Reducing exposure to pesticides in California family child care homes

Kimberly Hazard; Michelle Stephens; Bobbie Rose; Abbey Alkon
UCSF School of Nursing, California Childcare Health Program
Acknowledgments

UCSF Staff
• Abbey Alkon
• Kimberly Hazard
• Bobbie Rose

Child Care Health Consultants
• Dana Cox
• Debra Moser
• Michelle Stephens

Alliance Team
• Nita Davidson, DPR Grant Manager
• Belinda Messenger, DPR
• Andrew Sutherland, UC IPM

Team Partners
• UC Berkeley Center for Environmental Research and Children’s Health, CA Resource and Referral Network, Alameda Healthy Homes, Alameda Family Child Care Network

Funding for this project has been provided in full or in part through a grant awarded by the California Department of Pesticide Regulation (DPR). The contents of this document do not necessarily reflect the views and policies of DPR nor does mention of trade names or commercial products constitute endorsement or recommendation for use.
Background

• Young children are more vulnerable to the harmful effects of pesticides than adults.
• Children may spend over 50% of waking weekday hours in child care, where pest problems and pesticide use are widespread.
• 30,700+ licensed family child care homes (FCCHs) in CA.
• FCCHs serve our most vulnerable children.
• FCCHs are *not* covered by California’s Healthy Schools Act.
Goal and Objectives

**Goal:** To reduce the exposure of pesticides for young children attending licensed family child care homes (FCCHs) by providing an Integrated Pest Management (IPM) program for FCCH providers.

**Objectives:**

- Identify the needs of FCCHs to modify the IPM Toolkit developed for child care centers.
- Develop an IPM Toolkit for FCCHs in English and Spanish.
- Conduct and evaluate a pilot IPM intervention program in 21 FCCHs.
- Disseminate the FCCH IPM Toolkit.
Phase I: Focus Groups

- Most frequent pests problems
- Current pest management practices & information
- Toolkit format & content ideas

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Respondents (n=19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latino/Hispanic:</td>
<td>68%</td>
</tr>
<tr>
<td>African American:</td>
<td>21%</td>
</tr>
<tr>
<td>Caucasian/White:</td>
<td>11%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Respondents (n=19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School/GED:</td>
<td>11%</td>
</tr>
<tr>
<td>Some college:</td>
<td>63%</td>
</tr>
<tr>
<td>College graduate or more:</td>
<td>26%</td>
</tr>
</tbody>
</table>

| Is the FCCH Licensed?  | Yes: 100% (n=19)   |
## Phase II: Toolkit Development

- Ants
- Bed bugs
- Cockroaches
- Caring for your outdoor environment
- Dust
- Fleas
- Flies
- Gophers
- Green cleaning, sanitizing and disinfecting
- Ground squirrels
- Head lice

- How to choose a pesticide
- How to read a label
- IPM policy
- Mold
- Mosquitoes
- Pinworms
- Rats & mice
- Resources
- Scabies
- Snails & Slugs
- Spiders
- What to know about the HSA
- Yellowjackets
Phase III: Pilot Intervention

- Pilot nurse-led IPM intervention in 21 FCCHs in three counties in Northern California
Study Design

Pre-Interview and Checklist Assessment
- Demographic Survey
- Provider Interview
- IPM Checklist

IPM Workshop
- Pre- and Post-IPM Knowledge Survey

Review IPM Assessment Results

Child Care Health Consultation for 6 months
- Nurse activity log

Post-Interview and Checklist Assessment
- Provider Interview
- IPM Checklist
# Participant Characteristics

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>21 (100%)</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>8 (38%)</td>
</tr>
<tr>
<td>Black, Asian, or Multi-racial</td>
<td>7 (33%)</td>
</tr>
<tr>
<td>Latino</td>
<td>6 (29%)</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
</tr>
<tr>
<td>Some college/ Associates Degree</td>
<td>14 (67%)</td>
</tr>
<tr>
<td><strong>Mean (SD)</strong></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>48 (14.11)</td>
</tr>
<tr>
<td>Years worked in child care</td>
<td>15.38 (11.01)</td>
</tr>
<tr>
<td>Hours worked per week</td>
<td>54.17 (8.11)</td>
</tr>
<tr>
<td>Months worked per year</td>
<td>11.64 (1.32)</td>
</tr>
</tbody>
</table>
## Results: IPM Knowledge

