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

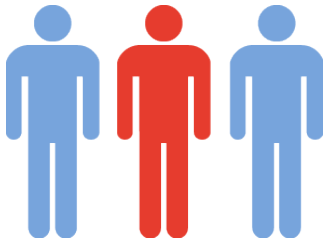
- 71% to 80%;(9% improvement over baseline by September 1st 2017)
- 75% to 80% by December 31st 2016.(Dr. Pierre's patients only)

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.

BACKGROUND

WHY FOCUS ON HYPERTENSION



Most common chronic condition in primary care.

About 1 in 3 adults (nearly 68 million people) have high blood pressure. (American Society of Hypertension)

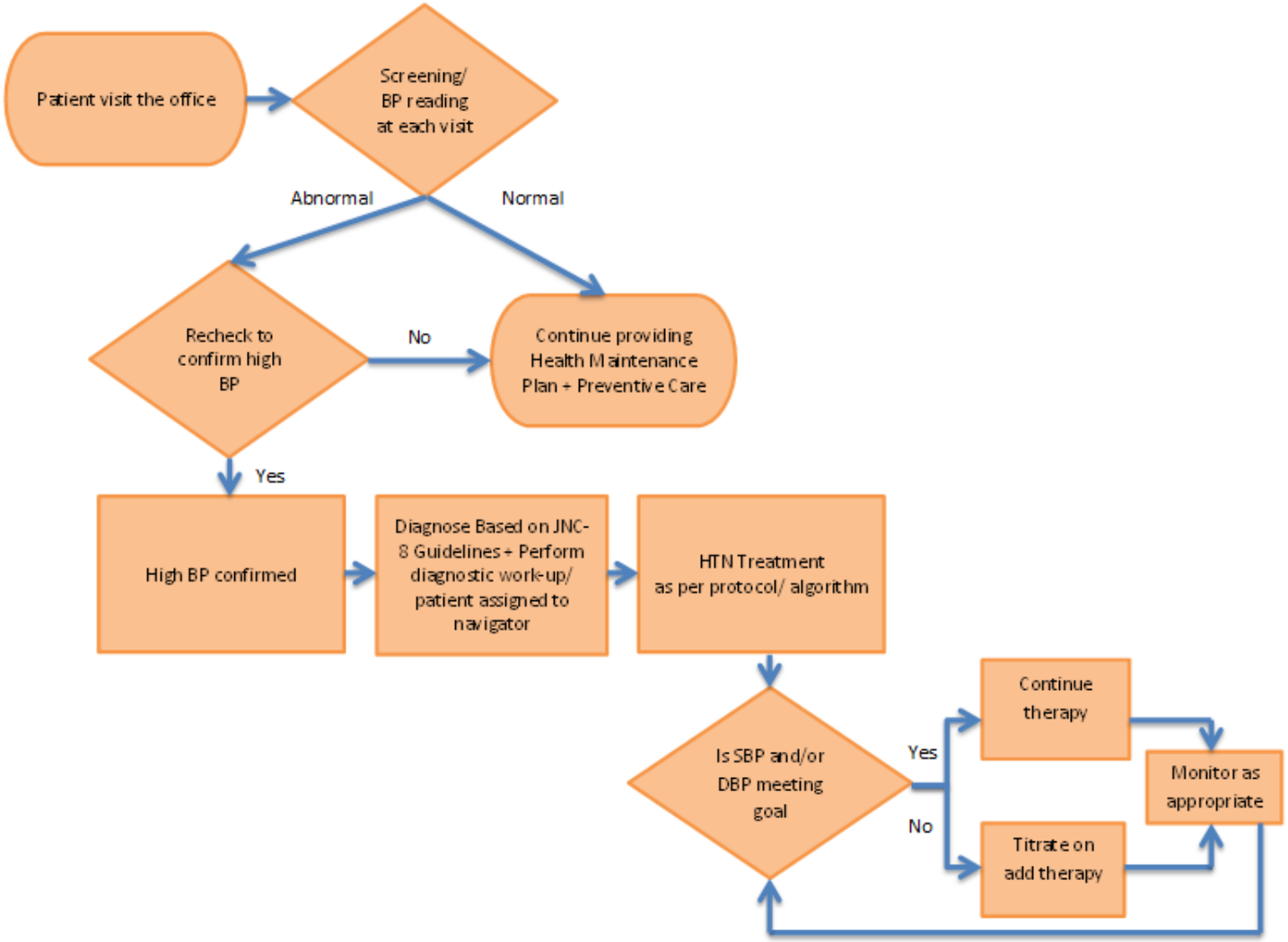
It is Dangerous: It is a risk factor for heart disease, stroke, kidney failure and diabetes complications, all of which contribute to nearly 1,000 deaths/day. (American Medical Group Foundation)

