## Research Questions

1. To examine the mathematical profile of young children with PAE.
2. How does working memory performance relate to math performance?
3. How does executive function relate to math performance?

## Method

**Participants:**
- 29 PAE participants were recruited through the Glenrose FASD diagnostic clinic and schools in Edmonton. 20 healthy controls (unexposed) were recruited from schools attended by PAE participants to ensure similar socioeconomic status (SES) for a total of 49 participants age 5-10 years. 
- Groups did not differ significantly on gender, age, or SES. IQ was not tested for control group (assumed to be normal) but PAE group had a mean IQ of 90 (low end of average) SD = 15.8.

### Results

#### Mean Math Standard Scores

<table>
<thead>
<tr>
<th>Math Concept</th>
<th>PAE</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Concepts</td>
<td>80</td>
<td>85</td>
</tr>
<tr>
<td>Operations</td>
<td>75</td>
<td>80</td>
</tr>
<tr>
<td>Fractions, Decimals, Percentages</td>
<td>70</td>
<td>75</td>
</tr>
<tr>
<td>Applications</td>
<td>60</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>350</td>
</tr>
</tbody>
</table>

- *Correlation is significant at the 0.05 level (2-tailed).

### Discussion

- Among both groups, math performance correlated with many measures of EF and WM.
- For the PAE group, both average EF scaled scores and average WM scaled scores uniquely predicted math scores, based on regression ($F^2 = 0.21, P = 0.15$, respectively).
- For the control group, average EF scaled score uniquely predicted math scores ($F^2 = 0.13$).

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**Visuospatial Functioning**

**Attention**

**Executive Functioning**

**Academic Achievement**

**Memory**

**Language**