



Pest Management Trends in California Child Care Centers

Report on the 2013 Child Care Pest Management and Pesticide Use Survey

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PURPOSE

This survey was conducted by the California Department of Pesticide Regulation (CDPR) and the CSUS Institute for Social Research (ISR) to better understand the pest problems and pest management issues faced by California child care centers. The 2013 survey was intended as a follow up to the 2008 child care center baseline survey (Bradman et al., 2010) so that we could examine changes in pest management and pesticide use since 2008.

CDPR is mandated to encourage the development and implementation of reduced-risk pest management systems. To further this mission and to fulfill the requirements of the Healthy Schools Act (HSA), the CDPR Child Care IPM program encourages the implementation of integrated pest management (IPM) in child care centers through education and outreach. When pesticides must be used, we educate providers about safe and effective use of low-risk pesticides.

The information gathered in this survey will be used to support this mission and guide DPR's Child Care IPM program in developing presentations, training materials, and effective avenues for outreach.

BACKGROUND

Child Care Centers

Child care centers are an important environment for the development and health of many young children. Two thirds of children under five years of age spend at least part of their day in the care of someone other than a parent. In California, over one million children attend licensed child care facilities, which include both child care centers and family day

care homes (Child Care Aware of America, 2012). This study focuses on the approximately 10,410 licensed child care centers in California (DSS database, 2014).

Pesticides and Children

Due to their physiology and behavior, young children under the age of seven are more at risk from pesticide exposure than adults when pesticides are present in their environment. Young children have the potential for higher exposure to pesticides for a variety of behavioral and physiological specifics. The 2007 US EPA fact sheet about pesticides and their impact on children reports that:

- They spend more time on the floor, where pesticides accumulate;
- They engage in frequent hand-to-mouth activity, increasing their potential for ingestion of pesticide residues accumulated on floors and other surfaces;
- Their body surface area and their food, drink, and air intake per unit body weight are larger than in adults;
- Their neurological, immunological, and other body systems are developing and the child's liver, the major detoxifying organ in the body, is not fully functional until age seven.

In a 2006 study of U.S. child care centers (Tulve et al., 2006), researchers identified the potential for exposure to pesticides in child care centers after finding significant pesticide residues on classroom floors and desktops in more than two thirds of the 168 child care centers reporting pesticide use. Numerous organophosphate and pyrethroid pesticides were detected, such as chlorpyrifos, diazinon, and cis-permethrin. Chlorpyrifos was detected most often in 89% of centers that tested

positive for pesticide residue. Diazinon and chlorpyrifos are no longer registered for use in this setting.

The Healthy Schools Act

The Healthy Schools Act (HSA), a California right-to-know law, was prompted by concern for the risks to children if exposed to pesticides. Under the law, parents and staff receive prior notification from their child care provider when pesticides will be applied at a licensed child care center. The law requires anyone applying pesticides at a child care center to post warning signs before and after each pesticide application. Additionally, all child care centers must keep records of pesticide use for four years.

Some pesticides are exempt from these requirements if used in self-contained baits and traps, or as pesticide gels or pastes applied in cracks and crevices. These types of pesticide products and their uses (referred to in this report as “low exposure potential pesticides”) have a lower risk of exposure than pesticides applied as sprays, foggers, powders, or uncontained pellets (referred to in this report as “high exposure potential” pesticides).

The law encourages least toxic pest management practices in schools and child care centers, and requires CDPR to promote and facilitate the voluntary adoption of Integrated Pest Management (IPM) in public schools and child care centers and collect pesticide use information.

SURVEY METHODS

The Community Care Licensing Division, part of the California Department of Social Services, maintains a database of all licensed child care

centers in California, updated weekly with names and addresses. A mailing list of 10,410 centers was generated from that database and a postcard was sent to the centers announcing the availability of the online survey and requesting participation; 428 postcards were returned as undeliverable. Hardcopy surveys had ISR-generated identification numbers added to them so childcare center responses could be linked to the Community Care Licensing Division’s demographics data. Two weeks after the postcard announcements were mailed, the hardcopy surveys were sent to a sample of 2,800 randomly selected child care centers by regular mail. Direct mailing, although costly, often results in a greater response rate. A second reminder card was sent to non-responding centers in the sample. A third reminder letter and a second copy of the survey were mailed to those in the sample who still hadn’t responded. A total of 481 centers returned a survey, for a response rate of 5%. This is a statistically valid sample size at 95% confidence level, so further work to increase the number of responses was halted after the third attempt. As expected, almost all the completed surveys were received by mail rather than online.

