Clinical Safety & Effectiveness
Cohort # 19

Improving Blood Pressure Control
A Multidisciplinary Team Based Approach

CENTER FOR PATIENT SAFETY & HEALTH POLICY
UT Health Science Center
SAN ANTONIO
THE TEAM

- **CS&E Participants**
  - Patrick Pierre, MD  Family Physician
  - Melissa Alvarado  Clinical Supervisor
  - Leah Meraz  Director, Funded Programs
  - Lokesh Vegi  Sr. Quality Data Analyst, Health Analytics

- **Ad Hoc Team Members**
  - Edlyn Estevez  Patient Navigator, Southeast Clinic
  - Health Analytics Team

- **CS&E Facilitators**
  - Karen Aufdemorte
  - Sherry Martin

- **Sponsors**
  - Monika Kapur, MD  CEO, University Medicine Associates
  - Sergio Farrell  Vice President, Ambulatory Services
Aim Statement

The aim of this project is to increase the number of patients with controlled blood pressure measurements (<140/90), according to JNC 8 Guidelines, in the ambulatory setting from

- 71% to 80%; (9% improvement over baseline by September 1st 2017)
- 75% to 80% by December 31st 2016. (Dr. Pierre’s patients only)

This project is important because:

- Drive metrics in support of University Health System strategic goals of the Triple Aim Plus.
- Assist in reaching goals for American Heart Association Check.Change.Control grant.
- Help clinics to obtain NCQA Heart and Stroke recognition and NCQA PCMH Level 3 recognition.
Most common chronic condition in primary care. About 1 in 3 adults (nearly 68 million people) have high blood pressure. (American Society of Hypertension)

It is Dangerous: It is a risk factor for heart disease, stroke, kidney failure and diabetes complications, all of which contribute to nearly 1,000 deaths/day. (American Medical Group Foundation)

It is Expensive: Uncontrolled blood pressure costs the nation $47.5 billion annually in direct medical expenses and another $3.5 billion in lost productivity. (U.S. Department of Health and Human Services)

It is Undertreated: Even though effective treatments have been available for half a century, about half of Americans with high BP have their condition under control. The lack of consistent treatment within healthcare delivery systems appears to be a major contributor. (AHA, ACC, CDC)

Outcomes improve when systems consistently follow practical treatment guidelines and adopt team processes. (Cochrane Database Systematic Review)
PROCESS MAP

1. Patient visit the office

2. Screening/ BP reading at each visit
   - Abnormal
   - Normal
   
   - Abnormal
     - Recheck to confirm high BP
       - Is SBP and/or DBP meeting goal
         - Yes: Continue therapy
         - No: Titrates on add therapy

   - Normal
     - Continue providing Health Maintenance Plan + Preventive Care

3. Diagnose based on JNC-8 Guidelines + Perform diagnostic work-up / patient assigned to navigator

4. HTN Treatment as per protocol / algorithm

   - Continue therapy
   - Monitor as appropriate
CAUSE AND EFFECT ANALYSIS (FISHBONE DIAGRAM)

Possible Barriers to Improve Blood Pressure Control

Equipment
- Distribution Protocol for BP Monitors
- Lack of Training
- Lack of Standardized Operation Procedure

Staff
- Understaffed (MA, front desk in the lobby)
- Communication Issues (Instructions to Patients)
- Follow up issues (Patient not answering calls)
- Lack of funding
- Lack of Program Dissemination to the Staff

Management

Patient Factors
- Socio-Economic Factors (Transportation)
- Patient Compliance
- Cost of Medicines
- Follow Up Issues (Patient not answering calls)
- Language Barrier/Culture
- Protocol not standardized
- Decreased Variation of Care
- Accessibility Issues (Scheduling appointments)

Provider

29% of hypertension patient population is uncontrolled
DATA COLLECTION

- Data collected from: Humedica, January through October, 2016 for Dr. Pierre’s Patients.
- Patient registry created by Optum /Humedica to track the patients enrolled into the Blood Pressure Program.
**Process Analysis Tools**

**Improvement in Blood Pressure**
*(January 2016-October 2016)*

**Southeast Clinic, PCP: Dr. Pierre**

**Numerator:**
No. of cases that were identified as controlled hypertension patients (i.e., <140/90), PCP: Dr. Pierre

**Denominator:**
Total no. of cases enrolled into BP program at Southeast Clinic, PCP: Dr. Pierre

**Source:**
Humedica, 2016
**PROCESS ANALYSIS TOOLS**

**IMPROVEMENT IN BLOOD PRESSURE**  
*(JANUARY 2016- OCTOBER 2016)*  
**SOUTHEAST CLINIC, PCP: XXXXX**

**Numerator:**  
No. of cases that were identified as controlled hypertension patients (i.e. <140/90)

**Denominator:**  
Total no. of cases enrolled into BP program at Southeast Clinic.

**Source:**  
Humedica, 2016
**Process Analysis Tools**

*Improvement in Blood Pressure (January 2016 - October 2016)*

**Southeast Clinic, PCP: XXXXX**

**Numerator:**
No. of cases that were identified as controlled hypertension patients (i.e. <140/90)

**Denominator:**
Total no. of cases enrolled into BP program at Southeast Clinic.

**Source:**
Humedica, 2016
**Survey**

- Designed to understand the barriers from patients' perspective.
- It encourages patients to ask questions and know about their treatment plan.
- A great tool to improve the health literacy among the patients.

