

# Improving Hypertension Management Through Computer-Based Staff Education, Simulation and Incentivization: One Organization's Quality Improvement Journey



Marshfield  
Clinic

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## Background

Hypertension is a risk factor for cardiovascular disease which is a leading cause of death in the United States (Centers for Disease Control [CDC], 2014; Coogan, Marra, & Lomonaco, 2015). Although approximately one-third of the adult population has hypertension, almost one-half of those diagnosed are not meeting target blood pressures of less than 140/90 (CDC; Coogan et al.). Proper diagnosis and management of hypertension is based on blood pressure readings. Correct blood pressure measurement technique by staff is critical (American Association of Critical-Care Nurses, 2016; Bland & Ousey, 2011; Coogen et al.; Giorgi, & Ganem, 2016; Rabbia et al., 2013; Vieira da Silva, Mendes da Silva, 2016). Error in blood pressure measurements by staff can result in an incorrect diagnosis of hypertension or over/under treatment of the patient (Coogen et al.; Rabbia et al.; Vieira da Silva et al.). Education and evaluation of staff blood pressure measurement techniques has been shown to improve the accuracy of patient blood pressure readings (Ballard, Piper and Stokes, 2012; Coogan et al.; Garcia, Ahmad & Lim, 2012; Grim & Grim, 2013).

## Introduction

A rural health care organization sought to improve hypertension management of their patients. The organization's target for achieving blood pressure of less than 140/90 in patients with a diagnosis of hypertension was set at 88% or greater. Since 2008 this quality metric had remained relatively unchanged with 71-74% of patients achieving blood pressure control as reported by Wisconsin Collaborative for Healthcare Quality (WCHQ). These percentages did not meet the organization's target. Additionally, the organization's ranking for blood pressure control among other state health care organizations was 13 of 21 and declining (WCHQ). A quality improvement project to address this issue was developed and initiated in 2014.

## Methods

The quality improvement project for 2014 included these components in the primary care areas only:

- ✓ Blood pressure computer-based training (all non provider staff).
- ✓ In-person blood pressure competency testing (all non provider staff).
  - Proper technique and accuracy assessed utilizing simulation arm and clinical educator as the "patient".
- ✓ Verification of patient home blood pressure device and technique.
- ✓ Patient reported home blood pressure readings entered into medical record.
- ✓ Patients not at target reports generated and patients contacted for follow-up.

In an effort to improve blood pressure management, an incentive program was initiated in 2015 with a small percentage of the primary care physician's salary tied to achieving a minimum target of 82% of hypertensive patients in control. The 2014 quality improvement project components continued with these additions:

### All Clinic Areas

- ✓ Blood pressure computer-based training (all non provider staff).
- ✓ In-person blood pressure competency testing (all non provider staff).
- ✓ Second blood pressure measurement on all patients having an initial elevated blood pressure.

### Primary Care Areas

- ✓ Percentage of physician's salary tied to hypertension target.

The quality improvement project was expanded for 2016 to include specialty care areas. The 2014 and 2015 quality improvement project components continued with these additions:

### All Clinic Areas

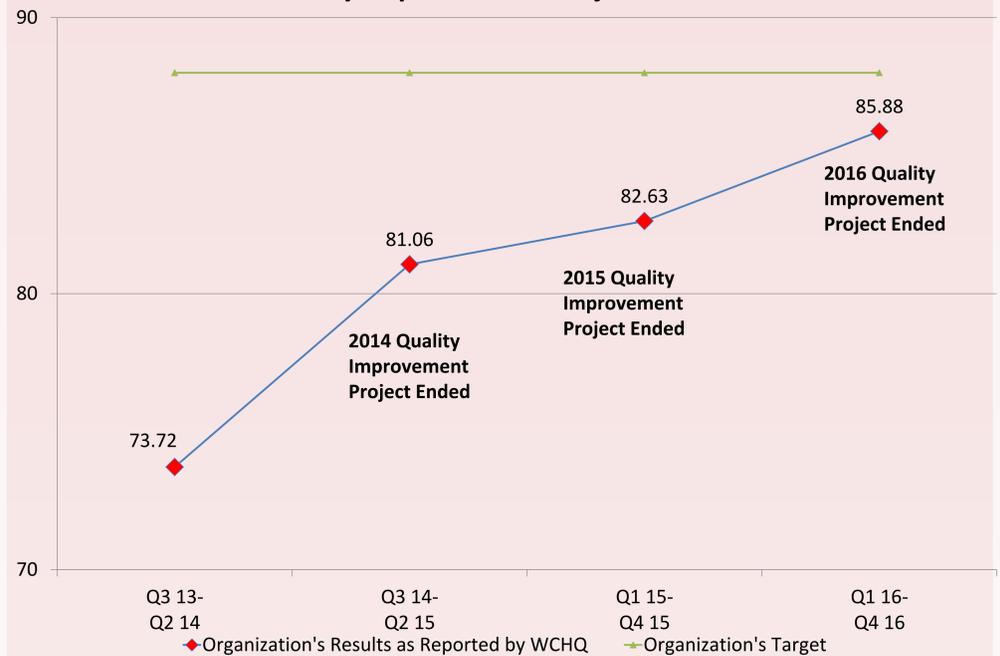
- ✓ Potential for staff incentive if organization's budget allowed and hypertension targets met.