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)

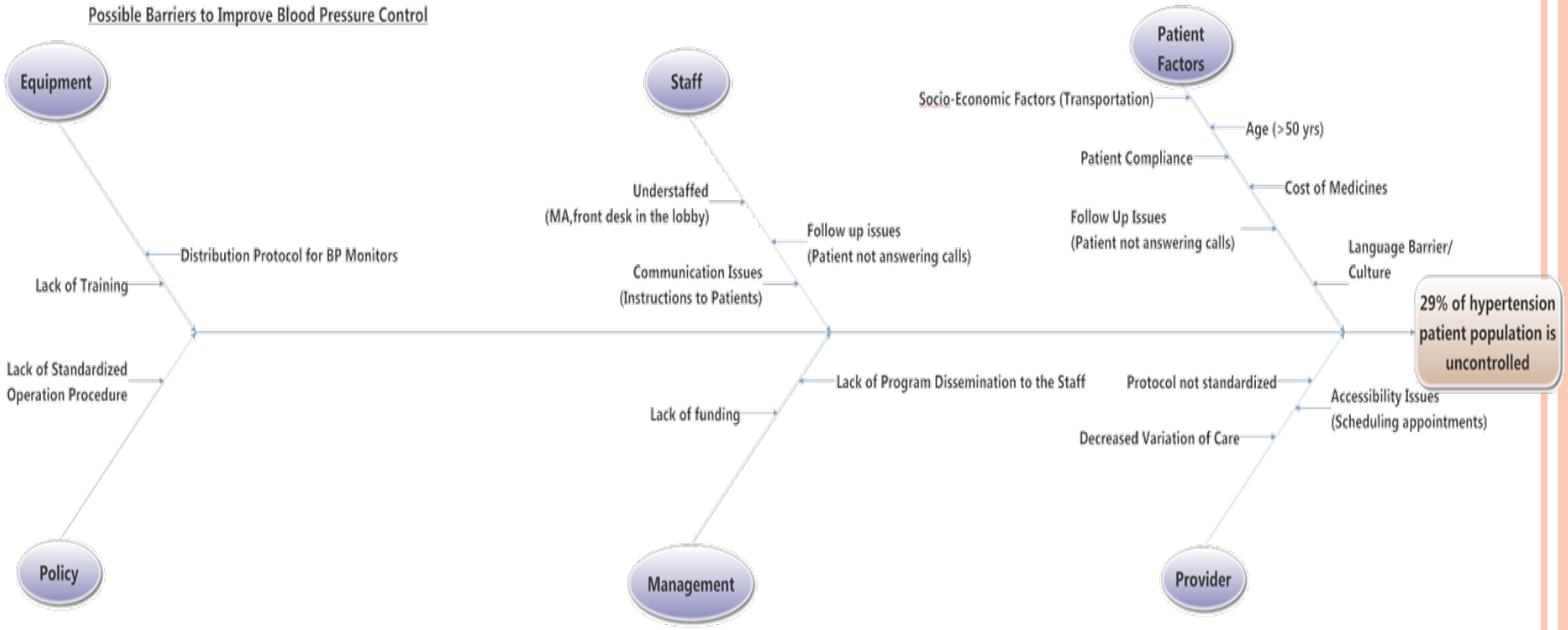
It is Undertreated: Even though effective treatments have been available for half a century, about half of Americans with high BP have their condition under control. The lack of consistent treatment within healthcare delivery systems appears to be a major contributor. (AHA, ACC, CDC)

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

Process Map


Patient visit the office
Screening/ BP reading at each visit
Abnormal
Normal
Recheck to confirm high BP
No
Continue providing Health Maintenance Plan + Preventive Care
Yes
High BP confirmed
Diagnose Based on JNC-8 Guidelines + Perform diagnostic work-up/ patient assigned to navigator
HTN Treatment as per protocol/ algorithm
Is SBP and/or DBP meeting goal
Yes
No
Continue therapy
Titrate on add therapy
Monitor as appropriate

