Developing Systems to Improve Hypertension Monitoring at a Primary Care Clinic

Theresa M. Holsan, RN, DNP, FNP-C

Introduction

- Hypertension is one of the most common reasons adult patients seek care from primary care clinicians.
- There are national benchmarks that practices seek to meet or exceed.
- Reasons for not meeting the benchmark are multi-factorial and improvements can be done in a variety of ways (Cohen, Maier, Walters, & Sanders, 2010).

Background Knowledge

- An estimated 17.3 million people died from cardiovascular diseases in 2008, representing 30% of all global deaths.
- Of these deaths, an estimated 7.3 million were due to coronary heart disease and 6.2 million were due to stroke. (WHO, 2013)
- 59% of these patients are being treated
- 34% have well-controlled blood pressures
- Inaccurate BPs by inadequately trained staff can lead to clinical inertia (Holland et al., 2008).

Local Problem

- Accuracy of BP measurement unknown
- How the clinic compares to national benchmark unknown
- After review of literature and reports from third party payers, clinicians agree to APN led QIP focusing on HTN
- Goal: To improve the accuracy of BP measurement and management of adult patients with HTN

AIMS

1. Increase the percentage of adult hypertensive patients with adequately controlled blood pressure (<140/90 mm Hg).

2. Standardize BP techniques by ancillary staff and providers and to improve BP documentation.

3. Evaluate and accurately use the patient reminder system for follow-up care.

4. Improve accuracy of demographic data entered into the EMR.

Methods

- Multi-disciplinary team using the Chronic Care Model (CCM) to pair practice and patient needs in a holistic manner.

- Practice setting:
  - Suburban family practice clinic consisting of five clinicians (2 MDs, 2 PAs, and 1 NP) with appropriate support staff.
  - A variety of insurances and services approximately 10,000 patients per year

- APN-led QIP

Methods

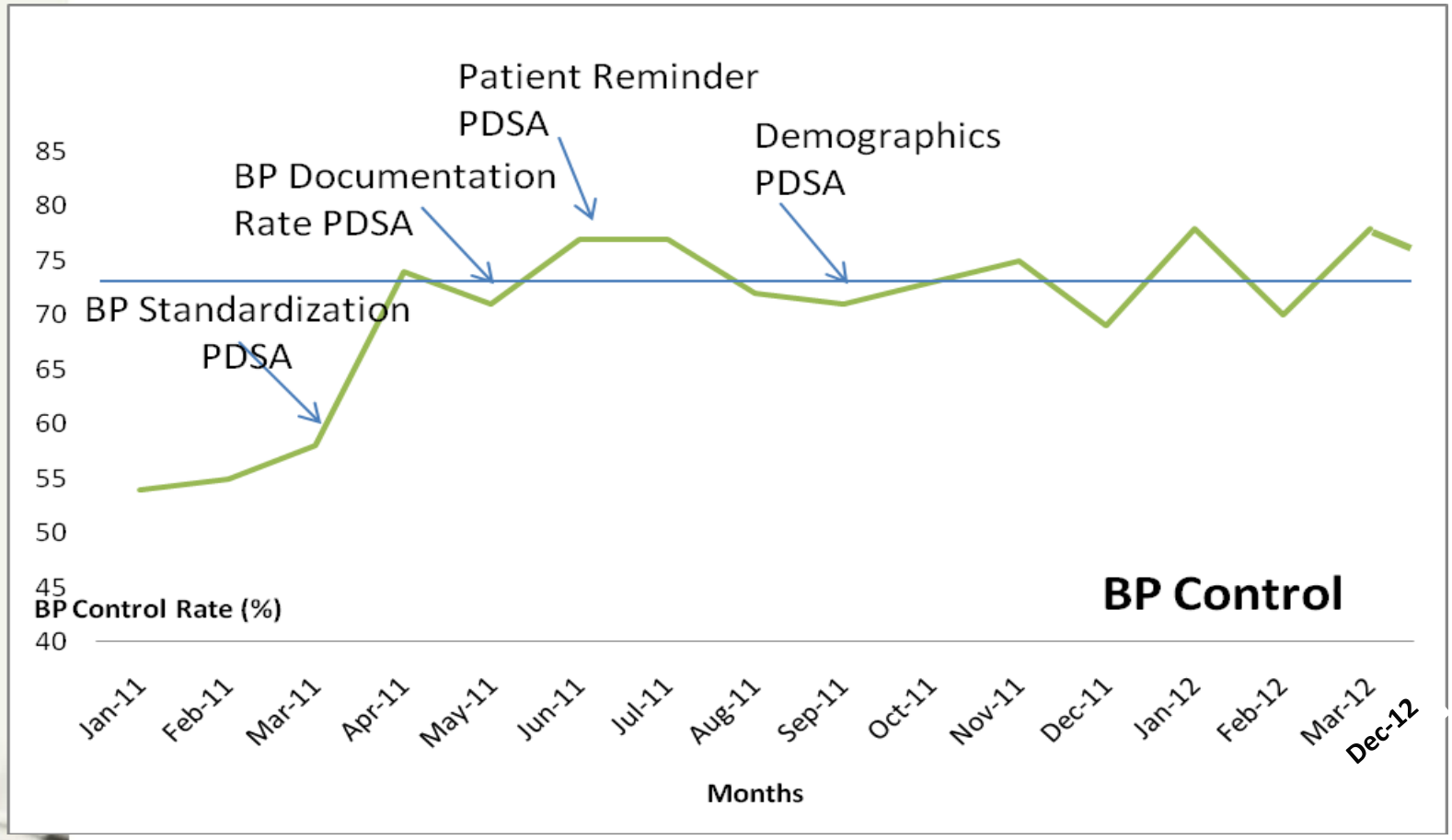
- Using QI methodology with PDSA cycles, improvements were made and data collected through chart audits and reports run in the electronic medical record (EMR).
- Ethical considerations: the QIP offered improvements to the typical care received and there is “minimal risk” to the patients
- Project exempt from IRB oversight
- Population: Adult patients, 18-85 years of age who have the diagnosis of hypertension.

