# Reducing Potentially-Preventable Readmissions in Critical Access Hospitals

Emma Distel, BS; Michelle Casey, MS; Shailendra Prasad, MBBS, MPH University of Minnesota

## **KEY FINDINGS**

- It is important for Critical Access Hospitals (CAHs) to examine their readmission rates and consider implementing strategies to reduce potentially-preventable readmissions.
- Several evidence-based readmission reduction programs that have been shown to reduce readmissions in large hospitals are being implemented in CAHs or show promise to be useful in small rural hospital settings.
- Common readmission reduction strategies include increased time spent with patients and families at discharge to ensure that care management plans are understood and improving coordination with the patient's primary care physician.
- A number of readmission reduction programs have shared their resources and tools with other programs, and make them available online.

## INTRODUCTION

Preventable hospital readmissions are considered to be a marker of poor-quality care and may reflect problems with care coordination. Additionally, they place a significant financial burden on the health care system. 1-3 Since October 1, 2012, the Centers for Medicare & Medicaid Services (CMS) has penalized Prospective Payment System (PPS) hospitals with excess readmissions by reducing their Medicare payments under the Hospital Readmissions Reduction Program (HRRP) authorized by the Affordable Care Act. 4-6 Currently, Critical Access Hospitals (CAHs) are exempt from these penalties; however, readmission rates are an area of focus in the Medicare Beneficiary Quality Improvement Project (MBQIP). It is important for CAHs to examine their readmission rates and consider implementing strategies to reduce potentially-preventable readmissions.

#### **PURPOSE**

The purpose of this project is to identify and disseminate information about successful evidence-based interventions that have been conducted to reduce readmissions in CAHs and other small rural hospitals.

#### **APPROACH**

We reviewed the literature on readmissions, including articles in peer-reviewed healthcare journals, reports and websites from a variety of public and private organizations working on hospital readmissions. We sought to identify programs and strategies that have been successfully implemented in CAHs and other small rural hospitals, as well as other readmission prevention programs and strategies that hold promise for adoption in CAHs.

We reviewed information in the state Medicare



Rural Hospital Flexibility (Flex) Program work plans submitted for FY 2013 and 2014, and identified states with initiatives to reduce readmissions. We interviewed Flex Coordinators in those states to ask about readmissions activities involving CAHs and how those activities were implemented.

## **RESULTS**

Hospital readmission prevention initiatives identified in the literature and through contacts with State Flex Programs include:

- Project Re-Engineered Discharge (Project RED)
- Project BOOST (Better Outcomes for Older Adults through Safe Transitions)
- Care Transitions Program, University of Colorado
- Transitional Care Model
- SAFE Transitions of Care (Minnesota)
- Institute for Healthcare Improvement State Action on Avoidable Readmissions (STAAR)
- Agency for Healthcare Research & Quality's Guide to Reduce Medicaid Readmissions
- Preventing Avoidable Readmissions Together (PART, South Carolina)
- Reducing Avoidable Readmissions Effectively (RARE, Minnesota)
- Preventing Readmissions through Effective Partnerships (PREP, Illinois)
- Healthy Transitions and iCARE Programs (Colorado)

This list contains both programs that have developed unique toolkits and initiatives that are using a combination of toolkits from other programs to meet the unique challenges of reducing readmissions.

# Project Re-engineered Discharge (Project RED)

A national initiative supported by AHRQ, Project RED has been piloted in rural community hospitals and CAHs to decrease 30-day all-cause readmission rates. Project RED assigns a nurse discharge advocate to coordinate and follow-up with the patient post-discharge to facilitate patient understanding of their discharge instructions.<sup>7</sup> The project also focuses on more direct

involvement of the patient and family in the discharge process. Eighteen CAHs participating in the RARE Campaign chose to implement the RED curriculum in their hospital. Project RED has been implemented in a variety of rural settings. In a 30-bed medical surgical unit in a rural community hospital, implementation of Project Red over four months, 28 of 336 discharged patients (8.3%) were readmitted within 30 days (representing a 32% absolute reduction from the baseline readmission rate.)<sup>8</sup>

Project Better Outcomes by Optimizing Safe Transitions (BOOST)