Cause and Effect Analysis (Fishbone Diagram)

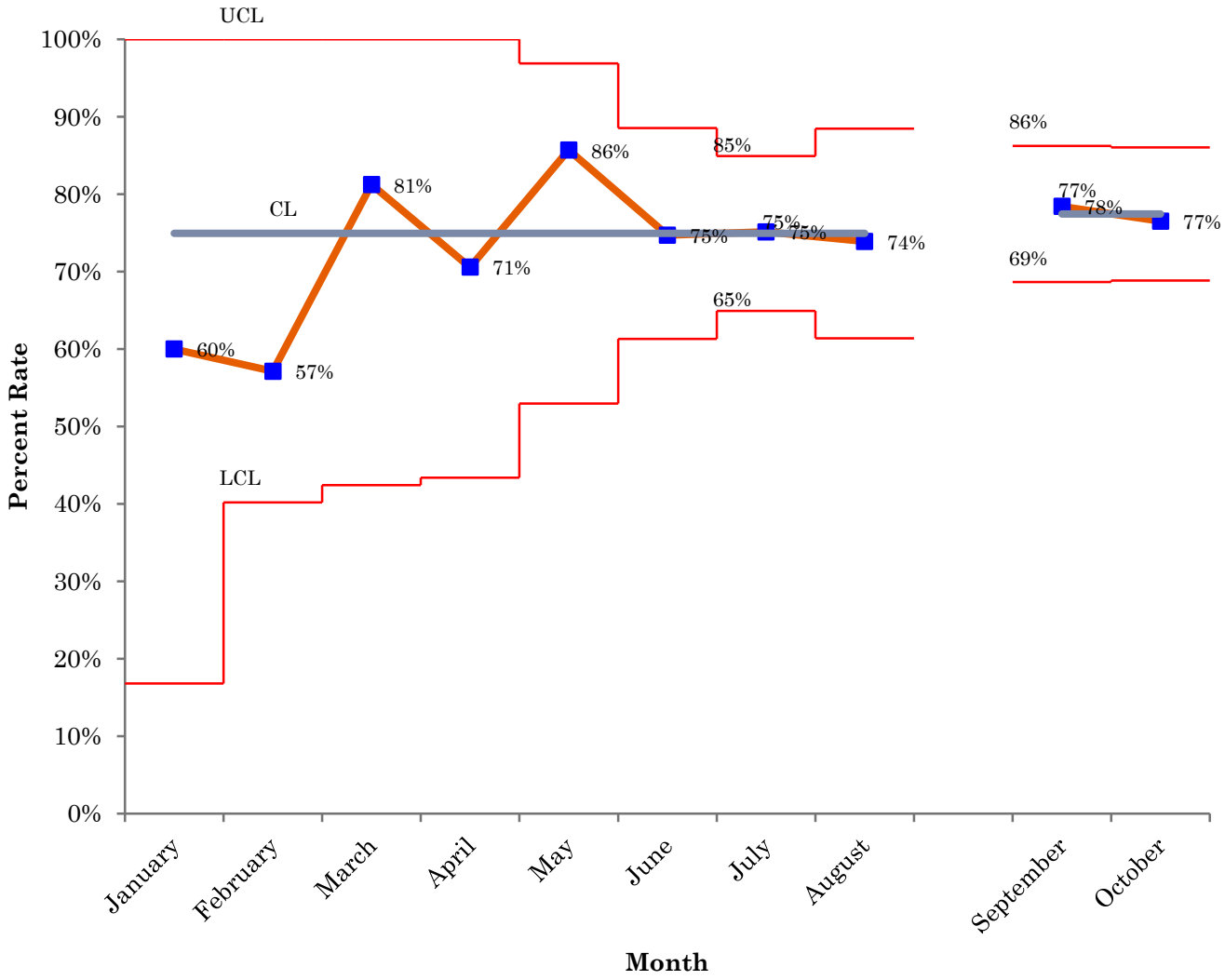


Data Collection

- 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



