Children's Environmental Project

Project Report

August 2008

ACKNOWLEDGEMENTS

The **Children's Environmental Project** was launched by the Family Housing Fund and the Supportive Housing Provider Group, a network of 17 supportive housing organizations in the Twin Cities that provide housing and services to homeless families with children. The pilot project was made possible with funding support from the Blue Cross Blue Shield of Minnesota Foundation's initiative, "Growing Up Healthy: Kids and Communities".

The **Children's Environmental Project** is part of the Fund's broader **Visible Child Initiative** (formerly known as the Healthy Families network), a partnership with the Supportive Housing Provider Group that promotes the mental and chemical health of families and the physical, emotional, and academic well-being of homeless children from birth to adolescence.

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Supportive Housing Provider Group Pilot Agencies: Emma's Place
Wayside House, Inc.
YWCA of St. Paul

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EXECUTIVE SUMMARY

The goal of this project is to create safe physical environments in supportive housing settings for very young children and all family members. To carry out this goal, the Supportive Housing Provider Group (the Provider Group) with support from the Family Housing Fund (the Fund) and technical assistance from Hart-Shegos and Associates (H-SA) and the Family Supportive Housing Center LLC (the Center) initiated and implemented a process for inspecting supportive housing units and common areas and for interviewing staff and residents to assess the safety and environmental quality for all those living and working in the housing settings. The findings of these interviews and inspections are used to assist supportive housing providers and residents in improving safety and reducing the use of harmful household and personal care products. Next steps will be to create training and educational materials that will help staff and residents improve environmental health and safety for children and families in supportive housing communities. It is the hope that follow-up evaluations will demonstrate the following projected outcomes:

- reduced use of harmful chemicals in household and personal care products
- reduced use of pesticides (rodenticides, insecticides, fungicides, and herbicides)
- reduced exposure to triggers for asthma
- reduced risk of injury.

To achieve these outcomes, we have worked with three member agencies of the Provider Group (Emma's Place, Wayside House, and the YWCA of St. Paul). These organizations have served as pilot agencies for the project. H-SA and the agencies have conducted interviews with residents and staff and implemented a physical inspection of supportive housing residential units, common areas in the housing complexes, and exterior spaces. The surveys have evaluated the living environments within these supportive housing communities. Of 90 possible households, 33 residents volunteered to participate in the study. Interviews and inspections have focused on issues such as:

- cleaning and laundry products – manner of use and potentially harmful ingredients
- personal care products – manner of use and potentially harmful ingredients
- pest control practices
- electrical and physical hazards in units and common areas
- child-proofing safety measures
- potentially harmful materials in the home (i.e., plastics in children's toys and baby bottles; chemicals in furniture and bedding)
- indoor air quality, including mold and volatile organic chemicals (VOCs)
- lead in soil and radon.

Cleaning and Laundry Products

Some cleaning and laundry products and the manner in which they are used have the potential to be detrimental to health. To determine the types of these products that residents and staff use and the way in which they are used, all household cleaning and laundry products that were observed were recorded by brand name. These included such products as all-purpose cleaners, specialty cleaners, window sprays, kitchen and bathroom products, air fresheners, products containing bleach, laundry detergents, and fabric softeners. In the 33 households, a total of 350 cleaning and laundry products were recorded, of which there were 158 different brands. For those products which had the highest frequency of use, the specific ingredients, where available, were determined. In the course of interviews, cleaning practices and use of various products were also determined.

Findings of note

All residents and staff have exposure to some hazardous household chemicals, some to a greater extent than others. These chemicals can be triggers for asthma, skin irritants, immune system toxicants, carcinogens, and linked to developmental and reproductive issues. Studies have shown that people, especially children, who have experienced severe poverty, violence, and/or trauma (all of which are associated with homelessness) have immune systems that are already under significant stress and are more vulnerable to the harmful effects of these toxicants.

A significant finding was the use of chlorine bleach. A total of 23 of the 33 households and the staff of the three agencies used some type of bleach product. There was a total of 50 bleach products, representing 20 different brands. Many sources recommend the use of bleach as a disinfectant and to remove certain asthma triggers such as mold, but bleach is a known respiratory irritant and has been shown to be a trigger for asthma. Of the 33 households surveyed, 20 households had at least one member with a physician-diagnosed case of asthma. Of those 20 households, 15 households currently used bleach in some form. Three households stated that they have used bleach in the past, but no longer do so.

Another significant finding was the popular use of products with obvious fragrance or products with ‘fragrance’ listed as an ingredient. Most cleaning and laundry products had some type of fragrance. Residents used products until they could ‘smell’ them. The smell of a product was associated with cleanliness. Fragrances consist mostly of chemicals called volatile organic compounds. Ingredients in fragrances can be skin irritants, triggers for asthma and allergies, and hormone disruptors. (Hormone disruptors are substances that act like hormones in the endocrine system and alter or block the function of natural hormones. Studies have linked hormone disruptors to adverse biological effects such as abnormal fetal and reproductive organ development and

certain cancers such as breast cancer.) Common ingredients in some fragrances are a group of chemicals called phthalates, which are suspected hormone disruptors.

Product usage is significant. How a product is used and the quantity that is used determines the exposure to potentially harmful chemicals. Most residents do not follow label instructions for cleaning products, but they usually measure laundry detergents. Often these cleaning products are used in rooms without adequate ventilation. Many residents stated that they did household chores in a similar way as their mothers or grandmothers did and used similar products.

Personal Care Products

Some personal care products and the manner in which they are used have the potential to be detrimental to health. To determine the types of personal care products used, all products that were observed were recorded by brand name. These included such products as shampoos and conditioners, soaps and body washes, cleansers, moisturizers, hair care products, deodorants, dental care products, and fragrances. (Only some make up and nail products were recorded because of the large number and variety of product found.) In the 33 households, a total of 347 personal care products were recorded, of which there were 237 different brands. For those products which had the highest frequency of use, the specific ingredients were determined.

To determine the types of children's care products that residents and staff-on-site use, all children's products that were observed were recorded by brand name. These included such products as shampoos and conditioners, soaps and body washes, lotions and oils, and other baby products. In the 33 households, a total of 80 children's care products were recorded, of which there were 53 different brands. For those products which had the highest frequency of use, the specific ingredients were determined.

The ingredients in personal care products vary in the type and severity of health hazards that they pose. Some can cause immediate, or acute, conditions such as respiratory or skin irritations, while others have the potential to cause long-term, or chronic, effects such as cancer and neurological and developmental conditions. Chemicals can be inhaled, can penetrate the skin, or can be ingested from lips and hands. A single exposure is unlikely to do any harm, but a lifetime of exposure or exposure for young children can add up.

Currently, the US government does not require health studies or safety tests for ingredients in personal care products before a product is sold. Any testing that the cosmetic industry carries out is conducted by the manufacturing companies or the Cosmetic Ingredients Review, the industry's self-policing safety panel. According to the Environmental Working Group (EWG), a non-profit organization providing useful resources and research to consumers (www.ewg.org), nearly 90% of the chemicals in personal care products have not been adequately tested for safety. The EWG has compiled a database of chemicals found in personal care products along with the associated risks of the chemicals (www.cosmeticsdatabase.com).

Findings of note

All residents have exposure to products that may have potential harmful effects, some to a greater extent than others. These products contain chemicals that can be triggers for asthma, skin irritants, immune system toxicants, carcinogens, and linked to developmental and reproductive issues.

Most adult and children's personal care products listed fragrance as an ingredient. As with the fragrances found in household cleaning and laundry products, the term 'fragrance' can be a catch-all category and can contain hidden ingredients that may pose chronic long-term health risks. For many products, fragrances are synthetic mixtures of various chemicals. These chemicals are considered to be trade secrets and do not have to be individually listed on product labels; only the term "fragrance" is listed. (See pages 2-3 under Cleaning and Laundry Products for health risks.)

Anti-bacterial soaps and similar products were very popular. Studies have linked triclosan, the active ingredient in most of these products, to a variety of health and environmental concerns, including skin irritation, susceptibility to allergies, disruption of the thyroid system, resistance of bacteria to antibiotics, dioxin contamination, and destruction of fragile ecosystems.

