Northeastern IPM Center – IPM Partnership Grant Program 2011 – Project Description

PD: Carol Westinghouse
Lead Institution: Informed Green Solutions
Co-PD(s) and Institutions:
Project Title: Collaborative to Promote IPM in Child Care Facilities

Project Type: IPM Working Group

1. Project Summary

This project is designed to advance the adoption of IPM policies and the use of IPM practices in registered and licensed child care facilities through the establishment of a working group to foster the exchange of information between academia, nonprofits, extension, government etc. The working group will develop a road map for engaging child care facilities that can be utilized by others working on the issue.

Each state has a network of organizations that conduct trainings for child care providers. It is essential to know these networks in order to spread the message in an efficient way. The Work Group will identify these networks and develop a relationship with their organizations. We will also review existing resources, revise materials as needed for the specific child care audience and pilot the materials with existing trainers in these networks.

The project will address the issue of traditional IPM for insect and rodent pests as well as using the IPM method to address the use of antimicrobial pests.

The outcome of the project will be:
1. the inclusion of IPM training materials in continuing education programs and required provider trainings in at least 2 northeast state networks, and
2. a road map that details the steps needed to reach this goal for others working within their own states.

2. Problem and Justification

This project will address the problem of exposure of young children and child care providers to pesticides and their health effects in child care programs. Information on the dangers of pesticides, importance of IPM and how to implement an IPM program is not always available to child care providers. Disparate organizations throughout the northeast are working on these issues, but an organized approach is needed.

In the U. S. in 2005, 61% of children ages 0–6 who were not yet in kindergarten (about 12 million children) spent some part of their day in child care (Federal Interagency Forum on Child and Family Statistics, 2009). Recent studies have documented the frequent use of pesticides in child care. A 2010 survey of child care centers in California (Bradman, Dobson, & Leonard, 2010) found that 55% of centers reported using non-microbial pesticides to control pests, with 47% reporting the use of sprays or foggers that can leave residues on surfaces and in the air and
potentially expose children and staff to high risk pesticides. In contrast, fewer centers (21%) reported using lower risk pesticide application methods consistent with integrated pest management (IPM) such as baits and gels. The First National Environmental Health Survey of Child Care Centers, conducted by the U.S. Department of Housing and Urban Development, U.S. Environmental Protection Agency, and the Consumer Product Safety Commission, assessed children’s exposures to pesticides in licensed U.S. child care centers (Tulve et al., 2006); 63% percent of the centers studied reported pesticide applications, and an estimated 75% of these centers reported at least one pesticide application in the last year. The presence of pesticides has also been documented by environmental sampling in child care. In the First National Environmental Health Survey of Child Care Centers, pyrethroid and organophosphate pesticides were detected in surface and soil samples in 80% of the centers in the study. In a pilot study of child care centers in North Carolina, researchers detected organophosphate and pyrethroid pesticides in air and dust and suggested that exposures in child care environments may constitute a significant portion of total child exposures (Wilson, Chuang, & Lyu, 2001).

The developing neurological, immune, digestive, and other bodily systems of infants are easily affected at low doses of toxic substances. Several factors increase both young children’s exposures and their vulnerability to these exposures compared to adults (Bearer, 1995). They spend more time on the floor, where residues can transfer to skin and be absorbed (Bearer, 1995; Bradman et al., 2007). Young children also frequently place their hands and objects in their mouths, resulting in non-dietary ingestion of pesticides (Beamer et al., 2008; Bearer, 2000; Cohen Hubal et al., 2000). Dust is a major exposure source for pesticides (Camann, Colt, & Zuniga, 2002). It is estimated that infants eat twice as much dust (100 mg vs. 50 mg/d), weigh one sixth as much, and are up to ten times more vulnerable than are adults to dust exposure (Roberts et al., 2009). They are also less developed immunologically, physiologically, and neurologically, and, therefore, are less able to metabolize, detoxify, and excrete pollutants ((Grandjean & Landrigan, 2006).

There is increasing evidence of adverse effects of pesticides on young children, particularly on neurodevelopment (Landrigan et al., 2002). For example, research in California and elsewhere suggests exposure to organophosphate pesticides may be associated with abnormal reflexes in neonates and with poorer mental development and neurobehavior in young children (Eskenazi et al., 2007; Eskenazi et al., 2008; Rauh et al., 2006). Exposure to neurotoxic chemicals is associated with ADHD, neurodevelopment disorders, autism, loss of intelligence, and mental retardation (Grandjean & Landrigan, 2006).

