beds, some of which can be “swing beds,” meaning they can be acute care or nursing home beds
- an average length of stay of 96 hours or less
- 24-hour emergency services,
- and they must be located more than a 35 mile drive from another hospital, or a 15 mile drive in mountainous terrain, unless the state exempts them from this requirement.

# More about Critical Access Hospitals

- States could exempt a CAH from the distance requirement by designating it as a “necessary provider”.
- Being a CAH allows a hospital to be paid on the basis of their costs, currently 101% of these costs, instead of on a prospective payment basis which is the usual way hospitals are paid.

# Rural and Urban Population and Hospital Data

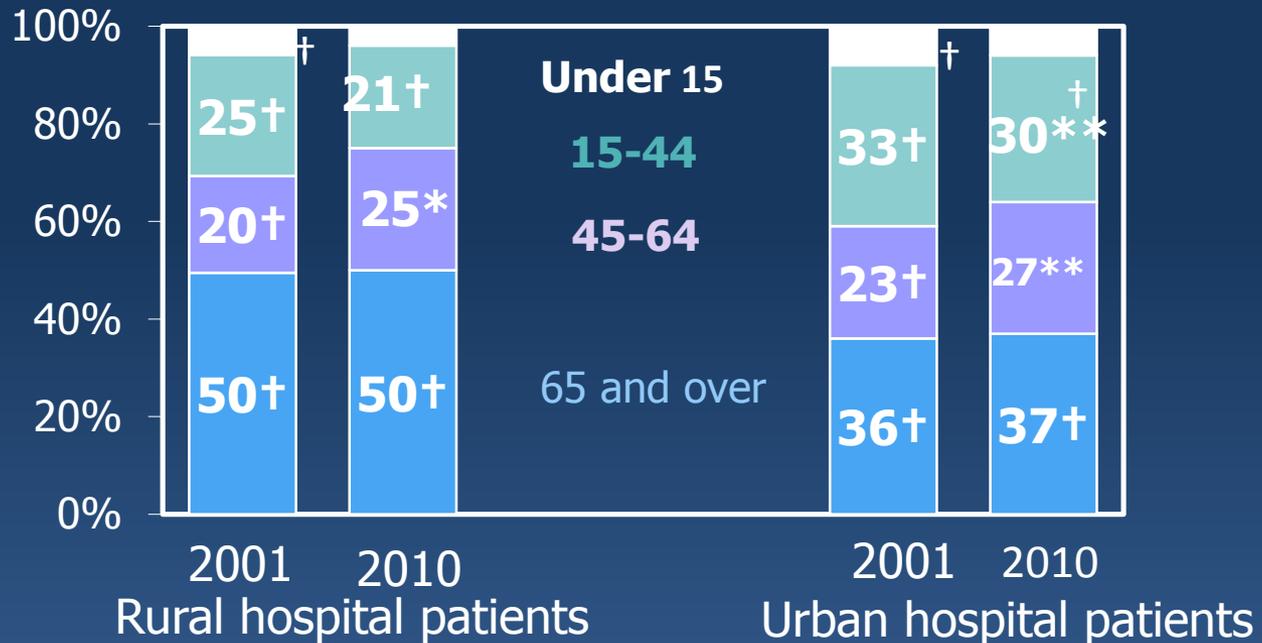


None of these measures were significantly different in 2010 compared to 2001.

Table 1. Characteristics of Rural and Urban Hospital Patients in 2001 and 2010

	2001	2010
<b>Rural hospital patients</b>	5.7 million†	4.1 million†
Average age	57 years†	59 years†
Sex (% Male)	39%	41%
Average length of stay	4.0 days†	4.5 days
% with surgical or nonsurgical procedures	46%*†	38%*†
<b>Urban hospital patients</b>	27 million†	31 million†
Average age	51 years*†	53 years*†
Sex (% Male)	39%	40%
Average length of stay	5.1 days†	4.8 days
% with surgical or nonsurgical procedures	63%†	65%†
†Difference between rural and urban was statistically significant at the 0.05 level. *Difference between 2001 and 2010 was statistically significant at the 0.05 level.		

