Background

- Decreased recognition of elevated blood pressure in adolescents has led to under diagnosis of hypertension and pre-hypertension.
- In 25 (1.3 million) US adolescents have hypertension, 1 in 10 have elevated blood pressure.
- 2017 AAP Clinical Practice Guidelines changed the threshold for HTN classification.
- Pediatric clinicians rarely use AAP CPG as reference when confronted with suspected abnormal values for age.
- Lack of adherence to guidelines places adolescents at increased risk for adverse health outcomes in adulthood.

Purpose and Aims

The purpose of this quality improvement project was to evaluate the effectiveness of a clinical algorithm and clinician education to increase practice adherence rates to the AAP CPG in the identification and management of elevated blood pressure in the adolescent population of pediatric primary care patients.

Aim 1: Assess baseline adherence to CPG evidenced by documentation of vital signs, diagnosis, and plan.
Aim 2: Evaluate participants attitudes and knowledge of evidenced-based interventions in the management of elevated BP.
Aim 3: Assess practice adherence to CPG post intervention.

Methods

Design: pretest/posttest interventional study.
Setting: Ambulatory pediatric primary care practice, mid-Atlantic region of the United States, part of an academic teaching institution. Practice serves children from birth to 21 years of age. Approximate patient volume of 220 per week.
Practice location < 5 miles from urban city, close proximity to 2 community hospitals.
Sample (Clinicians): inclusion criteria: all clinical staff within study site, certified in specialty of pediatrics (if applicable to role), must be employed within health system. Medical students, agency temps, providers not certified within specialty, or individuals 21 years of age were excluded.
Sample 2 (Patients): male or female gender at birth, 11-21 years, established patient within practice > 1 year, 2 documented office visits, 1 visit must be an annual wellness visit.

Intervention: Delivered 6 education modules over 12 weeks focused on: BP measurement, interpretation, lifestyle behaviors, diagnosis confirmation, motivational interviewing, concomitant screening, partnering in treatment plans. Initiated AAP clinical BP screening algorithm derived from CPG and introduced providers to web based clinical decision-making tool.

Measures: EQIPP HTN Data Collection Tool, AAP CPG, EBPAS 15 item Likert Survey.

Sample

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sample 1</th>
<th>Sample 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certified n (%)</td>
<td>Yes 9 (1)</td>
<td>Mean Age In Years 14.73</td>
</tr>
<tr>
<td></td>
<td>No 2 (18.2)</td>
<td>Median Age In Years 14.00</td>
</tr>
<tr>
<td>Clinician Roles, n (%)</td>
<td>Medical Assistant 7 (64.9)</td>
<td>Standard Deviation 2.671</td>
</tr>
<tr>
<td></td>
<td>Nurse 0 (0)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>APP / Advanced Practice Provider 3 (25.0)</td>
<td>Sex at Birth Male 22 (90)</td>
</tr>
<tr>
<td></td>
<td>Physician 1 (9.1)</td>
<td>Male 22 (90)</td>
</tr>
</tbody>
</table>

Demographic Characteristics: Sample 1

<table>
<thead>
<tr>
<th>Question</th>
<th>Sample 1</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP documented</td>
<td>Yes 30 (82)</td>
<td>25 (83.3)</td>
<td>24 (86)</td>
<td>.763</td>
</tr>
<tr>
<td>BP classification normal or abnormal</td>
<td>No 10 (18)</td>
<td>7 (25)</td>
<td>6 (20)</td>
<td>.307</td>
</tr>
<tr>
<td>Was lifestyle behavior discussed?</td>
<td>Yes 35 (94)</td>
<td>29 (97)</td>
<td>28 (93)</td>
<td>.850</td>
</tr>
<tr>
<td>Does pt return in office for follow-up cuff check?</td>
<td>Yes 29 (80)</td>
<td>24 (80)</td>
<td>23 (77)</td>
<td>.912</td>
</tr>
<tr>
<td>Did pt return with recommended timeframe per CPG</td>
<td>Yes 27 (85)</td>
<td>21 (95)</td>
<td>20 (80)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>If no, was a reminder sent?</td>
<td>Yes 35 (94)</td>
<td>29 (97)</td>
<td>28 (93)</td>
<td>.850</td>
</tr>
</tbody>
</table>

Aims

Aim 1: Comparison of CPG adherence regarding discussion of lifestyle behaviors to maintain normal blood pressure.
Aim 2: Comparison of CPG adherence following up of abnormal blood pressure pre/post intervention.

Results

- A clinical algorithm and targeted education can assist pediatric clinicians in correctly identifying and managing elevated blood pressure and HTN of adolescents in pediatric care.
- Providers and ancillary staff are generally supportive of evidenced-based innovative measures to guide best practices, but continue to seek interventions which are not time consuming.
- Continued efforts are needed to improve gap: repeat bp in office.
- Use of evidenced-based measures can be a pivotal practice catalyst in improving overall quality.
- Partnering with families/patients positively impacts care outcomes and follow up visit compliance.
- AAP CPG can be utilized by the entire patient population post study.
- The use of clinical decision-making tools which interface with the established EHR would further support adherence efforts.

Conclusion

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References

IBM SPSS Statistical Software: Version 27
Mental Health Provider Attitudes Toward Adoption of Evidence Based Practice: The Evidence Based Practice Attitude Scale (EBPAS). Mental Health Services Research. 2005;7(2):61-76. doi:10.1007/s11469-005-6045-1

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