POLICY BRIEF
June 2018

UNIVERSITY OF MINNESOTA
RURAL HEALTH
RESEARCH CENTER

Availability of Respiratory Care Services in Critical Access and Rural Hospitals

Michelle Casey, MS
Alex Evenson, MA
Ira Moscovice, PhD
Zhengtian Wu, MS

Key Findings

- The majority of both rural and urban hospitals provide respiratory care services, although they are an optional service for Medicare-certified hospitals. However, Critical Access Hospitals (CAHs) are significantly less likely (83.9%) than rural Prospective Payment System (PPS) (95.0%) and urban PPS (96.8%) hospitals to provide respiratory care services.
- CAHs are also significantly less likely (69.4%) than rural or urban PPS hospitals to employ any respiratory therapists.
- Among hospitals that do employ respiratory therapists, the median number of full-time equivalent (FTE) respiratory therapists is 3.0 in CAHs, compared to 7.4 in rural PPS hospital and 15.4 in urban PPS hospitals.
- More limited availability of respiratory care services in CAHs suggests that some rural patients must travel to larger rural hospitals or urban hospitals to access these services or forgo them. This is particularly concerning given higher rates of Chronic Obstructive Pulmonary Disease (COPD) prevalence and mortality among rural populations.

Purpose

The purpose of this policy brief is to describe the availability of respiratory care services and respiratory therapists in Critical Access Hospitals (CAHs), and in rural and urban Prospective Payment System (PPS) hospitals.

Introduction

Chronic respiratory diseases, including COPD, are a leading cause of death in the U.S. However, treatments for some chronic respiratory diseases, such as pulmonary rehabilitation, can improve the quality of life and prevent or delay death.[1] Access to respiratory care services is especially important for rural populations, who are more likely to suffer from chronic respiratory diseases. The COPD prevalence rate, for example, has been estimated to be about 12% for individuals living in rural communities compared to 7% across the U.S.[1] In addition to higher rates of age-adjusted prevalence of diagnosed COPD among adults living in rural areas, a recent Centers for Disease Control and Prevention (CDC) study also found that Medicare hospitalization rates for COPD and age-adjusted death rates (per 100,000 population) for COPD were much higher among rural residents (54.5) than those living in large metropolitan areas (32.0) in 2015.[2]

Respiratory care services, also known as respiratory therapy, are defined as "services prescribed by a physician or a non-physician practitioner for the assessment and diagnostic evaluation, treatment, management, and monitoring of patients with deficiencies and abnormalities of cardiopulmonary function."[3] These services may include: 1) application techniques to support oxygenation and ventilation in an acute illness (e.g., establish/maintain artificial airway); 2) therapeutic use/monitoring of medicinal gases, pharmacologically active mists and aerosols, and equipment (e.g., resuscitators, ventilators); 3) bronchial hygiene therapy (e.g., deep breathing, coughing exercises, and postural drainage); 4) diagnostic tests for evaluation by a physician (e.g., pulmonary function tests, including spirometry and blood gas analyses); 5) pulmonary rehabilitation techniques (e.g., exercise conditioning, breathing retraining, and patient education) and 6) periodic assessment of the patient for the effectiveness of respiratory therapy services.[3] They may be performed by respiratory therapists (RTs), physical therapists, nurses, and other qualified personnel as described by relevant state practice acts.

In Centers for Medicare & Medicaid Services (CMS) regulations, respiratory care services are an optional hospital service. If a hospital does provide them, it must comply with applicable standards in Federal or State laws, regulations or guidelines, as well as standards and recommendations promoted by nationally recognized professional organizations, including having sufficient qualified personnel to provide services.[4] Medicare conditions of participation for hospitals providing respiratory care services require a full-time or part-time director of respiratory care services who is a doctor of medicine or osteopathy and has the knowledge, experience, and capabilities to supervise and administer the service properly. In addition, the hospital must have adequate numbers of RTs, respiratory therapy technicians, and other personnel who meet the qualifications specified by the medical staff, consistent with State law.[4]

According to the Bureau of Labor Statistics (BLS), there were about 130,200 RT positions in the U.S. in 2016. Hospitals were the largest employer of RTs, accounting for 81% of positions, followed by nursing homes (5%) and physician offices (2%).[5] Employment of RTs is expected to grow at a much faster rate than the average for all occupations (23% from 2016-2026), due to increased incidence of respiratory conditions such as pneumonia, COPD, and other disorders that can permanently damage the lungs or restrict lung function. BLS expects that rural areas will more often be in need of RTs due to a more limited supply relative to demand for their services.[6]

Approach

Data for this analysis came from the 2016 Medicare Provider of Services (POS) File, which includes data on all Medicare-certified hospitals. We identified all currently operating CAHs, as well as short-term general hospitals. Hospitals were categorized by CAH status and rurality, using the POS designation of metropolitan areas as urban and non-metropolitan areas as rural. Descriptive statistics were used to analyze data on the provision of respiratory care services and respiratory therapist staffing in CAHs.

