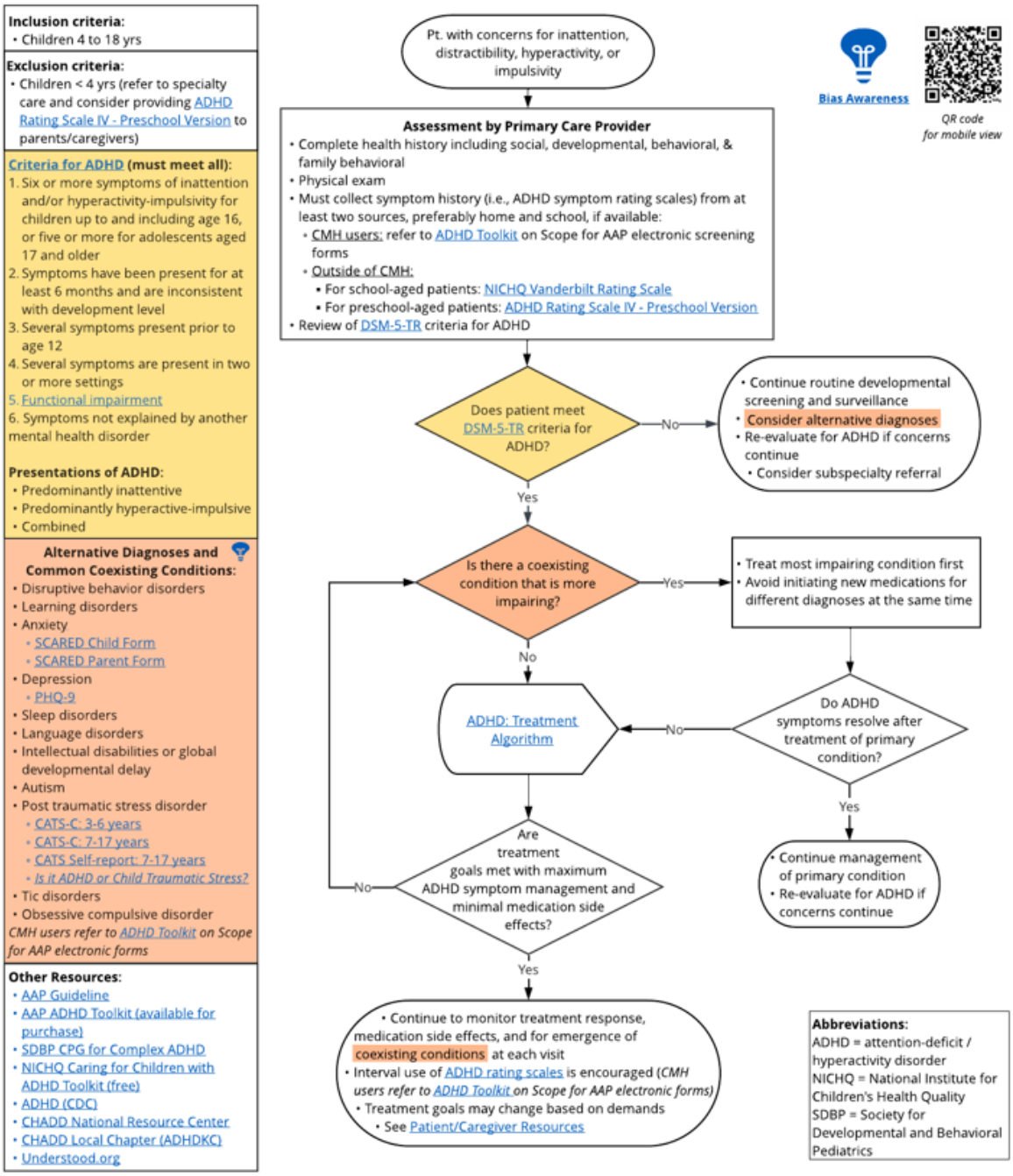
Attention Deficient / Hyperactivity Disorder (ADHD)
Clinical Pathway Synopsis