In the Environmental Working Group's "Safety Guide to Children's Personal Care Products" (www.cosmeticsdatabase.com/special/parentsguide) the organization recommends that seven specific ingredients be always avoided, and another set of eleven specific ingredients to be avoided if at all possible. Of the eight most popular children's products used by residents, one product had an ingredient in the group "to be always avoided" and all the products had at least one ingredient in the group "to be avoided if possible".

Children's Physical Safety

Statistics from hospital emergency departments show that accidents in the home are a major cause of severe injury and death among children. Accidents can be prevented by intentionally making living spaces safe for children.

Most residents and all staff were aware of the need to make physical environments safe for children – both in residents' apartments and in child care rooms and common areas in the buildings.

Findings of note

Attempts at childproofing residents' apartments, child care rooms, and common areas were inconsistent. Residents are concerned about the safety of their children, but their knowledge of childproofing techniques and what constitute hazardous situations is inconsistent. The organizations and residents either receive or purchase secondhand

items such as toys, car seats, strollers, and other children's products. Donated items are sorted, but not checked for safety recalls.

Plastics

Use of plastics for eating, cooking, and food storage can carry health risks, as well as certain plastics used in some children's products (i.e., baby bottles, sippy cups, toys, bibs, etc.) and home items (i.e., some shower curtains). Fetuses and young children are at greatest risk. Of the various types of plastic, those that are labeled 1, 2, 4, and 5 are considered to be the better choices for food and beverages, but it is advised not to heat food in these types of plastic. Plastics labeled 3, 6, and 7 are considered to be types to avoid. Type '3', or vinyl, contains the plasticizer DEHA (di-2-ethylhexyladipate), which has been linked to negative effects on various organs of the body. Type '6', polystyrene, can leach the chemical styrene which is toxic to the brain and nervous system. Most type '7's, or polycarbonate, can leach the chemical bisphenol A, which mimics the action of the hormone estrogen, disrupting normal reproductive and developmental functions.

Findings of note

Residents were not aware of the potential hazards to their children of using certain types of plastic. Most residents use some type of plastic plates, bowls, cups, sippy cups, and/or baby bottles. Most baby bottles and sippy cups that were observed were made of polycarbonate (type '7').

Food is stored and heated in plastic. Food containers were mainly type '5'. Several different types of plastic wrap are used to cover food (types '3' and '4'). Children have toys made of a variety of types of plastic. Some children sleep on plastic-covered mattresses (most likely vinyl, type '3').

Use of Pesticides

Property management of the organizations and the contracted pest control companies appear to use some of the principles of integrated pest management (IPM), a method of preventing and controlling pests in a way that is the least hazardous to the residents and the environment. Few residents purchased and used pesticides on their own. Further review of practices and additional education for staff and residents are required. IPM, to be effective, depends on everyone to take active roles.

Indoor Air Quality

All the residential units had externally-vented exhaust fans in the kitchens and bathrooms. There were a few units that had some mold around bathtubs. Due to the fact that all of these properties have recently undergone extensive renovations, mold was not seen as an issue.

In many units, indoor air quality was poor due to lack of ventilation, unclean conditions, use of incense and air fresheners, and/or tobacco smoke. None of the residents owned or used a HEPA vacuum cleaner.

Lead and Radon

There is a need to be concerned about elevated lead levels in the environment, particularly in soils in urban areas. Soil samples were taken from areas of bare soil around the edges of playgrounds and tested for lead. Sampling protocol was followed as described in Methodology. The soil lead test results ranged from 2 to 148 ppm. Some of these levels are more than the upper level established by the state (100 ppm), but less than the upper level established by the EPA (400 ppm). For levels of lead above the state's limit, yet within the EPA's limit, it is advisable to take remedial action. Further consultation is in process. Even though some of the test results were within the state's limits, taking remedial action could reduce risks.

