

Improving the Identification of Adolescent Elevated Blood Pressure and Hypertension in Pediatric Primary Care

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Background

- Decreased recognition of elevated blood pressure in adolescents has led to under diagnosis of hypertension and pre-hypertension¹
- 1 in 25 (1.3 million) US adolescents have hypertension, 1 in 10 have elevated blood pressure²
- 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 1 (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 under 21 years of age were excluded.

Sample 2 (Patients): male or female gender at birth, ages 11-21 years, established patient within practice > = 1 year, 2 documented office visits, 1 visit must be an annual wellness exam

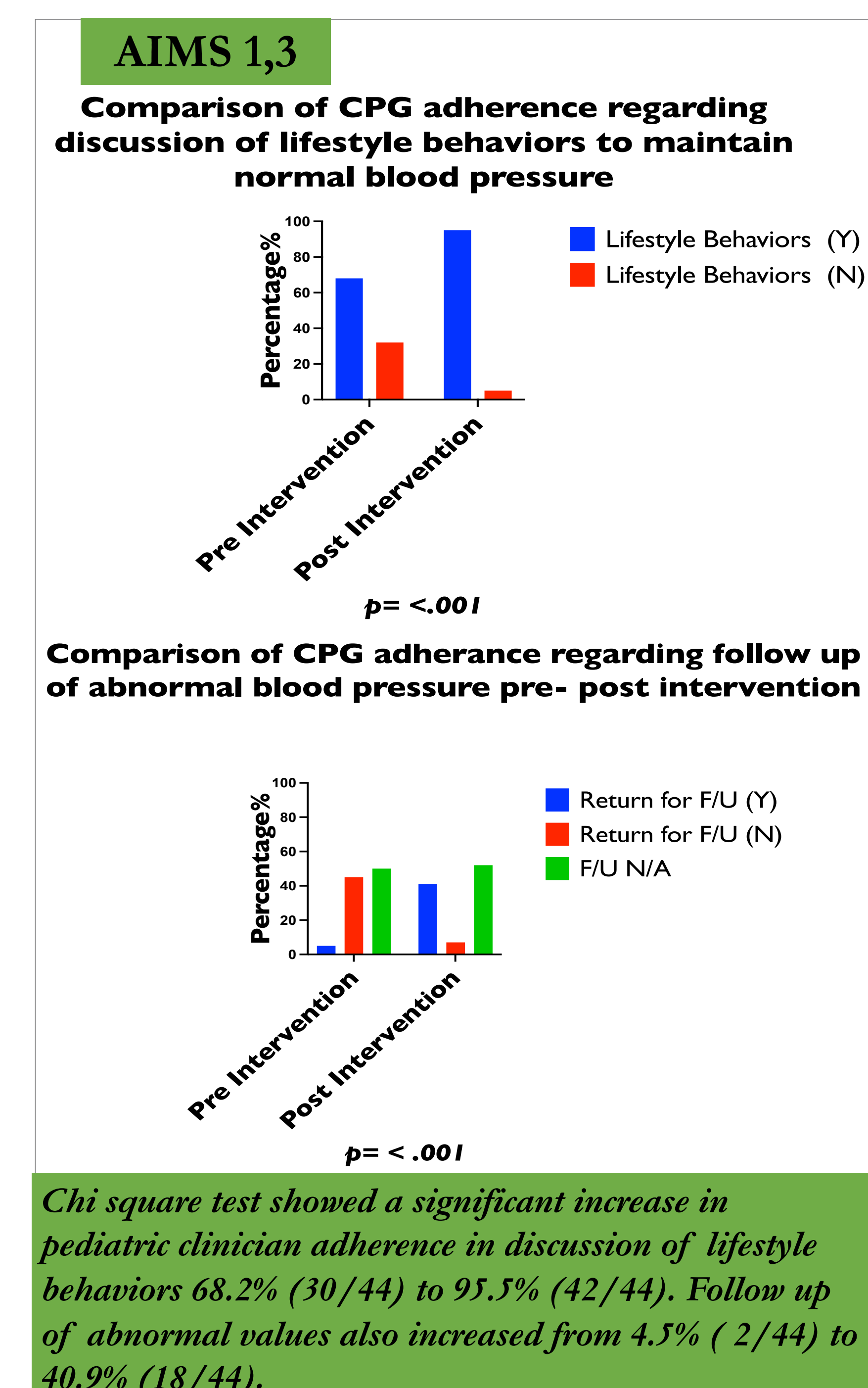
Intervention: Delivered 6 education modules over 12 weeks focused on: BP measurement, interpretation, lifestyle behaviors, diagnosis confirmation, motivational interviewing, comorbidity/screening, partnering in treatment plans. Initiated AAP clinical BP screening algorithm derived from CPG and introduced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

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

Sample

Demographic Characteristics: Sample 1		Demographic Characteristics: Sample 2		
Characteristic	N=11	N=44	Pre- Intervention	Post-Intervention
Certified n (%)				
Yes	9 (81)			
No	2 (18.2)			
Mean Age in Years			14.73	14.95
Median Age In Years			14.00	15.00
Standard Deviation			2.671	2.941
Clinician Roles, n (%)				
Medical Assistant	7 (63.6)			
Nurse	0 (0.0)			
APP (Advanced Practice Provider)	3 (27.3)			
Physician	1 (9.1)			
Sex at Birth			Male 22 (50) Female 22 (50)	Male 22 (50) Female 22 (50)

Results



Question	Pre-Intervention BASELINE	Post-Intervention	P-value
BP documented	44 (100)	44 (100)	
BP classification normal or abnormal	Norm 20(45.5) Abn. 24 (54.5)	23 (52.3) 21 (47.7)	.763
Were lifestyle behaviors discussed?	Yes 30 (68.2) No 14 (31.8)	42 (95.5) 2 (4.5)	<.001
Was BP repeated in office(reaffirming cuff size...)?	Yes 2 (4.5) No 22 (50) N/A 20 (45.5)	Yes 21 (47.7) No 0 (0) N/A 23 (52.3)	.763
Did pt. return with recommended timeframe per CPG?	Yes 2 (4.5) No 20 (45.5) F/U N/A 22 (50)	Yes 18 (41.0) No 3 (6.8) N/A 23 (52.3)	<.001
If no, was a reminder sent?	Yes 4 (9.1) No 17 (38.6) Timeframe Not Elapsed 23 (52.3)	Yes 2 (4.5) No 1 (2.8) TNE 41 (93.2)	<.001

Results

AIM 2

The Related –Samples Wilcoxon Signed Rank Test showed no statistically significant difference (0) between the median scores of the EBP Attitude Scale Pre-Post Summary Scores . There was a noted increase in mean scores between pre- and-post intervention of 4.5.

N= 11	Test Statistic = 66.000	SE= 11.158	Std. Test Statistic = 2.958	p= .003

Summary Score	Pre- Intervention	Post- Intervention
Mean	33.6	38.1
Std. Deviation	2.01	1.45

Conclusion

- A clinical algorithm and targeted education can assist pediatric clinicians in correctly identifying and managing elevated blood pressure and HTN of adolescents in pediatric primary 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 gaps: 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

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IBM SPSS Statistical Software: Version 27

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