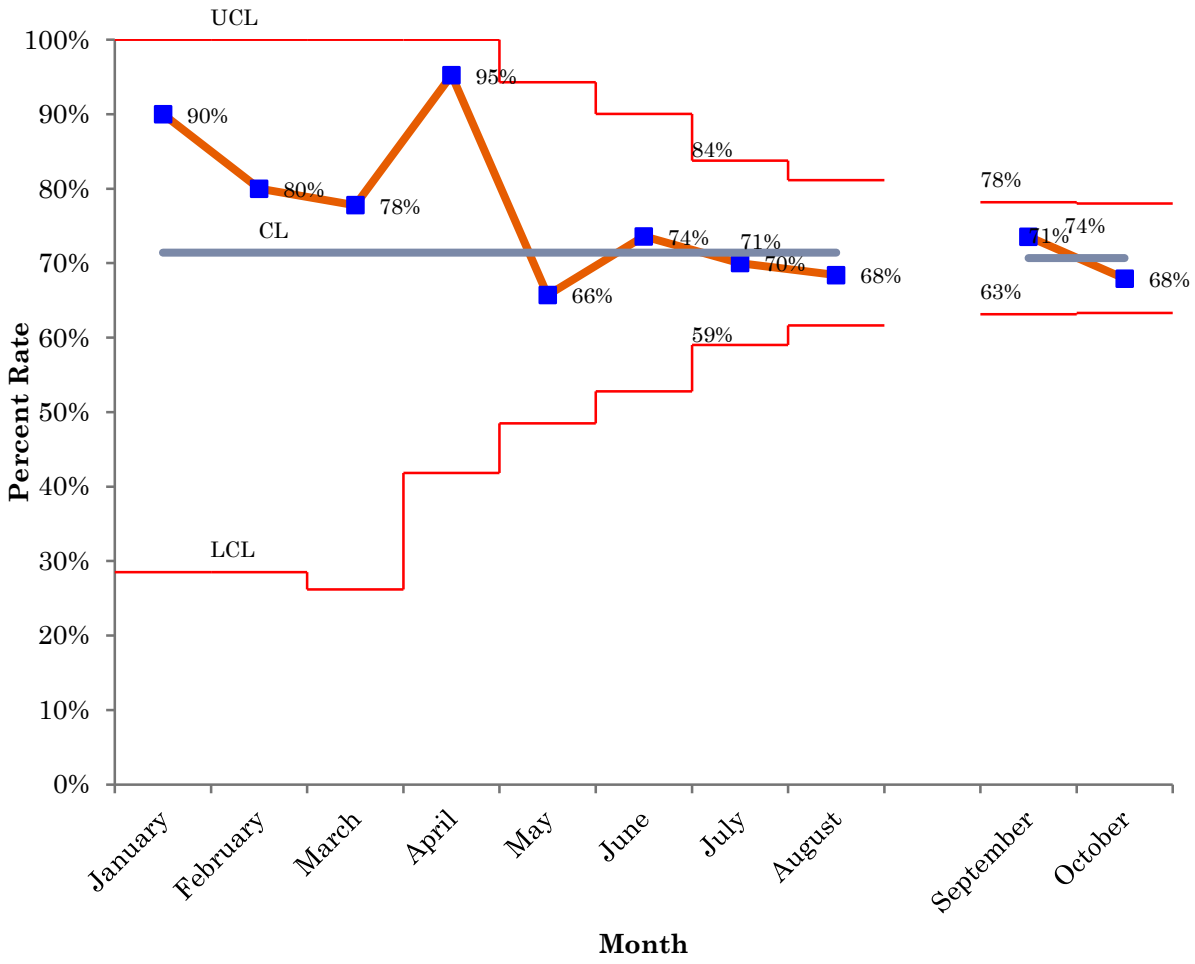
Numerator: No. of cases that were identified as controlled hypertension patients(i.e. <140/90), PCP: Dr. Pierre

