



Changes in Provision of Selected Services by Rural and Urban Hospitals between 2009 and 2017

Kathleen Knocke, MSPH; George H. Pink, PhD; Kristie W. Thompson, MA;
Randy K. Randolph, MRP; Mark Holmes, PhD

BACKGROUND

During the past decade, access to health care services provided by rural hospitals has changed in two major ways. First, there has been a substantial increase in the number of rural hospitals that have completely closed or converted (provide some health care services, but not inpatient care). Secondly, and less understood, many rural hospitals have reduced or terminated services historically considered to be essential hospital services.¹ Examples of such services include the following:

- **Obstetrics.** The percent of rural counties with available hospital-based obstetric services decreased from 55% to 44% between 2004 and 2018. These closures are important because the loss of hospital-based obstetric services is associated with increases in out-of-hospital and preterm births and births in hospitals without obstetric units.^{2,3}
- **Surgery.** In previous work, we found the number of rural hospitals providing surgery services decreased between 2001 and 2008.⁴ The loss of surgery for a rural hospital can have severe impacts on access to general and emergency surgical care in addition to hospital financial viability as surgery volume has a direct and positive relationship with operating margin.⁵
- **Long-term care.** A recent study found that more than 500 nursing homes in rural areas either closed or merged between 2008 and 2018. If there are no other nursing homes nearby, closure can affect residents' access to nursing homes and skilled nursing facilities.⁶
- **Home health.** The Medicare Payment Advisory Commission's (MedPAC) March 2020 chapter on home health care services found Medicare beneficiaries who live in a ZIP Code that is not served by at least one home health agency were more likely to live in rural areas.⁷
- **Oncology.** Compared with nonrural areas, the rural health care system has fewer: generalist and specialist providers; hospitals and other treatment facilities; dedicated cancer centers; and laboratories or radiation therapy services. Rural patients are often diagnosed at later stages; are less likely to receive standard-of-care treatment, follow-up, or supportive services; and have worse health outcomes during survivorship than nonrural patients.⁸

KEY FINDINGS

- ♦ The percentage of rural hospitals that provided skilled nursing, obstetrics, labor and delivery, and home health services declined between 2009 and 2017.
- ♦ The percentage of rural hospitals that provided orthopedic services, oncology services, hospital-based outpatient services, emergency psychiatric services, and chemotherapy services increased between 2009 and 2017.
- ♦ Substantial differences in trends were observed between rural and urban hospitals. Across all selected services, there were no declines in the percentage of urban hospitals providing a service, with most services expanding in urban hospitals.

To date, few studies have examined health care services offered by rural hospitals. A 2011 study in *Health Services Research* found that non-profit and public rural hospitals were more likely to offer unprofitable health care services than for-profit hospitals.⁹ Existing research demonstrates service provision varies among rural hospitals, and differential access can affect health outcomes.^{2-5,8} The purpose of this study is to gain a better understanding of (1) recent trends in hospital service provision and (2) whether there were disparities between rural and urban hospitals. In this brief, we describe and compare the changes in service provision for rural and urban hospitals between 2009 and 2017.

METHODS

Hospitals that responded for each service question in both 2009 and 2017 were identified from the American Hospital Association (AHA) Annual Survey Database™.¹⁰ Hospitals were categorized as either rural or urban, rural being defined as located in non-Metropolitan counties and U.S. census tracts with Rural-Urban Commuting Area (RUCA) codes 4-10 in Metropolitan counties.¹¹