Project BOOST is a hospital discharge program that focuses on improving the hospital-to-home transition process for Medicare beneficiaries. It promotes eight key themes in its implementation plan to improve hospital discharge and transition: institutional support for the program, a steering committee, engagement of patients and families, reliable data collection, specific and attainable goals, standardized discharge pathways, and policies & procedures within the institution to support the care team. In a study of academic and non-academic hospitals over 12 months (11 hospitals implemented at least 2 BOOST tools; 19 control hospitals), BOOST reduced hospital readmissions by a 2% absolute reduction (14.7% average readmission rate pre-Boost and 12.7% average post-Boost). 10

The Illinois Hospital Association implemented components of the BOOST Toolkit in their Prevention Readmission through Effective Partnerships (PREP) program. Thirty-one CAHs in Illinois that participated in PREP implemented BOOST components. Using the BOOST tools, they worked to standardize discharge processes, improve care transitions, and reduce readmissions in their CAHs. 11

Care Transitions Program at the University of Colorado

The Care Transitions program is a 4-week, evidence-based program developed at the University of Colorado. <sup>12</sup> Patients who participated in a randomized controlled trial at a large integrated delivery system experienced lower rates of readmission than patients in the control group. The readmission rates at 30-days



were 8.3% (n=379) for those in the intervention group and 11.9% (n=371) for patients in the control group.<sup>13</sup> During the program, patients and families work with a transitions coach to improve the hospital discharge and transition process through home visits and phone calls.<sup>12</sup> The patients learn self-management skills and work with their transition coach to set attainable goals for managing their health.<sup>12</sup>

Although the Care Transitions Program has been shown to reduce readmission rates in a variety of large-hospital settings, we were not able to identify any studies testing the program in rural hospitals or CAHs. This program was adopted by 17 CAHs in Minnesota that are participating in the RARE Campaign. The CAHs used discharge advocates to help coordinate communication between providers and to work with patients and their families to ensure they were ready for discharge. CAHs also had success utilizing home visits to ensure improved care transitions. The capture of the coordinate communication between providers and to work with patients and their families to ensure they were ready for discharge.

#### Transitional Care Model

The Transitional Care Model developed at the University of Pennsylvania uses a transitional care nurse to act as a liaison between the patient and provider and coordinate transitions for the patient. <sup>14</sup> This model specifically targets older adults with chronic disease. The nurse facilitates communication across different healthcare settings and between the patient, family, and care team. 14 The nurse makes home visits and telephone calls following discharge to ensure that the patient is receiving necessary care; these also help the nurse assess the patient and prevent adverse outcomes from occurring before they result in readmission.<sup>15</sup> In a year-long randomized clinical trial with a sample of 6 academic and community hospitals (239 patients), patients who had a transitional care nurse had 104 readmissions while patients without a transitional care nurse had 162 readmissions.<sup>16</sup>

Institute for Healthcare Improvement: State Action on Avoidable Rehospitalizations (STAAR)

The STAAR initiative aimed to decrease readmissions by improving transitions of care and engaging state-level leadership to mitigate systemic barriers to change.<sup>17</sup> In STAAR, hospitals improve their processes,

both system-wide and directly within the discharge process, through needs assessments, learning, handover communication and post-discharge follow-up.<sup>7,17,18</sup> The Institute for Health Care Improvement (IHI) worked with Washington, Michigan, and Massachusetts on STAAR from 2009-2013, with funding from the Commonwealth Fund. While working on STAAR, IHI developed a number of specific resources for transitioning between different care settings including hospital to community, hospital to home care, hospital to skilled nursing facility, and hospital to clinic.<sup>19</sup>

Agency for Healthcare Research & Quality's (AHRQ) Guide to Reduce Medicaid Readmissions

Although hospitals are not penalized for readmissions of Medicaid patients (as they are for Medicare patients), Medicaid patients represent a higher percentage of total readmissions than Medicare patients.<sup>20</sup> To address the rates of these readmissions, AHRQ developed a toolkit that includes best practices to assess readmission causes, improve care transitions, and reduce readmissions. Many of the tools that AHRQ recommends were adapted from the STAAR, BOOST, and Project RED programs.<sup>20</sup>

#### Minnesota SAFE Transitions of Care

This program, designed to improve patient safety and reduce readmissions by improving communication during discharge and transitions of care, was developed and pilot-tested by the Minnesota Hospital Association to specifically address readmission rates in Minnesota. The SAFE program has four key pillars: safe site team, access to information, facility expectations, and educate staff and patients. Part of the SAFE transitions of care program is to rely on resources from other readmission reduction programs including BOOST and the Care Transitions Program. SAFE Transitions of Care was adopted by 11 CAHs in Minnesota participating in the RARE Campaign. 22

