Evidence-based Practice Center Systematic Review Draft Protocol

Project Title: ~~*Systematic Review – Adult Attention Deficit Hyperactivity Disorder:*~~ ***Diagnosis of*** ~~***Attention***~~ ***Attention*** ~~***Deficit***~~ ***Deficit/Hyperactivity Disorder in Adults:*** ***A Systematic Review***

Initial Publication Date: August 2024

I. Background and Objectives for the Systematic Review

Attention-Deficit/Hyperactivity Disorder (ADHD) is characterized by persistent symptoms in the domains of inattention, hyperactivity, and impulsivity. DSM-5 requires that some symptoms begin before the age of 12, are present in two or more settings, interfere with social, academic, or occupational functioning, and cannot be better explained by the presence of another disorder with overlapping symptoms. ~~Clinically significant symptoms in most individuals persist into adulthood, though symptoms during adolescence and young adulthood may improve in any domain, most often for hyperactivity, falling below the symptom count required for a diagnosis.[1-5] The estimated prevalence of ADHD is approximately 5.3% in youth[6] and 2.6% in adults.[7]~~ Recent longitudinal studies suggest that ADHD does not necessarily begin in childhood;[8-10] epidemiological studies not requiring childhood onset suggest~~ed~~ a prevalence of ADHD in adults as high as 6.7%.[11-14] ~~Although many adults with ADHD adopt lifestyles that help compensate for their symptoms, they often need to exert excess energy and cognitive effort, much more than the average adult, to overcome impairments. They are often distressed by their inability to realize their full potential, and by persistent symptoms of restlessness, erratic moods, and poor self-esteem.[15, 16] Impaired productivity because of poor time management, procrastination, and distractibility can limit work productivity and lower overall quality of life.[15]~~

There are several dilemmas pertaining to the diagnosis of ADHD in adults. ADHD is most often first diagnosed in elementary or middle school age years or, less commonly, in high school or college when having trouble meeting academic demands. It can also be first diagnosed in adulthood, when impairments in attention, organization, and impulsivity produce recurrent problems with occupational, social, or family functioning. Adult diagnosis is often difficult because the outward manifestations most readily evident to others, hyperactivity and impulsivity, often improve during adolescence and many adults no longer meet diagnostic criteria when strictly applied.[22] The symptoms of inattention (e.g., easy distractibility, poor organization, being "spacey," avoiding and trouble completing tasks that require sustained attention, losing things, forgetfulness) are more subtle and may not reach the level of obvious functional impairment until adulthood, for example within an

Commented [WM(1]: I would like to challenge you to condense this section to just a few paragraphs. This could be more succinct and better organized while still highlighting the most important information. Please see the protocol template for example. Also should mention contextual information that there are currently no guidelines in the US, Australian guidelines. Highlight that most of the time decisions being made by PCPs, not specialists (if that is the case; that is my understanding from our discussions). See copy and paste from protocol template below:

- Discuss any standards, variations, or uncertainty about disease diagnosis.
- Be specific about the interventions and pertinent comparisons of interest and those that may require separate consideration due to heterogeneity of treatment effect.
- Describe particular issues for complex interventions, such as individual component parts, groupings of intervention classes, or theoretical basis, as appropriate.
- Include contextual information on existing standards or guidelines, availability, use, and practice. Think explicitly about the setting in which decisions are being made.

Commented [WM(2]: Should this be spelled out and briefly explained at first mention?

Commented [WM(3]: Is this applicable? Seems to discuss childhood symptoms/diagnosis persisting into adulthood whereas we are looking at diagnosis in adults. Also prevalence conflicts with prevalence stated in next paragraph? I would suggest deleting this, but if you keep it I would be more explicit about the conflict in prevalence % for adults

Commented [WM(4]: While important to acknowledge, I'm not sure this is needed as diagnosis SR KQs don't appear to be looking at QoL measures

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occupational setting or a marriage.