Results

There are significant differences in the likelihood of providing respiratory care services by hospital type and location. CAHs are significantly less likely (83.9%) to provide respiratory care services than rural PPS (95.0%) and urban PPS (96.8%) hospitals (Table 1, next page) (p<.0001). Most of hospitals that provide respiratory care services—regardless of hospital type or location—use their own staff to provide them.

Less than 4% of CAHs, rural PPS, and urban PPS hospitals provide respiratory care services under arrangement; similar percentages provide them both by staff and under arrangement. CAHs are significantly more likely to report not em-ploying any respiratory therapists (30.7%), compared to 12.1% of rural PPS hospitals and 9.2% of urban PPS hospitals (Table 2, next page) (p<.0001). Among hospitals with any respiratory therapists, CAHs report a median FTE of 3.0 RTs, compared to 7.4 FTE RTs for rural PPS hospitals and 15.4 FTE RTs for urban PPS hospitals.

CAHs are also significantly more likely than rural and urban PPS hospitals to have respiratory services but not respiratory care therapists, as well as to not have either one (Table 3, next page) (p<.0001).

Discussion and Implications

Rural-urban disparities in COPD prevalence and mortality might be reduced with improved access to prevention, early diagnosis, and treatment of COPD for rural populations. However, this analysis found that CAHs are significantly less likely than rural PPS and urban PPS hospitals to provide respiratory care services, and CAHs are also significantly less likely to employ any respiratory therapists. These results suggest that some rural patients in need of respiratory care services must travel to larger rural hospitals or urban hospitals to access these services or forgo them. Future research will assess the availability of pulmonary rehabilitation services for rural patients with COPD in CAHs and rural hospitals.

References

1. Dwyer-Lindgren L, Bertozzi-Villa A, Stubbs RW et al. Trends and Patterns of Differences in Chronic Respiratory Disease Mortality Among US Counties, 1980-2014. *JAMA*. 2017;318(12):1136-1149. doi:10.1001/jama.2017.11747.
2. Croft JB, Wheaton AG, Liu Y, et al. Urban-Rural County and State Differences in Chronic Obstructive Pulmonary Disease — United States, 2015. *MMWR*. Vol. 67, No. 7. February 23, 2018. https://bit.ly/2GNfukb
3. CMS Manual System, Pub 100-20, One Time Notification, Transmittal 477, dated April 24, 2009, Change Request 6338 Coverage Guidance Coverage Indications, Limitations, and/or Medical Necessity.
4. CMS, State Operations Manual Appendix A - Survey Protocol, Regulations and Interpretive Guidelines for Hospitals. Rev. 151, 11-20-15.
5. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Respiratory Therapists. https://bit.ly/2Mhhswu
6. Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Respiratory Therapists: Job Outlook. https://bit.ly/2MhJbgm

Table 1. Provision of Respiratory Care Services by Hospital Type and Location

	CAHs	Rural PPS	Urban PPS	Total
Total number of hospitals	1,341	819	2,538	**4,698**
Provided total	83.9%	95.0%	96.8%	**92.8%**
Provided by staff	76.3%	88.4%	89.7%	**85.6%**
Provided under arrangement	3.5%	3.3%	3.6%	**3.5%**
Provided by staff and under arrangement	4.1%	3.3%	3.6%	**3.7%**

Source: Medicare Provider of Services 2016 data

Table 2. Respiratory Therapists Employed[a] by Hospital Type and Location

	CAHs	Rural PPS	Urban PPS	Total
Number of hospitals	1,341	819	2,538	**4,698**
No respiratory therapists (RTs)[b]	30.7%	12.1%	9.2%	**15.8%**
Have RTs[b]	69.4%	87.9%	90.8%	**84.2%**
Median # FTE RT's (among hospitals with RTs)	3.0	7.4	15.4	**9.0**

[a]Defined as any portion of a full-time equivalent (FTE).

[b]Differences between CAHs and rural PPS and urban PPS hospitals are significant at p<.0001.

Source: Medicare Provider of Services 2016 data

Table 3. Respiratory Therapists[a] and Respiratory Care Services by Hospital Type and Location

	CAHs	Rural PPS	Urban PPS	Total
Number of hospitals	1,341	819	2,538	**4,698**
Both respiratory care services and RTs[b]	69.4%	87.9%	90.8%	**84.2%**
Respiratory care services, but no RTs[b]	14.5%	6.1%	7.1%	**8.7%**
Neither respiratory care services nor RTs[b]	16.1%	5.0%	3.2%	**7.2%**

[a]Defined as any portion of a full-time equivalent (FTE).

[b]Differences between CAHs and rural PPS and urban PPS hospitals are significant at p<.0001.

RHRC
Rural Health Research & Policy Centers
Funded by the Federal Office of Rural Health Policy
www.ruralhealthresearch.org

Support for this study was provided by the Office of Rural Health Policy, Health Resources and Services Administration, PHS Grant No. 5U1CRH03717.

For more information, contact Michelle Casey (mcasey@umn.edu).

University of Minnesota Rural Health Research Center
Division of Health Policy and Management, School of Public Health,
2520 University Avenue SE, #201
Mnneapolis, Minnesota 55414