**Supplemental Digital Content (SDC)**

SDC 1: Search Terms

SDC 2: NIH and Cochrane risk Assessment Summary

SDC 3: Fidelity Assessment Summary

**SDC1: Search Terms**

Autism: Autism spectrum disorder, autistic disorder, autism, autistic and Asperger\*

Diagnosis: Diagnosis, early diagnosis, evaluation, assessment, diagnos\*

Primary Care: primary health care, pediatricians, family physicians, primary care physicians, community medicine, community health services, pediatrics, community pediatrics

Training: education, medical education, medical continuing education, program, model, train\*

**SDC 2: NIH and Cochrane risk Assessment Summary**

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| **Q. The National Institutes of Health (NIH) quality assessment tool for before-after (Pre-Post) study with no control group Website: https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools** | Harrison 2017 | Mazurek 2018 |
| 1. Was the study question or objective clearly stated? | Yes | Yes |
| 2. Were eligibility/selection criteria for the study population prespecified and clearly described? | Yes | Yes |
| 3. Were the participants in the study representative of those who would be eligible for the test/service/intervention in the general or clinical population of interest? | Yes | Yes |
| 4. Were all eligible participants that met the prespecified entry criteria enrolled? | n/a | No |
| 5. Was the sample size sufficiently large to provide confidence in the findings? | No | No |
| 6. Was the test/service/intervention clearly described and delivered consistently across the study population? | Yes | Yes |
| 7. Were the outcome measures prespecified, clearly defined, valid, reliable, and assessed consistently across all study participants? | Yes | Yes |
| 8. Were the people assessing the outcomes blinded to the participants' exposures/interventions? | n/a | n/a |
| 9. Was the loss to follow-up after baseline 20% or less? Were those lost to follow-up accounted for in the analysis? | n/a | Yes |
| 10. Did the statistical methods examine changes in outcome measures from before to after the intervention? Were statistical tests done that provided p values for the pre-to-post changes? | Yes | Yes |
| 11. Were outcome measures of interest taken multiple times before the intervention and multiple times after the intervention (i.e., did they use an interrupted time-series design)? | n/a | No |
| 12. If the intervention was conducted at a group level (e.g., a whole hospital, a community, etc.) did the statistical analysis take into account the use of individual-level data to determine effects at the group level? | n/a | n/a |
| **Quality Rating** | Poor | Fair |

n/a: not applicable

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| **Cochrane Risk Assessment** | **Warren 2009** | **McClure 2010** | **Swanson 2013** | **Ahlers 2019** |
| Random sequence generation | High risk | High risk | High risk | High risk |
| Allocation Concealment | High risk | Unclear risk | High risk | High risk |
| Blinding of participants and personnel | Low risk | Low risk | Low risk | Low risk |
| Blinding of outcome assessment | Low risk | Low risk | Low risk | Low risk |
| Incomplete outcome data | Low risk | Low risk | Low risk | Low risk |
| Selective reporting | Low risk | Low risk | Low risk | Low risk |
| Other Bias | High risk (Baseline imbalance- more patients diagnosed with ASD than non-ASD. Also non-randomized and may have recruitment bias ) | High risk (Possible recruitment bias as not explained in report. Higher number of non-ASD than ASD diagnosis made, baseline imbalance) |  |  |