ADHD Assessment Algorithm



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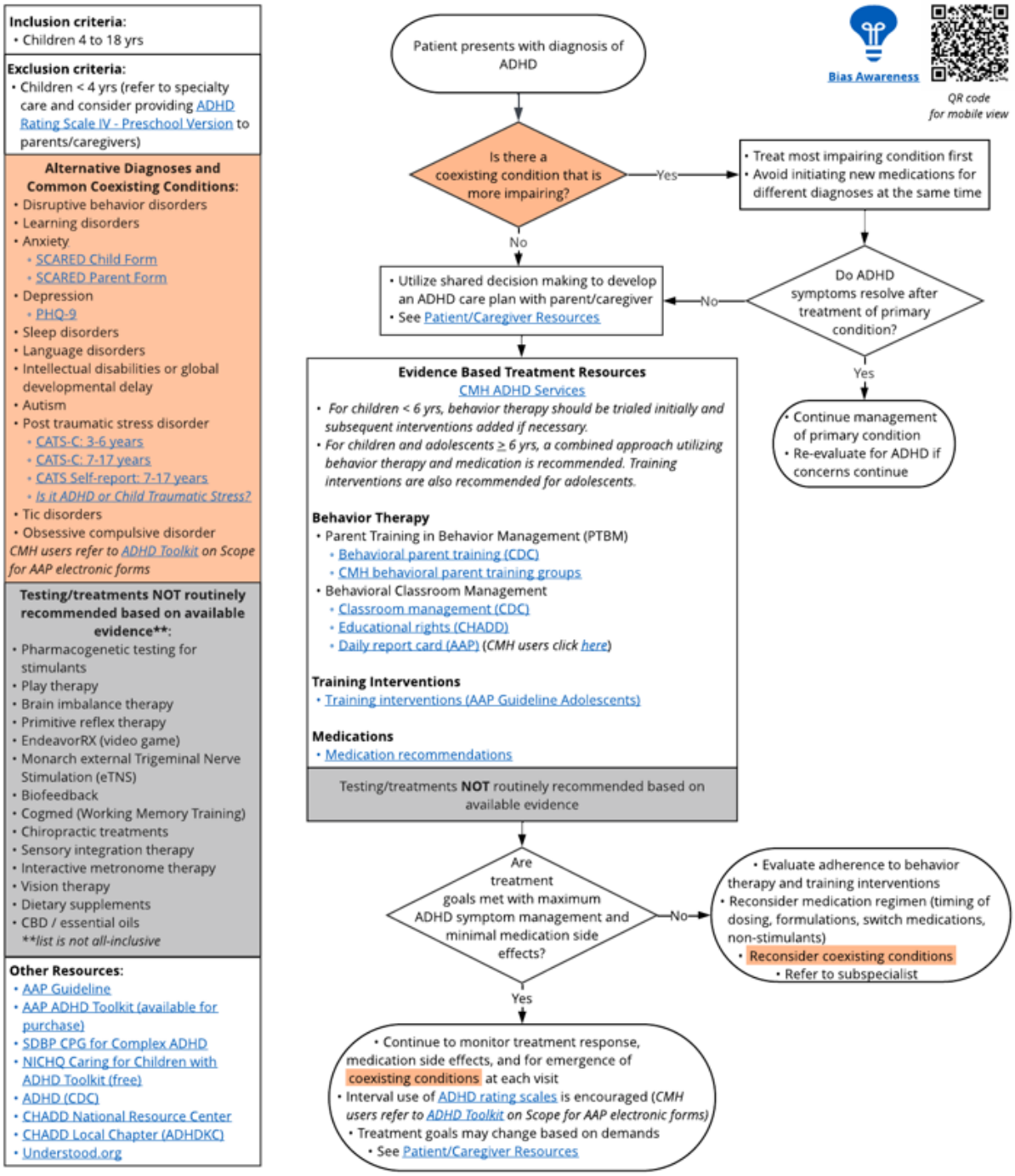
ADHD Treatment Algorithm



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Objective of Clinical Pathway

The objective of the ADHD Clinical Pathway is to provide guidance for the assessment and treatment of patients with suspected ADHD. This pathway provides evidence-based resources for patient evaluation, patient and caregiver education, and ongoing management of patients diagnosed with ADHD.

Background/Epidemiology

ADHD is a common neurodevelopmental disorder in children and adolescents, with 11.4% of patients aged 3 – 17 years reported to have ever received a diagnosis in the United States (Danielson et al., 2024). This disorder may adversely impact multiple functional domains (behavioral, social, academic) within various settings such as home, school and community (Barbaresi et al., 2020). Although typically diagnosed in childhood, symptoms generally persist into adulthood and may lead to long-term challenges with job performance, relationships, substance abuse, and other mental health conditions such as anxiety or depression (Barbaresi et al., 2020).