The diagnosis of ADHD in adults, as in childhood, is complicated by the overlap of symptoms with other disorders.[23, 24] Attention and concentration, for example, can be impaired in persons who have depression, bipolar disorder, anxiety, psychosis, post-traumatic stress disorder, or substance abuse. Hyperactivity can be confused with anxiety-related behaviors and the excessive movements of tic and obsessive-compulsive disorders. Impulsivity if often prominent in bipolar and substance use disorders. The accurate diagnosis of adult ADHD is further complicated by a substantial and growing number of individuals, especially college students[25] and highly driven working professionals, who seek stimulant medications to aid cognitive performance. Stimulants have long been known to improve sustained attention and reduce distractibility in healthy individuals who do not have ADHD,[26-30] prompting some success-oriented individuals to feign symptoms to their doctors or on neuropsychological test assessments.

These diagnostic challenges can complicate the accurate and reliable diagnosis of adult ADHD even for experienced mental health clinicians. Research-grade diagnoses aided by the use of structured diagnostic interviews conducted by trained clinicians are more reliable, but nevertheless imperfect,[31-33] making elusive a "gold-standard" diagnosis by which to compare the diagnostic performance in other settings and using other diagnostic aids. An accurate diagnosis is essential if patients who need care for ADHD receive it and those who need different care for a diagnosis with overlapping symptoms receive it, and to prevent misuse and diversion.[34] The key decisional dilemmas for diagnosis include whether a patient should be evaluated by a clinician highly experienced in ADHD diagnosis, whether that assessment should be supported by a structured diagnostic interview, whether the diagnosis can be made by less experienced clinicians with or without the use of diagnostic aids (e.g., generalist primary care physicians and psychiatric nurse practitioners), and whether diagnosis should also include the experience and skill required to differentiate ADHD from potentially confounding diagnoses.[35]

There are also controversies and challenges in the topic area and evidence base. As detailed above, diagnosing ADHD in adults is challenging due to the frequent paucity and/or more nuanced expression of hyperactivity and impulsivity symptoms, the difficulty in appreciating and assessing the symptoms of inattention, the overlap of ADHD symptoms with those of other mental health problems, the feigning of symptoms by those seeking stimulants for other purposes, and the challenges in confirming a childhood onset of symptoms. A paucity of information on the experience and skill needed to diagnose ADHD accurately and to discriminate it from other illnesses, as well as by the dearth of information on the utility of diagnostic tools, are additional challenges.[36-38] Claims of exceptional diagnostic performance of these tools, the differing psychometric measures of performance, and the differing performance characteristics of different versions of a given tool,[39] are controversial and often confusing to clinicians, patients, and other stakeholders. Whether the performance of diagnostic tools varies with the characteristics of the ADHD participants or comparator sample is unknown.[40]

The challenges with diagnosis therefore contribute to controversy over the extent to which ADHD is over- or under-diagnosed in adult populations.[22] Also increasingly controversial is whether the DSM-5 requirement that ADHD symptoms begin before age 12 is appropriate, and whether the DSM-5 diagnostic criteria for ADHD, which were developed primarily for children,[8-10, 41] are appropriate for diagnosis of adults.[42]

Purpose of the Review

~~The Agency for Healthcare Research and Quality (AHRQ) commissioned an evidence review on the diagnosis of ADHD in adults as part of a series of evidence reviews on ADHD.~~This systematic review will assess the comparative diagnostic accuracy and adverse events~~harms?)~~ of tools ~~that can be~~ used to diagnose ADHD among adults.~~…~~ The intended audience includes ~~guideline developers and providers~~policy makers and clinicians.~~ who diagnose… The objective is to inform an inter-agency workgroup.~~

II. Key Questions

The systematic review will be guided by the following key questions. In addition, a contextual question will provide additional information:

Key Question 1: What is the comparative diagnostic accuracy and adverse events of tools that can be used in the primary care practice setting or by specialists to diagnose ADHD among adults?

a. How does the comparative diagnostic accuracy of these tools vary by clinical setting, including primary care or specialty clinic, or patient ~~subgroup~~characteristics, including, age, ~~sex~~gender, or other risk factors associated with ADHD?

- *Contextual Question:* How frequently are the various tools to diagnose ADHD currently being used?

III. Logic Model

The model below illustrates the scope of the review and the key questions.

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Commented [SH7R6]: Revised as suggested

Commented [WM(8]: You reference it in your logic model below… will you also be looking at harms?