## Distribution of rural and urban hospital patients by age group, 2001 and 2010



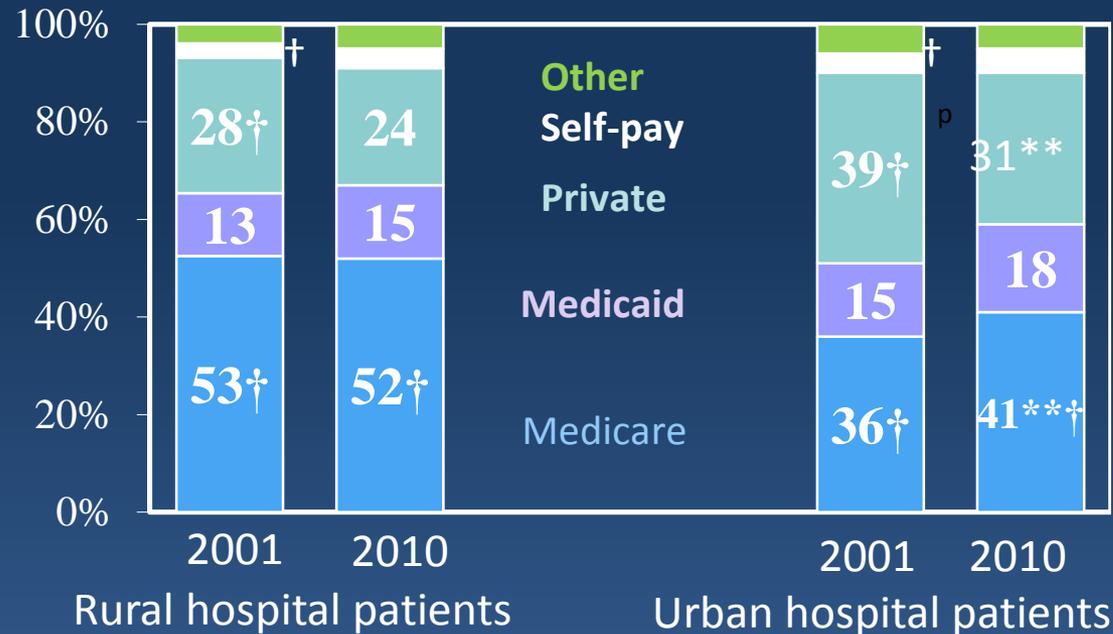
Half of rural hospitalizations in both 2001 and 2010 were for those 65 and over compared to 36-37% of urban hospitalizations. This was a significant difference.

†Difference between rural and urban was statistically significant at the 0.05 level.

\* Difference between rural patients in 2001 and 2010 was statistically significant at the 0.05 level.

\*\* Difference between urban patients in 2001 and 2010 was statistically significant at the 0.05 level.