The diagnosis of ADHD is guided by symptom evaluation and caregiver reports (Wolraich et al., 2019). A thorough examination also includes assessment for coexisting conditions which may be of primary concern (Barbaresi et al., 2020). Management of ADHD requires a comprehensive treatment strategy informed by the best available evidence and executed in partnership with patients, families, teachers, and other caregivers. A shared decision-making approach is recommended to maximize patient/parent compliance and facilitate ongoing communication regarding the efficacy of various interventions (Barbaresi et al., 2020). This clinical pathway provides evidence-based resources to assist primary care providers in the continuous process of evaluating and managing this condition.

Target Users

- Physicians (Primary Care, Outpatient Clinics)
- Psychologists
- Advanced Practice Providers
- Nurses

Target Population

Inclusion Criteria

- Children 4 to 18 years

Exclusion Criteria

- Children < 4 yrs (refer to specialty care and consider providing ADHD Rating Scale IV - Preschool Version to parents)

AGREE II

The American Academy of Pediatrics (AAP) Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit / Hyperactivity Disorder in Children and Adolescents (Wolraich et al., 2019) and the Society for Developmental and Behavioral Pediatrics (SDBP) Clinical Practice Guideline for the Assessment and Treatment of Children and Adolescents with Complex Attention-Deficit / Hyperactivity Disorder (Barbaresi et al., 2020) provided guidance to the ADHD Clinical Pathway Committee. See Tables 1 and 2 for AGREE II.

Table 1
AGREE II Summary for the AAP Guideline (Wolraich et al., 2019)

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	91%	The guideline **was developed** by the appropriate stakeholders and represents the views of its intended users.
Rigor of development	91%	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	90%	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.
Overall guideline assessment	95%	
See Practice Recommendations		

Note: Three Evidence Based Practice (EBP) Scholars completed the AGREE II on this guideline.
^Percentage justification is an interpretation based on the Children's Mercy EBP Department standards.

Table 2
AGREE II Summary for the SDBP Guideline (Barbaresi et al., 2020)

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	93%	The guideline **was developed** by the appropriate stakeholders and represents the views of its intended users.
Rigor of development	79%	The process used to gather and synthesize the evidence and the methods to formulate the recommendations **were** explicitly stated. The guideline developers **did no**t describe their search strategy in detail or how the guideline will be updated. There was no mention of external review.
Clarity and presentation	99%	The guideline recommendations **are** clear, unambiguous, and easily identified; in addition, different management options are presented.
Applicability	88%	Barriers and facilitators to implementation, strategies to improve utilization and resource implications **were addressed** in the guideline. The guideline **did not** address auditing criteria.
Editorial independence	52%	It is **unclear** if the recommendations were biased by competing interests. Funding source was not reported.
Overall guideline assessment	85%	
See Practice Recommendations		

Note: Three Evidence Based Practice (EBP) Scholars completed the AGREE II on this guideline.
^Percentage justification is an interpretation based on the Children's Mercy EBP Department standards.

Practice Recommendations

Please refer to the AAP and SDBP Clinical Practice Guidelines (Barbaresi et al., 2020; Wolraich et al., 2019) for full practice recommendations, evaluation, and treatment recommendations.

Additional Questions Posed by the Clinical Pathway Committee

No additional clinical questions beyond the scope of the AAP and SDBP Clinical Practice Guidelines were posed for formal literature review.

Updates from Previous Versions of the Clinical Pathway

- Added links to screening tools for common coexisting conditions
- Added reference box for therapies not routinely recommended based on available evidence
- Added "Bias Awareness" icon for information on biases that exist in the diagnosis and management of ADHD

Recommendation Specific for Children's Mercy

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No deviations were made from the AAP or SDBP guidelines regarding practice recommendations, but logistical processes specific to Children's Mercy were added.

- Provided access to AAP Toolkit for CMH providers (via institutional license) on Scope
- Provided links to community resources for education and behavioral training

Measures

- Utilization of the ADHD Assessment and Treatment Clinical Pathway
- Number of families referred to Behavioral Parent Training (BPT) classes

Value Implications

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

- Improved identification of children with ADHD
- Improved equity with consistent use of evidence-based commendations among patient populations
- Improved school performance
- Decreased rate of unplanned medical visits for untreated/undertreated behavioral health conditions
- Increased access to evidence-based resources for evaluation and treatment
- Increased access to reputable sources of information for education and training

Organizational Barriers and Facilitators

Potential Barriers

- Variability in expertise and comfort in diagnosis and treatment of ADHD among providers
- Limited mental health resources within the community
- Challenges with follow-up faced by some families

Potential Facilitators

- Collaborative engagement across care continuum settings during clinical pathway development
- High rate of use of the ADHD Clinical Pathway

Diversity/Equity/Inclusion

Our aim is to provide equitable care. These issues were discussed prior to making any practice recommendations. Please refer to the Bias Awareness Resource Page for additional resources.