Commented [SH9R8]: Added as suggested

Commented [WM(10]: Why is "gender" the only subgroup called out? Can you check RE "sex" vs "gender" - you use sex in KQ but gender in text. Suggest to just say "patient characteristics" in the logic model.

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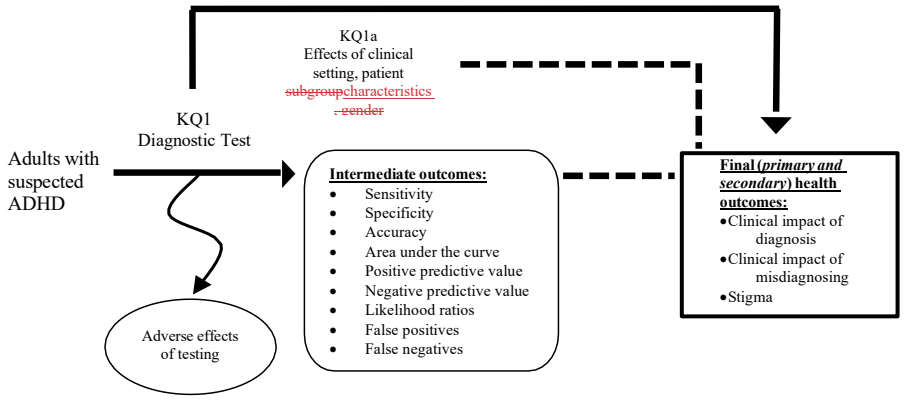
Figure 1. Analytic framework for Diagnosis of ADHD in Adults



Include alternate text to the figure (for 508 compliance) in a separate file.

Figure 1: This figure depicts the key question within the context of the PICOTS described below. In general, the figure illustrates how adults with suspected ADHD and diagnostic testing may result in intermediate outcomes such as sensitivity, specificity, accuracy, area under the curve, positive predictive value, negative predictive value, likelihood ratios, false positives, false negatives, and/or final health outcomes such as clinical impact of diagnosis, misdiagnosing, or stigma. Also, adverse events may occur at any point after patients receive testing.

IV. Methods

The systematic review will be guided by this systematic review protocol and will follow the EPC Methods Guide. The project will be supported by a multidisciplinary technical expert panel. The panel is designed to provide different perspectives of a broad group of stakeholders to ensure the evidence report on diagnosis of ADHD is relevant to a large audience. The panel will include experts specifically in adult ADHD and will consider the needs of affected patients as well as family members.

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Criteria for Inclusion/Exclusion of Studies in the Review

The eligibility criteria are shown in the table.

Table 1. Eligibility Criteria

	Inclusion Criteria	Exclusion Criteria
Population	Adults 18 years and older with symptoms of ADHD and without the diagnosis of ADHD	Individuals 17 years of age or younger unless findings are reported separately for older participants
Intervention	Any ADHD diagnostic tool used for the diagnosis of ADHD in adults	Validation studies or not reporting on diagnostic performance; non-English language questionnaires and interview guides

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Comparator	Confirmation of diagnosis by a specialist (gold standard), such as a psychologist, psychiatrist or other care provider using a well validated and reliable process of confirming a clinical diagnosis of ADHD	Comparison to diagnosis with a non-validated instrument
Outcome	Diagnostic accuracy (e.g., sensitivity, specificity, accuracy, area under the curve, positive predictive value, negative predictive value, likelihood ratios, false positives, false negatives), stigma and adverse events associated with diagnosing ADHD	Provider opinion of tests, frequency of use, cost without performance measure
Timing	~~For assessment of diagnostic accuracy outcomes~~D~~d~~iagnostic follow-up must be completed before treatment is initiated	Any other timing~~? (no blank cells)~~
Setting	Primary or specialty care settings, including telehealth	Diagnosis for nonclinical or not research purposes
Study Design	• ~~Randomized and non-randomized controlled trials~~ • ~~For diagnostic accuracy, observational studies, are eligible if they include patients with diagnostic uncertainty and direct comparison of diagnosis in primary care to diagnosis by a mental health specialist~~Diagnostic accuracy studies	• Editorials, nonsystematic reviews, letters, case series, case reports, pre-post studies. • Systematic reviews are not eligible for inclusion but will be retained for reference mining.

