Reviewer's report

Title: Prenatal alcohol history – Setting a threshold for diagnosis requires a level of detail and accuracy that does not exist

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Reviewer: Sandra Jacobson

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This well-written and very interesting paper addresses an important problem relating to the diagnosis of FASD; namely, what criterion to use to determine whether the level of prenatal alcohol exposure (PAE) is sufficient to warrant a diagnosis. The authors note that the 2015 Canadian Guidelines require a more specific level of prenatal exposure than the previous guidelines; namely, "an estimated dose at a level known to be associated with Neurodevelopmental effects." That level is defined by the new guidelines as "7 or more standard drinks per week, or any episode of drinking 4 or more drinks on the same occasion."

In Canada, the FASD 4-Digit Diagnostic Code is most commonly used for FASD diagnosis. Two levels of PAE are deemed sufficient for a diagnosis: (a) Rank 4: PAE is consistent with the medical literature placing the fetus at "high risk" OR (b) Rank 3: PAE is confirmed but in lower amounts than above or exact amounts unknown. The authors point out that only Rank 4 will be sufficient for an FASD diagnosis under the 2015 Guidelines since Rank 3 includes cases in which the exact level of exposure is unknown. The authors have designed an impressive study, in which they retrospectively applied the 2015 Guidelines to 146 cases previously diagnosed for FASD. Their analysis demonstrates that a high proportion of the cases who met the previous criteria for this diagnosis would not qualify under the 2015 guidelines because they were designated as Rank 3. The authors also provide results from 30-minute semi-structured interviews conducted with 6 clinicians from an FASD diagnostic team in Regina, Saskatchewan, which document well-known difficulties involved in obtaining maternal alcohol use histories.

The principal weakness of this paper is that the authors do not appear to recognize the value and importance of establishing that the patient's PAE was likely to have been at levels that were sufficient to lead to neurodevelopmental impairment. Despite extensive efforts by researchers spanning several decades, no unique neurobehavioral phenotype has been identified for FASD, and the behaviors that are exhibited in these disorders resemble those seen in a range of other disorders, including attention deficit hyperactivity disorder (ADHD), generalized anxiety disorder, etc. There is a growing body of evidence that, despite the similarity in the manifest cognitive or behavioral deficit among these disorders, children with FASD often do not respond to the same interventions. For example, children with FASD are often less likely to respond to psychostimulants, such as methylphenidate, that are used to treat ADHD. Similarly, although children with both FASD and ADHD often struggle with arithmetic, the aspect of arithmetic (magnitude comparison) that is affected in FASD differs from that affected in ADHD (executive attention). The principal value of an FASD diagnosis is its potential to aid in the selection of appropriate treatments. As a result, it is important to apply diagnostic criteria that reduce the risk
of false positives to assure that individuals who manifest neurobehavioral deficits but lack moderate-to-heavy prenatal alcohol exposure receive the most appropriate treatments.

The core problem identified by this paper is the inclusion of the language "exact amounts unknown" in PAE Rank 3. One solution would be to train clinicians that in cases in which the PAE interview provides evidence that the mother drank alcohol during pregnancy, the respondent should be asked whether it was likely that the mother engaged in binge drinking (4 or more drinks/occasion at least twice) during pregnancy. If so, the 2015 guideline requirement of "an estimated dose at a level known to be associated with neurodevelopmental effects" would be met. The interviews revealed that clinicians often use "third party sources, such as police record of arrests, emergency hospital visits, visits to detox centers during pregnancy and birth records" as evidence of heavy PAE. This type of information should probably also be incorporated in the Guidelines since it can be indicative of heavy PAE.

In the second paragraph of the Discussion, the authors state: "This study demonstrates that diligent adherence to the minimal PAE threshold suggested in the 2015 Guidelines for FASD Diagnosis can reduce the incidence of FASD diagnoses dramatically." Note that adherence to this guideline does not alter the incidence of FASD, only how readily FASD is diagnosed.

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Yes

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