**SDC 3: Fidelity Assessment Summary**

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| **Study** | **Domains** | **Steps taken to ensure Fidelity** | **How was Fidelity assessed?** |
| **Warren 2009** | Study Designs | No study protocol provided | Not assessed |
|  | Provider Training | No provider training documented | Not assessed |
|  | Intervention Implementation | Topics covered during training sessions were specified and described | Not assessed |
|  | Intervention Receipt | "video cameras were installed within each practice, so that pediatricians' assessments coud be recorded." | A trainer "reviewed a series of practice tapes from each pediatrician and provided specific feedback". |
|  | Intervention Enactment | 1. "During the final phase of the project, each pediatrician conducted the autism assessments independently and completed a diagnostic certainty checklist." 2. Pediatricians were also asked to refer families for "independent evaluation through the university clinic" | 1. The diagnostic certainty checklist asked pediatricians to "indicate their certainty of their diagnosis on a Likert scale." 2. After independent evaluation, "blinded primary diagnostician completed the same  forced choice diagnostic form as the pediatricians" |
| **McClure 2010** | Study Designs | No study protocol provided but some justification provided for certain areas of trainig e.g. materials selected | Not assessed |
|  | Provider Training | "The two specialist AAT members who provided ADOS-G orientation had previously been trained to a research reliable level of ADOS-G administration" | Based on trainer's prior credentials |
|  | Intervention Implementation | Topics covered during provider training were specified and described | Not assessed |
|  | Intervention Receipt | The trained local team's admission of ASD assessment were video recorded and mentoring was provided by trainers. | By the end of the course, trainee evaluation was conducted to ensure trainees are able to obtain necessary ADOS-G adminitrative data. |
|  | Intervention Enactment | During a 7 month period, the trained team conduct ASD assessments on 39 children and young people in the 0-18 age range | The videos and case-recorded ASD histories performbed by the trainees were evaluated in parallel by the trainers and the results were compared. The video recording was undertaken in each case by one member of the triaing team to ensure consistency. |
| **Swanson 2013** | Study Designs | No study protocol provided | Not assessed |
|  | Provider Training | No provider training documented | Not assessed |
|  | Intervention Implementation | Topics covered during training sessions were specified and described | Not assessed |
|  | Intervention Receipt | "After training, pediatricians were asked to complete a standard STAT fidelity procedure by sending two video taped practice administration for review" | Not documented |
|  | Intervention Enactment | Trained participants conducted ASD assessments for pediatric population over 3.5 years and data was collected. | 1. "Participants …were provided with the opportunity to refer an initial small number of families … for independent evaluation … to assess diagnostic agreement between the pediatric provider assessments and comprehensive psychological assessments." 2. "Pediatric providers were asked to complete a forced cohice checklist" on their certainty of diagnosis. 3. "Retrospective self report data on practice characteristics regarding autism screening, referral, and diagnosis before and after training were collected for an average of 1.54 years following training. " |
| **Ahlers 2019** | Study Designs | No study protocol provided | Not assessed |
|  | Provider Training | No provider training documented | Not assessed |
|  | Intervention Implementation | Topics covered during training sessions were specified and described. Standardized online training modules were used for part of the training. | Not assessed |
|  | Intervention Receipt | Not documented | Assessed indirectly through intervention enactment |
|  | Intervention Enactment | Trained participants conducted ASD assessments for the pediatric population and data was collected before and after training. | 1. Parents of patients assessed were asked to answer questions about their satisfaction with their evaluation process. 2. Time to diagnosis and total feeds charged were also compared before and after intervention 3. Pediatricians were asked to self rate their diagnositc certainty of an ASD or non-ASD diagnosis. 4. Diagnostic accuracy was compared to the traditional assessment team |
| **Harrison 2017** | Study Designs | No study protocol provided | Not assessed |
|  | Provider Training | No provider training documented | Not assessed |
|  | Intervention Implementation | Not documented | Not assessed |
|  | Intervention Receipt | Trainers were available on site to observe visits through a one way mirror and discuss each case individualy | Not documented |
|  | Intervention Enactment | Trained pediatricians were scheduled patients for ASD assessments | 1. Trainers are available for "real time" consultation if trained pediatrician have questions 2. Trained pediatricians can refer patients to trainers for further evaluation 3. wait time to initial evaluation was compared before and after intervention |
| **Mazurek 2018** | Study Designs | Study design based on the Missouri Best Pratice Guideline for diagnosis of ASD and included a three tiered approach to diagnosis. The curriculum  content was based on up-to-date empirical evidence and followed best-practice guidelines for screening, diagnosis, and  management of ASD. | Specific discussion of evidence-based  autism resources, toolkits, and community-based options for treatment, education and support was integrated throughout  each ECHO Autism STAT clinic |
|  | Provider Training | No provider training documented | Not assessed |
|  | Intervention Implementation | Topics covered during training sessions were specified and described | Not assessed |
|  | Intervention Receipt | 1. Participants had to demonstrate reliability in administration of the STAT 2. Each ECHO Autism STAT clinic also included one to two  de-identified cases presented by PCPs for discussion among  the expert team and all participants | 1. Videotaped STAT administration were submitted to the trainer on two separate submissions for assessment of reliability 2. PCPs received verbal and  written feedback and recommendations from the Expert  Hub regarding suggested resources, referrals, and next steps. 3. Self-efficacy was assessed at both pre-and post-training using the Primary Care Autism Self-Efficacy Survey. |
|  | Intervention Enactment | 1. Participants participated in bi-monthly ECHO Autism STAT clinics for 12 months after initial in-person training 2. A variety of resources  and toolkits for autism and other developmental disorders  were made available to PCPs through a secure online portal/  shared folder. | 1. Every 2 months, participants reported quality improvement metrics regarding their use of both general developmental and Level 1 autism screening measures in their  practices and shared strategies and lessons learned about  implementation. 2. Changes in provider practice were examined by self reported surveys comparing pre to post-training |