Preventing Avoidable Readmissions Together (PART)

PART is a hospital readmission reduction program that was tested in a recent South Carolina study of hospitals. Within this group, 19 of 59 hospitals were rural and 15% (9 hospitals) had less than 50 beds. <sup>18</sup> The South



Carolina results showed positive adoption of program materials and strategies designed to reduce readmission rates. <sup>18</sup> PART borrowed much of its methodology from the State Action on Avoidable Rehospitalizations (STAAR) regional campaign to reduce hospital readmissions. <sup>17</sup> A large portion of the material distributed to hospitals participating in PART comes from Project BOOST (previously described).

Reducing Avoidable Readmissions Effectively (RARE) Campaign

A total of 82 hospitals, over half of which are CAHs, are participating in the Minnesota-based RARE campaign to address hospital readmission conditions and causes.<sup>23</sup> Participating hospitals focus on five key areas: comprehensive discharge planning, medication management, patient and family engagement, transition care support, and transition communications—and choose among three intervention programs designed to decrease readmission rates: SAFE Transitions of Care, Care Transitions Interventions, and Project RED.<sup>22</sup> Of the 46 CAHs participating in RARE, 18 chose Project RED, 17 chose the Care Transitions Program, and 11 chose the Safe Transitions of Care program (all previously described).<sup>13</sup> Potentially preventable readmissions were calculated as the expected number of readmissions minus the observed readmissions.<sup>23</sup> Over two years, participating CAHs had a greater number of readmissions prevented (113.03 per 10,000 at-risk cases) than participating PPS hospitals (65.3 per 10,000 at-risk cases).<sup>23</sup> RARE is administered by the Minnesota Hospital Association, Institute for Clinical Systems Improvement, and Stratis Health (the Minnesota Quality Innovation Network/Quality Improvement Organization).

Preventing Readmissions through Effective Partnerships (PREP)

This program uses multiple initiatives including the Project BOOST Toolkit (previously described) and a readmission activity profile that provides participating hospitals a wide variety of state and national resources on hospital readmissions. <sup>11</sup> The program has components specific to communication and palliative care; transitional care; and optimizing hospital operations,

culture, and program structure.<sup>11</sup> PREP was successfully implemented in Illinois PPS hospitals and CAHs, and is a joint collaborative between the Illinois Hospital Association, Blue Cross Blue Shield of Illinois, and the Division of Hospital Medicine at Northwestern.<sup>11</sup>

Healthy Transitions & Improving Communication and Readmissions (iCARE) Programs

Colorado is focusing on reducing readmissions through their Healthy Transitions Program.<sup>24</sup> The Healthy Transitions Program helps patients with their self-management behaviors, discharge planning, and care transitions.<sup>25</sup> The Colorado Rural Health Center is one of six partners working to implement this program.<sup>25</sup> The iCARE program was designed by the Colorado Rural Health Center to improve communications and clinical processes in CAHs and maintain low readmission rates. It does not require all CAHs to focus on the same condition; each hospital focuses on readmission conditions that are site-specific. In Colorado, 20 of the 22 CAHs participate, focusing on reducing community-acquired pneumonia readmissions, diabetes readmissions, and all-cause readmissions.

#### DISCUSSION

Some of these initiatives developed a specific set of tools to reduce readmissions. Other initiatives have developed their programs to include tools from other readmission reduction programs. This gives hospitals a range of choices of program style to adopt. Table 1 summarizes these readmission reduction programs and initiatives, including links to resources, descriptions of key elements and target populations, and information about their implementation in CAHs and other small rural hospital settings. Table 2 compares the type of tools used in each program.

## **CONCLUSIONS**

Common themes among these programs include increasing time spent with patients and families to ensure that care management plans are understood, and improving coordination with the patient's primary care



physician. Some programs are also working within hospital organizational structures to engage all parties and stakeholders in new policies to update discharge processes and improve quality.