## Distribution of urban and rural hospital patients by expected payment source, 2001 and 2010

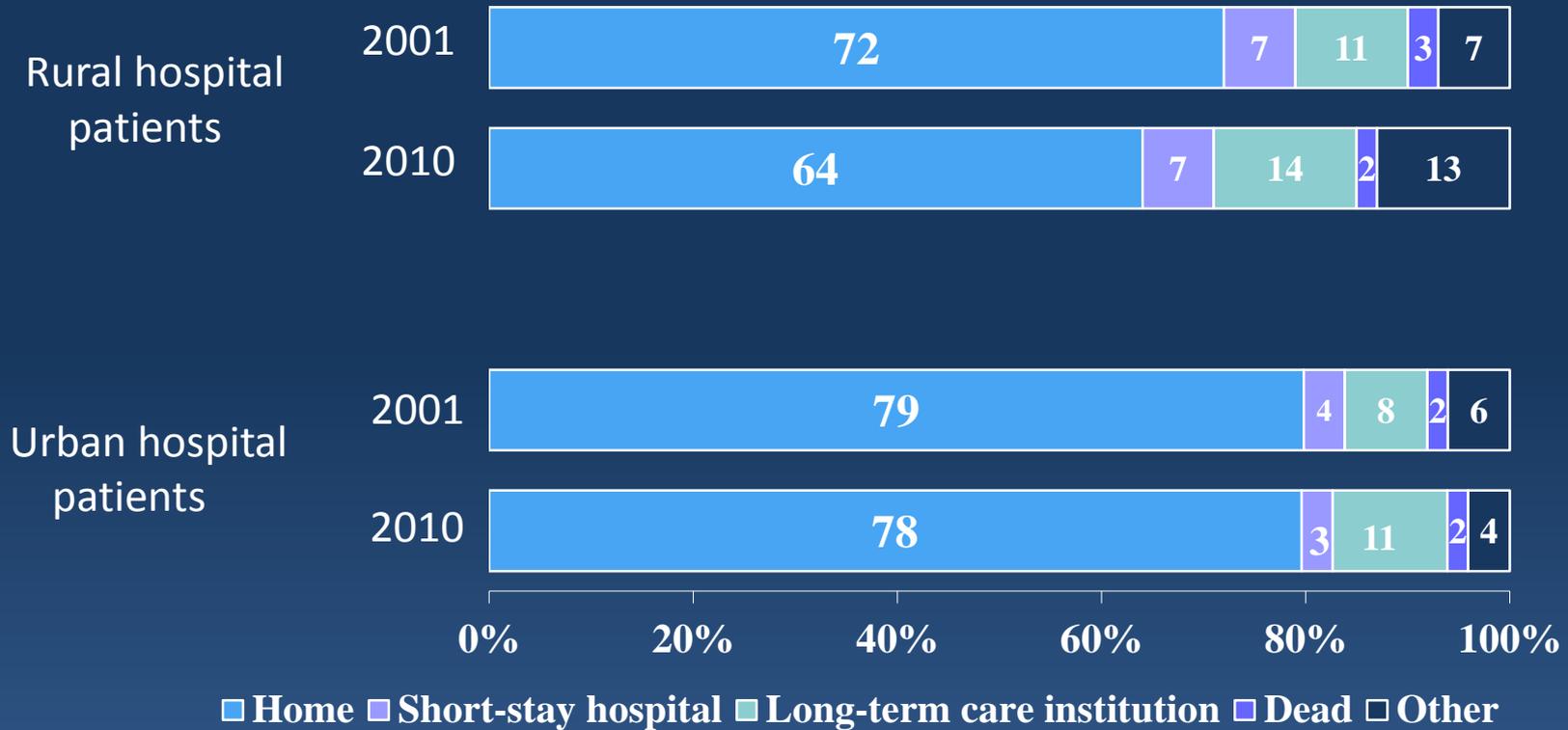


Over half of the rural hospitalizations in 2001 and 2010 were covered by Medicare, and in both years this percentage was significantly higher than the percentage of urban hospitalizations with this payment source.

\*\* Difference between urban patients in 2001 and 2010 was statistically significant at the 0.05 level.

†Difference between rural and urban was statistically significant at the 0.05 level.

# Hospital Discharge status

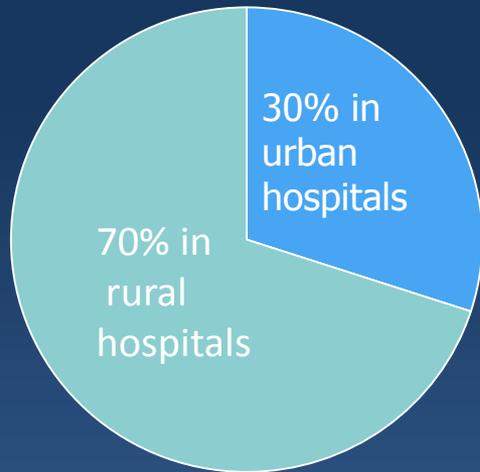


Over time rural hospital discharge status did not change significantly from 2001 to 2010, but for urban hospitals there was a significant decrease in discharges to other short stay hospitals and patients who died in the hospital, and a significant increase in discharges to long term care institutions.

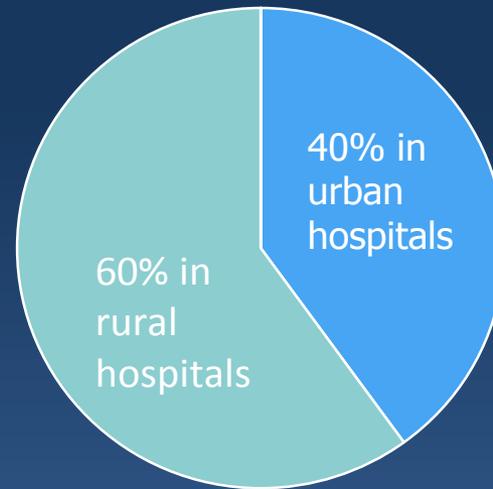
In both years rural hospital patients had a lower percentage of discharges home and a higher percentage of discharges to other short stay hospitals and to long term care institutions compared with urban hospital patients.

