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Under Pressure: Ambulatory Blood Pressure Control

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Background:

- Hypertension (HTN) is the most common reason for a non-pregnant adult to present to their primary care provider. Hypertension is associated with a significant increase in the risk of myocardial infarction, stroke, and renal failure. It is estimated that 50.1% of hypertensive adults in the United States are controlled. JNC 8 guidelines introduced the concept of treatment of hypertension, which introduced the Hawthorne effect. In fact, the Hawthorne effect likely had a large role in decreasing provider inertia to change hypertension management.

- Although the effects of our intervention did not reach the level of statistical significance, we are encouraged by the increase in average hypertension control from 57% to 65% during our intervention.

Smart Aim:

- Improve hypertension control with the following goal: Within three months 60% of patients with hypertension will have a blood pressure less than 140/90 during their most recent office visit.

Stakeholders:

- Stakeholders include patients, resident physicians, medical technicians, and the clinical pharmacist.

Methods:

- A thorough chart review was undertaken to review demographics, blood pressure readings, interventions, and follow-up visits beginning in October 2016 to April 2017.

Statistical analysis: Descriptive characteristics of patient populations in the pre and post-intervention cohorts were summarized and data were expressed as a mean standard deviation for interval variables and as proportions for categorical variables. Proportion of patients whose hypertension was controlled and patients scheduled for follow-up by visit date were represented graphically.

Discussion:

- Although the effects of our intervention did not reach the level of statistical significance, we are encouraged by the increase in average hypertension control from 57% to 65% during our intervention.

- Our intervention led to a significant fold increase in close follow up for patients with untreated hypertension.

- A significant barrier to treatment was that only 48% of patients attended follow-up visits.

- Less familiar follow up methods were utilized, i.e. clinical pharmacist and phone calls.

- Limitations on interpretation of the data includes the small patient cohort, limited time frame studied and inability to randomize or blind which introduced the Hawthorne effect. In fact, the Hawthorne effect likely had a large role in decreasing provider inertia to change hypertension management.

Results:

- **Interventions**
  - Lifestyle Change
  - Additional Antihypertensive
  - Dose Increase

<table>
<thead>
<tr>
<th>Variables, % (n)</th>
<th>Pre-intervention</th>
<th>Post-intervention</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>N=119</td>
<td>N=161</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure &lt;140/90</td>
<td>57.1%(68)</td>
<td>63.2%(106)</td>
<td>0.07</td>
</tr>
<tr>
<td>Process Measure</td>
<td>42.6%(51)</td>
<td>34.8%(63)</td>
<td></td>
</tr>
<tr>
<td>Appointment</td>
<td>100(7)</td>
<td>88.2(60)</td>
<td></td>
</tr>
<tr>
<td>Phone Call</td>
<td>0(0)</td>
<td>8.8(6)</td>
<td></td>
</tr>
<tr>
<td>Clinical Pharmacist</td>
<td>0(0)</td>
<td>5.8(4)</td>
<td></td>
</tr>
<tr>
<td>Attended Follow-Up Appointment</td>
<td>0(0)</td>
<td>48.3(39)</td>
<td></td>
</tr>
<tr>
<td>Average till Follow Up, week(SD)</td>
<td>NA</td>
<td>4.3(2.4)</td>
<td></td>
</tr>
<tr>
<td>Balance Measures</td>
<td>28</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Acute Kidney Injury</td>
<td>0(0)</td>
<td>1.2(1)</td>
<td></td>
</tr>
<tr>
<td>Chronic Kidney Disease</td>
<td>0(0)</td>
<td>1.2(1)</td>
<td></td>
</tr>
<tr>
<td>Orthostatic Hypotension</td>
<td>0(0)</td>
<td>1.2(1)</td>
<td></td>
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<th>METHODS</th>
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References:


