AIMS
- Describe room air challenge (RAC) practice variation at a single site
- Evaluate differences in RACs between children discharged with vs without home oxygen (O2)

METHODS
- **Design:** Retrospective cohort study
- **Population:** Children 2mo-2yo hospitalized from 2019-2020 at a quaternary care hospital with bronchiolitis and received O2
- **Data collection:** Chart reviewed 5% of population to identify RAC practices
- **Stats:**
  - Awake vs asleep
  - Number of RAC performed
  - O2 sat = RAC failure (i.e., desaturation) vs pass

RESULTS
- 1310 children, 24% were discharged with home O2
- Chart review: n=60 which included 208 RAC (Table 1)
- Documentation of RAC varied widely in degree of information / documentation (Table 2)
- **Awake vs Asleep**
  - 72% of children were asleep
  - No difference with or without home O2 (p=0.47)
- **Number of RAC performed**
  - 2 RAC per child (IQR 1.3); range of 1-15
  - More RAC performed in patients discharged with home O2 (median 3.5 [IQR 2.6] vs 1[1-2], p<0.01)
- **RAC failure vs pass, O2 sat**
  - 76% RAC failed (i.e., had a desaturation)
  - Failed RAC = 84% (IQR 82, 86); range 26-97%
  - Passed RAC = 92% (IQR 91, 95); range 84-100%
  - For failed RAC, no difference in O2 sat with vs without home O2 at discharge (p=0.067)

Table 1: Patient Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Chart Reviewed Population (N=60)</th>
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</thead>
<tbody>
<tr>
<td>Length of Stay (days), Median (IQR)</td>
<td>3.0 (2.0, 4.6)</td>
</tr>
<tr>
<td>Age (months), Median (IQR)</td>
<td>9.3 (5.6, 16.2)</td>
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<tr>
<td>Female (n, %)</td>
<td>31 (51.67%)</td>
</tr>
<tr>
<td>No Home O2 (n, %)</td>
<td>30 (50%)</td>
</tr>
</tbody>
</table>

Table 2: Freq of Unknown in RAC Variables

<table>
<thead>
<tr>
<th>RAC Variable</th>
<th>Frequency of Unknowns in RAC (N=208)</th>
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</thead>
<tbody>
<tr>
<td>Asleep vs Awake</td>
<td>106 (52%)</td>
</tr>
<tr>
<td>Desaturation Value</td>
<td>25 (12%)</td>
</tr>
<tr>
<td>Time to Desaturation</td>
<td>&gt;95%</td>
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<tr>
<td>Pulse ox (continuous or spot check)</td>
<td>&gt;95%</td>
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</tbody>
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CONCLUSIONS
- Inconsistencies exist in RAC documentation
- Wide variability in # of RAC/patient and % O2 saturation that was considered pass vs fail
- Patients discharged with vs without O2: higher # of RACs performed but no difference in asleep vs awake or RAC failure %O2 sat

IMPLICATIONS
- Opportunities exist for improving the room air challenge process, including:
  - Standard definitions for desaturation and failure
  - Best practices for how to perform room air challenges