INTRODUCTION TO THE QUALITY IMPROVEMENT TOOLS

The Subcommittee on ADHD is committed to practice improvement and has developed these quality improvement tools to facilitate implementation of the 2019 ADHD guidelines.

- **The intent of the driver diagram and metrics is to facilitate practice improvement and guideline implementation.**
  - Key stakeholders should use a dynamic and iterative process to select goals, specific aims, measures, and targets consistent with their office practice’s improvement projects.
  - Practices should not expect to be able to achieve all of the goals and/or demonstrate improvement in all measures within a specific timeframe.
  - Some goals may require many iterative improvement cycles and take years to achieve, due to complex systems barriers (as outlined in the supplementary Barriers statement accompanying the guidelines).

- **These should not be considered complete or static tools.**
  - These tools are examples of the critical concepts, actions/interventions, and/or tools that are likely important in driving practice change.
  - Practices should feel free to modify or adapt as needed based on their clinical population, practice environment, and local system resources and constraints.
  - Practices should select high-value areas (goals) for improvement and select/adapt the measures deemed most relevant to their projects.
  - Some measures may appear to address the same underlying process or outcome but allow practices to drill down to specific areas of improvement or offer a more feasible way to collect data and/or calculate the measure.
  - Although some measures have suggested numeric targets based on the published literature or are from previous ADHD QI collaboratives, *these targets are not meant to be standards independent of local context.* Practices should set their own initial, achievable targets based on current performance, taking into account local resources and barriers. For example, an initial target may be “10% improvement from baseline” for some measures that require coordination with systems (educational, mental health) not within a practice’s direct control, and “50% improvement from baseline” for other measures that entirely within a clinician’s control.
  - As performance improves over time, practices may wish to move towards more “aspirational” targets as appropriate.
### 2019 ADHD CPG QI Metrics

Inclusion criteria: Patients ages 4-17 years (up to the 18th birthday)
Exclusion criteria: As per measure specifications
Time frame for data collection: TBD by each practice/clinical unit; several measures are based on a 12-month timeframe from initial diagnosis or assessment

**PLEASE NOTE:** Targets for each measure should be based on a practice’s desired achievable improvement from their own baseline (e.g., 10-25% from baseline is often used as the first improvement target, depending on the practice’s readiness for change and the difficulty of implementing the planned changes; as performance improves, practices may then wish to move towards more aspirational targets of 90-100% depending on the measure). The targets/benchmarks suggested below are based on examples from the published literature or from other ADHD collaboratives.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Measure Definition</th>
<th>Measure source</th>
<th>Measure Calculation</th>
<th>Data source / tool</th>
<th>Suggested target or benchmark (if available)*</th>
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<tbody>
<tr>
<td><strong>Aim:</strong> Patients will receive an appropriate diagnostic assessment as per current CPG recommendations</td>
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| 1. Use of DSM-5 criteria (KAS 2) | % of patients who meet DSM-5 criteria for ADHD | Adapted from EQIPP course; adapted from CHIPRA (Accurate ADHD Diagnosis) | **Numerator:** # of patients who met DSM-5 criteria for the diagnosis of ADHD  
**Denominator:** # of patients who have been diagnosed with ADHD | Medical record review |  |
| 2. Use of validated ADHD rating scale from 2 or more settings (KAS 2) | % of patients whose ADHD symptoms and impairment were assessed using validated ADHD rating scales from 2 or more settings | Adapted from CHIPRA Pediatric Quality Measures Program Centers of Excellence (Accurate ADHD Diagnosis) | **Numerator:** # of patients who have a validated ADHD rating scale completed by individuals from at least 2 major settings (e.g., parent and teacher)  
**Denominator:** # of patients who have received a diagnostic assessment for ADHD | Validated ADHD rating scale (e.g. Vanderbilt)  
Epstein et al (Pediatrics 2011): 83% had a parent Vanderbilt and 83% had a teacher Vanderbilt as part of the diagnostic assessment | 90% (per CQN ADHD collaborative) |
| 3. Screening for co-morbid conditions (KAS 3) | % of patients who were screened for co-morbid conditions | Adapted from EQIPP course | **Numerator:** # of patients who have been screened for common co-morbid conditions, including emotional or behavioral conditions (e.g., anxiety, depression, oppositional-defiant disorder), developmental conditions (e.g., learning and language disorder, autism), and physical conditions (e.g., tics, seizures, sleep apnea)  
**Denominator:** # of patients who have been diagnosed with ADHD | Validated screening tools  
(Note: Vanderbilt used for ADHD symptoms include screening for comorbidity) |  |
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<tbody>
<tr>
<td><strong>Aim: Patients/families will receive age-appropriate education about ADHD</strong></td>
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| 4. ADHD education for families (KAS 4: chronic care model) | % of patients diagnosed with ADHD who were offered ADHD educational materials | CQN ADHD collaborative | **Numerator:** # of patients diagnosed with ADHD who were offered educational materials about ADHD  
**Denominator:** # of patients diagnosed with ADHD | Medical record review | 90% (per CQN ADHD Collaborative) |
| **Aim: Patients will have a written ADHD care plan.** | | | | | |
| 5. ADHD care plan (KAS 4) | % of patients diagnosed with ADHD who have a written ADHD care plan based on input from patient/family and school | Adapted from EQIPP course | **Numerator:** # of patients with a written ADHD care plan  
**Denominator:** # of patients diagnosed with ADHD | Medical record review | 90% (per CQN ADHD Collaborative) |
### Measure Definition