Included ADHD tests will not be limited to a set of pre-specified tools; instead, the review will document all tools that have been evaluated in the scientific literature and for ~~with~~ which? diagnostic accuracy evidence exist.

Literature Search Strategies To Identify Relevant Studies to Answer the Key Questions

The literature for the review on diagnosing ADHD in adults will use a combination of known tests to diagnose ADHD and general search terms for diagnostic accuracy studies to identify novel tools. We will search PubMed (biomedical literature), EMBASE (pharmacology emphasis), and PsycINFO (psychological research) without search date restriction and restricted to English language. The search strategy will be peer reviewed within the EPC program. We will use existing reviews for reference-mining; these will be identified through the same databases plus searching the Cochrane Database of Systematic Reviews, Campbell Collaboration, and PROSPERO. We will also search the ECRI repository, G-I-N, and ClinicalKey for published guidelines and use these for reference-mining cited literature. ~~The~~ All searches will be updated during ~~public review of the draft report.~~the public comment period.

In addition, we will leverage technical experts to ensure that relevant research studies have been identified. We will provide a list of included studies, together with all associated publications, and a list of excluded studies to facilitate this process. A~~Finally, AHRQ will set up a portal for submissions of~~ Supplemental Evidence And Data for Systematic Reviews (SEADS) portal will be available and ~~a~~publish a notice on the Federal Register Notice ~~to encourage SEADS submissions~~will be posted for this review. Additional data and publications~~articles~~ suggested to us from any source, including peer and public review, will be screened applying identical eligibility criteria.~~The searches will be updated during public~~

Commented [WM(16]: Are there other outcomes?

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Commented [WM(18]: Is this a setting?

Commented [SH19R18]: Seems to fit here best, for example trying scales in classrooms and coursework

Commented [WM(20]: Again, are there other outcomes besides diagnostic accuracy? I didn't think there were based on the KQs above

Commented [SH21R20]: Revised for clarity

Commented [WM(22]: Will the search strategy be peer reviewed?

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Commented [WM(24]: Describe process for evaluating the appropriateness of incorporating additional data identified through public and peer review, from the gray literature search, or from SEADS packets.

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~~review of the draft report.~~

Data Abstraction and Data Management

The data abstraction will capture detailed information about eligible studies. We will document the screening approach and targeted population for screening approaches. We will document the triggers or decision rules prompting the screen, categorize populations (universal, selected, or indicated screening approach), and abstract reported participant characteristics. We will document clinical setting, format, timing, and personnel involved. We will abstract tool characteristics (format, questions or items, answer mode, known psychometric characteristics), employed analysis, and the observed prognostic/diagnostic performance to address diagnostic tools. The review will compare patient characteristics as gender differences existing in ADHD presentation, along with cultural differences along racial and ethnic lines. As ADHD symptoms can be similar to those experienced with other psychiatric disorders, participant co-morbidities will also be abstracted for additional analyses.

We will report the diagnostic tool type (e.g., self-report, brain imaging, neuropsychological tests); tool name and characteristic, analytic method to develop cut-offs and indicators to distinguish ADHD from other symptoms, and methods to test the tool (e.g., the use of a training and validation set). We will collect data for a diagnosis meta-analysis where possible (i.e., number of false positives, number of false negatives) along with the summary diagnosis accuracy measures reported by the authors such as sensitivity, specificity, area under the curve, positive predictive value. We will document the broad setting (e.g., primary care) as well as the type of provider (psychiatrist, psychologist, neurologist etc.) applying the diagnostic tool. Whether and how accuracy differs by tool, setting, or participant characteristics will be assessed to answer KQ1a whenever possible.

Assessment of Methodological Risk of Bias of Individual Studies

The critical appraisal for individual studies will apply criteria consistent with QUADAS 2.[43] QUADAS-2 evaluates four domains: *patient selection*, *index test* characteristics, *reference standard* quality, as well as *flow and timing:*

- Patient selection: The domain addresses whether the selection of patients could have introduced bias, taking into account whether the study enrolled a consecutive or random sample, whether the data are not based on a retrospective case-control design, and whether the study avoided inappropriate or problematic exclusions from the patient pool.
- Index test: The domain evaluates whether the conduct or interpretation of the test could have introduced bias, taking into account whether the results of the test were interpreted without knowledge of the results of the reference standard and whether any thresholds or cut-offs were pre-specified (e.g., instead of determined during the study to maximize diagnostic performance).
- Reference standard: The domain evaluates whether the reference standard, its conduct, or its interpretation may have introduced bias, taking into account the quality of the reference standard in correctly classifying the condition and whether the reference standard test results were interpreted without knowledge of the results of the index test.
- Flow and timing: The last domain evaluates whether the conduct of the study may have introduced bias. The assessment takes into account whether the interval between the test and the reference standard was appropriate, whether all patients received the reference

standard and whether they received the same reference standard, and whether all patients were included in the analysis.

