Improving Smoking Cessation Interventions for Children Admitted with Bronchiolitis: The AAP QuINN VIP Experience

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Disclosure

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B. I do not intend to discuss an unapproved use of a commercial product/device in my presentation.
Background

- Acute viral bronchiolitis is one of the top reasons for hospitalization.
- Secondhand smoke (SHS) exposure increases the severity of bronchiolitis.
- Limited inpatient studies on screening children and providing smoking cessation interventions.
AAP Quality Improvement Networks

- Quality Improvement Innovation Networks (QuIN)
- Provides infrastructure for pediatric improvement networks
- Value in Inpatient Pediatrics Network (VIP)
- A Quality Collaborative for Improving Hospitalist Compliance with the AAP Bronchiolitis Guideline (B-QIP)
Bronchiolitis Collaborative (B-QIP) Aim

- Improve the care of children hospitalized with bronchiolitis by increasing compliance with the AAP Bronchiolitis Clinical Practice Guideline

- Secondhand Smoke recommendation:
  Infants should not be exposed to passive smoking (strong recommendation: evidence level B; observational studies with consistent results; strong preponderance of benefit over harm).
B-QIP Tobacco Control Measures

- Achieve 90% compliance with screening children admitted with bronchiolitis for SHS exposure
- Achieve 90% compliance with providing smoking cessation interventions for parents/caretakers in infants with a positive screen for SHS exposure
Methods

- Prospective QI interventional study
- Volunteer collaborative
- Criteria for hospital participation
  - >50 bronchiolitis cases yearly
  - Favored community-based hospitals
  - Favored hospitals without robust QI infrastructure
Methods

- Two consecutive bronchiolitis seasons selected
  - Jan-March 2013
  - Jan-March 2014
- 3 data cycles (months) pre and post implementation of interventions
- Sites selected 20 patient charts per data cycle to review
Interventions

- Hospitals received evidence-based best practice toolkit on screening and smoking cessation
  - Based on 5 A’s (Ask, Advise, Assess, Assist, Arrange)
- Monthly webinars
- QI coach assigned to each site
- Real-time run charts of data
Methods

- Aggregate data analyzed
- Comparison of pre- and post-intervention data was by chi-squared analysis
- Analysis of means (ANOM) was used for multiple comparisons
Results

- 22 hospitals selected to participate
  - 12 community
  - 10 university-affiliated hospitals
- One hospital withdrew prior to interventions
- 21 hospitals completed 6 data cycles
Site Characteristics

Hospital Has a System to Screen Children with SHS exposure (n=22)

No 45%
Yes 55%
Site Characteristics

Hospital has a System to Provide Smoking Cessation Treatment (n=22)

- Yes 23%
- No 77%
Site Characteristics

Who Provides Smoking Cessation Interventions at Your Hospital

- Nurse: 11
- No one provides: 8
- Physician: 4
- Respiratory therapist: 3
- Tobacco cessation team: 1
- Pharmacist: 1
- Asthma educator: 1
- Social worker: 1
<table>
<thead>
<tr>
<th>Measure</th>
<th>Cycle 1-3: Pre-Intervention (n=1027)</th>
<th>Cycle 4-6: Post-Intervention (n=605)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHS Exposure Screening</td>
<td>69% (CI 66-72%)</td>
<td>83% (CI 80-86%)</td>
<td>0.02</td>
</tr>
</tbody>
</table>
SHS Exposure Screening

Secondhand smoke exposure screening

Pre-Intervention= Cycles 1-3 (Jan-Mar 2013)
Post-Intervention= Cycles 4-6 (Jan-Mar 2014)
## Smoking Cessation Interventions

<table>
<thead>
<tr>
<th>Measure</th>
<th>Cycle 1-3 Pre-Intervention (n=222)</th>
<th>Cycle 4-6 Post-Intervention (n=152)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking Cessation Interventions</td>
<td>20% (CI 15-25%)</td>
<td>53% (CI 45-61%)</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
Smoking Cessation

Smoking Cessation Intervention

Pre-Intervention= Cycles 1-3 (Jan-Mar 2013)
Post-Intervention= Cycles 4-6 (Jan-Mar 2014)
Benchmarking

<table>
<thead>
<tr>
<th>Measure</th>
<th>Benchmark Institutions (top 20%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco Exposure Screening</td>
<td>99%</td>
</tr>
<tr>
<td>Smoking Cessation Interventions</td>
<td>99%</td>
</tr>
</tbody>
</table>
Limitations

- Study measures reflect documentation rather than actual practice.
- Small number of data points limited analysis of trends.
- Did not prospectively measure the effect of different interventions at each site.
Conclusions

- Ample opportunities for inpatient tobacco control work
- QI collaboratives can increase inpatient screening of children for SHS exposure and smoking cessation interventions
- Inpatient QI networks have a potential role in tobacco control
Future Directions

- Stewardship in Improving Bronchiolitis (SIB) Quality Improvement Collaborative
  - Will include measures related with SHS screening and smoking cessation
  - Greater standardization of smoking cessation interventions
- Recruitment to begin summer 2015
Thank you!

- Shawn Ralston, MD, co-author and B-QIP project co-leader
- Matthew Garber, MD, B-QIP project co-leader

Hospital Sites:

- American Family Children's Hospital
- Children's Hospital University of Illinois
- Cone Health- Moses Cone Pediatrics
- Elmhurst Hospital Center
- Fairview Hospital
- Goryeb Children’s Hospital- Morristown Medical Center
- Loyola University Medical Center
- Lucile Packard Children's Hospital - Packard at El Camino
- Mission Children's Hospital
- Mott Children's Hospital
- Northeast Georgia Medical Center
- Northwestern Lake Forest Hospital
- Rainbow Babies and Children's Hospital
- Rochester General Hospital
- Rush University Medical Center
- Sacred Heart Hospital
- Silver Cross Hospital
- Stormont-Vail HealthCare
- University of New Mexico Children's Hospital
- Wesley Medical Center
- West Virginia University