

DIAGNOSTIC CRITERIA COMPARISON BETWEEN THE UNITED STATES, AUSTRALIA, AND CANADA



Diagnostic Tools Used

- Canada and Australia have one diagnostic tool and one set of guidelines to use
 - USA has two different diagnostic tools (4 Digit and Hoyme) and two difference guidelines they can follow (CDC and the Institute of Medicine)
 - Canada's diagnostic tool was updated in 2015, Australia's was updated in 2016
 - Hoyme was updated in 2016, 4 Digit 2004

Diagnostic Criteria by Category:

Growth Deficit

- Canada and Australia do not require a growth deficit to meet diagnostic criteria
- USA requires growth deficits in both diagnostic tools

Facial Features

- Lip & Philtrum Rank 4 or 5 across all diagnostic tools
- 4 Digit, Canada and Australia require all 3 features less than or equal to the 3rd percentile
 - They also recommend or require use of photo software
 - Canada, Australia and the 4 Digit (US) use the 4 Digit diagrams with a normal to abnormal rating of 95%
- Hoyme only requires 2 of 3 facial features at less than or equal to the 10th percentile
 - Recommends in person observation
 - Hoyme uses their own facial diagrams for comparison with a normal-abnormal rating of 71%

Alcohol Related Birth Defects

- Canada, Australia and 4 Digit do not include this as part of their diagnostic criteria only found in Hoyme

Brain Structure

- Canada, Australia and 4 Digit all include structural or neurological abnormalities equal or less than the 3rd percentile
 - Hoyme includes structural or neurological abnormalities equal or less than the 10th percentile
- Canada, Australia, and Hoyme do not allow structure alone to determine the central nervous system requirement
 - 4 Digit allows for structure to be the sole determinant of the central nervous system requirement

Brain Function

- Canada, Australia and 4 Digit have three or more domains with a standard deviation of equal or less than minus 2.
 - Hoyme uses one or more domains and uses a standard deviation or equal or less than minus 1.5.

Alcohol Exposure

- 4 Digit and Australia use any confirmed exposure at any level if FAS face is present
 - Canada and Hoyme use confirmed high exposure with Hoyme using equal or greater than 6 drinks per week for equal or greater than two weeks or three more drinks per occasion for two or more occasions. While Canada uses 7 drinks equal or greater than two weeks or 4 drinks per occasion with equal or greater than two occasions.

Age

- All diagnostic tools, have different age cut offs or diagnostic requirements change at various ages.

At Risk Category

- Canada and Australia both have category for at risk for infants and children who do not meet the severity for the FASD diagnosis but show some facial features, and have a cognitive impairment
 - USA does not have any at risk categories

Implications:

Based on research conducted by Hemingway et al., (2019) when research participants were diagnosed using all four different diagnostic tools only 11% of the participants received a diagnosis and diagnosis rates varied from 16%-79% based on the tool used. Hemingway et al., (2019) states that “key factors contributing to discordance include: requiring high alcohol exposure; excluding growth deficiency; relaxing the facial criteria; requiring brain criteria that prevent diagnosis of infants/toddlers; and excluding moderate dysfunction from the spectrum” (p.1). Based on this research, Canada and Australia require a significantly higher alcohol exposure than the 4 Digit and Hoyme tools, Canada and Australia also exclude growth deficiencies. Hoyme is the only tool with lessened facial criteria, and Hoyme has lessened brain function requirements.

Without having valid and standardized tools infants, toddlers and children are going mis-diagnosed or without a diagnosis. The need for standardization is high and therefore it is imperative that we look at how we can create a tool that uses the information we have from various countries to make sure that the United States is up to date and using the most accurate diagnostic tools.

References:

Hemingway, S., Bledsoe, J. M., Brooks, A., Davies, J. K., Jirikowic, T., Olson, E., & Thorne, J. C. (2019). Comparison of the 4-Digit Code, Canadian 2015, Australian 2016 and Hoyme 2016 fetal alcohol spectrum disorder diagnostic guidelines. *Advances in pediatric research*, 6(2), 31. <https://doi.org/10.35248/2385-4529.19.6.31>