The survey was adapted from the baseline survey sent in 2008. The 2013 survey covered five areas: frequency of common pests, pest management practices, pesticide use, pest management decision makers, and HSA compliance. Questions about pest management asked about specific sanitation and exclusion practices, such as removing food sources and installing screens. The survey asked about use and frequency of pesticide types, such as sprays, foggers, and bait stations. Respondents were asked if they had heard of IPM and how they get their pest management information.

They were asked who made decisions about pest management and pesticide use. Questions about compliance with HSA requirements were also included.

All responses were tabulated, with cross-tabulations and statistical tests as appropriate. Statistical analyses were conducted using IBM SPSS – Statistical Package for Social Sciences (V21). Analyses of regional differences were conducted using geographical data. General comparisons were made with the 2008 child care IPM survey (Bradman et al., 2010) in order to discuss differences with 2013 survey results in pest management practices, pesticide use, and other aspects of the survey.

RESULTS

Pests and Pest Management

The survey asked about eight common pests: ants, bees/wasps, flies, head lice, mice/rats, roaches, spiders, and termites. Almost all centers (85%) reported pest problems. Details follow about the four most common pests: ants, spiders, bees/wasps, and mice/rats. See the appendix for information about other pests.

The most common pest problem was ants

Ants: The most common pest problem was ants, with 56% of centers surveyed reporting a problem with ants. (TABLE 1) When asked how they manage ant problems, many use sanitation practices like cleaning the area, removing food or using a soapy water spray. Some centers exclude ants by sealing cracks and openings and installing screens or barriers. Ant bait station use was reported by 19% of centers and a few centers use sticky traps. Almost half of

reporting centers (44%) use high exposure potential pesticides for ant management. Very few use pesticide powders. Analysis showed that centers use an average of 2.5 different practices to manage ants, and this was not surprising since ants can be difficult to manage. (TABLE 2) Ant problems were significantly different between regions, with the most problems reported in the South Eastern region, and followed by the Central Valley. The survey did not ask about specific types of ants although different ant species occur across California. Argentine ants occur mostly along the coast (UC Riverside Center for Invasive Species Research, 2015). The drier regions in the Central Valley and South Eastern regions of California have much lower populations of Argentine ants in general but the Southern fire ant is common there (Knight and Rust, 1990). Respondents in these arid regions may perceive ants as a problem since these ants bite and may invade structures more frequently in order to access water. The regions with the lowest reported ant problems were the Bay Area and the North Central region. (FIGURE 1)

Many centers sprayed pesticides to manage spiders

Spiders: Most spiders in California are beneficial but spiders are cited as a pest problem by close to one half of centers surveyed. Some centers cleaned the area while others removed the spider. A few centers used exclusion practices like installing screens, sealing cracks and crevices, or retrofitting play structures to eliminate spider nesting sites. Almost half of the centers report that they spray pesticides or use foggers to manage spiders. Centers used an average of 1.2 different practices to manage spiders, indicating that they are not hard to control. (TABLE 3) Spider problems were

significantly different between regions, with the most problems reported in the Central Valley and the Sierra region (FIGURE 2). This may be caused by the abundance of food sources for spiders in those areas, like leafhoppers and other agricultural pest insects (Statewide Integrated Pest Management Program, 2014).

Bees and wasps: Almost half of centers report problems with bees or wasps. Bee/wasp pest management practices vary. Exclusion practices for bees and wasps, such as installing screens or sealing cracks and crevices, were used by 17% of centers. Sanitation practices for bees and wasps, like removing food and cleaning the area, were used by 13% of centers. A few centers report using some sort of trap (bait station or sticky traps). One third of centers used another form of pest management for bees, such as hive removal or relying on a pest control company. A quarter of responding child care centers spray pesticides to manage bees/wasps. Centers used an average of 1.1 different practices to manage bees and wasps, indicating that they are not hard to control or the control practices are effective. (TABLE 4)

Mice and rats: About one third of centers have problems with mice or rats. Centers managed mice and rats by using

Centers managed mice and rats by using snap traps or sticky traps

snap traps or sticky traps, or by exclusion, like sealing cracks and openings and installing screens or barriers.