Education Materials

No new educational materials were developed with this pathway. Access to educational information from sources such as the AAP, Center for Disease Control (CDC), and Children and Adults with Attention-Deficit / Hyperactivity Disorder (CHADD) are provided via hyperlinks throughout the assessment and treatment algorithms.

Clinical Pathway Preparation

This clinical pathway was prepared by the Evidence Based Practice (EBP) Department in collaboration with the ADHD Clinical Pathway Committee composed of content experts at Children's Mercy Kansas City. Analysis of clinical practice guidelines was performed by EBP Scholars and the EBP team. If a conflict of interest is identified, the conflict will be disclosed next to the committee member's name.

ADHD Clinical Pathway Committee Members and Representation

- Lisa Campbell, MD | Developmental and Behavioral Health | Committee Co-chair
- Simone Moody, PhD | Developmental and Behavioral Health | Committee Co-chair
- Christopher Stone, MD | General Academic Pediatrics, CMKC Primary Care Clinic | Committee Member
- Kirsten Weltmer, MD, FAAP | General Academic Pediatrics, CMKC Primary Care Clinic | Committee Member
- Kristin Stuppy, MD | Community pediatrician | Committee Member

Patient/Family Committee Member
- Jamila Weaver | Committee Member

EBP Committee Members
- Kathleen Berg, MD, FAAP | Hospitalist, Evidence Based Practice
- Kori Hess, PharmD | Evidence Based Practice

Clinical Pathway Development Funding
The development of this clinical pathway was underwritten by the following departments/divisions: Developmental and Behavioral Health, General Academic Pediatrics, and Evidence Based Practice.

Conflict of Interest
Dr. Campbell was an author of the Society for Developmental and Behavioral Pediatrics Clinical Practice Guideline for the Assessment and Treatment of Children and Adolescents with Complex Attention-Deficit/Hyperactivity Disorder (2020). The other contributors to the ADHD Clinical Pathway have no conflicts of interest to disclose related to the subject matter or materials discussed.

Approval Process
- This clinical pathway was reviewed and approved by the ADHD Clinical Pathway Committee, Content Expert Departments/Divisions, and the EBP Department; after which they were approved by the Medical Executive Committee.
- Pathways 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.

Review Requested

Department/Unit	Date Obtained
Developmental and Behavioral Health	09/06/2024
General Academic Pediatrics / Primary Care Clinic	09/06/2024
Community pediatrician	09/09/2024
Evidence Based Practice	09/06/2024

Version History

Date	Comments
April 2021	Version one (algorithms developed)
September 2024	Version two (algorithms revised, synopsis developed)

Date for Next Review
- 2027

Implementation & Follow-Up
- Once approved, the pathway was presented to appropriate care teams and implemented.
- Additional institution-wide announcements were made via email, hospital website, and relevant huddles.
- Metrics will be assessed and shared with appropriate care teams to determine if changes need to occur.

Disclaimer
When evidence is lacking or inconclusive, options in care are provided in the supporting documents and the power plan(s) that accompany the clinical pathway.

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References

Barbaresi, W. J., Campbell, L., Diekroger, E. A., Froehlich, T. E., Liu, Y. H., O'Malley, E., Pelham, W. E., Jr., Power, T. J., Zinner, S. H., & Chan, E. (2020). Society for Developmental and Behavioral Pediatrics Clinical Practice Guideline for the Assessment and Treatment of Children and Adolescents with Complex Attention-Deficit/Hyperactivity Disorder. *J Dev Behav Pediatr*, *41 Suppl 2S*, S35-s57. https://doi.org/10.1097/dbp.0000000000000770

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Wolraich, M. L., Hagan, J. F., Jr., Allan, C., Chan, E., Davison, D., Earls, M., Evans, S. W., Flinn, S. K., Froehlich, T., Frost, J., Holbrook, J. R., Lehmann, C. U., Lessin, H. R., Okechukwu, K., Pierce, K. L., Winner, J. D., & Zurhellen, W. (2019). Clinical Practice Guideline for the Diagnosis, Evaluation, and Treatment of Attention-Deficit/Hyperactivity Disorder in Children and Adolescents. *Pediatrics*, *144*(4). https://doi.org/10.1542/peds.2019-2528