Many of the evidence-based readmission prevention and care transition programs described in the literature have been piloted and implemented in larger hospitals, rather than being specifically designed for CAHs. <sup>26</sup> The programs featured here have either been implemented in CAHs or show promise to be useful in small rural hospital settings. These programs would be useful to State Flex Coordinators who are interested in initiating readmission reduction activities with their state's CAHs. ■

For more information on this study, please contact Michelle Casey at mcasey@umn.edu



# Table 1. Readmission Reduction Programs

Program Name	Key Elements / Tool	Target/Special Population(s)	Implemented in CAHs/Rural Settings				
Project Re-Engineered Discharge (RED) http://bit.ly/1WVRAcP	<ul> <li>Tools to improve communication</li> <li>Discharge Educator tasks (reconciling medications, After Hospital Care Plan instruction)</li> <li>Post-discharge assessment</li> <li>Benchmarking discharge improvement</li> <li>Enhancing the family caregiver role</li> <li>Strong focus on after hospital care plan</li> </ul>	Useful for hospitals that serve diverse populations	Yes, implemented in 18 CAHs in MN through RARE Program				
Project Better Outcomes by Optimizing Safe Transitions (BOOST) http://bit.ly/1STKBLH	<ul> <li>Interactive implementation guide</li> <li>Methods to develop a quality improvement team</li> <li>Best practices ways to analyze and track care delivery and performance</li> <li>Evaluation of individual hospital processes that contribute to readmissions</li> </ul>	Target population is Medicare enrollees	Yes, implemented in 31 CAHs in IL through PREP Program				
Care Transitions Program <a href="http://caretransitions.org/">http://caretransitions.org/</a>	<ul> <li>Intervention tools such as patient assessments and guidelines, sample scripts for phone calls, and transition coach documentation</li> <li>Instructions for measures and scoring the Care Transitions Intervention in multiple languages</li> <li>Care transitions coach works one-on-one with patients</li> <li>Toolkit to help identify medical discrepancies during care transitions</li> <li>Family caregiver toolkit</li> <li>Self-management model to help patients and care givers gain skills to develop self-care behaviors</li> </ul>	Applies to a wide variety of transitions settings for patients age 65 and older	Yes, implemented in 17 CAHs in MN through RARE Program				
Transitional Care Model <a href="http://bit.ly/21NSMxX">http://bit.ly/21NSMxX</a>	<ul> <li>Employs a transitional care nurse to coordinate care; make home visits; make telephone calls; and set up collaboration between patient, family and other care relevant care providers</li> <li>Nurse creates a holistic care plan that incorporates complete patient history</li> <li>Facilitates communication with the patient's care team and provides ongoing assessment of the patient</li> </ul>	Medicare enrollees with multiple chronic conditions	No information				
SAFE Transitions of Care Program http://bit.ly/10VI14K	<ul> <li>How to develop interdisciplinary transitions teams and their importance</li> <li>Tools to measure the effectiveness of transitions</li> <li>Education for providers, staff, and patients about the transition process</li> </ul>	Target population is Medicare enrollees	Yes, implemented in 17 CAHs in MN through RARE Campaign.				
Institute for Healthcare Improvement STate Action on Avoidable Rehospitalizations (STAAR) Initiative http://bit.ly/1TeZoE7	<ul> <li>Diagnostic worksheets include tools for state policy makers to address systemic barriers to change</li> <li>Recommends Project RED and BOOST, and the Care Transitions Program</li> <li>Guides to improve transitions from hospital to multiple different settings</li> </ul>	Tools for the general population as well as the chronically ill, elderly, and underrepresented populations	No information				
(Continued, next page)							