Sanitation practices, like removing food and cleaning the area, were used by many centers. Just over a third of centers used rodenticide bait stations and a small percentage used rodenticide pellets. Centers used an average of 2.7 different practices to manage mice and rats,

which is as expected since these pests can be difficult to manage. (TABLE 5)

Pesticide Use

The majority of responding centers report that they do not use high exposure potential pesticides

The survey asked about pesticide use for eight common pests. The responses were combined and overall, the majority of responding centers report that they do not use high exposure potential pesticides (TABLE 6). One third of the centers who use these pesticides report spraying once a month and another third say they use them a few times per year. One quarter use high exposure potential pesticides whenever they have a pest problem. (TABLE 7)

There are significant differences regionally between centers who say they use high exposure potential pesticides and those who don't. (FIGURE 3) Two thirds of reporting centers in the Central Valley region and more than half of reporting centers in the South Eastern region use high exposure potential pesticides. The Central Valley region's high ranking in ant and spider problems may drive the use of these pesticides in that region of the state. Centers in the Central Coast region report the lowest use of these pesticides even though half of the centers report ant problems. There are a number of environmental advocacy groups in this region (UC Santa Barbara Environmental Sciences, 2015) that might influence pesticide use by child care providers. (FIGURE 3)

The Central Valley region's high ranking in ant and spider problems may drive the use of these pesticides in that region

Reasons for using pesticides varied. Centers using high exposure potential pesticides reported that they use them because they are effective or recommended by their pest management professional (PMP). Others said they used them because it was “cleaner”, “safer”, or “required.” A small percentage said they used pesticides because they didn’t know what else to do (TABLE 8).

Decision making and pesticide applicators

Center directors most often decide how to manage pests

Child care center directors are generally responsible for many tasks at their centers, including pest management. According to this survey, center directors were most often the person who decides how to manage pests, followed by property owners, PMPs, and custodial staff. Other people responsible for this decision include other staff members, school district staff, board of directors, and church staff (TABLE 9). Many centers had more than one person collaborating on this decision. Most commonly either the director and the property owner, or the director and the PMP decide how to manage pests. Directors most often ordered or used high exposure potential pesticides for ants, spiders, and roaches. When the property owner or PMP was the decision maker, they most often ordered or used high exposure potential pesticides for ants or spiders (TABLE 10).

The person who actually applied pesticides at centers was most often the PMP (46%). Some of the other people who applied pesticides were the directors themselves, staff members, custodial staff, and property owners (TABLE 11). These people don’t get the same level of pesticide application training that a PMP receives.

Pest management knowledge

One fifth of centers have a written policy for use of environmentally friendly pesticide practices

Less than one quarter (22%) of responding centers said that they had heard of IPM. This may be a lack of knowledge of the term ‘IPM’ since about the same number of centers said that they have a written policy for use of environmentally friendly pesticide practices, part of an IPM program. Despite having a policy, those centers with written policies used high exposure potential pesticides for almost as many pests as those without policies (TABLE 12). The only exception was in spider pest management, where fewer centers with written policies used high exposure potential pesticides than those without policies.

More than half get their pest management information from PMPs. Government agencies provide information for about one fifth of responding centers. Other popular sources of information include the Internet, property owners, product packaging, other child care providers, and training sessions (TABLE 13).

Healthy Schools Act compliance

The Healthy Schools Act requirements at the time of the survey are detailed below. In 2014, an amendment to the HSA was signed into law and requires child care centers to have an IPM plan and report their own pesticide use. It also requires everyone using any pesticide at a child care center to receive annual IPM training.

Annual notification of pesticide use to parents and staff is required by the HSA when pesticides are used at a child care center, regardless of who applies the pesticides. One third of centers using high exposure potential pesticides said that they always sent this notification to parents. One quarter said that they never send the notification and about one third didn't know or thought this was not applicable to them, even though it was (TABLE 14).

Notification is not required when HSA-exempt pesticides are used.

Warning signs must be posted each time pesticides (except those exempt from the HSA) are applied at child care centers. These signs were posted by almost half of centers required to meet this requirement: those using high exposure potential pesticides. About one quarter said that they never posted warning signs and almost one third didn't know or thought this requirement wasn't applicable to them, even though it was (TABLE 15).