Phases

- Phase 1:
  - January to March 2011: pre-intervention data
- Phase 2:
  - April to December 2011: intervention phase
- Phase 3:
  - January to March 2012: post-intervention data

All included monthly reports on HTN patient encounters and patients with adequately controlled BP.

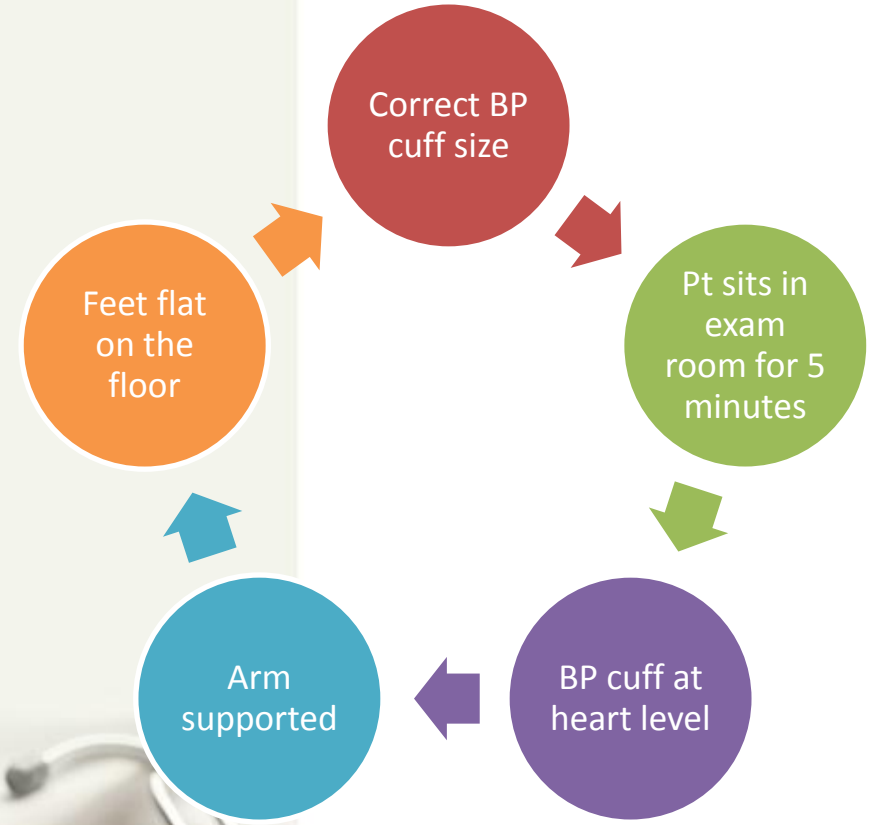
Run Chart


Patient Reminder PDSA
Demographics PDSA
BP Documentation Rate PDSA
BP Standardization PDSA
85
80
75
70
65
60
55
50
45
40
BP Control Rate (%)
BP Control
Jan-11
Feb-11
Mar-11
Apr-11
May-11
Jun-11
Jul-11
Aug-11
Sep-11
Oct-11
Nov-11
Dec-11
Jan-12
Feb-12
Mar-12
Dec-12
Months

Interventions

Intervention	Dates	Components
BP Standardization	• Apr-May 2011	• Education to clinical staff • Re-education • Spot checks to evaluate compliance
BP Documentation	• Mar 2011	• Education to clinicians • Spot checks for compliance
Patient Reminder System	• Jul-Sep 2011	• Education to all staff and providers • Chart audits for compliance
Demographic Data	• Oct-Nov 2011	• Education for front desk staff • Chart audits for compliance

Standardized BP



- Education for clinicians and MAs
- Three PDSA cycles
- 37 of 38; 97.3% compliance when pts queried
- Intermittent spot checks showed the gain held
- March 2012; 21 of 21; 100% compliance

Data Collection and Analysis

- Monthly reports were run; controlled BP; SBP and DBP values were extracted
- Excel and SPSS (version 19.0) and VasserStats
- Chart audits were performed for process measures:
  - BP measurements taken in a standard manner
  - BP documented properly in the EMR
  - Numbers of Pts with their FU appointments correctly entered into the EMR
- Demographic data was not evaluated
- Pearson Chi-square test was used to analyze the data
- α was set at 0.05

