



Guideline for Disease Management in Correctional Settings

ADOLESCENT HYPERTENSION

Recommended Resources to Support Evidence-Based Practice and Quality Improvement

NCCHC issues guidelines to assist correctional health care clinicians in evidence-based decision making. For specific clinical practice guidelines and recommendations, please see the resources listed on page 3.

Introduction

Although clinical guidelines are important decision support for evidence-based practice, to leverage the potential of guidelines to improve patient outcomes and resource use, NCCHC recommends that health care delivery systems also have components including primary care teams, other decision support at the point of care (such as reminders), disease registries, and patient self-management support. These components have been shown to improve outcomes for patients with chronic conditions. In addition, we recommend establishment of a strategic quality management program that supports ongoing evaluation and improvement activities focused on a set of measures that emphasize outcomes as well as process and practice. For information on the chronic care model, model for improvement, and outcomes measures, see the resources listed on page 3.

Adolescent Hypertension Care in Corrections

The general approach to the management of hypertension is organized into four components:

- Assessment and monitoring of disease severity and control to reduce cardiovascular risk
- Patient education and self-management about the disease process, lifestyle modifications, and medication use
- Mitigation of factors that increase blood pressure, such as medications and illicit drugs, and treatment of comorbidities that increase cardiovascular risk, such as diabetes, obesity, and hyperlipidemia
- Treatment with medications

Approximately 1% to 3% of children are diagnosed with hypertension. For each 1 to 2 mmHg rise in blood pressure, a child faces a 10% greater risk of developing hypertension as an adult. It is important that all juveniles be screened for hypertension on entry to the correctional system and reassessed on a regular basis. Entering a correctional facility may be stressful and result in temporary elevation of blood pressures in some people. In addition, juveniles in chemical withdrawal may have elevated blood pressures. Thus, NCCHC recommends that patients be reassessed within a reasonable time frame after entry to confirm the diagnosis of hypertension in someone who does not have a history of this condition.

The diagnosis of hypertension is based on three or more blood pressure readings at each of two or more visits, using proper cuff size for the child. NCCHC recommends that therapeutic decisions regarding hypertension be based on the Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents. Definition of normal blood pressure for children is based on body size and age. The Fourth Report includes tables that define these parameters. Prehypertension is defined as systolic or diastolic blood pressure that is between the 90th and 95th percentiles. A child with blood pressure that is greater than 120/80 mmHg but less than the 95th percentile for age is also considered prehypertensive. Hypertension is defined as systolic blood pressure (SBP) or diastolic blood pressure (DBP) that is above the 95th percentile.

Initial evaluation and diagnostic testing emphasizes evaluation for secondary causes, target organ damage, and other cardiac risk factors. It begins with history and examination that includes a BMI. Other early evaluation includes complete blood count, blood chemistries, lipid profile, hemoglobin A1C, urinalysis, and electrocardiogram. Sleep apnea should be considered in obese children.

As with all chronic conditions, self-management is paramount to improve outcomes and reduce morbidity and mortality. It is important that patients are educated about healthier foods, avoidance of drugs that increase blood pressure, and adherence to medications. The facility should support these choices with appropriate dietary choices in the dining hall and the commissary. Exercise programs should be available, although patients with poor control may need restriction from very vigorous exercise programs. Therapeutic lifestyle changes (TLC) may be enough for effective control of Stage 1 hypertension.

Classification	SBP and DBP (mmHg)	TLC	Treatment
Normal	< 90 th percentile for age/gender/height	Yes	Monitor
Stage 1 (Fair)	95 th –99 th percentile (+ 5 mmHg) for age/gender/height Age 13-15: SBP = 136, DBP = 84 Age 16-18: SBP = 142, DBP = 92	Yes	If TLC not successful in 6 months, consider pharmacologic therapy
Stage 2 (Poor)	99 th percentile (+ 5 mmHg) for age/gender/height Age 13-15: SBP = 144, DBP = 92 Age 16-18: SBP = 150, DBP = 98	Yes	If TLC not successful in 6 months, initiate pharmacologic therapy

Suggested definitions of control:

- Good control: Normal blood pressure for age (< 90th percentile)
- Fair control: Improving blood pressure that has moved to a lower level of severity (Stage 1)
- Poor control: Unchanged or worsening blood pressure that is above the 99th percentile (Stage 2)

Quality Improvement Measures

The following quality improvement measures are suggested, but they are not intended to be a complete list necessary to ensure a successful hypertension management program in a juvenile correctional setting. We recommend that the improvement measures for a patient population be reported at a facility level and at a provider or team level.

- Percentage of hypertension patients with follow-up visits that occur no less than every 3 months, depending on severity
- Percentage of hypertension patients whose degree of control is categorized as fair or poor who have an individual treatment plan for improving control
- Percentage of hypertension patients whose blood pressure is below the 95th percentile in the last 3 months
- Percentage of hypertension patients who had diagnostic testing to determine secondary causes or end organ damage on intake
- Percentage of health records of hypertension patients with documentation of education regarding healthy lifestyle

Recommended Resources to Support Evidence-Based Practice and Quality Improvement

- RESOURCE Fourth Report on the Diagnosis, Evaluation, and Treatment of High Blood Pressure in Children and Adolescents (2005)
SOURCE National Heart, Lung, and Blood Institute; National Institutes of Health
URL http://www.nhlbi.nih.gov/health/prof/heart/hbp/hbp_ped.htm
- RESOURCE Policy Statement: Athletic Participation by Children and Adolescents Who Have Systemic Hypertension (June 2010)
SOURCE American Academy of Pediatrics
URL <http://aappolicy.aappublications.org/cgi/content/full/peiatrics;125/6/1287>
- RESOURCE The Heart/Stroke Recognition Program
SOURCE Developed by the National Committee for Quality Assurance and the American Heart Association
URL <http://www.ncqa.org/tabid/140/Default.aspx>
- RESOURCE Chronic Care Model: Meet the Needs of Specific Populations
SOURCE Based on the model developed by Ed Wagner MD, MPH, MacColl Institute for Healthcare Innovation, Group Health Cooperative of Puget Sound, and the Improving Chronic Illness Care program. Available from the Institute for Healthcare Improvement
URL <http://www.ihl.org/knowledge/Pages/Changes/MeettheNeedsofSpecificPopulations.aspx>
- RESOURCE How to Improve / Model for Improvement
SOURCE Associates in Process Improvement. Available from the Institute for Healthcare Improvement
URL <http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove>
- RESOURCE Measures
SOURCE Institute for Healthcare Improvement
URL <http://www.ihl.org/knowledge/Pages/Measures/default.aspx>
- RESOURCE HEDIS & Quality Measurement
SOURCE National Committee for Quality Assurance
URL <http://www.ncqa.org/tabid/59/Default.aspx>

Last reviewed: May 2011
Next scheduled review: May 2012
For the latest version, go to
<http://www.ncchc.org/resources/clinicalguides.html>