Developing Systems to Improve Hypertension Monitoring at a Primary Care Clinic

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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

BP Control:
- BP Standardization
- PDSA
- Patient Reminder
- PDSA
- Demographics
- PDSA

BP Control Rate (%):
- 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

Months:
- Dec-12
<table>
<thead>
<tr>
<th>Intervention</th>
<th>Dates</th>
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| 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 |
Correct BP cuff size

Feet flat on the floor

Arm supported

Pt sits in exam room for 5 minutes

BP cuff at heart level

- 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
• $\alpha$ was set at 0.05
# Process Measures/Results

| Percent BP Control | $\chi^2 = 36.36$  \\  | $\rho < 0.001$  \\  | $V = 0.195$  \\  | ![BP Measure Icon] |
|-------------------|------------------|
|                   | 37/38 (97.3%)  \\  | 21/21 (100%)  \\  | ![BP Standardization Icon] |
| BP Standardization |                  |
| BP Documentation Rate | $z$ score = 1.19  \\  | $\rho = 0.117$  \\  | OR = 4.8  \\  | ![BP Documentation Icon] |
|                   |                  |
| Patient Reminder System | $z$ score: 3.42  \\  | $\rho = 0.003$  \\  | OR = 10  \\  | ![Patient Reminder System Icon] |
|                   |                  |
| Demographic Data | Sign-in Sheet Revised |

- **Percent BP Control**: $\chi^2 = 36.36$, $\rho < 0.001$, $V = 0.195$
- **BP Standardization**: 37/38 (97.3%), 21/21 (100%)
- **BP Documentation Rate**: $z$ score = 1.19, $\rho = 0.117$, OR = 4.8
- **Patient Reminder System**: $z$ score: 3.42, $\rho = 0.003$, OR = 10
- **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

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Questions


Selected Citations


