Improving Blood Pressure Control Through Blood Pressure Measurement in an Ambulatory Urban Family Medicine Clinic
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Background

Nationally
- High blood pressure (BP) affects 108 million Americans
- Only 40% of patients with hypertension (HTN) achieve BP control
- For many patients, the first BP measurement taken during an office visit is higher than subsequent measurements: 35% of people with a first BP measurement >140/90 ultimately had an average BP >140/90 mm Hg when the average of 3 measurements was used
- The 2017 American College of Cardiology/American Heart Association Clinical Practice Guideline on High Blood Pressure recommends measuring BP ≥2 times during a clinic visit

Methods

General
- Exclusion criteria: age <18, pregnant
- We identified a need to improve education to providers and medical assistants (MAs) about repeating BP measurements during clinic visits.
- We created three interventions to improve measurement and documentation of repeat BPs in our clinic, with the goal to improve accuracy of BP measurement.

Interventions
1) 9/1/2019-11/1/2019: Educate providers/MAs to document repeat BP throughout the lecture format
   - Providers reviewed the importance of checking a second BP and how to document in Epic
   - MAs held an in-service training reviewing BP measurement technique
2) 1/1/2020-1/1/2020: In-room reminder
   - We placed an in-room reminders on the BP cuffs to remind all staff to recheck BPs.
3) 1/1/2020-3/1/2020: Omron HEM 907 BP cuff
   - BP was measured using the Omron HEM 907 on all patients with HTN. The patient would have three BP measurements taken and the average of the three BPs documented by the MA.

Data Collection
- At the end of each intervention, we measured the percent of patients with BP controlled <140/90 using Qlik
- Residents performed a chart review for all patients with HTN seen in our clinic after 1/2020. We recorded if a repeat BP check was documented, if the patient’s elevated BP was taken while the patient was at JFMA, and whether the patient’s medications were changed.

Results

Table 1. Patient Demographics.

<table>
<thead>
<tr>
<th>Patient Demographics</th>
<th>Number (%)</th>
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<tbody>
<tr>
<td>Male</td>
<td>100 (33%)</td>
</tr>
<tr>
<td>Female</td>
<td>204 (67%)</td>
</tr>
<tr>
<td>Age 18-65</td>
<td>212 (70%)</td>
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<tr>
<td>Age &gt;65</td>
<td>92 (30%)</td>
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- Patient demographics displayed in Table 1. 33% (99/304) of patients with HTN had BP >140/90.
- Results (Figure 2):
  - 14% of all patients with HTN had a repeat BP documented
  - 65% of patients with HTN had their last BP measured at JFMA. 35% of patients’ BP was measured in other settings (specialist office, emergency department, urgent care).
  - Only 7% of patients had BP medication changes made during their appointment.
  - 22% (22/99) of patients with elevated BP at a JFMA visit had a repeat BP checked. Between 8/2019 and 4/2020, overall practice BP control decreased from 58% to 55%.

Discussion

Our baseline data revealed a low rate of repeat BP measurements with only 55% of patients with elevated BPs having their BP rechecked.

Aim Statement

To increase the percentage of patients over the age of 18 with BP controlled to a goal of <140/90 from a baseline of 58% to 68% by April 2020.

Figure 3. Ran chart: Percentage of hypertensive patients with BP controlled across interventions, 2019-2020

References


Figure 1 A: Baseline Data for repeat BP measurement in JFMA office
B. Flow diagram for repeat BP measurement (Interventions 2 and 3)

Figure 2. Primary outcomes for hypertensive patients (9%) seen at JFMA (blue = yes, orange = no).