

# Making Child Care Centers SAFER: A Non-Regulatory Approach to Improving Child Care Center Siting

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## ABSTRACT

Licensed child care centers are generally considered to be safe because they are required to meet state licensing regulations. As part of their licensing requirements, many states inspect child care centers and include an assessment of the health and safety of the facility to look for hazardous conditions or practices that may harm children. However, most states do not require an environmental assessment of the child care center building or land to prevent a center from being placed on, next to, or inside contaminated buildings. Having worked on several sites where child care centers were affected by environmental contaminants, the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry (ATSDR) endeavor to raise awareness of this issue. One of ATSDR's partner states, Connecticut, took a proactive, non-regulatory approach to the issue with the development its Child Day Care Screening Assessment for Environmental Risk Program.

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As used in this article, the term *child care center* encompasses organized facilities that provide day care, preschool, or nursery school. It does not include “family day cares” or child care provided in an individual’s home to a small number of children. Child care centers include for-profit (such as large chain day cares), nonprofit (such as church-based preschools), and publicly funded (such as Head Start) centers. Child care centers are different from schools because most are privately owned and operated, while many schools receive some public funding, are publicly administered, or go through a public process when the location of the school is being determined. Unlike school, attendance at child care centers is not mandatory for children.

Children who attend child care centers are generally infants to 5 years of age. The number of children in the United States who attend child care centers is difficult to quantify because of the many different types of child care arrangements in this country. A 2005 report based on a U.S. Census Bureau survey found 23.8% of the 11.2 million children younger than aged 5 years in some type of child care arrangement were in organized child care facilities.<sup>1</sup> A separate report found there were more than six million licensed child care center spaces.<sup>2</sup> In 2002, 42% of 3-year-olds and 67% of 4-year-olds attended preschool.<sup>3</sup>

Young children are at greater risk than adults from exposure to environmental contaminants because of children’s physiology (such as higher respiration rates than adults) and their rapidly developing bodies and behaviors (such as mouthing objects). Child care center workers also tend to be women of childbearing age who are particularly vulnerable to health risks from exposure to environmental hazards. Data from the 2000 Census showed that 95.5% of day care workers and 97.5% of preschool and kindergarten teachers were women.<sup>4</sup>

Despite the vulnerability of these children and their caregivers, most child care centers in the U.S. are not required to conduct a site history, environmental site assessment, or environmental audit before obtaining a license. Such an investigation could help prevent a center from being located on land or in a building that is contaminated from past industrial use or that is at risk of contamination from neighboring facilities. Without an environmental site history or site assessment, there is a risk that child care centers are operating on sites that could expose children to harmful contamination. In addition, most child care operators may expect that if their prospective child care center site is contaminated, someone would notify them. This is usually not the case.

Each state regulates child care centers differently.

The “2005 Child Care Licensing Study: Final Report” found that only 12 states required some type of environmental testing in child care centers for lead, radon, or asbestos, while 39 states required an environmental inspection.<sup>2</sup> In this report, the term “environmental inspection” included fire, health, or building code inspections. These inspections look at the overall physical environment of the center and document safety and health practices such as the presence of smoke detectors, cleanliness of food service areas and food handling procedures, toileting and diapering of children, playground safety, and sanitation of the facility. An environmental inspection may also include checking for cracking, peeling, or chipping paint (which could contain lead) or looking for the proper handling and storage of chemicals, such as cleaning products and pesticides. While critical for keeping children safe from many physical and chemical hazards, these limited environmental inspections do not address environmental contamination that may be present from past use of the property. Additionally, these inspections do not address environmental contamination from nearby facilities that may be affecting the child care center, such as a dry cleaner or nail salon.

*Caring for Our Children: National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care* is a collaborative publication from the American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education, and it provides voluntary guidance for child care center safety, including a section on conducting an environmental audit:

An environmental audit should be conducted before construction of a new building or renovation of an older building. The environmental audit should include assessments of the following: (a) historical land use, seeking possibility of toxic contamination of soil; (b) the possibility of lead and asbestos in older buildings; (c) potential sources of infestation, noise, air pollution, and toxic exposures; (d) the location of the playground in relation to infested stagnant water, roadways, industrial emissions, building exhaust outlets, and any other hazards to children.<sup>5</sup>

Although this guidance was available, no data were readily available that show which states had this type of language in their child care center licensing regulations.