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<tr>
<td><strong>Aim:</strong> Patients will receive treatment recommendations appropriate for age.</td>
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| 6a. Parent training in behavior management (PTBM) as first-line treatment for preschoolers (KAS 5a) | % of patients aged 4-5 years who received recommendation for evidence-based parent training in behavior management (PTBM) training as first-line treatment for ADHD and ADHD-related impairments | CHIPRA | **Numerator:** # of patients ages 4-5 years diagnosed with ADHD who received recommendation for evidence-based parent training in behavior management (PTBM) as first-line treatment for ADHD and ADHD-related impairments  
**Denominator:** # of patients ages 4-5 years diagnosed with ADHD | Medical record review | CDC data 2008-2014: 50% of preschool-age children ages 2-5 with ADHD received behavior therapy as first line treatment (MMWR, May 6, 2016 / 65(17);443–450) |
| 6b. Either FDA-approved ADHD medication OR evidence-based psychosocial intervention to treat ADHD and related impairments for ages 6-11 years (KAS 5b) | % of patients aged 6-11 years who received recommendations for either FDA-approved medications or evidence-based psychosocial interventions (such as PTBM, behavioral classroom, or educational interventions) to treat ADHD and related impairments | Adapted from EQIPP course | **Numerator:** # of patients ages 6-11 years diagnosed with ADHD who received recommendation for FDA-approved medication for ADHD or age-appropriate evidence-based psychosocial intervention to treat ADHD and ADHD-related impairments  
**Denominator:** # of patients ages 6-11 years diagnosed with ADHD | Medical record review | |
| **Note that this measure combines 6bi and 6bii** |
| 6bi. FDA-approved ADHD medication for ages 6-11 years (KAS 5b) | % of patients aged 6-11 years who received recommendations for FDA-approved medications to treat ADHD | Adapted from EQIPP course | **Numerator:** # of patients ages 6-11 years diagnosed with ADHD who received recommendation for FDA-approved medication to treat ADHD  
**Denominator:** # of patients ages 6-11 years diagnosed with ADHD | Medical record review | This measure can be used to drill down from measure 6b |
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| 6bii.   | % of patients aged 6-11 years who received recommendations for age-appropriate evidence-based psychosocial interventions to treat ADHD and related impairments                                                   | Adapted from EQIPP course | **Numerator:** # of patients ages 6-11 years diagnosed with ADHD who received recommendation for age-appropriate evidence-based psychosocial interventions to treat ADHD and ADHD-related impairments  
**Denominator:** # of patients ages 6-11 years diagnosed with ADHD                                                                 | Medical record review | This measure can be used to drill down from measure 6b                                                                                                           |
| 6ci.    | % of patients aged 12-17 years who received recommendations for FDA-approved medications to treat ADHD, with assent                                                                                                  | Adapted from EQIPP course | **Numerator:** # of patients ages 12-17 years diagnosed with ADHD who received recommendation for FDA-approved medication to treat ADHD  
**Denominator:** # of patients ages 12-17 years diagnosed with ADHD                                                                 | Medical record review |                                                                                                                                                |
| 6cii.   | % of patients aged 12-17 years who received recommendations for evidence-based psychosocial interventions to treat ADHD and ADHD-related impairments, such as skills training, behavioral treatments, or educational interventions, with assent | Adapted from EQIPP course | **Numerator:** # of patients ages 12-17 years diagnosed with ADHD who received recommendation for age-appropriate evidence-based psychosocial interventions to treat ADHD and ADHD-related impairments  
**Denominator:** # of patients ages 12-17 years diagnosed with ADHD                                                                 | Medical record review |                                                                                                                                                |
| 7.      | % of patients with suspected or confirmed co-morbid conditions who received treatment or were referred to a subspecialist                                                                                               | Adapted from EQIPP course | **Numerator:** # of patients diagnosed with ADHD who received treatment or were referred for a suspected or confirmed comorbid condition  
**Denominator:** # of patients diagnosed with ADHD and a suspected or confirmed comorbid condition  
**Exclusion:** Patients with ADHD who do not have a suspected or confirmed comorbid condition                                                                 | Medical record review |                                                                                                                                                |
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| 8. ADHD care plan reviewed (KAS 4) | % of patients whose written ADHD care plan has been reviewed and updated if indicated | Adapted from EQIPP course | **Numerator:** # of patients with ADHD whose ADHD care plan has been reviewed and updated (if indicated) at the most recent follow-up visit  