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



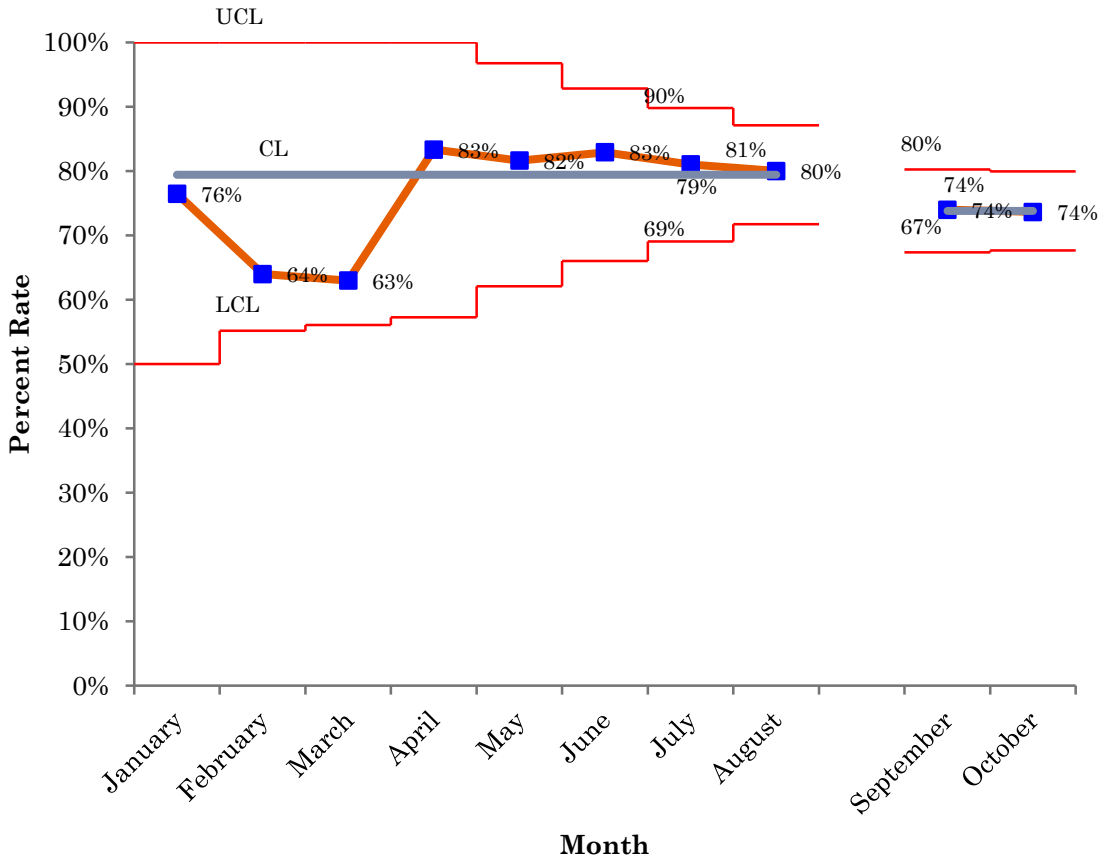
Numerator:
No. of cases that were identified as controlled hypertension patients(i.e. <140/90)

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



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

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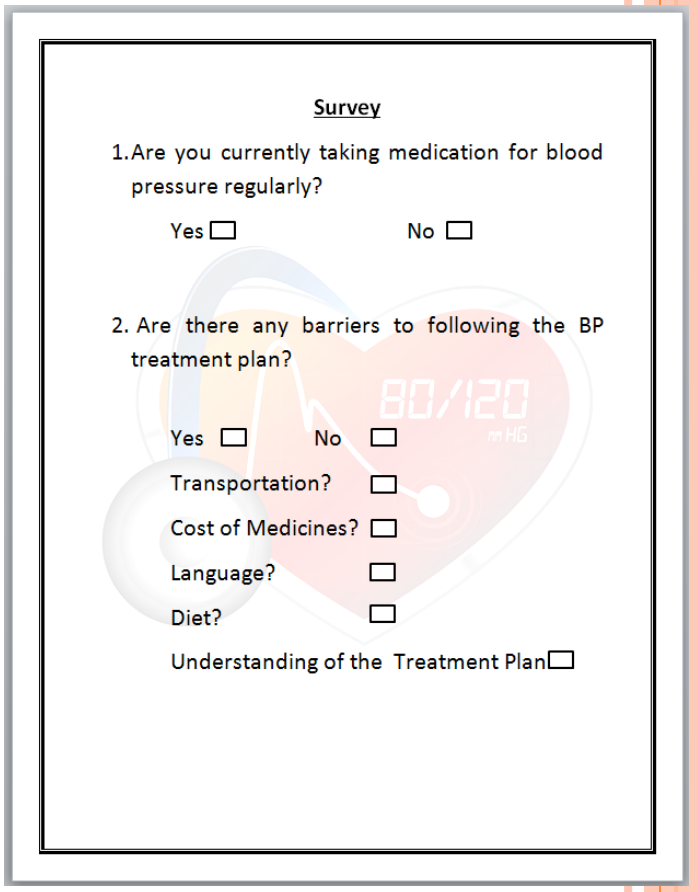
Survey

- 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 the BP treatment plan?