Other, often unrecognized, sources of pesticides in child care are cleaning and sanitizing products. There is increasing concern about the possible adverse health effects of using these products, particularly those that are aerosolized, in child care settings. Disinfectants and sanitizers are not often recognized as pesticides; however, the reduction of microbes is essential in child care to prevent the spread of infectious disease, and these antimicrobial pesticides are used routinely, even required by law in many states. We find from our work with child care providers in the Northeast that there is rampant confusion about what is recommended and required practice for cleaning and sanitizing in child care. This problem is exacerbated by the lack of training provided to centers with information on when and how to effectively sanitize and disinfect, and what the least toxic products available are that can both effectively prevent the
spread of infectious disease and reduce exposure to toxic chemicals. Implementation of least-toxic agents and practices that are effective at reducing microorganisms to acceptable levels in order to reduce the spread of infectious disease in young children is an urgent need.

This proposal addresses the following priorities of the NE School IPM Working Group:

**Objective 3)** Identify and build upon collaborations within the Northeast that promote school and child care IPM.

**Objective 5)** Identify needs, opportunities, and priorities for research, extension, education, and implementation for school IPM in the Northeast.

The IPM Roadmap (2004) states as a goal, "reduce potential risks to human health and the environment caused by the pests themselves or by the use of pest management practices," and identifies residential and public areas as one of three focus areas. "Priorities in this area include enhanced collaboration and coordination to expand these programs to other institutions and residential environments."

### 3. Complimentary Projects -

Potential workgroup members will bring their expertise and materials to the project. Confirmed partners will bring the following tools and information:

1. **California Childcare Health Protection’s Integrated Pest Management Toolkit with Curriculum and Complimentary Materials**
   
   This soon-to-be released English- and Spanish-language Toolkit will include curriculum and complimentary publications, handouts, and posters.
   
   
   Contact person: Bobbi Rose at brose@ucsfchildcarehealth.org.

2. **Penn State University and Better Kid Care’s Healthy Air + Healthy Spaces = Healthy Children**
   
   Training materials geared to child care provider trainers.
   
   Contact person: Lyn Garling at ljg5@psu.edu.

3. **New Hampshire Department of Agriculture, Markets and Food’s EPA Pesticide Environmental Stewardship Program project, The New Hampshire Child Care Facilities Integrated Pest Management Initiative** includes in its deliverables
   
   This project is collaborating with regional and national partners to design a Child Care IPM Plan unique to New Hampshire and its licensed child care facilities.
   
   Contact person: Arife Ozkan at arife.ozkan@agr.state.nh.us.

### 4. Objectives and Anticipated Impacts.

**Objectives**

1. Bring together a diverse group of people to share information and develop a road map for helping state child care training networks incorporate IPM training information into child care training programs, and helping child care centers implement IPM practices.

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1 (Northeast School IPM Working Group 2010 POW Status Report, WG meeting handout, Pittsburgh, PA, October 20, 2010.)
2. Review materials and revise Cleaning for Healthy Schools – Infection Control or other fact sheets, power points, etc. specifically for the child care community.
3. Meet with state-wide child care organizations in a minimum of two states to assist them in including IPM training in their existing provider requirements.
4. Provide or assist with child care provider/caregiver training sessions in at least one state.
5. Disseminate the road map via websites, listservs and colleagues.

**Anticipated Impacts**
Our proposed project directly addresses goals of the IPM Roadmap for human and environmental health impacts, economic impacts and IPM implementation impacts as outlined below.

**Human Health and Environmental Health Impacts.** Our project will lead to an increase in the number of child care centers implementing an effective IPM program, thereby safeguarding human health and the environment. Centers will be taught and supported to utilize pest-prevention and pest monitoring to reduce reliance on pesticides and to select least-risk control methods to minimize risks of human exposure to pests and pesticide. Reducing the presence of pests indoors also reduces their by products such as fur and feces which can cause and/or exacerbate asthma. Outdoor IPM will also make the building grounds and playgrounds safer for play.

Given the recent rapid rise in neurodevelopmental disorders in children such as autism and ADHD, the evidence for neurodevelopmental effects on children in recent studies of pesticide exposure justifies a "precautionary approach". Implementing IPM in centers will provide this approach. Custodians have been found to have higher rates of occupational asthma (Reinisch, 2001) and to have children with specific birth defects (Herdt-Losavio, 2010). The use of antimicrobial products throughout child care centers can affect the occupational health of staff members and their families as well as the children attending the centers.

