Community Asthma Prevention Program

Improving Asthma Outcomes Through Evidence-Based Interventions in the Community

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The Children’s Hospital of Philadelphia
Location and Target Population

- Philadelphia: Population of 1.4 million with asthma prevalence of 22–26%
- Target Population: Children with asthma who live in disadvantaged neighborhoods with high asthma prevalence
  - West, Southwest, South, and North Philadelphia
Bold Goals

CAPP will reduce asthma hospitalizations, emergency visits and school absenteeism by 50% within in 1 year of participation in our Home Visit Program for inner-city children with asthma who live in disadvantaged neighborhoods in Philadelphia.
CAPP Overall Goals

• To increase asthma knowledge and improve asthma self-management behavior
• To improve quality of life for children with asthma
• To equip members of the community to become neighborhood asthma experts
• To promote asthma-safe home and school/child care environments;
• To reduce burden of asthma on disparate populations.
Long Term Impacts and Outcomes

• Patient level
  – Improved knowledge
  – Reduction of asthma triggers
  – Reduced symptom days
  – Reduced missed school days and parent work days
  – Reduced emergency visits and hospitalizations

• Practice level
  • Improved use of asthma guidelines in practice
  • Change in physician behavior
Long Term Impacts and Outcomes

• Community Level
  – Asthma knowledge and awareness
  – Asthma prevalence

• School Level
  – Student knowledge
  – School professional knowledge
  – Health visits data
  – Asthma prevalence
Interventions/Activities over 14 years

- Clinical and Care Coordination
  - Asthma navigators
  - Primary care provider education
- Environmental Activity
  - Home Education and environmental remediation
- Care Coordination
  - Asthma Navigators
  - Letters to PCP’s
  - PI calls to PCP’s
  - PCP office visits
- Community Activities
  - Community asthma self-management education
  - School student education
  - School professional education
  - School screening
  - Door-to-door screening
CAPP Collaborative Partners

Community Groups
- Philadelphia Allies Against Asthma
- Germantown Settlement
- Congreso de los Latinos Unidos
- Beloved St John Evangelistic Church
- YMCA- Columbia North
- Casa Del Carmen

Managed Care Organizations
- Health Partners
- Keystone Mercy Health Plan

Health Partners
- The School District of Philadelphia
- US EPA, Region 3
- Health Promotions Council
- Philadelphia Health Management Corp

Health Care Providers
- Temple Health Connections
- Philadelphia Department of Health
- Maria de los Santos
- Fairmount Health Center

Hospitals
- Children’s Hospital of Philadelphia
- Temple Childrens Hospital
- Thomas Jefferson Hospital
- Albert Einstein Hospital
Evaluation and Results

• Outcomes Tracked
  – Fidelity to Protocol for Intervention (observation, chart audits)
  – Completion of Intervention (written form)
  – Patient characteristics (demographics, education, etc)
  – Home environment assessment (pre/post)
  – Asthma knowledge change (pre/post)
  – Asthma symptoms (biweekly diary by caregiver or child)
  – Asthma-related emergency room and hospital visits (EMR or self-report biweekly)
  – Satisfaction of caregiver, patient or physician
CAPP’s Outreach from 1997 - present

Community Asthma Prevention Program of Philadelphia
Zip Codes of Service

CAPP was awarded the Controlling Asthma in American Cities project (funded by the Centers for Disease Control and Prevention) in 2001. After 2 years of planning, in 2003 CAPP began its interventions using the plan below:

- **Quadrant I**
  - 19133, 19134, 19140
  - June ’03 to June ’04

- **Quadrant II**
  - 19122, 19123
  - started: June ’04

- **Quadrant III**
  - 19121, 19130, 19132
  - starting: Dec ’04

- **Quadrant IV**
  - 19141, 19144
  - starting: June ’05

CAPP has been in West Philadelphia since 1997, offering free asthma classes and home visits, and serving zip codes:

19104, 19131, 19147, 19139, 19142, 19143, 19145, 19146, 19148, 19151, 19153

In West Philadelphia CAPP is funded by the NIEHS and a PEW Grant.
Results so far....

- >3000 caregivers and children attended classes
- >2000 children received home visits intervention
- 600+ school professionals trained
- 600+ students attended classes
- >200 physicians and nurses trained
Results - Knowledge

Table 1. You Can Control Asthma Knowledge Scores

<table>
<thead>
<tr>
<th></th>
<th>Correct Responses</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Classes with Home</td>
<td>81.9%</td>
<td>94.2%</td>
<td>+12.3%</td>
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</tr>
<tr>
<td>Visiting Families n=187</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Classes in the Community n=104</td>
<td>71.1%</td>
<td>90.6%</td>
<td>+19.5%</td>
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<td></td>
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</tbody>
</table>

Participants with All Correct Answers

<table>
<thead>
<tr>
<th></th>
<th>Pretest</th>
<th>Posttest</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Visit Families</td>
<td>25.80</td>
<td>68.4</td>
<td></td>
</tr>
<tr>
<td>Community Series</td>
<td>20.7</td>
<td>51.6</td>
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</tbody>
</table>

Pretest | Posttest
### Home Education and Environmental Remediation Results

#### Paired Analysis \( n=208 \)

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>12 month</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED visits last 12 months</td>
<td>2.04 (±1.43)</td>
<td>1.04 (±2.13)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Hospitalizations last 12 months</td>
<td>.90 (±2.11)</td>
<td>0.39 (±1.04)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Missed school for any reason</td>
<td>7.13 (±11.47)</td>
<td>6.13 (±7.97)</td>
<td>0.49</td>
</tr>
<tr>
<td>Missed school for asthma</td>
<td>5.85 (±10.46)</td>
<td>4.02 (±6.44)</td>
<td>&lt;0.05</td>
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</tbody>
</table>
## Paired Analysis $n=208$

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<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td># of days using rescue meds</td>
<td>3.72 (±4.58)</td>
<td>2.18 (±3.55)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td># of days with symptoms</td>
<td>3.17 (±4.25)</td>
<td>1.71 (±2.92)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td># nights with symptoms</td>
<td>2.82 (±4.22)</td>
<td>1.44 (±3.29)</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td># of days child slowed down because of asthma</td>
<td>2.90 (±4.83)</td>
<td>1.00 (±2.13)</td>
<td>&lt;0.05</td>
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</tbody>
</table>
Figure 13. Medication Use
n=76 children n=847 diaries
Mean Asthma Symptom Scale Score by Month Sequence

The graph shows the mean asthma symptom scale score over the course of the months from diary commencement. The score decreases steadily from the initial peak in the first month, with minor fluctuations throughout the remaining months.
Program Management

- Participatory Approach to creating Design and Implementation of Interventions
- Identify Asthma Champions
- Meet regularly with staff and partners
  - Review survey documents
  - Review data collection tools
- Peer review of charts
- Quality Data runs on a quarterly basis
- Stay abreast of asthma literature
- Expect and Inspect!