In July 2009, a review of the state licensing regulations for all 50 states and the District of Columbia (DC) was conducted by accessing the state regulations via the National Resource Center for Health and Safety in Child Care and Early Education, whose website

includes links to child care licensing websites for all 50 states and DC.<sup>6</sup> The July 2009 review indicated that all websites were current. It is possible that some states have added legislation, but new regulations based on that legislation are not yet available on the child care licensing website. In addition, some cities, towns, and counties may have other licensing regulations that are different from their state's regulations. Because of the sheer volume of possible local regulations, only the state regulations were considered. This review revealed that only New York and New Jersey had language in their licensing regulations requiring a site or building being considered for a child care center to be free from environmental hazards, and, if historic or current use of the site indicates that environmental hazards are present, testing and inspection by an appropriate local official or authority.<sup>7,8</sup>

Both New York and New Jersey enacted their regulations largely due to highly publicized incidents that occurred in the states. In New York, a concerned parent alerted the county health department that a child care center was adjacent to the Jackson Steel federal Superfund site. The child care center had been in operation for about seven years. The Jackson Steel site had manufactured metals and disposed of perchloroethylene (also known as PERC or tetrachloroethylene) next to the child care center site. Air sampling found PERC in the indoor air of the child care center to be exceeding the state indoor air guidance levels. The child care center closed voluntarily after the air sampling results were released.<sup>9</sup>

In 2006, it was discovered that a child care center in New Jersey was located in a building that once manufactured mercury-filled thermometers. The company that made the thermometers shut down operations in 1994, and the building remained vacant until 2001 when it was purchased by a local realtor. In 2004, the facility was rented to a day care operator.<sup>10</sup> Testing in place at the time under New Jersey day care licensing regulations indicated the child care center was in compliance for lead, asbestos, and radon, which were not found at the center. Despite this compliance testing, elevated levels of mercury in indoor air and surface wipe samples were later found to be present in the center, prompting immediate closure. The children and staff were also biomonitoring for urine mercury levels. At the time of the incident, there was no requirement in New Jersey that a site history be completed for a child care center property.<sup>10</sup>

Although these incidents were highly publicized, the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry (ATSDR) have been involved with other child care

centers affected by environmental contaminants that did not receive as much media attention. For example, in 2009, ATSDR assisted with an investigation of a child care center that was adjacent to a dry cleaning business in a strip mall. The city collected indoor air data as part of an initiative to evaluate air quality in structures adjacent to operating dry cleaners. Indoor air sampling of the child care center revealed that levels of PERC were a potential public health hazard to the sensitive population of the center. Recommendations were made to conduct more sampling, inform parents and workers of the findings, locate the source of contamination, and eliminate the exposure.<sup>11</sup>

Some types of sites are more likely to have environmental contamination than others. Sites that raise concerns include, but are not limited to, dry cleaners, smelters, mills, factories, gas stations, auto repair shops, landfills, U.S. Environmental Protection Agency (EPA) or state hazardous waste sites, rifle ranges, leaking underground storage tanks, and illegal drug labs. Vacant lots are also suspect areas that may be contaminated from previous use or illegal dumping activities. However, this issue is not an urban-only problem. "Pristine" land, such as former orchards, agricultural land, or buildings on agricultural land, may also be contaminated with pesticides or other chemicals.

Given that there are more than 100,000 licensed child care centers in the U.S., there could be many situations similar to the ones described that have yet to be discovered.<sup>1</sup> To address this problem, the state of Connecticut decided to take a proactive, non-regulatory approach to help make sure that child care centers are placed in the safest locations possible.

## SAFER PROGRAM

Recognizing the potential for child care centers to be located on sites where environmental contamination could be harmful, the Connecticut Department of Public Health (CT DPH) Environmental and Occupational Health Assessment Program (EOHA) decided to partner with its Child Day Care Licensing Program in 2007 to create the Screening Assessment for Environmental Risk (SAFER) Program. EOHA was motivated to develop the SAFER Program because it wanted to prevent a Kiddie Kollege-type incident (the day care described previously that was located in the former mercury-thermometer manufacturing building)<sup>10</sup> from happening in Connecticut. The SAFER Program is a proactive, non-regulatory approach to find child care centers on or near hazardous sites and raise awareness about safe child care center siting. EOHA chose to pursue a non-regulatory approach because

it was quicker and easier to implement than getting new regulations passed. It also required less resource investment than a regulatory approach. Additionally, EOHA had evidence that the regulated community (i.e., child day cares) would be more likely to embrace the SAFER Program if it did not involve onerous regulatory requirements that might make it more costly to open or operate a day care. For example, requiring costly environmental site assessments prior to opening a day care may prevent owners from opening a new center. A non-regulatory approach also afforded EOHA greater flexibility with its guidelines. After initial implementation of the SAFER Program, EOHA made (and continues to make) modifications to the program in response to suggestions from the child day care regulators. While a non-regulatory approach may have many advantages over a regulatory approach, it is recognized that a non-regulatory program has some important limitations. These limitations are discussed along with the program's strengths.

