Community Team-Based Care for Hypertension Management: A Public-Private Partnership in Rural Arkansas
Abstract

Hypertension is a major public health problem in Arkansas. Team-based care (TBC), delivered by health care professionals such as a nurse, dietician, social worker, or community health worker rather than a physician alone, has been shown to improve blood pressure control. In the fall of 2014, the Arkansas Department of Health (ADH) partnered with primary care physicians in two rural underserved counties to provide community TBC through ADH’s Local Health Units (LHUs) on a referral basis. A six-month review of the data showed that of the 218 hypertensive patients who were referred, 103 (49%) patients followed up at local health units, 87 (84.5%) were adherent to a care plan. The median number of return visits for hypertension care management was three with a range of 2-8 visits per patient. Follow-up of the 58 hypertensive patients with two or more visits showed that 26 (44.8%) had clinically significant reductions in systolic and diastolic blood pressures between the first and most recent visit. Community TBC between rural primary care physicians and the LHUs results in better management of hypertension among rural Arkansans.

Public Health Problem

Hypertension is a major public health problem both for Arkansas and the nation.1 According to the 2013 BRFSS survey, 38.9% of Arkansans age 18 and older have self-reported hypertension.2 About 54% of adults have uncontrolled hypertension: uncontrolled hypertension is the leading cause of both fatal and non-fatal cardiovascular events; such as, coronary heart disease, myocardial infarction, congestive heart failure, stroke and kidney disease.3 A substantial number of cardiovascular deaths could be prevented if the blood pressure is controlled. Studies have shown that optimal blood pressure control will prevent 19-56% of coronary heart disease events in men, and 31-57% of coronary heart disease events in women.4 In 2008, hypertension accounted for nearly 328,000 deaths in the United States either primarily or as a contributing cause, accounting for nearly 1,000 deaths per day.1 Arkansas death rates for hypertension-associated conditions are up to 33% higher than the US death rates.4 The medical and public health significance of hypertension control cannot be overstated.

Hypertension and its complications pose a huge cost burden to the state and the nation. Hypertension costs an estimated $131 billion in direct health care costs to the nation per year.2 The direct medical costs associated with hypertension and hypertension-associated conditions were $1.5 billion in 2010 in Arkansas, of which, $532 million was directly attributed to hypertension.5

Even a modest reduction of 5 mm of Hg in systolic blood pressure, can reduce coronary heart disease events by 9% and stroke by 14%.6,7 Several risk factors have a strong association with uncontrolled hypertension, some of which are related to patients and others to health care providers, and the health care system. Factors associated with patients include non-adherence to lifestyle modification and pharmacologic therapy. Non-adherence to lifestyle modification includes not following a low salt diet, obesity, alcohol consumption (>2 drinks per day for men and >1 drink per day for women) and physical inactivity. Non-adherence to pharmacologic therapy includes not taking medication either due to unaffordability, or simply not taking it as scheduled/recommended; not engaging in self-monitoring of blood pressure; and poor follow-up with physician visits.

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Team-Based Care (TBC) approach for hypertension control

Team-based care is an evidence-based approach that has been shown in a review of 77 studies by the Community Preventive Services Task Force to improve BP control.8 These studies show that BP control is better when care is delivered by a team of health care professionals such as a nurse, dietician, social worker or a community health worker rather than by the physician alone.

The TBC approaches to improve blood pressure control studied so far incorporate some support with medication management, lifestyle modification, self-management, care coordination, communication and follow-up services. Team-based care offered by a nurse has been shown to reduce systolic blood pressure by 4-10 mm Hg. A systematic review of studies of team-based care shows diversity in its implementation.7 Most studies involved the team offering either patient counseling during an office visit, or by telephone follow-up services. Only two studies offered both of these services.9,10 The systematic review identified gaps in the literature, including care in rural areas, and for those in low socioeconomic populations and for minorities.6 Furthermore, cost-effectiveness analyses have found that team-based care is an effective and efficient method of care delivery for hypertension management.6 Indeed, control of BP is one of the examples where it actually saves healthcare costs.

Insurance providers have traditionally not reimbursed for care manager services; hence, most of the chronic conditions such as hypertension and
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diabetes are managed by the physician and patient alone. With the emergence of Patient-Centered Medical Homes, and roll out of Affordable Care Act, insurance providers have begun to reimburse for care management services. Arkansas Medicaid has implemented a payment initiative program through which physicians will be reimbursed $4 per member per month for care coordination services. Similar benefits are offered by Medicare through CMS, along with the potential for shared savings. Physician offices are expected to implement evidence-based care management programs to show improved patient outcomes in return.10 Physician offices could utilize this opportunity to implement team-based care to improve blood pressure control among their patients. Team-based care management has been utilized in urban, academic and big group practices, but its use has been limited in underserved rural practices, and in community settings partly due to lack of availability, time and resources among nurses, pharmacists or dieticians who typically provide these services working along with community physicians.

Community TBC for hypertension management

The Arkansas Department of Health (ADH) began the Arkansas Million Hearts Initiative in September, 2014, in partnership with primary care physicians located in two rural Arkansas counties – Poinsett and Nevada counties. The initiative involved providing team-based care through physician referrals of identified uncontrolled hypertensive patients. The patients were subsequently referred to hypertension nurse care managers located in ADH Local Health Units (LHUs) in Poinsett and Nevada counties.

