

Hypertension Inpatient Clinical Pathway Synopsis

Objective

Update clinicians on initial diagnostic measures and therapy prior to consulting with the Nephrology sub-specialty. This update will improve health outcomes in children with previously undiagnosed hypertension by establishing a pathway for diagnosis, initiation of treatment, and proper follow-up.

Definition

Hypertension is defined as average systolic blood pressure (SBP) and/or diastolic blood pressure (DBP) that is \geq 95th percentile for gender, age, and height on \geq 3 occasions. In children \geq 13 years of age, hypertension is defined as an SBP and/or DBP \geq 130/80 mmHg (Flynn et al., 2017).

Target Users

- Providers and staff nurses caring for hospitalized patients who have been found to have elevated blood pressure after more than, or equal to, three measures.

Target Population

Inclusion Criteria

- \geq 1 year of age
- No prior diagnosed of hypertension
- Currently admitted to a medical inpatient unit

Exclusion Criteria

- $<$ 1 year of age
- Admitted to a surgical service or intensive care unit

AGREE II

The AAP national guideline that provided guidance to the Hypertension committee (Flynn et al., 2017). See Table 1 for AGREE II.

Table 1
AGREE II^a Summary for the Guideline Author (Flynn et al., 2017)

| Domain | Percent Agreement | Percent Justification [^] |
|--------------------------|-------------------|--|
| Scope and purpose | 100% | The aim of the guideline, the clinical questions posed and target populations were identified. |
| Stakeholder involvement | 87% | The guideline was developed by the appropriate stakeholders and represents the views of its intended users. |
| Rigor of development | 88% | The process used to gather and synthesize the evidence, the methods to formulate the recommendations and to update the guidelines were explicitly stated. |
| Clarity and presentation | 100% | The guideline recommendations are clear, unambiguous, and easily identified; in addition, different management options are presented. |
| Applicability | 97% | Barriers and facilitators to implementation, strategies to improve utilization and resource implications were addressed in the guideline. |
| Editorial independence | 100% | The recommendations were not biased with competing interests. |

Note: Three EBP Scholars completed the AGREE II on this guideline.

These clinical pathways do not establish a standard of care to be followed in every case. It is recognized that each case is different, and those individuals involved in providing health care are expected to use their judgment in determining what is in the best interests of the patient based on the circumstances existing at the time. It is impossible to anticipate all possible situations that may exist and to prepare a clinical pathway for each. Accordingly, these clinical pathways should guide care with the understanding that departures from them may be required at times.

Practice Recommendations

Please refer to the AAP Clinical Practice Guidelines for Screening and Management of High Blood Pressure in Children and Adolescents for full practice recommendations, evaluations, and treatment recommends (Flynn et al., 2017).

Additional Questions Posed by the Clinical Pathway Committee

- No additional clinical questions were posed for this review

Measures:

- Frequency Clinical Pathway is accessed on EBP website
- Use of Inpt Hypertension Workup Power Plan

Value Implications

The following improvements may increase value by reducing healthcare costs and non-monetary costs (e.g., missed school/work, loss of wagers, stress) for patients and families and reducing costs and resource utilization for healthcare facilities.

- Decreased in unwarranted variation in care
- Early recognition and management of hypertension
- High value utilization of subspecialty resources

Potential Organizational Barriers

- Inconsistent access to correctly sized blood pressure equipment
- Inconsistency in skills required to accurately obtain blood pressure using a sphygmomanometer

Potential Organizational Facilitators

- Standardized order set serving as decision support tool
- Collaboration among nursing staff, inpatient providers, and nephrologists

Diversity/Equity/Inclusion

- Our aim is to provide equitable care. These issues were discussed with the Committee, reviewed in the literature, and discussed prior to making any practice recommendations.

Power Plan

- Inpt Hypertension Work-up

Associated Policies

- None

Pathway Preparation

This product was prepared by the Evidence Based Practice (EBP) Department in collaboration with the Hypertension Clinical Pathway Committee composed of content experts at Children's Mercy. If a conflict of interest is identified, the conflict will be disclosed next to the committee member's name.

Hypertension Clinical Pathway Committee Members and Representation

- Doug Blowey, MD | Nephrology | Committee Chair
- Codi Cutburth, MSN, RN | Nursing | Committee Member
- Ali Felton-Church, MD, FAAP | Hospital Medicine | Committee Member
- Nathan Beins, MD, MHPE | Nephrology | Committee Member

EBP Team Members

- Kathleen Berg, MD, FAAP | Evidence Based Practice
- Jarrod Dusin, PhD, RD, CPHQ | Evidence Based Practice

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Clinical Pathway Development Funding

The development of this pathway was underwritten by the following departments:

- Evidence Based Practice
- Nephrology
- Hospital Medicine

Approval Process

- This product was reviewed and approved by the Hypertension Committee, content expert departments/divisions, and the EBP Department
- Products are reviewed and updated as necessary every 3 years within the EBP Department at CMKC. Content expert teams are involved with every review and update.

Initial Development Approval

| Department/Unit | Date Approved |
|-----------------------------|---------------|
| Nephrology | 3/2023 |
| Hospital Medicine | 3/2023 |
| Medical Executive Committee | 5/2023 |
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Version History

| Date | Comments |
|---------|--|
| 3/2023 | Version one |
| 10/2024 | Version two – Inpatient Provider Process page updated to include question on concern for patients with cardiac etiology (this was not a full review of the pathway) |
| 4/2026 | Version three – Not a full review, Updating language due to EPIC transition. |

Date for Next Review

- May 2026

Disclaimer:

When evidence is lacking or inconclusive, options in care are provided in the supporting documents and the order set(s) and/or order panel(s) that accompany the clinical pathway.

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References

- Agarwala, B. N., Bacha, E., Cao, Q. L., & Hijazi, Z. M. (2015). Clinical manifestations and diagnosis of coarctation of the aorta. UpToDate. Post, T. W. (Ed), UpToDate, Waltham, MA.
- Flynn, J. T., Kaelber, D. C., Baker-Smith, C. M., Blowey, D., Carroll, A. E., Daniels, S. R., . . . Urbina, E. M. (2017). Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents. *Pediatrics*. doi:10.1542/peds.2017-1904

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