**Denominator:** # of patients with ADHD who have a written ADHD care plan  
**Exclusion:** Patients with ADHD who do not have a written care plan | Medical record review | | |
| 9. Medication initiation follow-up within 2 weeks (KAS 6) | % of patients initiating ADHD medication who are contacted within 2 weeks of initiation | Adapted from EQIPP course | **Numerator:** # of patients with ADHD initiating ADHD medication who were contacted within 2 weeks of initiation  
**Denominator:** # of patients with ADHD who have initiated ADHD medication  
**Exclusions:** (1) Patients not prescribed ADHD medication; (2) Patients who did not initiate ADHD medication within the specified time frame of data collection | Medical record review | | |
| 10. Medication initiation 30-day follow-up (KAS 6) | % of patients initiating ADHD medication who complete a follow-up visit within 30 days | Adapted from HEDIS (initiation phase) | **Numerator:** # of patients with ADHD initiating ADHD medication who completed a follow-up visit with a prescriber within 30 days of initiation  
**Denominator:** # of patients with ADHD who have initiated ADHD medication  
**Exclusions:** (1) Patients not prescribed ADHD medication; (2) Patients who did not initiate ADHD medication within the specified time frame of data collection | Medical record review | 60%  
NCQA: approximately 40-47% of pediatric patients with ADHD receive follow-up care after treatment initiation |
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| 11a. Medication follow-up visit frequency | % of patients prescribed ADHD medication who complete at least 2 follow-up visits within 270 days of the first follow-up visit | Adapted from HEDIS (continuation and maintenance phase) | **Numerator:** # of patients prescribed ADHD medication and remained on the medication who completed at least 2 follow-up visits within 270 days of the first (i.e., 30-day) follow-up visit  
**Denominator:** # of patients with ADHD who have initiated ADHD medication  
**Exclusions:** (1) Patients not prescribed ADHD medication; (2) Patients who did not initiate ADHD medication within the specified time frame of data collection; (3) Patients who did not remain on the ADHD medication for at least 210 days | Medical record review | |
| 11b. Medication follow-up visit frequency | % of patients prescribed ADHD medication who complete at least 2 follow-up visits within the past 12 months | From EQIPP course; adapted from HEDIS | **Numerator:** # of patients prescribed ADHD medication who completed at least 2 follow-up visits within the past 12 months  
**Denominator:** # of patients with ADHD prescribed ADHD medication  
**Exclusions:** (1) Patients not prescribed ADHD medication; (2) Patients who have initiated ADHD medication within the past 12 months (i.e., have not been on ADHD medication for at least 12 months) | Medical record review | |
| 12. Informed medication decision at follow-up visits | % of patients prescribed medication whose dose was adjusted or maintained at medication follow-up visits based on information from validated ADHD rating scales from at least 2 major settings (e.g., home & school) | Adapted from EQIPP course  
Similar to CQN ADHD collaborative measures 4 (Medication Titration Follow-Up) and 5 (Medication maintenance) | **Numerator:** # of patients prescribed ADHD medication whose dose was adjusted or maintained at medication follow-up visits based on information from validated ADHD rating scales from at least 2 major settings  
**Denominator:** # of patients with ADHD prescribed ADHD medication  
**Exclusion:** Patients not prescribed ADHD medication; patients whose medication was adjusted outside of a follow-up visit | Medical record review | 60% (as per CQN ADHD collaborative) |
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| **13. Response to psychosocial interventions assessed within 6 months** | % of patients receiving evidence-based psychosocial interventions whose response is assessed using validated ADHD rating scales from at least 2 major settings (e.g., home and school) within 6 months of initiating psychosocial treatment | Adapted from EQIPP course | **Numerator:** # of patients with ADHD receiving psychosocial interventions whose response is assessed using validated ADHD rating scales from at least 2 major settings within 6 months of initiating psychosocial treatment  
**Denominator:** # of patients with ADHD receiving psychosocial interventions  
**Exclusion:** Patients not receiving psychosocial interventions | Medical record review | |
| **14. Screening for emerging comorbid conditions** | % of patients who are regularly screened for emerging comorbid conditions | | **Numerator:** # of patients with ADHD who are screened for emerging comorbid conditions within the past 12 months  
**Denominator:** # of patients with ADHD (may include those already identified with a comorbid condition) | Medical record review | |
| **15. Chronic care follow-up** | % of patients with ADHD who have attended at least one ADHD follow-up care visit within the calendar year | AHRQ-CMS PQMP | **Numerator:** # of patients with ADHD who have attended at least one ADHD follow-up care visit within the calendar year  
**Denominator:** # of patients with ADHD | Claims data | 63% of Medicaid enrollees, 49% of commercial enrollees |
# Patient Outcome Measures