Advance notification of pesticide application is required by the HSA and takes two forms. Pest management professionals or property owners applying pesticides (except HSA-exempt pesticides) must inform child care centers of applications 5 days before the intended application date. Approximately half of responding centers reported that they received advance notice from PMPs and property

owners, who apply pesticides at the center (TABLE 16). The second form of advance notification is the parent registry. Child care centers must offer parents the opportunity to be informed of each pesticide application (except for pesticides exempt from this requirement), but not all parents sign up for the registries. Only 17% of centers have a registry of parents, although a few respondents noted that they offered but no parents signed up. A few notified all parents when pesticides are applied (TABLE 17).

Written records of pesticide applications were kept by almost one half of centers using high exposure potential pesticides. These records are required for each pesticide application (except for HSA-exempt pesticides), regardless of who applies the pesticide. They must be kept at the child care center for four years. Most centers who kept records kept them for at least three years. (TABLE 18)

TRENDS

Differences in some of the questions between the 2008 and the 2013 surveys made it challenging to directly compare and analyze changes in pesticide use and pest management practices. Another difficulty is that the respondents to each survey were different. Despite that, there are some overall trends. The top five pests have not changed (Table 19), although more centers reported spider and mice/rat problems in 2013 than in 2008. One third of centers reported spider problems in 2008, a number that increased to nearly half in 2013. Almost one quarter reported mice/rat problems in 2008 but rat and mice problems increased to one third of centers in 2013.

Use of high exposure potential pesticides decreased from 47% to 39%

Pesticide use patterns also changed between 2008 and 2013 (Table

20). Reported pesticide use increased from 55% to 77%, however, use of low exposure potential pesticides such as bait stations increased. The survey asked whether or not centers used pesticides but not how much was used. The percentage of centers reporting use of high exposure potential pesticides used decreased from 47% to 39%, and the percentage of low exposure potential pesticide use increased from 8% to 26%.

The reasons given for using pesticides did not change considerably between 2008 and 2013 (Table 21).

Use of low exposure potential pesticides increased from 8% to 26%

The number one reason for using high exposure potential pesticides like sprays and foggers remains that they are effective. "Safety" was the second most often cited reason for high exposure potential pesticide use in both years. This concept of safety may refer to a perception that the presence of pests may create "unsafe" conditions. Fewer people in 2013 said that they used high exposure potential pesticides because they are "required", "cleaner", or that they are "convenient." The same small percentage (6%) in both years said that they used high exposure potential pesticides because they didn't know what else to do.

The HSA went into effect in 2007 for private child care centers, so compliance with the HSA requirements was not expected to be high in

2008. Compliance with most of the requirements did not increase dramatically between 2008 and 2013. Respondents in 2013 report lower compliance with the annual pesticide use notice. More people in 2013 said that they didn't know if a notice was sent out or, erroneously, that it was not applicable. Fewer people who report using high exposure potential pesticides say that they always sent out annual notices of pesticide use. Fewer people say they never post pesticide application warning signs and the number who said that they didn't know or it wasn't applicable increased. More landlords are giving notice of pesticide use, according to respondents (TABLE 22). The number of people who don't keep records of pesticide use doubled between 2008 and 2013 although the number who didn't know or said recordkeeping wasn't applicable decreased to zero (TABLE 23). The surveys asked about written pesticide use policies which are not required as part of the HSA but are recommended as part of an IPM program. The same number of people in 2013 reported having a pesticide use policy than in 2008 (TABLE 24).

DISCUSSION

These survey results indicate that there are still widespread pest problems in licensed child care centers in California and that high exposure potential pesticides continue to be used. The need for a strong emphasis on prevention of pest infestations remains. Despite our outreach efforts, most centers are still not following the Healthy Schools Act requirements. The need for education about the HSA and IPM remains pressing in the child care provider community.

CDPR Outreach Efforts

CDPR's outreach efforts coincided with positive changes in pest management in child care centers

Between the baseline survey in 2008 and the follow-up survey in 2013, CDPR's Child Care IPM Program, "Growing Up Green," engaged in many outreach efforts to California child care centers (TABLE 25). In response to preferences expressed in the 2008 survey, the program posted articles about IPM and the HSA on websites including the CDPR Child Care IPM website, the Community Care Licensing Division (CCLD) website and the California Childcare Health program website. Many providers also expressed interest in pamphlets, so the Child Care IPM program developed a pamphlet in early 2013 explaining the concept of IPM. The pamphlet was posted on the CDPR Web site and distributed to Community Care Licensing offices and at child care conference presentations. CDPR staff have also conducted numerous training sessions and presentations to child care providers, their trainers, and pest management professionals. Although it is hard to make a conclusion about causality, CDPR's outreach efforts between 2008 and 2013 coincided with positive changes in pest management in child care centers, in particular a shift from use of high exposure to low exposure potential pesticides.