   Yes ☐ No ☐

   Transportation? ☐

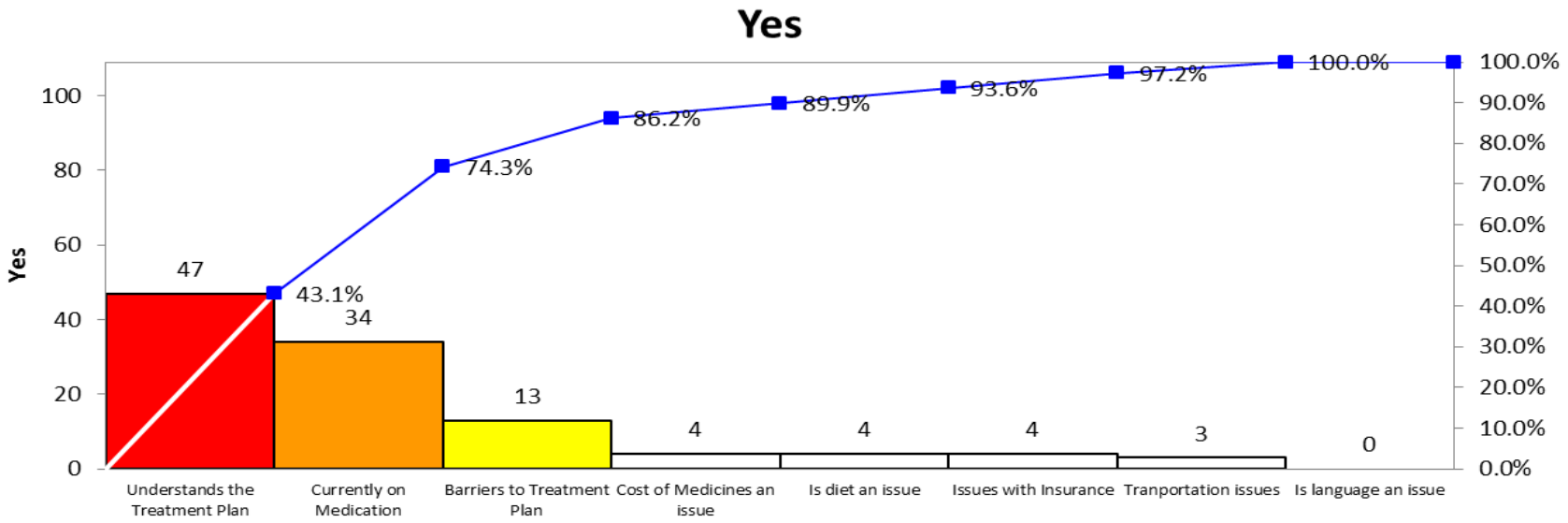
   Cost of Medicines? ☐

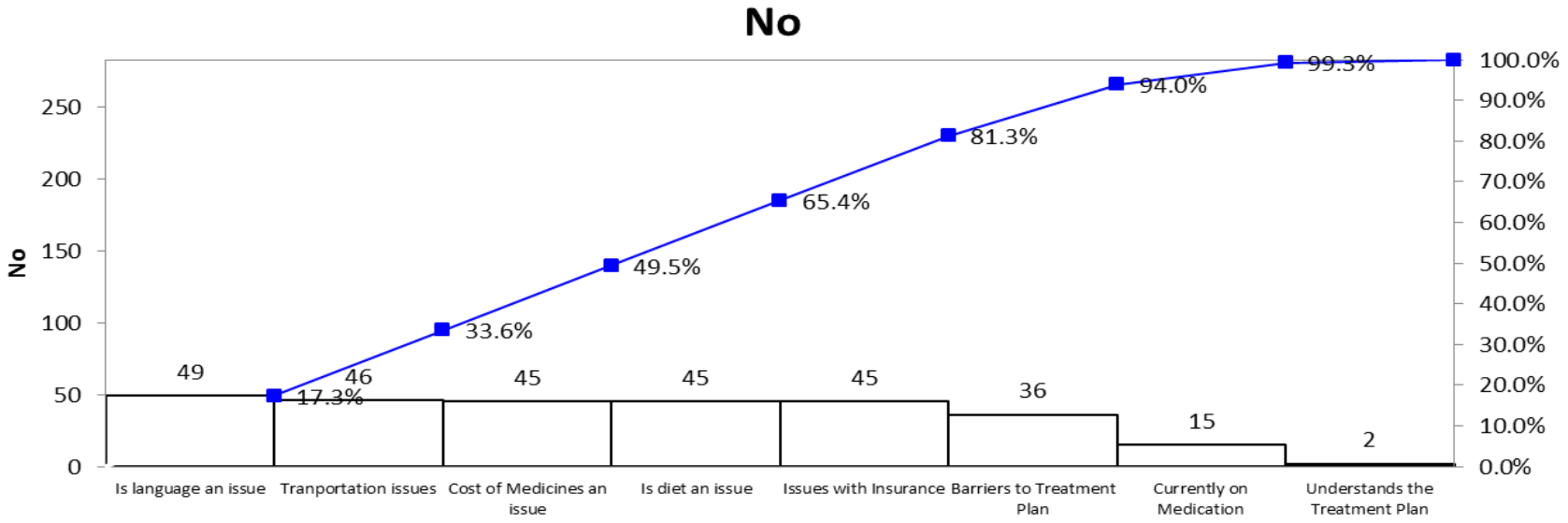
   Language? ☐

   Diet? ☐

   Understanding of the Treatment Plan ☐

Pareto Chart





Intervention

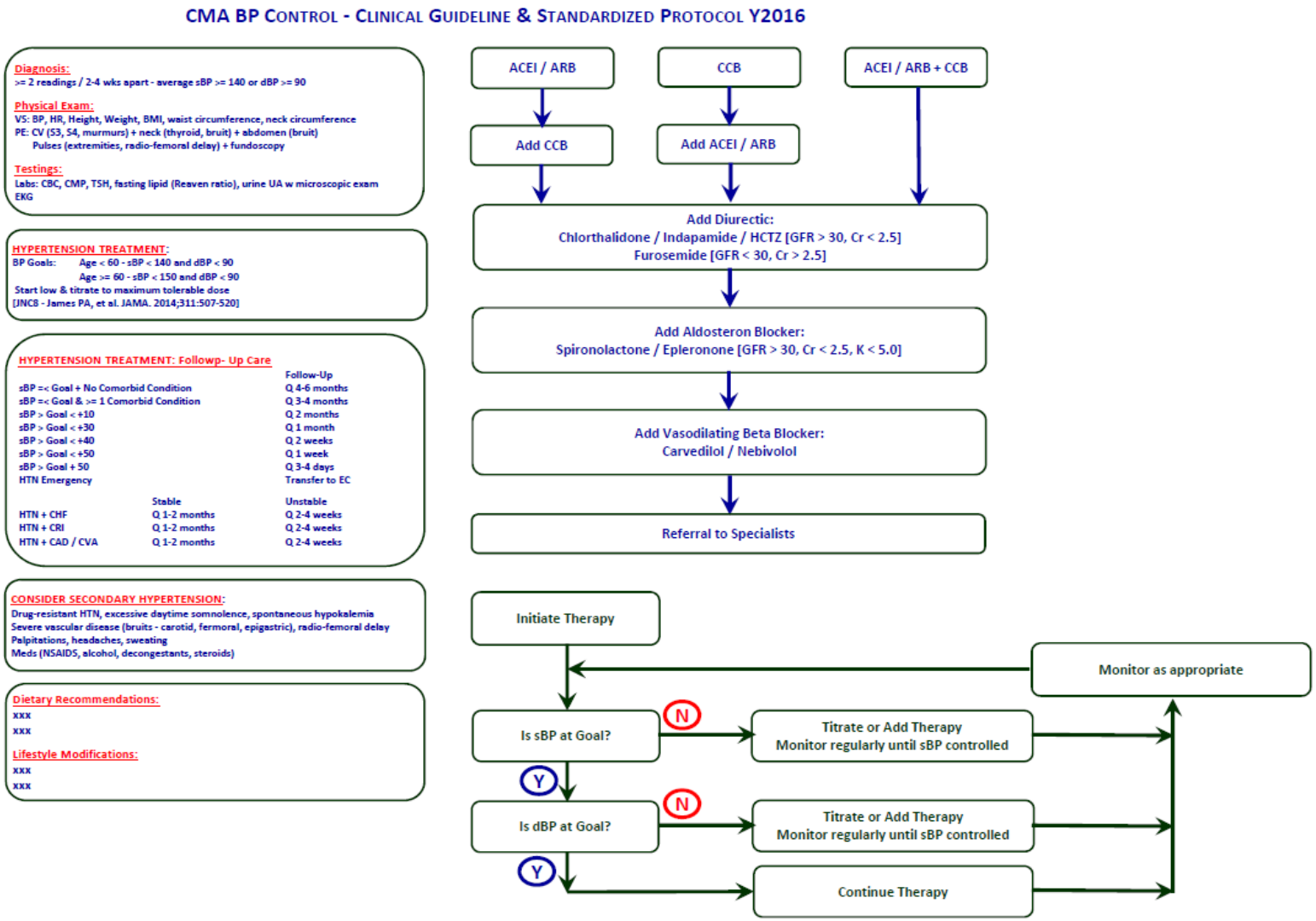
Algorithm & Protocol

- 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:
>= 2 readings / 2-4 wks apart - average sBP >= 140 or dBP >= 90
Physical Exam:
VS: BP, HR, Height, Weight, BMI, waist circumference, neck circumference
PE: CV (S3, S4, murmurs) + neck (thyroid, bruit) + abdomen (bruit)
Pulses (extremities, radio-femoral delay) + fundoscopy
Testings:
Labs: CBC, CMP, TSH, fasting lipid (Reaven ratio), urine UA w microscopic exam
EKG
HYPERTENSION TREATMENT:
BP Goals: Age < 60 - sBP < 140 and dBP < 90
Age >= 60 - sBP < 150 and dBP < 90
Start low & titrate to maximum tolerable dose
(JNC8 - James PA, et al. JAMA. 2014;311:507-520)
HYPERTENSION TREATMENT: Followp- Up Care
Follow-Up
sBP =< Goal + No Comorbid Condition Q 4-6 months