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<td><strong>Aim:</strong> Patients will have improved ADHD symptoms from baseline to the most recent follow-up visit.</td>
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| % with ADHD symptom score reduction - Parent | % of children with ADHD who demonstrate at least 25% reduction in parent-rated ADHD symptom score 6-12 months from baseline | Adapted from: Office of the National Coordinator for Health Information Technology; similar to NICHQ ADHD Collaborative | **Numerator:** # children with ADHD whose parent-rated ADHD total symptom score is reduced by at least 25% from baseline to 6-12 months after initiating any prescribed ADHD treatment  
**Denominator:** # of children with ADHD who have initiated any prescribed ADHD treatment  
**Exclusion:** Patients without parent Vanderbilt rating scales available at either initial assessment or most recent follow-up visit within 6-12 months after initiating prescribed ADHD treatment, or both | Vanderbilt Parent Rating Scale | 50% of patients  
Research suggests patients can achieve ~40% reduction within 3 months of treatment |
| % with ADHD symptom score reduction - Teacher | % of children with ADHD who demonstrate at least 25% reduction in teacher-rated ADHD total symptom score 6-12 months from baseline | Adapted from: Office of the National Coordinator for Health Information Technology; similar to NICHQ ADHD Collaborative | **Numerator:** # children with ADHD whose teacher-rated ADHD total symptom score is reduced by at least 25% from baseline to 6-12 months after initiating any prescribed ADHD treatment  
**Denominator:** # of children with ADHD who have initiated any prescribed ADHD treatment  
**Exclusion:** Patients without teacher Vanderbilt rating scales available at either initial assessment or most recent follow-up visit within 6-12 months after initiating prescribed ADHD treatment, or both | Vanderbilt Teacher Rating Scale | 50% of patients  
Research suggests patients can achieve ~40% reduction within 3 months of treatment |
<table>
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<tr>
<th>Average total symptom score reduction - Parent</th>
<th>Average percent reduction in parent-rated ADHD total symptom score</th>
<th>Adapted from CQN ADHD Collaborative, after NICHQ ADHD Collaborative</th>
<th>Reduction in parent-rated ADHD total symptom score from baseline (initial assessment) to the most recent follow-up visit (within 12 months of the initial assessment), averaged across all patients with ADHD diagnosed within the past 12 months</th>
</tr>
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<td>Average total symptom score reduction - Teacher</td>
<td>Average percent reduction in teacher-rated ADHD total symptom score</td>
<td>Adapted from CQN ADHD Collaborative, after NICHQ ADHD Collaborative</td>
<td>Reduction in teacher-rated ADHD total symptom score from baseline (initial assessment) to the most recent follow-up visit (within 12 months of the initial assessment), averaged across all patients with ADHD diagnosed within the past 12 months</td>
</tr>
</tbody>
</table>

Exclusion: Patients without parent Vanderbilt rating scales available at either initial assessment or most recent follow-up visit, or both

Vanderbilt Parent Rating Scale 25% average reduction across all patients with ADHD

Exclusion: Patients without teacher Vanderbilt rating scales available at either initial assessment or most recent follow-up visit, or both

Vanderbilt Teacher Rating Scale 25% average reduction across all patients with ADHD