**Economic Impacts.** It is difficult to estimate the economic impacts of child care IPM, but it has been estimated that the cost to society per year resulting from disease associated with the exposure of children to environmental chemicals ranges between 48.8-$64.8 billion per year (Landrigan et al. 2002). A report just released by the Michigan Network for Children’s Environmental Health found environmentally attributable direct and indirect health care costs of four childhood diseases linked to environmental toxins — asthma, lead poisoning, pediatric cancer and neurodevelopmental disorders, averaged $5.85 billion a year. Even a fraction of these costs adds up to a considerable amount. Studies with school IPM (Lame 2005) have shown that IPM can save money in the long-term.

**IPM Implementation Impacts.** Educational materials will be made available to child care trainers in the northeast via outreach by members and our partners and through posting on member websites. This model of knowledge diffusion has been shown to be an effective means of changing behaviors to adopt improved practices (Gouge et al, 2004).
5. Approach and Procedures

Objective 1) Bring together a diverse group of people to share information and develop a road map for implementing IPM in existing child care training and programs.

Members of the National Cleaning for Healthy Schools and Infection Control Workgroup created a Cleaning for Healthy Schools – Infection Control Handbook for Schools that focuses on IPM for anti-microbial pests. During this process, it became apparent that a separate project was required to tailor materials and trainings to the child care community. Although there are newly developed materials for traditional IPM in child care, adequate materials are not available for anti-microbial IPM. Members of the Workgroup also want to focus on “embedding” this training as well as traditional IPM in their own states. The scope and partnerships of the Workgroup will expand to engage two other sectors, the IPM and the child care networks. This expanded collaboration will create a shared context in which to learn each other’s issues, knowledge, etc., in order to effectively adapt and disseminate IPM materials for the child care community.

Research will be conducted into the existing key organizations that serve child care providers and on how we can best collaborate with them. Different states have different regulations for child care providers, so in the road map, we will include where to find this information and what requirements may cover all states. The road map created from this research will enable the basic plan to be transferable to other states/regions, making it easier for advocates to work within their own areas.

Objective 2) Review materials and revise the Cleaning for Healthy Schools – Infection Control Handbook and other fact sheets, power points etc. specifically for the child care community. We will search the internet, send emails to the School Bugs listserv and others asking for links to existing materials, and review materials created by Workgroup members. As a group, we will identify the materials that fit best in our region as well as create or revise materials targeted toward anti-microbial IPM.

Objective 3) Meet with state-wide child care organizations in a minimum of two states to assist them in including IPM training in their existing provider requirements. Identify organizations in two states and the key organizations within these states through Workgroup members. Meet with the key organizations to develop a strategy for including IPM in their current curriculum for child care providers.

Objective 4) Provide or assist with trainer/child care provider/caregiver training sessions in at least one state. Working with the key organization, evaluate the training materials and acceptance of the program.

Objective 5) Disseminate the road map via websites, listservs and colleagues. The road map will be posted on the websites of Workgroup members or associated organizations, sent out to IPM/healthy schools/child care listservs and to other interested colleagues.
Implementation Time Table

Spring 2011 – Fall 2011

Objective 1) Bring together a diverse group of people to share information and develop a road map for implementing IPM in existing child care training and programs.

Objective 2) Review materials and revise Cleaning for Healthy Schools – Infection Control Handbook fact sheets or other fact sheets, power points etc. specifically for the child care community.

Fall 2011 – Spring 2012

Objective 3) Meet with state-wide child care organizations in a minimum of two states to assist them in including IPM training in their existing provider requirements.

Objective 4) Provide or assist with trainer/child care provider/caregiver training sessions in at least one state.

Collaborate with organizations and provide/assist with trainings. Assess project and write the final report. Disseminate information.

Ongoing

Coordinate monthly Workgroup conference calls, gather materials, research regulations and state frameworks. Review and revise materials.

Participate in NE School IPM Working Group meetings and share our knowledge/experience with Working Group members.

Evaluation Plans. We will verify that the project objectives have been met by:

- number of states that have included IPM in their required trainings
- number of providers trained
- completion of the road map
- materials developed/revised and trainings presented
- placement/dissemination of road map and accompanying materials

Key Personnel Involved

Carol Westinghouse of Informed Green Solutions will be the Project Director. Ms. Westinghouse will coordinate the conference calls, provide materials to Workgroup members, gather comments/revisions to materials and integrate those into the training materials. She will meet with state-wide child care trainers, write the final report and participate in the NE School IPM Working Group.

Institutional units with roles and responsibilities: Informed Green Solutions
Literature Cited