# Percentage of hospitalized rural residents in rural and urban hospitals, 2001 and 2010

2001—7.3 million hospitalized rural residents



2010 -6.1 million hospitalized rural residents



The number and percentage of rural residents who stayed in rural areas and those who left for hospitalization in urban areas did not differ significantly from 2001 to 2010.

Although not significant over this time period, this could indicate a trend upward in the percentage leaving rural areas to go to urban hospitals.

# Why is this important?

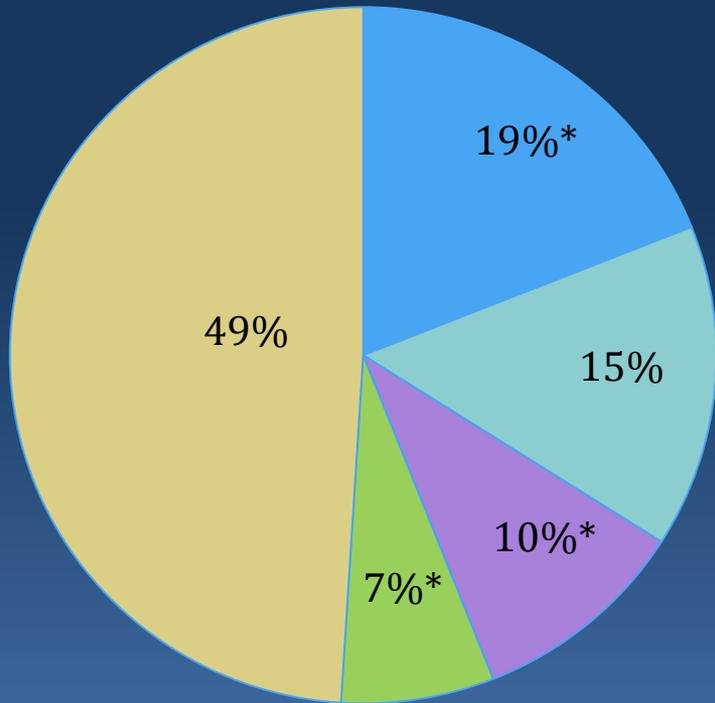
If a large and increasing number of patients leave rural areas for inpatient care in urban hospitals, then the rural hospitals will close in spite of special payment categories.

# Rural residents in 2001 and 2010 who went to urban hospitals were

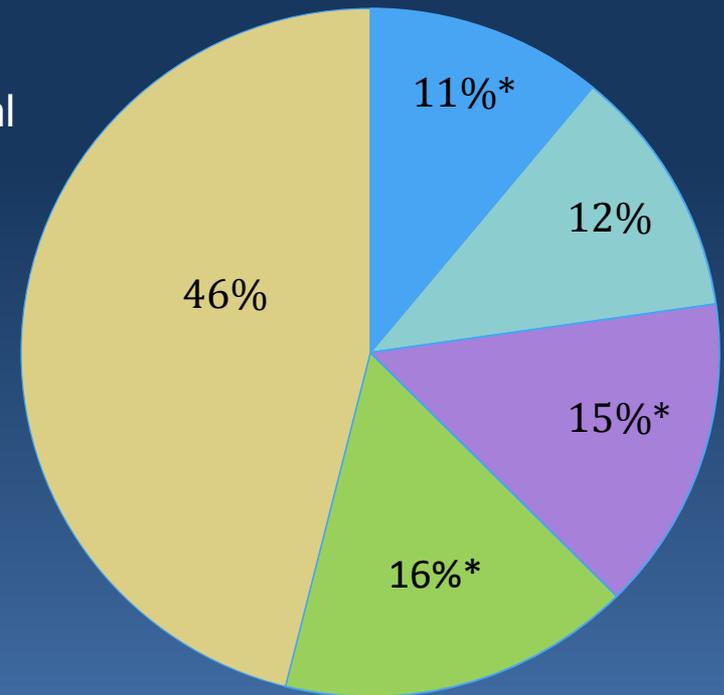
- significantly younger than those who stayed in rural areas for their hospitalization,
- more likely to be male,
- more likely to have a source of payment other than Medicare,
- more likely to have at least one surgical or nonsurgical procedure, and to have 3 or more procedures,
- more likely to be discharged home after hospitalization and less likely to be discharged to another short stay hospital or to a long term care institution.