Connecticut has more than 1,500 licensed child care centers within the state. The SAFER Program includes both child day care centers and group day care homes. In Connecticut, a child day care center is defined as providing a program of supplementary care to more than 12 related or unrelated children outside of a private home on a regular basis. Group day care homes offer or provide a program of supplementary care (a) to no fewer than seven or more than 12 related or unrelated children on a regular basis, or (b) that meets the definition of a family day care home except that it operates in a facility other than a private family home. The SAFER Program does not include family day care homes providing care for six or fewer children.

The SAFER Program was designed using three approaches to find child care centers with potential environmental concerns. The first approach looks at the location of licensed child care centers and compares those locations with the Connecticut Department of Environmental Protection's (CT DEP's) list of known hazardous waste sites. This cross-check procedure is currently performed manually. Soon, geographic information system (GIS) technology will be used to search for new and existing child care centers within one-eighth of a mile of known hazardous sites. The major limitation of this first approach is that the CT DEP waste sites list is not a complete database of all properties where hazardous chemicals were used, disposed of, or stored. Because the CT DEP list is not complete, the SAFER Program relies on two additional approaches, described in the following paragraphs, to identify child care centers with potential environmental concern.

The second approach uses a property history questionnaire developed for child care centers applying for new licenses. The questionnaire was designed to gather information that helps EOHA, in consultation with day care licensing staff, identify child care centers that may be located on a site that has past environmental contamination. The questionnaire asks those seeking a license to provide information about the past use of the property and buildings. Questions include whether the site was used in the past as a dry cleaner, gas station, landfill or dump, funeral home, or shooting range. Also included are guidance and resources that assist applicants with completing the property history questionnaire. Although the questionnaire is voluntary, because it is part of the child day care application package, applicants appear to be giving the questionnaire greater attention than if it were distributed separately from the application forms. Nevertheless, the voluntary nature of the questionnaire is an important limitation that must be acknowledged. Another limitation to this approach is that the property history questionnaire is not currently distributed to child care centers already in operation.

The third approach consists of a newly developed inspection referral form. New child care centers in Connecticut are inspected by CT DPH staff and the local health department prior to beginning operations. Once a day care is in operation, it is inspected on a regular basis by state and local staff. The referral form helps inspectors identify property or building attributes that could signal the presence of hazardous contamination. The referral form also helps inspectors identify businesses operating next to a child care center that could adversely impact the environmental quality of the center, such as a dry cleaner or nail salon. During their regularly scheduled inspections, a child day care inspector only needs to devote a small amount of additional time to look for building and property attributes included in the referral form. EOHA provides ongoing training for its day care inspectors on how to use the new form. The form was also provided to local health departments for their use when conducting day care inspections. Though use of the inspection referral form is voluntary, there appears to be fairly widespread use of the form at the state and local level. Inspectors view the form as an important tool to help them ensure that day cares are operating in buildings and on land that is as safe as possible. Ongoing training will strive to improve usage of the form by inspectors.

When the Day Care Licensing Program refers a day care center to EOHA, EOHA begins gathering and reviewing all information available for the property. Coordination with the local health department, CT

DEP, EPA, the child care center operator, the property owner, and the state's Child Day Care Licensing Program are also a large part of follow-up activities. If additional action is needed, such as collecting environmental data, EOHA coordinates with all appropriate parties. For sites that are found to be a problem, EOHA provides recommendations to reduce exposure from environmental contaminants and uses risk communication to help families and day care workers understand the potential exposure and risks from exposure. There are no regulations specifically requiring follow-up at child day cares identified through the SAFER Program. Despite this lack of regulation, EOHA has not yet encountered difficulties in securing compliance with its recommendations to day cares. Recommendations have included soil and air sampling, and soil remediation.

From September 2007 to May 2010, the SAFER Program generated 14 referrals to EOHA. Five of the referrals were for leaking underground storage tanks (LUSTs). LUSTs remain on the CT DEP hazardous waste lists even after the sites have been remediated. Therefore, these referrals were quickly resolved by coordination with the CT DEP's LUSTs group. There were no hazards to the day cares from these former LUSTs.

Two referrals were for groundwater contamination issues, but were resolved by coordination with CT DEP to be sure there were no vapor-intrusion issues from the groundwater. Vapor intrusion occurs when volatile chemicals from contaminated groundwater or soil migrate into buildings. Types of contaminants that can lead to vapor-intrusion issues include volatile and semivolatile organic compounds, mercury, radon, and hydrogen sulfide.