# (Table 1, Continued)

Program Name	Key Elements / Tool	Target/Special Population(s)	Implemented in CAHs/Rural Settings
Hospital Guide to Reduce Medicaid Readmissions http://1.usa.gov/1R9IKFO	<ul> <li>Tools for hospitals to analyze their current workflow, hospitals, current readmissions data</li> <li>Action tools that help design improved systems to address readmissions</li> </ul>	Resources are specific to the Medicaid population	No information
Preventing Avoidable Readmissions Together (PART) http://bit.ly/1UiP2Ca	<ul> <li>Resource guides outline the different phases of the program and how to adapt each phase to a specific care transitions program.</li> <li>Templates, medical record review and other data tracking forms that are necessary to implement the program are provided as examples of the program in different settings.</li> <li>Provides access to resources including documents from the BOOST program and techniques from Six Sigma and the DMAIC improvement cycle</li> </ul>	Resources specific to readmission for patients with acute myocardial infarction, congestive heart failure, pneumonia, and chronic obstructive pulmonary disease	Yes. This was implemented in 19 rural hospitals; 9 hospitals had less than 50 beds.
Reducing Avoidable Readmissions Effectively (RARE) Campaign http://bit.ly/1yjWHmL	<ul> <li>Comprehensive discharge planning, involving patient, family, and provider</li> <li>Medication management provider materials</li> <li>Patient and family engagement tools include self-care, care planning and engagement tools</li> <li>Transition care support guides, policies and tools for patient and families</li> <li>Provides specific resources for improving care transitions for mental health and substance use disorders</li> <li>Provides evaluation and consultancy toolkits</li> </ul>	Provides specific resources for improving care transitions for mental health and substance use disorders	Yes. The RARE Campaign had 46 participating CAHs in MN.
Preventing Readmissions through Effective Partnerships (PREP) http://bit.ly/1UFuGDH	<ul> <li>Uses Project BOOST tools</li> <li>Implemented a program for communication and palliative care</li> <li>Developed a social worker led transitional care program to improve care transitions</li> <li>Participating hospitals utilize a Readmission Activity Profile tool to assess readmissions</li> </ul>	Has tools specific to palliative care and Medicare enrollees	Yes. Through PREP, 31 CAHs in IL implemented Project BOOST Tools
Healthy Transitions and iCARE Programs http://bit.ly/1R9luqj	<ul> <li>Care transitions tools</li> <li>Patient self-care guides for post-discharge care and home health tools</li> <li>Medical reconciliation tools</li> <li>Post-discharge survey checklist</li> </ul>	Provides training to work with patients with multiple chronic conditions; Risk assessment for the geriatric population	Yes. iCARE was implemented in 20 CAHs in CO



# Table 2. Readmission Reduction Program Tools

Types of Readmission Prevention Tools									
	Communication	Medication management/ reconciliation	Care transitions	Identify gaps in discharge process	Designing discharge plans & instructions	Family & caregiver involvement	Patient education	Organize post- discharge services	Implemented by these initiatives
Project Re-Engineered Discharge (RED)	х	Х			X	X	X	X	<ul><li>Preventing Avoidable Readmissions Together (PART)</li><li>AHRQ Medicaid Toolkit</li></ul>
Project Beter Outcomes by Optimizing Safe Transitions (BOOST)	X	X			Х	Х			<ul> <li>SAFE Transitions of Care</li> <li>PART</li> <li>Preventing Readmissions through Effective Partnerships (PREP)</li> <li>AHRQ Medicaid Toolkit</li> </ul>
Care Transitions Program	X	Х	X			X	X	X	<ul> <li>SAFE Transitions of Care</li> <li>Reducing Avoidable Readmissions Effectively (RARE)</li> </ul>
Transitional Care Model	X	X	X		X	X		Χ	
IHI State Action on Avoidable Rehospitalizations (STAAR) Initiative			X		х	Х	X		<ul><li>PART</li><li>AHRQ Medicaid Toolkit</li></ul>
AHRQ Guide to Reduce Medicare Readmissions			X	X				X	
Healthy Transitions Program	X		X	X			X		• iCARE



## **REFERENCES**

- 1. Kripalani S, Jackson AT, Schnipper JL, & Coleman EA. "Promoting effective transitions of care at hospital discharge: a review of key issues for hospitalists," Journal of Hospital Medicine 2007; 2(5): 314-323.
- Medicare Payment Advisory Commission (MedPAC).
   "Promoting Greater Efficiency in Medicare," Report to Congress, June 2007.
- Regenstein M, & Andres E. "Reducing hospital readmissions among Medicaid patients: a review of the literature," Quality Management in Healthcare 2014; 23(4): 203-225.
- James J. "Medicare Hospital Readmission Reduction Program: to improve care and lower costs, Medicare imposes a financial penalty on hospitals with excess readmissions," Health Affairs/Robert Wood Johnson Foundation Health Policy Brief, November 12, 2013. http://bit.ly/1QqJKIE
- 5. Weissman JS, Ayanian JZ, Chasan-Taber S, Sherwood MJ, Roth C, Epstein AM. "Hospital readmissions and quality of care," Medical Care 1999, 37(5): 490-501.
- Hung P, Casey M, Moscovice I. "Which Rural and Urban Hospitals Have Received Readmission Penalties Over Time?" University of Minnesota Rural Health Research Center Policy Brief, October 2015. http://bit.ly/1XISJHb
- Lonowski S. "Improving Care transitions: A strategy for reducing readmissions," Center for Improving Value in HealthCare 2012.
- 8. Adams CJ, Stephens K, Whiteman K, Kersteen H, Katruska J. "Implementation of the re-engineered discharge (RED) toolkit to decrease all-cause readmission rates at a rural community hospital," Q Manage Health Care 2014 23(3): 169-177.
- Society of Hospital Medicine (SHM). "Essential First Steps in Quality Improvement, Project BOOST Implementation Tool." http://bit.ly/1YbHoK9
- Hansen LO, Greenwald JL, Budnitz T, Howell E, Halasyamani L, Maynard G, Vidyarthi A, Coleman EA, Williams MV. "Project BOOST: Effectiveness of a Multihospital Effort to Reduce Rehospitalization," Journal of Hospital Medicine 2013; 421-427.
- 11. Illinois Hospital Association (IHA). "The Institute for Innovations in Care and Quality: PREP." http://bit.ly/1UFuGDH
- 12. Care Transitions. "About the Care Transitions Intervention." http://bit.ly/1QSchh3