<table>
<thead>
<tr>
<th>IPM Knowledge Survey Item</th>
<th>Pre-Workshop (% correct)</th>
<th>Post-Workshop (% correct)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. IPM keeps pests out while reducing the use of pesticides</td>
<td>91%</td>
<td>96%</td>
</tr>
<tr>
<td>2. Pests need food, water, and shelter to survive</td>
<td>87%</td>
<td>100%</td>
</tr>
<tr>
<td>3. Mold can trigger asthma</td>
<td>78%</td>
<td>96%</td>
</tr>
<tr>
<td>4. Bait stations are the pesticide with least health risk</td>
<td>78%</td>
<td>100%</td>
</tr>
<tr>
<td>5. Cockroaches can live in cardboard boxes</td>
<td>91%</td>
<td>100%</td>
</tr>
<tr>
<td>6. Keep food in containers with tight-fitting lid - IPM indoor practice</td>
<td>91%</td>
<td>100%</td>
</tr>
<tr>
<td>7. Prevent pests from entering FCCH by sealing cracks and crevices</td>
<td>87%</td>
<td>100%</td>
</tr>
<tr>
<td><strong>Mean (SD), N</strong>*</td>
<td><strong>6.32 (1.21), 22</strong></td>
<td><strong>6.91 (0.29), 23</strong></td>
</tr>
</tbody>
</table>

* p<.05
Results: Provider Interview

Do you know what IPM is?
- Pre-Intervention: Yes 2, No 19
- Post-Intervention: Yes 20, No 0

Have you attended an IPM training?
- Pre-Intervention: Yes 0, No 21
- Post-Intervention: Yes 0, No 20
Interview: IPM Policies

Do you have a written policy for the use of pesticides?

<table>
<thead>
<tr>
<th></th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>No</td>
<td>18</td>
<td>2</td>
</tr>
</tbody>
</table>

Yes  No
Interview: Indoor/Outdoor Pesticide Use

Did you use pesticides INDOORS in the last 6 months?

- Pre-Intervention: 2 Yes, 19 No
- Post-Intervention: 1 Yes, 19 No

Did you use pesticides OUTDOORS in the last 6 months?

- Pre-Intervention: 10 Yes, 11 No
- Post-Intervention: 5 Yes, 15 No
MOST COMMON PEST PROBLEMS

- Ants: 26%
- Mice: 15%
- Spiders: 8%
- Wasps: 5%
- Bumblebees: 3%
- Yellowjackets: 3%
- Skunk: 3%
- Racoon: 3%
- Fleas: 3%
- Termites: 2%
- Flies: 10%
- Snails: 2%
- Rats: 10%
- Aphids: 2%
- Gophers: 5%
- Yellowjackets: 3%
- Bumblebees: 3%
- Wasps: 5%
- Spiders: 8%
- Ants: 26%
- Mice: 15%
- Snails: 2%
- Rats: 10%
- Aphids: 2%
- Gophers: 5%
## Results: IPM Assessment Checklist

<table>
<thead>
<tr>
<th>IPM Checklist</th>
<th>PRE % IPM Compliant (N = 21)</th>
<th>POST % IPM Compliant (N = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outdoor Areas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Garbage, Recycling, and Compost</td>
<td>84%</td>
<td>98%</td>
</tr>
<tr>
<td>Buildings: Structure, Landscaping, Play Area</td>
<td>63%</td>
<td>81%</td>
</tr>
<tr>
<td><strong>Indoor Areas</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kitchen and Eating Area</td>
<td>77%</td>
<td>95%</td>
</tr>
<tr>
<td>Bathroom</td>
<td>94%</td>
<td>96%</td>
</tr>
<tr>
<td>Living and Play Areas</td>
<td>78%</td>
<td>96%</td>
</tr>
<tr>
<td>Storage Areas: Attic, Basement, Garage, or Shed</td>
<td>55%</td>
<td>90%</td>
</tr>
<tr>
<td><em><em>Total Score</em> (66 items)</em>*</td>
<td>75%</td>
<td>91%</td>
</tr>
</tbody>
</table>

* p<.05
Most improved checklist items

• 17. Wood chips and mulch are at least 6 inches away from buildings.
• 34. Gaps between pipes, vents, and walls are sealed or screened.
• 61. Cardboard boxes are not used for storage
Conclusions and Next Steps

• The IPM pilot intervention led to an increase in IPM awareness, practices, and policies.

• Future studies
  • Relationships & trust
  • Recruitment
  • Length of study
  • Pesticide products
  • Adjacent properties
Thank you!

UCSF School of Nursing, California Childcare Health Program

[Website: cchp.uscf.edu]

Principal Investigator: Abbey Alkon, [Email: abbey.alkon@ucsf.edu]
Project Coordinator: Kimberly Hazard, [Email: kimberly.hazard@ucsf.edu]

Funded by California Department of Pesticide Regulation. Thank you to the Alliance Team members, nurse child care health consultants, FCCH providers, and families.