Volunteer Driven Home Safety Intervention Results in Significant Reduction in Injuries: A Model for Population Based Injury Reduction

Richard A. Falcone, Jr., MD, MPH, Patrick Edmunds, MPA, Emily Lee, CPST-I, Dawne Gardner-Davis, MBA, Kimberly Price, PhD
Mike Gittelman, MD, Wendy Pomerantz, MD, MS, John Besl, MA, Gowri Madhavan, MPH, Kieran J. Phelan, MD, MS

Comprehensive Children’s Injury Center
Cincinnati Children’s Hospital Medical Center

Pediatric Trauma Society
November 14-15, 2014
Disclosures

• I have no relevant financial relationships with the manufacturer(s) of any commercial product(s) and/or provider(s) of commercial services discussed in this CME activity

• I do not intend to discuss an unapproved/ investigative use of a commercial product/device in my presentation

• This work was funded in part by Kohl’s for Kids
Background

• Despite a 25% reduction over the past two decades the home is the leading location of injury for children under the age of 5 years old

• Home based injuries annually result in:
  – 13 million outpatient visits
  – 4 million emergency room visits
  – 2,800 deaths
Home Safety Interventions Work

- Injury reduction of up to 70% for modifiable medically-attended injuries

Fig 2. The HOME (Home Observation and Measurement of the Environment) study intention-to-treat analysis of modifiable, medically attended injury rates per 100 child-years by group assignment. Error bars indicate mean (SD).

Kendrick, D, et al. Cochrane Database of Systematic Reviews, 2012
Purpose

- Evaluate the impact of a community based volunteer implemented home safety intervention

- Hypothesis: *Community volunteers, trained on the day of intervention, could provide a home safety bundle within a high risk community resulting in a reduction of emergency room attended injuries.*

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Cincinnati Children's Comprehensive Children's Injury Center
Hamilton County Specific Data

178,204 children 0-16 years old
19,236 injuries a year
108/1000 children

Hamilton County Injury Surveillance System (2010); US Census 2010
The Initial Target

- Population
  - Children aged 1-5 years old
    - Account for 24% of the population 0-16 (@ 43,000/178,000)
    - Over 5,500 injury related ED visits a year in HC
  - Injuries occurring in the home
  - Cost

<table>
<thead>
<tr>
<th>Year of Service</th>
<th>Average Number of Members Age 0-5</th>
<th>Total ED Claims</th>
<th>Injury Claims (% Total ED Claims)</th>
<th>Injury Claims Per 100 Age 0-5</th>
<th>Net Injury Payment</th>
<th>Mean Injury Payment Per Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>1851</td>
<td>412</td>
<td>160 (38.8)</td>
<td>8.64</td>
<td>$72,565</td>
<td>$454</td>
</tr>
<tr>
<td>2008</td>
<td>2009</td>
<td>527</td>
<td>183 (34.7)</td>
<td>9.11</td>
<td>$95,125</td>
<td>$520</td>
</tr>
<tr>
<td>2009</td>
<td>2255</td>
<td>779</td>
<td>252 (32.3)</td>
<td>11.18</td>
<td>$148,080</td>
<td>$588</td>
</tr>
<tr>
<td>2010</td>
<td>2461</td>
<td>649</td>
<td>249 (38.4)</td>
<td>10.12</td>
<td>$145,094</td>
<td>$583</td>
</tr>
</tbody>
</table>

Source: CCHMC HR Claims Database. Analysis by Kieran Phelan, Jon Besl, Jane Khoury, Michael Stuart, Shaun Inman

Top Locations of Injury for 1-4 year olds
- 832 homes with 1,150 children aged 1-5 years old
- 30% of children living below the poverty level
- 92% of injured children seeking emergency care presenting to CCHMC
- 11.3/1000 injuries per month compared to county baseline of 8.7/1000
The initial location
Norwood, OH

• 3 square miles (population of 19,200)
• Incorporated in 1888
• Old Neighborhood
  – Old housing stock
  – Shifting from blue-collar factories to office parks
• Local Government to Partner
  – Mayor, Council, Health Dept., Fire Dept., and Schools
• Abundance of Leaders/Organizations
  – Norwood Service League, Every Child Succeeds, HIPPY, YMCA, Family & Children First, Religious Council
Preventing Injuries in Norwood (PIN)

A partnership between the community and Cincinnati Children’s
Home Safety Bundle

**Equipment**

- CO detector
- Smoke detector
- Pressure mounted safety gate
- Swivel mounted outlet covers
- Cabinet/drawer locks
- Window locks
- Bathtub thermometer
- Non-slip bathtub stickers
- Bathtub spout cover
- Nightlight

**Education**

- Child home safety guide book
- Magnet list of emergency numbers
- General safety
- Kitchen safety
- Bathroom safety
- Living room safety
- Child bedroom safety
Safety Day!

Norwood children were injured from falls in 2011.

Norwood Safety Day
Saturday, May 12th

facebook.com/norwoodPIN

Kohl's Cares

City of Norwood
Founded

Preventing Injuries in Norwood

Volunteers

Welcome Volunteers

Thank You Volunteers

Volunteers

Volunteer 2013

Volunteer 2013

Volunteer 2013

Volunteer 2013

Volunteer 2013
Safety Day

- 2-3 events annually
- Organized by PIN team with CCHMC Injury Prevention
- Family Recruitment
- Volunteer Recruitment
- Two volunteers per home
  - One volunteer as educator
  - One volunteer as installer
- 8am – 12pm
- Concluding with volunteer lunch and debrief
Key Community Partners
Results

• Five Home Safety Days from May 2012-May 2014
• 207 homes received the bundle (25% of homes in Norwood)
• Additional 157 homes outside the initial target also received the bundle
• 185 volunteer participated
Results

• 7-60% family cancellation rate
  – Too early in day
  – Did not want volunteers entering the home
  – Forgot they had signed up
  – Too busy on day of intervention

• < 20% volunteer no-show
Results
Results

• 59% reduction in expected injuries in intervention group
• 6% increase in non-intervention homes

Monthly Injury Rate
(ED visit/1000 children)

*\(p<0.05\)
Limitations

• Families were self-selected
• Family cancelation rates
• Volunteer retention
• Consistency of bundle implementation
• Quality of family tracking and injury data
Conclusions

• Volunteer implemented home safety program can result in injury reductions approaching that of interventions by trained experts

• Spread of this intervention may lead to a significant shift in the population level injury rates