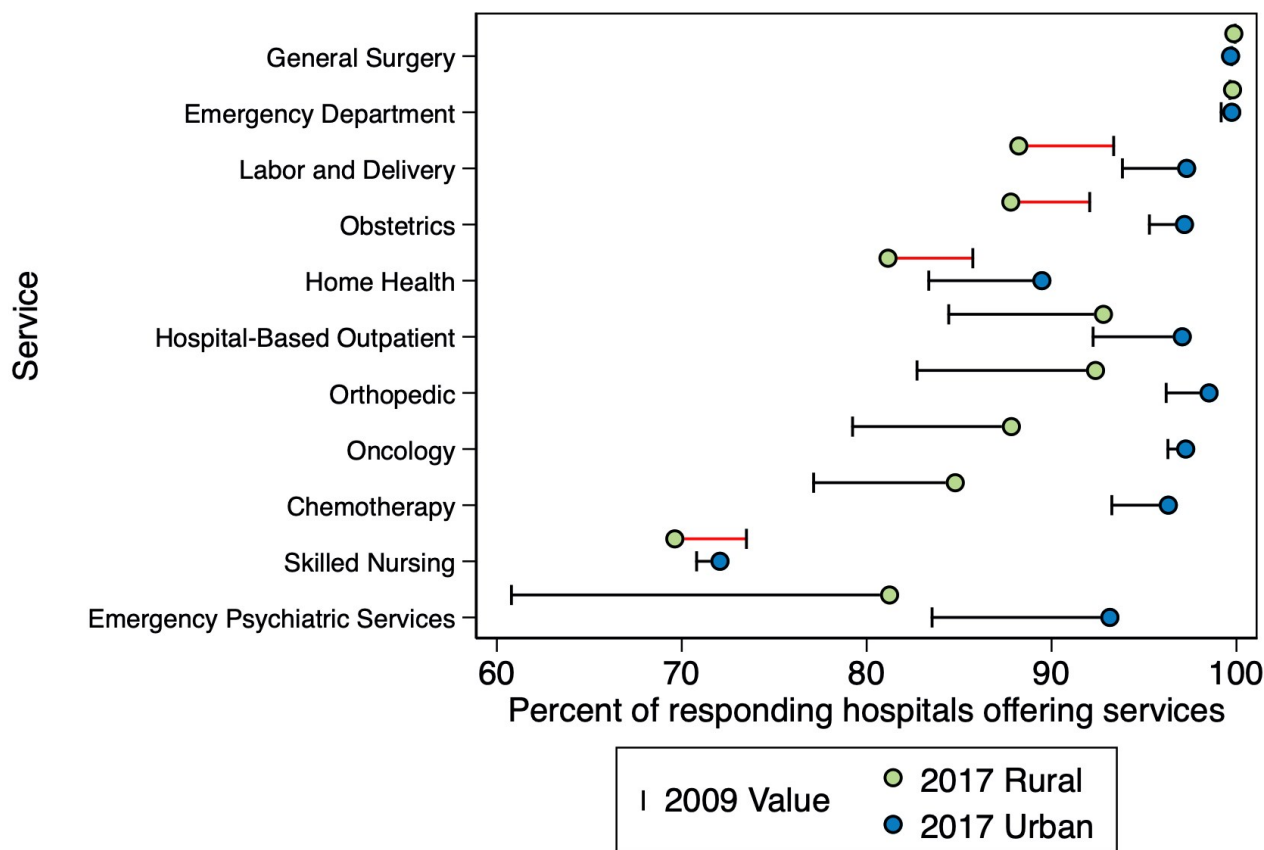
We used two criteria to select 11 hospital services for the study (obstetrics, general surgery, emergency department, home health, labor and delivery, skilled nursing, hospital-based outpatient, orthopedic, oncology, emergency psychiatric services, chemotherapy). First, a service had to be offered by at least 50% of the total number of rural hospitals or urban hospitals in both years of the dataset. For example, 1,420 hospitals (100%) in 2017 reported provision of general surgery while only 266 hospitals reported provision of substance abuse services. Second, a service had to be one that typically is offered in a hospital and may not otherwise be present in the community. For example, labor and delivery and obstetrics are usually provided in a hospital setting, while primary care and dental services are typically provided by community practitioners. As such, labor and delivery and obstetrics services were included in the analysis, and primary care and dental services were not. The percent of hospitals that offered a health care service in 2009 and the percent offering the same service in 2017 were calculated and included in Figure 1. Reporting hospital numbers and percentages are included in the appendix.

RESULTS

Figure 1 shows the percent of rural and urban hospitals offering the services included in the study in 2009 and 2017. The figure shows that the percentage of rural hospitals that provided skilled nursing, obstetrics, labor and delivery, and home health services declined between 2009 and 2017. In contrast, the percentage of rural hospitals that provided orthopedic services, oncology services, hospital-based outpatient services, emergency psychiatric services, and chemotherapy services increased between 2009 and 2017.

Considerable differences between rural and urban hospitals are apparent in the figure. Across all selected services, the percentage of urban hospitals that provided each service increased between 2007 and 2019 – there were no declines in the percentage of urban hospitals providing a service. For both rural and urban hospitals, the service that had the greatest increase in the percentage of hospitals reporting provision was emergency psychiatric services, and the smallest change was general surgery and emergency department services (provided nearly universally).