Five additional referrals in December 2009 required site visits. These sites were referred because they were located in or near a former mill, industrial complex, or agricultural building. One site was located in a shopping center near an auto paint store. It was ultimately determined that the child care centers were not being impacted by previous contamination or nearby businesses.

Two child care centers needed more complex follow up. The first was located on a former waste site and was found to have elevated levels of arsenic in the playground soil. The site was addressed with the coordination of the local health department, CT DEP, the property owner, and the state Child Day Care Licensing Program. Additional soil samples were collected and all parties worked to come up with a remedial plan. Risk communication was also used with the child care center operator and with the parents of children attending the center.

The second center was located in a former funeral home, where a day care director was planning on expanding operations into the basement where embalming procedures once occurred. In close coordination with the city's health department, EOHA requested indoor air sampling in areas of the basement where the director planned on expanding her center. After discussions with the city's health department and EOHA, the day care operator had not yet decided if the expansion would take place.

## CONCLUSIONS

Given the tens of thousands of child care centers within the U.S., the possibility exists that many centers may be placed on sites or in buildings where environmental hazards could harm children or workers. The child care licensing inspections currently being conducted in most states may not identify a child care center placed on a contaminated site or in a contaminated building. When these sites come to attention, the situation can cause great stress for worried parents and workers as they fear the worst for the children's health. The situation can generate media attention, create distrust of the licensing process and safety of child care centers, and produce public demands to keep something similar from happening in the future.

States may use various approaches to address this issue, such as passing new legislation, creating new regulations under existing legislation, or creating new non-regulatory approaches. The Connecticut SAFER Program is an example of one state's innovative, non-regulatory approach to the issue. The SAFER Program does have its limitations, and it is possible that a child care center may still slip through the system and be placed in a location with environmental contamination. However, because no new regulations were sought, EOHA was able to get the SAFER Program up and running quickly. The SAFER Program was developed collaboratively between EOHA and CT DPH's Child Day Care Licensing Program and places little additional burden on the limited resources of day care inspectors. EOHA has provided ongoing training for inspectors and is available and accessible to respond quickly to any question or concern raised by an inspector. This has helped the program gain acceptance among the day care inspectors and makes it more likely that inspectors will continue to use the referral form. Further, the SAFER Program does not place onerous requirements on child day care owners/operators. If a day care is found to need complex follow-up, such as environmental sampling or cleanup, EOHA works closely with all parties—local health department, CT

DEP, child care center operator/owner, and day care licensing staff—to identify solutions that are health protective and cost-effective. The fact that the SAFER Program is non-regulatory has made it easier to craft creative solutions that fit each individual situation.

The SAFER Program highlights how public health and environmental health professionals partnered with child care licensing professionals to help improve the siting of child care centers. As a result of the SAFER Program in Connecticut, EOHA and child care licensing staff have formed a close working relationship that previously did not exist. Using this new relationship, the child care licensing and EOHA staff at CT DPH are able to quickly address a whole range of environmental health issues at child day cares. The relationships and trust built have also allowed child care licensing inspectors to discuss issues with EOHA staff and discuss trends they are seeing in the field, such as lead contamination in artificial turf and cleaning products used in child care centers.

Growing the program from a non-regulatory, non-prescriptive approach, CT DPH has the ability to adapt and improve the program as experience and data are gathered. For example, if gaps in the questionnaire are identified, EOHA and child care licensing professionals can easily modify the questions. The feedback from state inspectors can help drive how the program grows and changes over time. New technology, such as GIS capabilities, Web-based questionnaires, or use of handheld sampling instruments, can be easily integrated into the program to make it more efficient as time and resources allow.

A final benefit of the program is that outreach is being conducted to inform municipalities in Connecticut about the issues surrounding the safe siting of child care centers. Decision makers at the local level, including city planners and zoning boards, have the ability to help prevent child care centers from being placed on potentially hazardous sites. This education and outreach to local planners and health department staff helps raise awareness among local authorities, who are typically most knowledgeable about sites in their municipalities that are inappropriate for a child care center. As part of its efforts to raise awareness about day care siting, CT DPH has developed a brochure that highlights the SAFER Program.<sup>12</sup> The brochure has been made available to all municipalities, health directors, day care operators, and parents of the day care children, as well as the general public. CT DPH has also sent SAFER information via the Health Alert Network, an electronic messaging system that disseminates public health information to local health departments and other public health officials across the state.