In addition to CDPR's primary mandate of encouraging IPM adoption, CDPR staff also educate providers about their HSA requirements. A postcard summarizing the HSA requirements was mailed directly to all licensed child care centers in 2012. Many survey respondents in 2008 expressed a preference for

e-mail communications so we set up an e-list group in 2012. There are currently 476 e-mail addresses in the group. We have sent out nineteen messages to date. Presentations by CDPR staff usually include a section on HSA requirements.

Findings

Outreach efforts directly to parents may be more successful at increasing HSA compliance in child care centers

Despite these efforts, HSA compliance did not increase significantly between 2008 and 2013. Part of this lack of compliance could be due to lack of awareness of the law. The number of centers answering "Don't know" about the annual pesticide notice and pesticide application warning signs has increased. Some people who indicated that they use high exposure potential pesticides also answered "does not apply" to HSA requirement questions, which is incorrect. Child care provider turnover is much greater than in K-12 schools, so education needs to be repeated more frequently. Parents may not be aware of the HSA and their right for pesticide application information. Since enforcement is difficult, outreach efforts directly to parents may be more successful at increasing HSA compliance in child care centers.

There are significant regional differences in both pest problems and in pesticide use

Another important finding from this study is that there are significant regional differences in both pest problems and in pesticide use. We are

unable to state whether the difference in pesticide use in these regions is due to factors such as socio-economic differences, educational differences, or views on pesticide use. While we don't know the reason for this, it can aid in targeting our outreach efforts and the information about regional pest problems is useful.

Recommendations from 2008 survey

A number of recommendations were made based on the results from the 2008 survey. CDPR has addressed some of these recommendations.

Develop and disseminate education and resource materials for child care providers

We have made extensive efforts to develop and disseminate educational materials. As noted in the section on CDPR's outreach efforts, we have created and disseminated multiple articles about the HSA and IPM, in both English and Spanish. CDPR's PMA program funded and CDPR scientists helped develop two toolkits to educate child care providers; one on IPM and the other on green cleaning. Training on IPM and the requirements of the HSA is provided to CCLD licensing analysts in an ongoing effort to ensure awareness of HSA requirements.

In late 2012, CDPR produced a seven-part child care IPM video series, available on YouTube and on DVD. The video series, available in English and Spanish, is being promoted directly to child care providers and also to trainers and resource agencies.

Develop resources and guidelines for pest management professionals

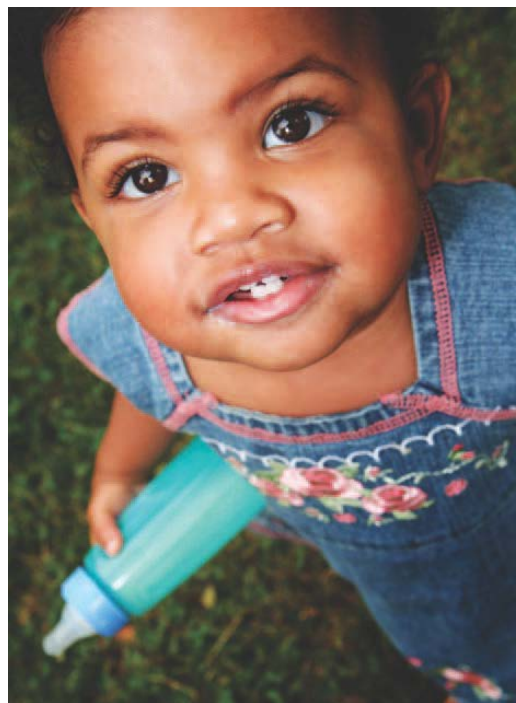
CDPR staff have presented many talks to pest management professionals and continue to do outreach at PMP seminars and conferences every year. CDPR's Pest Management Alliance program (PMA) recently funded a continuing education project to develop a child care IPM module for PMPs. This module will be presented in person and also as an online CE course.

Future Directions

A recommendation from the 2008 survey that has not been addressed is the development of educational materials for parents of children attending child care centers. CDPR has a variety of brochures and other publications explaining IPM, the HSA, and pesticide use that could be adapted for distribution to parents.