For each domain, we will assess the potential risk of bias in the study in order to identify high risk of bias and low risk of bias studies. One literature reviewer will assess risk of bias, and a methodologist will review individual studies and rating across studies to ensure accuracy and consistency of ratings. We will evaluate for each study and appraisal domain whether there are concerns regarding the applicability of the study results to the review question. This encompassed whether the patients included in the studies match the review question; whether the test, its conduct, or interpretation differ from the review question; or whether the target condition as defined by the reference standard fully matches the review question.

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Commented [SH27R26]: Added to clarify

Data Synthesis

We will answer the key question with the available evidence. An evidence table will display key characteristics, the reference standard, and diagnostic accuracy outcomes for all included studies. Where possible, studies reporting on the same diagnostic tool will be summarized in a random effects diagnostic meta-analysis. Where there is insufficient data, we will document the range of identified diagnostic accuracy results as reported by the authors in the individual studies. Sensitivity estimates will be documented together with specificity estimates given that the estimates are not independent. We will document the results for available diagnostic tools across studies in a comprehensive summary of findings table. We will select key outcomes with the help of the TEP. The synthesis will take study limitations and the risk of bias of individual studies contributing to estimates into account when summarizing across studies.

To address the subquestion, we will report on subgroup results for different clinical settings, patient settings, and ADHD presentation. We will assess for all variables whether they can explain heterogeneity identified in results across studies.

For the context question we will document the frequency of identified research for each individual tool. In addition, we will summarize data sources that report on the frequency of tool use in clinical practice with emphasis on the U.S. healthcare setting.

Assessing Applicability

Results will be based on the international literature and applicability ratings will provide assessments regarding the generalizability of samples, settings, and tool results for U.S. clinical practice. For each study, we will assess the population included in the study to identify studies with narrow eligibility criteria, studies that excluded participants with comorbidities, or that had more complex participants than typically seen in the community. We will assess whether studies describe tools not used as recommended or commonly used in practice, the presence of highly trained test team, or assessors that were not qualified for the assessment. We will assess whether the reference standard was ambiguous, different from standard clinical practice, otherwise inadequate, or insufficiently described.

Grading the Strength of Evidence (SoE) for Major Comparisons and Outcomes

We will apply the EPC strength of evidence criteria to evaluate the body of evidence. In determining the quality of the body of evidence, the following domains will be evaluated:

- Study limitations: The extent to which studies reporting on a particular outcome are likely to be protected from bias. The aggregate risk of bias across individual studies reporting an outcome is considered; graded as low, medium, or high level of study limitations.
- Inconsistency: The extent to which studies report the same direction and/or magnitude of effect or show statistical heterogeneity for a particular outcome; graded as consistent, inconsistent, or unknown (in the case of a single study or the absence of studies).
- Indirectness: Describes whether the intervention (test, treatment, or strategy) and the comparator were directly compared (i.e., in head-to-head trials) or indirectly (e.g., through meta-regressions across studies). In addition, indirectness can reflect whether the outcome is directly or indirectly related to health outcomes of interest. The domain is graded as direct or indirect.
- Imprecision: Describes the level of certainty of the estimate of effect for a particular outcome, where a precise estimate is one that allows a clinically useful conclusion. When quantitative synthesis is not possible, sample size and assessment of variance within individual studies are considered. The domain is graded as precise or imprecise.
- Reporting bias: Occurs when publication or reporting of findings is based on their direction or magnitude of effect. Publication bias, selective outcome reporting, and selective analysis reporting are types of reporting bias. Reporting bias is difficult to assess as systematic identification of unpublished evidence is challenging.