The SAFER Program has required very few resources in the few years that it has been implemented. Licensing inspectors do not need to conduct any additional inspections, but simply look for a few specific property and building attributes while conducting their regularly scheduled inspections. The questionnaire given to license applicants has created little additional burden and no additional costs to the applicant. Given that most child care centers are already on sites without environmental contamination problems, the number of referrals to EOHA generated by the questionnaire, licensing inspections, and database comparisons has not required a great amount of EOHA staff time for follow-up activities. Despite its limitations, Connecticut's SAFER Program is playing an important role in helping to prevent an incident such as Kiddie Kollege<sup>10</sup> from occurring in Connecticut. It has also helped create a close working relationship between environmental health and child day care staff within CT DPH, which places the state in a better position to respond to emerging environmental health issues in child day care settings.

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The findings and conclusions in this article are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention or the Agency for Toxic Substances and Disease Registry.

## REFERENCES

1. Department of Health and Human Services (US), Administration for Children and Families, Office of Child Care, National Child Care Information and Technical Assistance Center. United States child care statistics. March 2010 [cited 2010 Apr 4]. Available from: URL: <http://nccic.acf.hhs.gov/poptopics/statistics.pdf>
2. National Association for Regulatory Administration; Department of Health and Human Services (US), Administration for Children and Families, Office of Child Care, National Child Care Information and Technical Assistance Center. The 2005 child care licensing study: final report [cited 2008 May 8]. Available from: URL: [http://nara.affiniscape.com/associations/4734/files/2005%20Licensing%20Study%20Final%20Report\\_Web.pdf](http://nara.affiniscape.com/associations/4734/files/2005%20Licensing%20Study%20Final%20Report_Web.pdf)
3. Barnett WS, Yarosz DJ. Who goes to preschool and why does it matter? National Institute for Early Education Research preschool policy brief. November 2007 [cited 2010 Nov 1]. Available from: URL: <http://nieer.org/resources/policybriefs/15.pdf>
4. Weinberg DH. Evidence from Census 2000 about earnings by detailed occupation for men and women. Census 2000 Special Reports. May 2004 [cited 2009 Oct 24]. Available from: URL: <https://www.census.gov/prod/2004pubs/censr-15.pdf>
5. American Academy of Pediatrics; American Public Health Association; National Resource Center for Health and Safety in Child Care and Early Education. Caring for our children: national health and safety performance standards: guidelines for out-of-home child care. 2nd edition. 2002 [cited 2008 Mar 15]. Available from: URL: <http://nrckids.org/CFOC/PDFVersion/National%20Health%20and%20Safety%20Performance%20Standards.pdf>
6. National Resource Center for Health and Safety in Child Care and Early Education. Individual states' child care licensure regulations [cited 2009 Jul 15]. Available from: URL: <http://nrckids.org/STATES/states.htm>
7. New Jersey Department of Environmental Protection. How to obtain a no further action letter [cited 2008 Apr 4]. Available from: URL: <http://www.state.nj.us/dep/dcrequest/nfa.htm>

8. New York State Office of Children and Family Services. 418-1.2 Procedures for applying for and renewing a license [cited 2010 Nov 1]. Available from: URL: [http://www.ocfs.state.ny.us/main/childcare/regs/418-1\\_CDCC\\_regs.asp#s2](http://www.ocfs.state.ny.us/main/childcare/regs/418-1_CDCC_regs.asp#s2)
9. Johnson GJ, Davis J, Schreiber J. Daycare centers and Superfund: a parent's right to know. January 2003 [cited 2010 Nov 1]. Available from: URL: [http://www.ag.ny.gov/media\\_center/2003/jan/tutor\\_time.pdf](http://www.ag.ny.gov/media_center/2003/jan/tutor_time.pdf)
10. Centers for Disease Control and Prevention (US), Agency for Toxic Substances and Disease Registry. Health consultation: mercury exposure investigation using serial urine testing and medical records review: Kiddie Kollege. 2007 [cited 2008 Apr 11]. Available from: URL: [www.state.nj.us/health/eoh/cehsweb/kiddiekollege/documents/kiddiekollegehc.pdf](http://www.state.nj.us/health/eoh/cehsweb/kiddiekollege/documents/kiddiekollegehc.pdf)
11. Centers for Disease Control and Prevention (US), Agency for Toxic Substances and Disease Registry. All About Kids Daycare: record of activity health consult for air monitoring results. Atlanta: ATSDR; 2009.
12. Connecticut Department of Public Health. Child Day Care SAFER Program [cited 2010 Nov 1]. Available from: URL: <http://www.ct.gov/dph/cwp/view.asp?a=3140&q=456216>