- 13. Coleman EA, Parry C, Chalmers S, Min S. "The Care Transitions Intervention: Results of a randomized controlled trial," Arch Intern Med 2006; 166(X):1822-1828.
- 14. Transitional Care Model (TCM1). "Overview." Last modified 2014. <a href="http://bit.ly/1GlhwXC">http://bit.ly/1GlhwXC</a>
- 15. Transitional Care Model (TCM2). "Essential Elements." Last modified 2014. <a href="http://bit.ly/21NSMxX">http://bit.ly/21NSMxX</a>
- 16. Naylor MD, Brooten DA, Campbell RL, Maislin GM, McCauley KM, and Schwartz JS. "Transitional Care of Older Adults Hospitalized with Heart Failure: A Randomized Clinical Trial," Journal of the American Geriatric Society 2004; 52(7): 675-684.
- 17. Institute for Healthcare Improvement (IHI1). "State Action on Avoidable Rehospitalizations." <a href="http://bit.ly/1nl0630">http://bit.ly/1nl0630</a>.
- 18. Axon RN, Cole L, Moonan A, Foster R, Cawley P, Long L, Turley C. "Evolution and initial experience of a statewide care transitions quality improvement collaborative: preventing avoidable readmissions together," Population Health Management 2015; 19(1): 4-10.
- 19. Institute for Healthcare Improvement (IHI2). "Reduce Avoidable Readmissions." http://bit.ly/1TeZoE7
- 20. Agency for Healthcare Research and Quality (AHRQ). "Why focus on Medicaid Readmissions?" http://1.usa.gov/1QwgCL4
- 21. Minnesota Hospital Association (MHA). "Patient Safety: SAFE Transitions of Care." <a href="http://bit.ly/10VI14K">http://bit.ly/10VI14K</a>
- 22. Stratis Health. "Reducing Avoidable Readmissions Effectively (RARE) Campaign," Evaluation Report Draft 2015, July: 1-38.
- 23. McCoy K, Bear-Pfaffendorf K, Foreman J, Daniels T, Zabel E, Grangaard L, Trevis J, Cummings K. "Reducing avoidable hospital readmissions effectively: a statewide campaign," The Joint Commission Journal on Quality and Patient Safety 2014; 40(5): 198-204.
- 24. Colorado Hospital Association (CHA). "Preventing Readmissions." <a href="http://bit.ly/1TZ6cEG">http://bit.ly/1TZ6cEG</a>
- 25. Healthy Transitions Colorado. "Tools." <a href="http://bit.ly/1TeZifR">http://bit.ly/1TeZifR</a>
- 26. Brock J, Mitchell J, Irby K, Stevens B, Archibald T, Goroski A, Lynn J. "Care Transitions Project Team. Association between quality improvement for care transitions in communities and rehospitalizations among Medicare beneficiaries," Journal of the American Medical Association, 2013; 309(4):381-391 doi:10.1001/jama.2012.216607.



This study was conducted by the Flex Monitoring Team with funding from the Federal Office of Rural Health Policy (FORHP), Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (HHS), under PHS Grant No. U27RH01080. The information, conclusions, and opinions expressed in this document are those of the authors and no endorsement by FORHP, HRSA, or HHS is intended or should be inferred.