Survey

1. Are you currently taking medication for blood pressure regularly?
   - Yes □
   - No □

2. Are there any barriers to following your treatment plan?
   - Yes □
   - No □
   - Transportation? □
   - Cost of Medicines? □
   - Language? □
   - Diet? □
   - Understanding of the Treatment Plan □
INTERVENTION

Algorithm & Protocol

- Implemented Algorithm and hypertension protocol on February 2016
- Worked with pharmacy to include medications in formulary (i.e. indapamide) based on sprint and hope trials.

Navigator assigned to engage the patients on 7/25/2016

- Calls to make sure they have appointments in the next 2 weeks
- Navigator met with patient to provide patient education, BP monitors
- Once the patients were identified, HTN protocol is activated. This led to closer monitoring.
ALGORITHM

CMA BP CONTROL - CLINICAL GUIDELINE & STANDARDIZED PROTOCOL Y2016

**Diagnosis:**
- ≥ 3 readings / 24 hrs apart: average DBP ≥ 140 or DBP ≥ 90

**Physical Exam:**
- VS: BP, HR, BMI, waist circumference, neck circumference
- FE: ECG, BMP, serum electrolytes, blood glucose, albumin, lipid profile
- Fluids: orthostatic, neurovascular delays, tenderness, extremity edema

**Testing:**
- Labs: CBC, CMP, TSH, fasting lipid, urine UA, monocytosis, exam EMG

**HYPERTENSION TREATMENT:**
- Age ≥ 60: SBP ≥ 140 and DBP ≥ 90
- Age < 60: SBP ≥ 150 and DBP ≥ 90
- Start low & titrate to maximum tolerable dose

**HYPERTENSION TREATMENT: Follow-up Care**

<table>
<thead>
<tr>
<th>SBP x Goal</th>
<th>Follow-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 120</td>
<td>Q. 1 week</td>
</tr>
<tr>
<td>120-140</td>
<td>Q. 2 weeks</td>
</tr>
<tr>
<td>≥ 140</td>
<td>Q. 2 weeks</td>
</tr>
</tbody>
</table>

**CONSIDER SECONDARY HYPERTENSION:**
- Drug-resistant HTN, excessive daytime somnolence, spontaneous hypotension
- Severe vascular disease (rheumatoid, prostate, carotid stenosis, neurovascular delay)
- Polypharmacy, hypertension, overeating, smoking
- Medications (NSAIDs, alcohol, decongestants, steroids)

**Dietary recommendations:**
- XXX
- XXX

**Lifestyle Modifications:**
- XXX
- XXX

**Initiate Therapy**
- Monitor as appropriate

**Is SBP at Goal?**
- Y
  - Monitor regularly until SBP controlled
  - Titrating or add therapy

**Is DBP at Goal?**
- Y
  - Continue therapy
- N
  - Monitor regularly until SBP controlled
  - Titrating or add therapy
RETURN ON INVESTMENT
Prevention Matters

Primary Diagnosis of Hypertension

- Inpatient admissions October – December 2015
  - Total Direct Costs $3,992,851.64
  - Total Payments $3,635,442.06
  - Average cost per patient $11,918.96

- Emergency visits October – December 2015
  - Total Direct Costs $156,753.58
  - Total Payments $74,983.29
  - Average cost per patient $812.19

- 160 patients currently with controlled hypertension
  - Total savings for Inpatient $1,907,033.60
  - Total saving for Emergency visits $129,950.40
SUSTAINING THE RESULTS

- Standardize hypertension protocol and navigation process to implement at other clinics
- Develop a schedule of training sessions for clinic staff on implementing protocol and navigation services
- Conduct reoccurring meetings with stakeholders to ensure protocol and process are being followed
- Monitor hypertension control rate numbers
PATIENT STORY

Background

- Female patient, early 50’s
- Family history of hypertension
- Diagnosed with hypertension and diabetes

Barriers
- Difficulty remembering to take medication everyday as prescribed

Navigator
- Assisted by encouraging her to check her blood pressure regularly and follow-ups
- Provided education on taking medications and what a “healthy lifestyle” meant

Results
- Family began to eat fruits and vegetables and started exercising
- Patient lost 28 pounds
- Blood pressure initial reading was 167/94, now 132/77
CONCLUSION

• Lessons Learned
  ○ Patients barriers are different then what we originally thought

• Next Steps
  ○ Meeting January 27th to discuss implementation at other clinics
  ○ Expand protocol to include special populations
  ○ Develop staff implementation training
Thank You!