### Specialty Areas

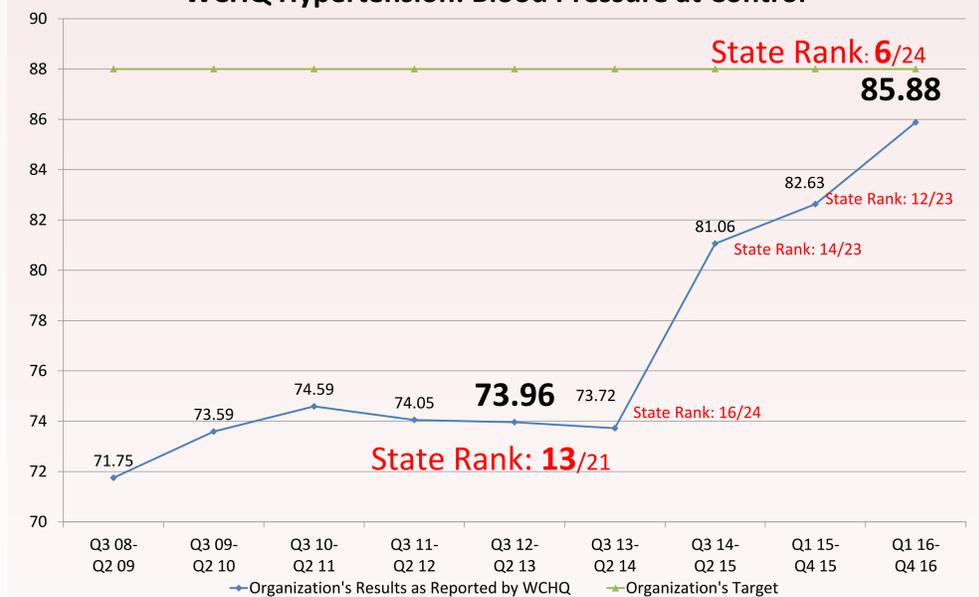
- ✓ Percentage of physician's salary tied to patient referral to primary care provider if second blood pressure was elevated.

## Results

### Quality Improvement Project Results



### WCHQ Hypertension: Blood Pressure at Control\*



\* This measure assesses the percentage of patients 18-85 years of age who have a diagnosis of essential hypertension and whose blood pressure was adequately controlled based on the eighth report of the Joint National Committee treatment goals of: Less than 140/90 for patients less than 60 years of age or patients of any age with a diagnosis of diabetes and/or chronic kidney disease. Less than 150/90 for patients 60 years of age and older without diabetes or chronic kidney disease.

## Conclusion

The management of hypertension is essential in preventing cardiovascular disease and complications. Correct techniques utilized by staff measuring patient blood pressures are essential in correct diagnosis and treatment of hypertension. Through computer-based training, simulation, one-to-one education and staff incentive programs, one health care system improved patient blood pressure management outcomes 12% over a three year period of time. Recommendations for the future are to assess the percentage of patients meeting target blood pressures when incentivization is no longer used and to assess the rate of decay for proper blood pressure measurement by staff.

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