Process Measures/Results

Percent BP Control	$\chi^2=36.36$ $\rho<.001$ V=.195	
	37/38 (97.3%) 21/21 (100%)	BP Standardization
BP Documentation Rate	z score=1.19 $\rho=.117$ OR=4.8	
	z score: 3.42 $\rho=.003$ OR=10	Patient Reminder System
Demographic Data	Sign-in Sheet Revised	

Discussion

- The relationship between BP and the risk of CV events is well documented (Wang and Wang, 2004).
- Exceeding the national benchmark the clinic has taken an active role in improving this chronic condition.
- Hypertensive patients whose BPs were inadequately controlled were periodically checked by the clinicians.
- Provider engagement was crucial for this QIP and input was actively sought, resulting in a change in attitude and culture of the group.

Discussion

- Health information technology driven interventions have been reported to improve hypertension related patient outcomes when implemented as part of a multi-faceted QI initiative (Shelley et al., 2011).

- Initially, the provider group wanted to offer patients' standardized self-management support tools, as an intervention.

- This project was the first QIP accomplished within our practice

Limitations

- All patient encounters were included
- Specific providers were not identified
- Individual variation in BP method
- Process measures had small numbers compared to the QIP as a whole
- QI, so findings are specific to this clinic and may not be generalizable to others that are similar

Implications for Practice

- A QIP that combines chart review, practice reminders, and improved BP measurement methods offered a powerful method to improve practice.
- Improvement sustainable

- Improved teamwork and improved processes in the management of patient with HTN
- Communication strengthened

- Clinicians better able to make appropriate clinical decisions

- Potential future projects

Thank you

- I would like to take this opportunity to thank Dr's MaryBeth Makic and Paul Cook for their guidance, support, and assistance in this endeavor. A special thank you goes to Yuki Asakura also, for her many hours of statistical consultation.
- Thank you to my colleagues at Village Family Practice, Dr. Jennifer Arnold, Dr. Laurie Patton, Gary McKenna, Christi Cooley, Holly Shaklee, Demetrius Strong, Susan Luckett, Traci Serafin, Denise Anderson, Denise Garcia, Donna Penn, and Diane Benafante.

- There was no external funding for this project.

Questions

Selected Citations

Chobanian, A.V., Bakris, G. L., Black, H. R., Cushman, W. C., Green, L. A., Izzo, J. L., ...Rocella, E. J. (2003). Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. *Hypertension*, 42(6), 1206-52.

doi: 10.1161/01.HYP.0000107251049515.c2

Cohen, K., Maier, D., Walters, R., & Sanders, T. (2010). A Multifaceted intervention to improve blood pressure control in a community-based primary care practice. *Journal of Clinical Outcomes Management,* 17(4), 159-162.

Fiandt, K. (2007). The Chronic Care Model: Description and application for practice. *Topics in Advanced Practice Nursing e Journal*, 6 (4). Accessed at http://www.medscape.com/viewarticle/549040

Holland, N., Seagraves, D., Nnadi, V., Belletti, D., Wogen, J., & Arcona, S. (2008). Identifying barriers to hypertension care: Implications for quality improvement initiatives. *Disease Management*, 11(2), 71-77. doi:10.1089/dis.2008.11200007

National Committee For Quality Assurance, (2011). Measuring quality, improving healthcare, Available at: http://www.ncqa.org/tabid/123/Default.aspx

Samal, L., Linder, J., Lipsitz, S., & Hicks, L. (2011). Electronic health records, clinical decision support, and blood pressure control. *The American Journal of Managed Care,* 17(9), 626-632

Selected Citations

Sennett, C. (2000). Implementing the New HEDIS Hypertension Performance Measure. *Managed Care,* 9(4), Available at: http://www.managedcaremag.com/supplements/0004_HEDIS_hypertension/0004.HEDIS_hypertension.pdf

Shelley, D., Tseng, T., Matthews, A., Wu, D., Ferrari, P., Cohen, A.,...Kopal, H. (2011). Technology-driven intervention to improve hypertension outcomes in community health centers. *The American Journal of Managed Care,* 17(12 Spec No.):SP103-SP110.

Skirton, H., Chamberlain, W., Lawson, C., Ryan, H., & Young. (2011). A systematic review of variability and reliability of manual and automated blood pressure readings. *Journal of Clinical Nursing*, 20, 602-614. doi: 10.1111/j.1365-2702.2010.03528.x

U.S. Department of Health and Human Services, National Institutes of Health, *National High Blood Pressure Education Program*, National Heart Lung and Blood Institute, (2011). Available at: http://www.nhlbi.nih.gov/about/nhbpep/nhbp_pd.htm

Wang, Y., and Wang, Q, J., (2004). The prevalence of prehypertension and hypertension among US adults according to the new joint national committee guidelines: New challenges of the old problem. *Archives of Internal medicine*, 164, 2126-2134.

World Health Organization, (2013).Media Centre, fact sheets: Cardiovascular disease available at: http://www.who.int/mediacentre/factsheets/fs317/en/