Figure 1. Changes in Hospital-based Services between Rural and Urban Hospitals, 2009 and 2017



Red lines denote an increase. Black lines denote a decrease.

DISCUSSION

In 2016, the American Hospital Association released a report entitled “Task Force on Ensuring Access in Vulnerable Communities.”¹² The report identifies the essential health care services that should be maintained locally within a community: primary care services, psychiatric and substance use treatment services, emergency and observation services, prenatal care, transportation, diagnostic services, home care, dentistry services, and a robust referral structure. Our study finds that provision of some of these essential services decreased in many rural hospitals. In particular, the decrease in the percentage of rural hospitals providing skilled nursing, obstetrics, labor and delivery, and home health services confirms findings of previous studies and amplifies the concern about access to these hospital services in rural communities. The finding that urban hospitals did not have decreases in these services is further evidence of rural-urban disparities in access to essential health care services.

On the other hand, the increase in the percentage of rural hospitals that provided orthopedic services, oncology services, hospital-based outpatient services, emergency psychiatric services, and chemotherapy services may be progress toward increasing access for people who live in rural communities, although unmet need is likely still prevalent for some of these services.

Ultimately, it is important to understand what services are available in rural areas and the reasons why rural hospitals are reducing or eliminating services. For example, insufficient reimbursement, low patient volumes, and workforce shortages are likely important in explaining hospital decisions about provision of services. A better understanding of the varying availability of services could inform policy makers and help target solutions to improve access to needed services. To further this understanding, we are producing a companion brief examining the association between rural hospital revenue sources (outpatient vs. inpatient) and subsequent service changes. We will also study whether this association differs by community characteristics (including race and ethnicity).

LIMITATIONS

Hospitals that did not participate in both the 2009 and 2017 surveys were excluded, so the study sample is not representative of all rural and urban hospitals. Service provision information from the AHA survey has substantial missing data. However, no patterns were identified so data are considered to be missing at random. Different sources of data (e.g., the AHA survey, Medicare cost reports, Medicare claims) yield different conclusions about service provision; thus, alternative methods and data may reach different conclusions. The AHA survey measures self-report availability of hospital services and is not necessarily a measure of all the available health services provided each year in a community. Future research reconciling the findings in this brief with hospital cost report data to measure service utilization would strengthen our understanding of hospital service provision trends. Differences between the AHA survey and cost report data may explain the discrepancy between the findings in this study and our previous brief about general surgery.⁴

APPENDIX: Values by Service for Figure 1

Health Care Service	Rural			Urban		
	Reported in 2009 Number (%)	Reported in 2017 Number (%)	N*	Reported in 2009 Number (%)	Reported in 2017 Number (%)	N*
Obstetrics	928 (92.1%)	885 (87.8%)	1,008	1,356 (95.3%)	1,383 (97.2%)	1,423
General Surgery	1,419 (99.9%)	1,418 (99.9%)	1,420	1,578 (99.8%)	1,577 (99.7%)	1,582
Emergency Department	1,409 (99.7%)	1,411 (99.8%)	1,414	1,557 (99.2%)	1,566 (99.8%)	1,570
Home Health	860 (85.7%)	814 (81.2%)	1,003	1,022 (83.4%)	1,097 (89.5%)	1,226
Labor and Delivery	928 (93.4%)	877 (88.2%)	994	1,324 (93.8%)	1,373 (97.3%)	1,411
Skilled Nursing	588 (73.5%)	557 (69.6%)	800	616 (70.8%)	627 (72.1%)	870
Hospital-Based Outpatient	1,080 (84.4%)	1,187 (92.8%)	1,279	1,416 (92.3%)	1,490 (97.1%)	1,535
Orthopedic	977 (82.7%)	1,091 (92.4%)	1,181	1,494 (96.2%)	1,530 (98.5%)	1,553
Oncology	729 (79.2%)	808 (87.8%)	920	1,403 (96.3%)	1,417 (97.3%)	1,457
Emergency Psychiatric Services	431 (60.8%)	576 (81.2%)	709	1,086 (83.5%)	1,211 (93.2%)	1,300
Chemotherapy	705 (77.1%)	775 (84.8%)	914	1,342 (93.3%)	1,386 (96.3%)	1,439

* Selected health care services were restricted to be non-missing in both 2009 & 2017 to present only hospitals that reported in both years. Samples (Ns) vary by service.

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