sBP =< Goal & >= 1 Comorbid Condition Q 3-4 months
sBP > Goal < +10 Q 2 months
sBP > Goal < +30 Q 1 month
sBP > Goal < +40 Q 2 weeks
sBP > Goal < +50 Q 1 week
sBP > Goal + 50 Q 3-4 days
HTN Emergency Transfer to EC
Stable Unstable
HTN + CHF Q 1-2 months Q 2-4 weeks
HTN + CRI Q 1-2 months Q 2-4 weeks
HTN + CAD / CVA Q 1-2 months Q 2-4 weeks
CONSIDER SECONDARY HYPERTENSION:
Drug-resistant HTN, excessive daytime somnolence, spontaneous hypokalemia
Severe vascular disease (bruits - carotid, femoral, epigastric), radio-femoral delay
Palpitations, headaches, sweating
Meds (NSAIDS, alcohol, decongestants, steroids)
Dietary Recommendations:
xxx
xxx
Lifestyle Modifications:
xxx
xxx
ACEI / ARB
CCB
ACEI / ARB + CCB
Add CCB
Add ACEI / ARB
Add Diurectic:
Chlorthalidone / Indapamide / HCTZ [GFR > 30, Cr < 2.5]
Furosemide [GFR < 30, Cr > 2.5]
Add Aldosteron Blocker:
Spironolactone / Epleronone [GFR > 30, Cr < 2.5, K < 5.0]
Add Vasodilating Beta Blocker:
Carvedilol / Nebivolol
Referral to Specialists
Initiate Therapy
Monitor as appropriate
Is sBP at Goal?
N
Titrate or Add Therapy
Monitor regularly until sBP controlled
Y
Is dBP at Goal?
N
Titrate or Add Therapy
Monitor regularly until sBP controlled
Y
Continue 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

ADULT MEASURES

Below goal
At or above goal

Regions:		
	North	North/Kenwood/Naco Perrin
	Northwest	Northwest/Express Med Pavillion
	Central	RBG/TDI
	Southwest	SW/Zarzamora/Salinas
	Southeast	SE/Eastside

POPULATION HEALTH	REGION	2015	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Blood Pressure Control (<140/90)	North	64%	64%	66%	67%	69%	69%	71%	72%	73%				
GOAL: 68%	Northwest	68%	70%	71%	71%	72%	71%	72%	72%	75%				
	Central	60%	61%	63%	63%	63%	63%	65%	66%	66%				
	Southeast	67%	66%	67%	68%	69%	70%	71%	72%	72%				
	Southwest	67%	67%	67%	66%	66%	63%	69%	68%	70%				
	GOAL	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%	68%
	Central Month to Month						65%	68%	70%					

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!