# Types of procedures performed on hospitalized rural residents, in urban and rural hospitals in 2010

## Hospitalized in urban hospitals



## Hospitalized in rural hospitals



- cardiovascular
- musculoskeletal
- digestive
- obstetric
- all other

Close to half of the procedures of hospitalized rural residents receiving care in both rural and urban hospitals fell into 4 clinical categories: digestive, cardiovascular, musculoskeletal and obstetric.

\* Difference between urban and rural hospitals was significant at the 0.05

# Common procedures performed on rural residents hospitalized in U.S hospitals, 2010

- These 15 procedures comprised 33% of all procedures performed on rural inpatients who were hospitalized in urban hospitals, and 40% of procedures performed on rural inpatients in rural hospitals.
- Selected procedures which were performed with similar relative frequency in rural and urban hospitals are in lower case letters.
- Selected procedures which are *italicized* were relatively more frequent in urban hospitals.
- Selected procedures in UPPER CASE LETTERS were relatively more frequent in rural hospitals.

## Name of procedure

### CESAREAN SECTION

Knee replacement

### HIP REPLACEMENT

Heart procedure

### CHOLECYSTECTOMY

Cardiac catheterization

### HYSTERECTOMY

### OBSTETRICAL PROCEDURE

### COLONOSCOPY

*Spinal fusion*

Reduction of fracture

Angiography & Angiocardiography

*Spinal tap*

Bronchoscopy

Wound debridement

# Health Care Reform

The Patient Protection and Affordable Care Act of 2010 has resulted in an estimated 16.4 million\* additional people obtaining insurance coverage through the health exchanges or marketplace, through Medicaid expansions, or through expansion of coverage for young adults under their parents' plans.

More covered patients means the hospitals will have less charity care and fewer bad debts, and so federal and state uncompensated care payments have decreased sharply.

This may work out well for hospitals and patients in the 38 states that have expanded Medicaid. Hospitals in these states will not only have previously uncovered patients who now qualify for Medicaid, but also those who qualify under the healthcare marketplace with and without subsidies.

\*Data from the [HHS.gov/HealthCare](http://HHS.gov/HealthCare) website

# Challenges for rural hospitals

- But 22 states have not expanded their Medicaid programs, and many of these are states with large rural populations. There will be patients in these states who don't qualify under their existing Medicaid program, but also don't qualify for subsidies for insurance through the marketplace.
- There is again concern that rural hospitals will have to close. Data show that 56 rural hospitals have closed since January 2010 and it is estimated that 283 hospitals are in danger of closing in the next few years.\*

\*Data from the North Carolina Rural Health Research Program, Cecil G. Sheps Center for Health Services Research, University of North Carolina, Chapel Hill, North Carolina.

# Other changes affecting rural hospitals

- There were across-the-board automatic federal spending cuts due to sequestration mandated as part of the Budget Control Act (BCA), which was passed in August 2011. These resulted in a 2% Medicare payment cut for hospitals. This could have been particularly difficult for the rural hospitals that are already financially challenged.
- There have been a lot of consolidations and development of alternative delivery systems like accountable care organizations which could affect where people can get their covered care. Many of these alternatives have been much more popular in metropolitan areas with large enough populations and multiple providers. But those which do involve rural residents could require or encourage care in urban areas meaning less access for rural residents locally.

# Proposals being considered

- the Administration and Congress have proposed a decrease in CAH payments from 101% of costs to 100%.
- Also there are proposed changes which call eliminating CAH status from hospitals that don't meet the original geographic standards. This could affect 1,000 hospitals that may not be able to stay open under any other hospital designation.

# MEDPAC Report

- A 2012 report\* from MEDPAC concluded that Medicare rural and urban patients have equal access to care since their utilization of services is the same.
- This report notes that having access to care does not mean that the care has to involve no or an equal amount of travel.

\* Report to the Congress: Medicare and the Health Care Delivery System. June 2012. Chapter 5. Serving rural Medicare beneficiaries. MEDPAC. Washington, DC.

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