A final strength of evidence grade for each evidence statement will be assigned by evaluating and weighing the combined results of the above domains. We will differentiate an overall grade of high, moderate, low, or insufficient according to a four-level scale:

- High: We are very confident that the estimate of effect lies close to the true effect for this outcome. The body of evidence has few or no deficiencies. We believe that the findings are stable (i.e., another study would not change the conclusions).
- Moderate: We are moderately confident that the estimate of effect lies close to the true effect for this outcome. The body of evidence has some deficiencies. We believe that the findings are likely to be stable, but some doubt remains.
- Low: We have limited confidence that the estimate of effect lies close to the true effect for this outcome. The body of evidence has major or numerous deficiencies (or both). We believe that additional evidence is needed before concluding either that the findings are stable or that the estimate of effect is close to the true effect.
- Insufficient: We have no evidence, we are unable to estimate an effect, or we have no confidence in the estimate of effect for this outcome. No evidence is available, or the body of evidence has unacceptable deficiencies, precluding reaching a conclusion.

Summary tables will include reasons for downgrading or upgrading the strength of evidence. The strength of evidence assessment will document uncertainty and communicate our confidence in the evidence statements that can be drawn from the literature.

Use of Artificial Intelligence and/or Machine Learning

All citations retrieved by the literature searches will be screened by at least one human literature reviewer and a DistillerSR software machine learning algorithm trained by the human reviewers to ensure that no relevant citation will be missed. Any citations identified as potentially relevant by the algorithm that have not been selected for full text publication review will be rescreened for relevance by an independent literature reviewer.

V. References

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VI. Definition of Terms

ADHD	Attention-deficit/hyperactivity disorder
EPC	Evidence-based Practice Center
FDA	U.S. Food and Drug Administration

VII. Summary of Protocol Amendments

If the EPC needs to amend the protocol, provide a numbered list of versions with the date of posting, which will be hyperlinked to previous versions; and a table with the date of each amendment, description of the change, and the rationale. Changes will be incorporated into the protocol.

[6] G.H. Guyatt et al., GRADE guidelines: 2. Framing the question and deciding on important outcomes Journal of Clinical Epidemiology 64 (2011) 395-400

Table 1. Summary of Protocol Amendments

Date	Section	Original Protocol	Revised Protocol	Rationale

(NOTE: THE FOLLOWING PROTOCOL ELEMENTS ARE STANDARD TEXT TO BE ADDED

TO ALL PROTOCOLS, except where noted.)

VIII. Previous Versions of the Protocol

IX. Technical Experts

Technical Experts constitute a multi-disciplinary group of clinical, content, and methodological experts who provide input in defining populations, interventions, comparisons, or outcomes and identify relevant studies or databases to search. The Technical Expert Panel is selected to provide broad expertise and perspectives specific to the topic under development. Divergent and conflicting opinions are common and perceived as healthy scientific discourse that fosters a thoughtful, relevant systematic review. Therefore, study questions, design, and methodological approaches do not necessarily represent the views of individual technical and content experts.

Technical Experts provide information to the EPC to identify literature search strategies and suggest approaches to specific issues as requested by the EPC. Technical Experts do not do analysis of any kind; neither do they contribute to the writing of the report. They do not review the report, except as given the opportunity to do so through the peer or public review mechanism.

Members of the TEP must disclose any financial conflicts of interest greater than $5,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals are invited to serve as Technical Experts and those who present with potential conflicts may be retained. The AHRQ TOO and the EPC work to balance, manage, or mitigate any potential conflicts of interest identified.

X. Peer Reviewers

Peer reviewers are invited to provide written comments on the draft report based on their clinical, content, or methodological expertise. The EPC considers all peer review comments on the draft report in preparing the final report. Peer reviewers do not participate in writing or editing of the final report or other products. The final report does not necessarily represent the views of individual reviewers.

The EPC will complete a disposition of all peer review comments. The disposition of comments for systematic reviews and technical briefs will be published 3 months after publication of the evidence report.

Potential peer reviewers must disclose any financial conflicts of interest greater than $5,000 and any other relevant business or professional conflicts of interest. Invited peer reviewers with any financial conflict of interest greater than $5,000 will be disqualified from peer review. Peer reviewers who disclose potential business or professional conflicts of interest can submit comments on draft reports through the public comment mechanism.