Radon is a naturally occurring gas that gets into buildings from the surrounding soil. Radiation emanating from radon can cause various types of cancer, particularly lung cancer. Radon is found globally, but is more pronounced in certain types of bedrock, particularly the rock forming much of the soil in the Upper Midwest. For each housing site that was surveyed, sub-ground level common and living areas and basements were tested for the presence of radon. Sampling protocol was followed as described in Methodology. Radon levels ranged from 0.7 to13.0 pCi/L. The EPA and the state recommend further action be taken for levels above 4.0 pCi/L. For those sites that had high levels, further testing and consultation is in process, with the expectation of mitigation.

Recommendations

Consumer products

Residents and staff need to become more aware of the potential hazards of certain everyday products. By becoming more informed consumers, they can create healthy environments by making healthy choices in the products that they purchase and in the way in which those products are used. Some specific recommendations include:

- Limit or eliminate the use of bleach in household cleaning.
- Reduce the use of scented products.
- Use fewer products.
- Seek out alternative or do-it-yourself products.
- Make sure that there is adequate ventilation when using certain products.
- Avoid products with certain ingredients as listed in consumer safety lists.

Children's physical safety

Residents and staff need to become more aware of steps that can be taken to prevent injuries to children in apartments and common areas. Some specific recommendations include:

- Incorporate additional information on current child safety techniques into parenting and life skills classes.
- Conduct building-wide audits for conditions hazardous to children and other environmental risks.
- Establish policies concerning child safety practices and recall checks.
- Investigate options for child safety devices and help to make them more readily available to residents.

Use of plastic

Residents and staff need to become more aware of the hazards of certain types of plastic and know about alternative options. Some specific recommendations include:

- Choose baby bottles and sippy cups made of glass or polyethylene (1, 2, 4) or polypropylene (5). Many baby bottles are not labeled as to the type of plastic. Use ones that are 'clouded' or 'opaque' instead of hard, shiny clear or tinted plastic ones.
- Store food in glass or ceramic containers.
- Use wax paper instead of cling wrap to cover food in the microwave. Do not reheat food in Styrofoam take-out containers.
- Use non-polycarbonate water bottles. Five-gallon water bottles and sport water bottles (i.e., Nalgene) are made of polycarbonate (7).

Pest control

Residents and staff need to become more aware of the hazards of pesticides and the principles of IPM. Some specific recommendations include:

- Consider an educational program for residents as to the nature of pesticides and their associated health risks and how the residents can be an integral part of responsibly controlling pests.
- Encourage residents to take precautions before and after any pesticide application by covering or removing items that could become contaminated and washing down surfaces and household items after applications.
- Continue to encourage residents and staff to follow IPM principles – for example, keeping food in closed containers, not leaving dirty dishes laying around, sweeping up crumbs, and mopping up spills; repairing water leaks; blocking or plugging up pest entry points; and using pesticides sparingly or not at all.

Indoor air quality

Residents and staff need to become more aware of means to increase the quality of indoor air. Some specific recommendations include:

- Eliminate all mold in units and common areas.
- Adequately ventilate all living areas.
- Limit or eliminate use of air fresheners, candles, and incense.
- Do not smoke in units.

Lead and radon

Residents and staff need to be aware of the hazards of allowing children to play in areas of soil lead contamination and of the means to correct hazardous areas. Specific recommendations include:

- Have bare soil in the area of playgrounds or other areas around buildings where children might play tested periodically.
- To mitigate areas of high lead content, remove soil, pave surface, and/or lay sod or thick mulch in areas of bare soil.

Residents and staff need to be aware of the hazards and incidence of radon. Specific recommendations include:

- Test basements and sub-ground living areas for radon. Because levels of radon vary throughout the year, repeat tests. Some factors that influence radon levels include time of year, test location, weather patterns, and room temperature.
- Mitigate levels of radon in those buildings which had high levels.

Next Steps

Next steps will be to share findings of this project within the Supportive Housing Provider Group and the larger community, to create training and educational materials that will help staff and residents improve environmental health and safety conditions for children and families in supportive housing communities, and to tap into community resources. It is the hope that follow-up evaluations will demonstrate safer and healthier living environments.