The components of team-based care include initial and follow-up care for management of blood pressure (BP) either at LHUs, home visits or phone call follow-up. Medication adherence, self-blood pressure monitoring, promoting physical activity, low salt diet and goal-setting are also included. The LHU hypertension care managers met weekly with participating providers to discuss patient progress, create patient reminders, schedule follow-up visits and close gaps in care for those lost to follow-up.

Data was extracted and analyzed bi-monthly to assess clinically significant changes in the BP readings among program participants based on JNC 8 guidelines.11 Data are also examined for medication adherence, lifestyle changes and loss to follow-up. The ADH Million Hearts team worked on several Plan-Do-Study-Act (PDSA) cycles with participating physicians, LHU hypertension care managers, ADH IT staff, Arkansas Medicaid, Arkansas Blue Cross Blue Shield (BCBS), Arkansas Pharmacists Association, American Heart Association (AHA), and ADH leadership. This allowed the creation of standardized protocols for team-based care, the establishment of community-clinical linkages, and the collection of data to measure the effectiveness of this initiative. Figure 1 sets out team-based care work flow.

Community Physician’s Perspectives about the program

Vonda Houchin, MD states, “The program has improved the awareness, treatment, and the overall outcome of my patients.”

Charles Vermont, MD states that he has seen improvement in his patients’ blood pressure control and follow-up visits. He further hopes that the program improves hypertension awareness and control in his community.
Results

The community TBC program identified 1,077 (32.2%) hypertensive patients among 3,342 patients in the participating provider panels. Two-hundred and eighteen patients were referred to team-based care program. A six-month review of data showed that 103 (49%) hypertensive patients followed up for the program. Of those who followed up, they were predominantly less than 65 years of age (65%), females (61%), and White (67%) or African American (28%). Of these, 87 (84.5%) were adherent to a treatment plan at their first visit and 58 (56.3%) returned for two or more subsequent visits. The median number of return visits was three with a range of 2-8 visits per patient. A pre-post comparison of the data from 58 hypertensive patients with two or more visits showed that 26 (44.8%) had clinically significant reduction of 5 mmHg or greater in systolic blood pressure between their first and last visit (Figure 2).

Discussion

Results show that community TBC program is of value for rural communities and is successful in reducing high blood pressure. Efforts to create community-clinical linkages among participating providers and LHUs, local pharmacies and community care settings resulted in coordinated patient referrals, and improved medication adherence, lifestyle changes and blood pressure control. Partnerships among participating physicians, and ADH LHU staff were strengthened to improve the delivery of care. Continuity of care was ensured through follow-up reminders, regular counseling and measurement of blood pressures at the LHUs, with feedback loops among the LHU nurse care managers and physicians. These processes reduced the burden of follow-up visits for patients at participating physician offices. Forty-five percent of the patients had a clinically significant reduction in systolic blood pressure of 5 mm Hg or greater which is consistent with similar initiatives conducted elsewhere. Forty-nine percent of the patients referred to the program followed up. Prior similar studies that offered team-based care in community settings had varying follow up rates (32% to 82%).

Figure 2. ADH’s Community Team-Based Care Program for Hypertension Management: Reach and Impact in Poinsett and Nevada Counties, 2014-2015 (N=218)
The ADH LHUs benefited through the development and implementation of hypertension quality of care policies. Since the LHUs are part of an integrated statewide system, the use of standardized protocols for hypertension care was facilitated. ADH team-based care protocols to identify patients with uncontrolled hypertension and create care management plans led to improved identification of patients with uncontrolled high blood pressure. Data collection was improved through EMR modification to collect, monitor and share patient and team-based care data with stakeholders. The motivation of physicians and LHUs in Poinsett and Nevada counties was advantageous for this program. There were clear communication lines among providers, LHU staff and the ADH Million Hearts team through emails, in-person visits, and monthly calls. This program was funded through the Association of State and Territorial Health Officials (ASTHO) Million Hearts and Preventive Health and Health Services block grants and does not require any insurance coverage.

The community TBC program has been expanded during the fall of 2015 to include two additional underserved Arkansas counties – Madison and Bradley County (Figure 3). We reached out to community hospital emergency room to refer patients who might need team-based care program services. Also, the ADH is currently being funded through ASTHO Innovation award to include community pharmacists, to offer brief counseling to improve medication adherence in these counties. We also partnered with the Office of Minority Health at the ADH to conduct community screenings to identify undiagnosed hypertensives through the Arkansas Minority Barber and Beauty Health Initiative. Further, we partnered with Arkansas Blue Cross Blue Shield in utilizing the Community Health Management (CHM) hub, an online community resource tool for our hypertension care managers. Through the Arkansas Million Hearts initiative, we worked with Arkansas Medicaid to include blood pressure control as one of the performance measures for Medicaid PCMH clinics.

Limitations included loss to follow-up (50%) of referred patients. Our hypertension care managers attempt to reach those referred via telephone for initial and follow-up appointments, the success has been limited. This is a voluntary program and there is no monetary incentive for individuals to participate in it. We are exploring how to improve initial contact and follow-up with the referred patients. The ADH EMR system lacks a measures dashboard to extract hypertension data, but this limitation was overcome by using a built-in EMR function to create a flowsheet to collect the data. Hypertensive patients with multiple episodes of team-based care showed improved outcomes for reduced and controlled blood pressure.

In summary, community TBC between rural primary care physicians and the LHUs resulted in better management of hypertension among rural Arkansans. Future considerations include expanding this program to more rural underserved communities, if funding can be obtained.

References