XI. EPC Team Disclosures

EPC core team members must disclose any financial conflicts of interest greater than $1,000 and any other relevant business or professional conflicts of interest. Direct financial conflicts of interest that cumulatively total more than $1,000 will usually disqualify an EPC core team investigator.

XII. Role of the Funder

This project was funded under Contract No. 75Q80120D00009 from the Agency for Healthcare Research and Quality, U.S. Department of Health and Human Services. The AHRQ Task Order Officer reviewed the EPC response to contract deliverables for adherence to contract requirements and quality. The authors of this report are responsible for its content. Statements in the report should not be construed as endorsement by either the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services.

XIII. Registration

This protocol will be registered in the international prospective register of systematic reviews (PROSPERO).

Appendix

Draft Search Strategy
Pubmed

"Attention Deficit Disorder with Hyperactivity"[Mesh] OR "attention deficit hyperactivity disorder"[tiab] OR "ADHD"[tiab] OR "attention deficit disorder"[tiab])
AND
Adult[MESH] OR Aged[MESH] OR Middle Aged[MESH] OR Young Adult[MESH] OR Adult[Title/Abstract] OR Adults[Title/Abstract]
AND
"Attention Deficit and Disruptive Behavior Disorders/diagnosis"[Majr] OR mass screening[mesh] OR questionnaires[mesh] OR Interviews as Topic[Mesh] OR Psychometrics[Mesh] OR Psychiatric Status Rating Scales[Mesh] OR diagnosis[mesh:noexp] OR "Diagnostic Techniques and Procedures"[Mesh] OR "Referral and Consultation"[Mesh] OR questionnaire[tiab] OR questionnaires[tiab] OR screening[tiab] OR screen[tiab] OR scale[tiab] OR instrument[tiab] OR instruments[tiab] OR interview[tiab] OR interviews[tiab] OR diagnosis[tiab] OR diagnostic[tiab] OR diagnosed[tiab] OR Measure [tiab] OR test[tiab] OR tests[tiab] OR testing[tiab] OR "Attention Deficit Disorder with Hyperactivity/diagnostic imaging"[Majr] OR ((("Adaptive Behavior Assessment System"[Title/Abstract] OR "ABAS-3"[Title/Abstract] OR "Advanced Clinical Solutions"[Title/Abstract] OR "Word Choice Test"[Title/Abstract] OR "Test of Premorbid Functioning"[Title/Abstract] OR "Social Cognition"[Title/Abstract] OR "Beck Anxiety Inventory"[Title/Abstract] OR "BAI"[Title/Abstract] OR "Beck Depression Inventory"[Title/Abstract] OR "BDI-2"[Title/Abstract] OR "Behavioral Assessment System for Children"[Title/Abstract] OR "Self-Report of Personality"[Title/Abstract] OR "BASC-3 SRP Adolescent"[Title/Abstract] OR "Behavioral Assessment System for Children"[Title/Abstract] OR "Parent Rating Scales"[Title/Abstract] OR "BASC-3 PRS Adolescent"[Title/Abstract] OR "BASC-3 SRP College"[Title/Abstract] OR "Teacher Rating Scales"[Title/Abstract] OR "BASC-3 TRS Adolescent"[Title/Abstract] OR "Brown Executive Function/Attention Scales"[Title/Abstract] OR "Brown EF/A Self"[Title/Abstract] OR "California Verbal Learning Test"[Title/Abstract] OR "CVLT-3"[Title/Abstract] OR "Standard Form California Verbal" "CVLT-3 Brief"[Title/Abstract] OR "California Verbal Learning Test"[Title/Abstract] OR "CVLT-C"[Title/Abstract] OR "Childhood Autism Rating Scale"[Title/Abstract] OR "CARS-2"[Title/Abstract] OR "Childhood Autism Rating Scale"[Title/Abstract] OR "High-Functioning Version"[Title/Abstract] OR "CARS-2 HF"[Title/Abstract] OR "Clinical Evaluation of Language Fundamentals"[Title/Abstract] OR "CELF-5"[Title/Abstract] OR "Comprehensive Executive Function Inventory"[Title/Abstract] OR "CEFI Adult Observer"[Title/Abstract] OR "Comprehensive Executive Function Inventory"[Title/Abstract] OR "CEFI Adult Self-Report"[Title/Abstract] OR "Conners' Adult ADHD Diagnostic Interview for DSM-IV"[Title/Abstract] OR "CAADID Part 1"[Title/Abstract] OR "CAADID Part 2"[Title/Abstract] OR "CAARS–O:L"[Title/Abstract] OR "CAARS–S:L"[Title/Abstract] OR "CAARS-2 Observer"[Title/Abstract] OR "Conners' Adult ADHD Rating Scales"[Title/Abstract] OR "CAARS-2 Self-Report"[Title/Abstract] OR "Delis-Kaplan Executive Function System"[Title/Abstract] OR "D-KEFS"[Title/Abstract] OR "Dot Counting Test"[Title/Abstract] OR "Grooved Pegboard Test Kaufman Test of Educational Achievement"[Title/Abstract] OR "KTEA-3"[Title/Abstract] OR "NEPSY-II Developmental Neuropsychological Battery"[Title/Abstract] OR "Neuropsychological Assessment

Battery"[Title/Abstract] OR "Attention, Language, Memory, Spatial, and Ex- ecutive Functions Modules"[Title/Abstract] OR "NIH Executive Abilities–Measures and Instruments for Neurobehavioral Evaluation and Re-search"[Title/Abstract] OR "NIH EXAMINER"[Title/Abstract] OR "Personality Assessment Inventory"[Title/Abstract] OR "PROMIS Sleep Assessments Pediatric Parent Proxy"[Title/Abstract] OR "Repeatable Battery for the Assessment of Neuropsychological Status"[Title/Abstract] OR "RBANS"[Title/Abstract] OR "Rey-Osterrieth Complex"[Title/Abstract] OR "Wechsler Abbreviated Scale of Intelligence"[Title/Abstract] OR "WASI-2"[Title/Abstract] OR "Wechsler Adult Intelligence Scale"[Title/Abstract] OR "WAIS-4"[Title/Abstract] OR "WAIS-IV"[Title/Abstract] OR "Wechsler Individual Achievement Test"[Title/Abstract] OR "WIAT-4"[Title/Abstract] OR "Wechsler Intelligence Scale for Children"[Title/Abstract] OR "WISC-5"[Title/Abstract] OR "Wechsler Memory Scale"[Title/Abstract] OR "WMS-4"[Title/Abstract] OR "Wide Range Achievement Test"[Title/Abstract] OR "WRAT-5"[Title/Abstract] OR "Adult ADHD Rating Scale"[Title/Abstract] OR "ADHD-RS"[Title/Abstract] OR "Brown ADD scales"[Title/Abstract] OR "Continuous Performance Tests"[Title/Abstract] OR "Conners CPT"[Title/Abstract] OR "QB Test"[Title/Abstract] OR "TOVA"[Title/Abstract] OR "Wender Utah Adult ADHD Scale"[Title/Abstract]))

AND

"Sensitivity and Specificity"[Mesh] OR "Diagnostic Errors"[Mesh] OR sensitivity[tiab] OR specificity[tiab] OR (accura*[tiab] AND (diagnos*[tiab] OR classif*[tiab])) OR "ROC curve"[tiab] OR "positive predictive value"[tiab] OR "negative predictive value"[tiab] OR "false positive"[tiab] OR "false negative"[tiab] OR "likelihood ratio"[tiab]

NOT

Editorial[ptyp] OR Letter[pt] OR Case Reports[pt] OR Comment[pt] address[pt] OR "autobiography"[pt] OR "bibliography"[pt] OR "biography"[pt] OR "case report"[tw] OR "case reports"[tw] OR "case series"[tw] OR "comment on"[All Fields] OR congress[pt] OR "dictionary"[pt] OR "directory"[pt] OR "festschrift"[pt] OR "historical article"[pt] OR lecture[pt] OR "legal case"[pt] OR "legislation"[pt] OR "news"[pt] OR "newspaper article"[pt] OR "patient education handout"[pt] OR "periodical index"[pt]

NOT

"animals"[mesh] NOT "humans"[mesh])

~~RESULTS May 2024: Total Results-1036/Systematic Reviews-22~~