Disseminating them effectively would require forethought, effort, and substantial resources. Using social media and the CDPR Web site will be critical to this effort as will working with other governmental agencies and universities.

The new amendment to the Healthy Schools Act requires CDPR to provide training courses in schoolsite IPM and safe use of pesticides in respect to the unique nature of schoolsites and children's health. CDPR's School and Child Care IPM program will develop and maintain these free online training courses. Since most child care providers will be taking this course, the overall IPM knowledge and competence will increase in the child care setting.



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Figure 1: Presence of Ants by Region in Child Care Centers

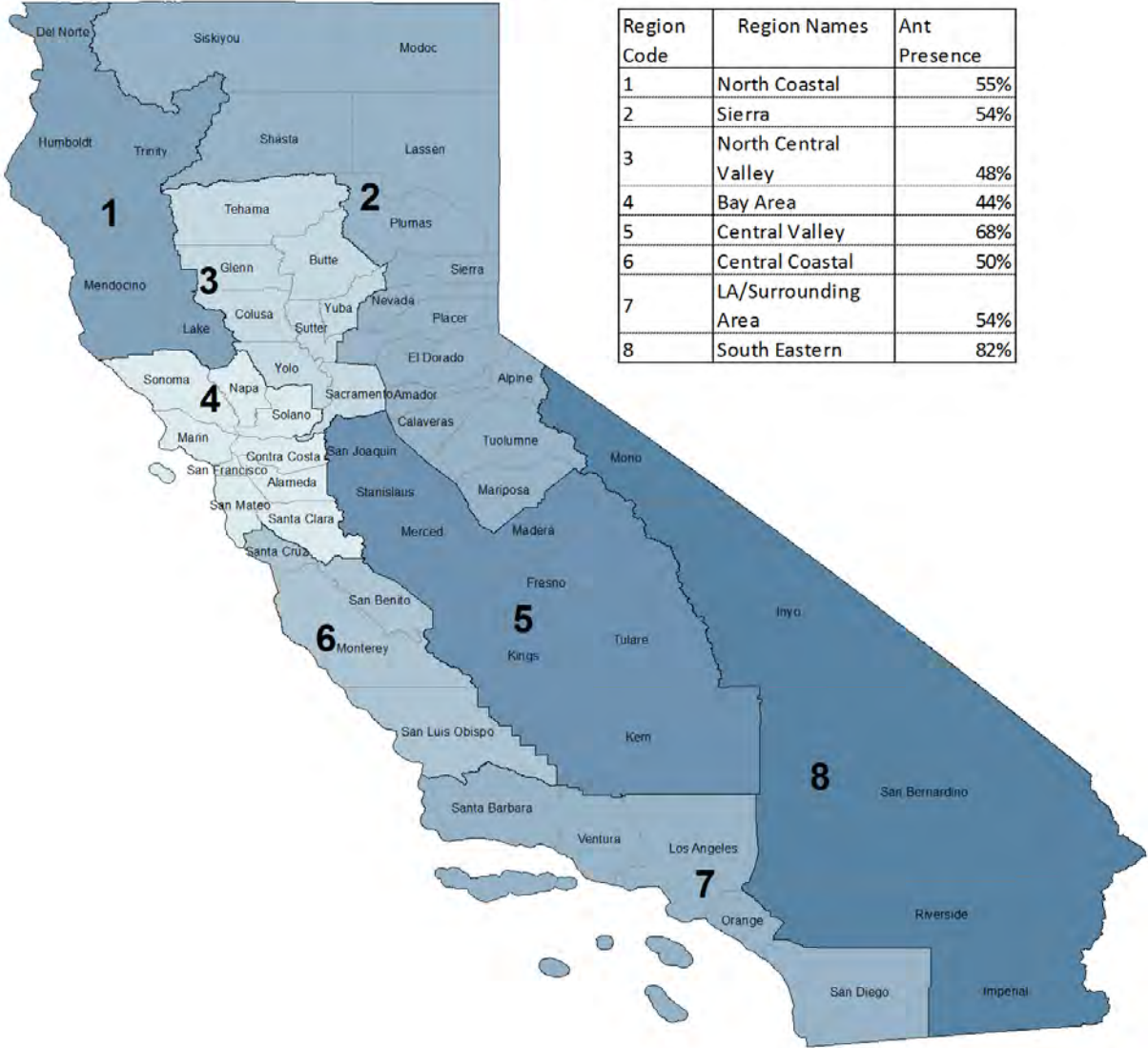


Figure 2: Presence of Spiders by Region in Child Care Centers

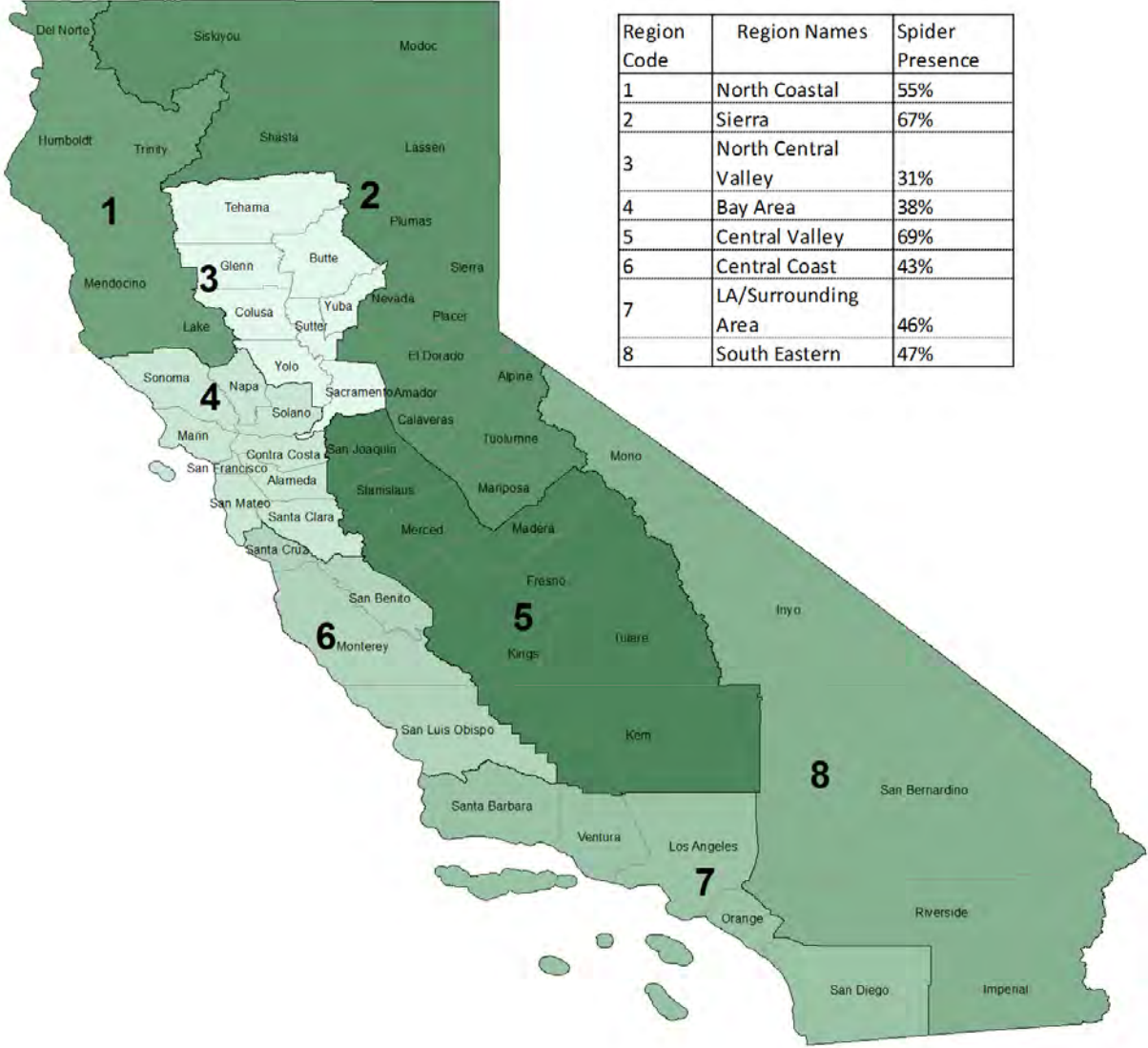
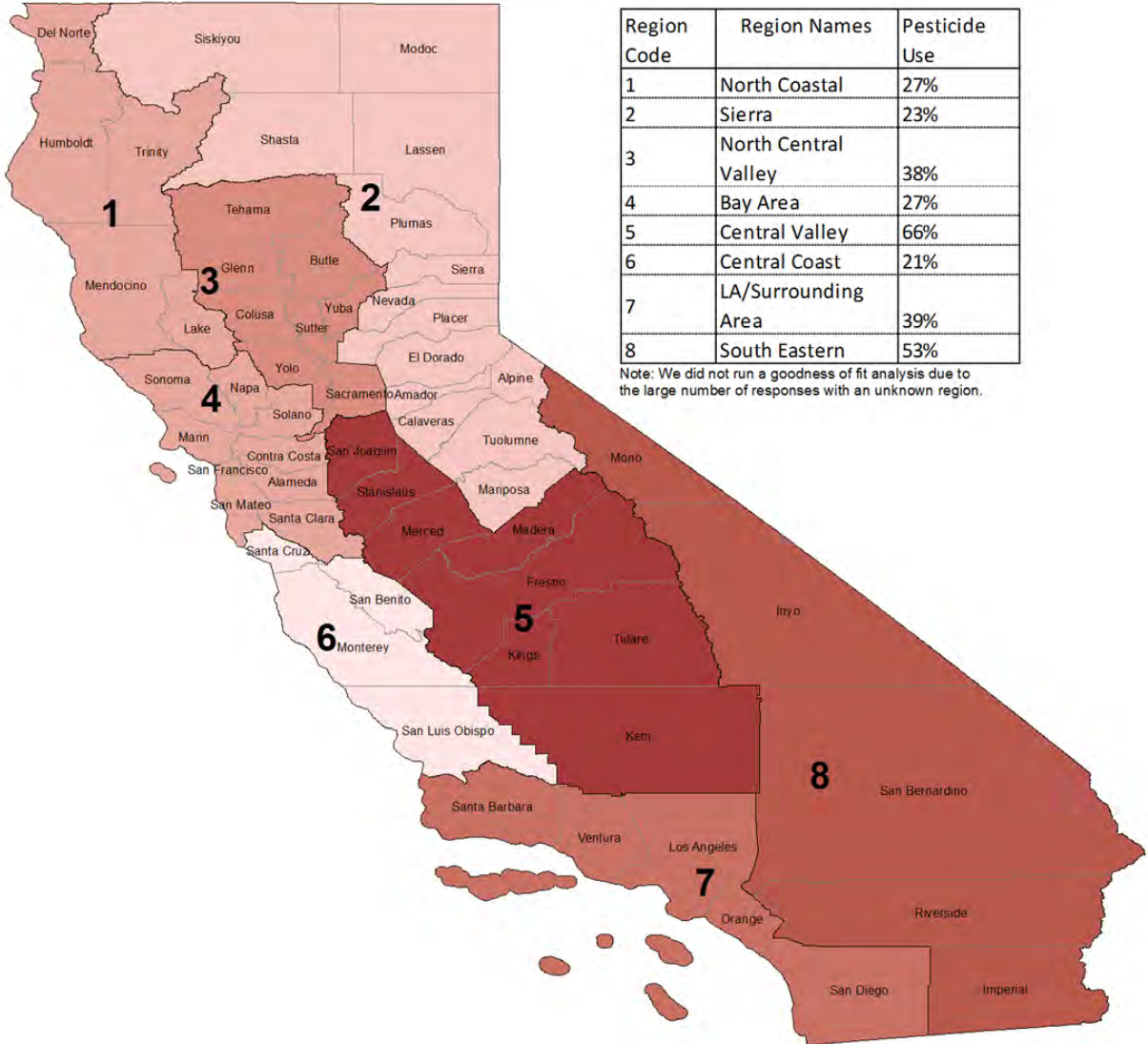


Figure 3: Regional Pesticide* Use in Child Care Centers



***High exposure potential pesticides such as foggers and sprays**

Current Pest Management Trends in California Child Care Centers

Tables

Table 1. Number of centers reporting pests

Pest	Yes	No	Total*	% with pest
Ants	249	194	443	56%
Spiders	204	226	430	47%
Bees/wasps	179	242	421	43%
Mice or rats	147	282	429	34%
Head lice	142	274	416	34%
Roaches	103	323	426	24%
Flies	80	332	412	19%
Termites	52	362	414	13%
Other	26	172	198	13%

*Note: some centers did not respond to the question, and are not included in totals

Table 2. Ants. Methods used to manage ants (More than one response allowed)

	N	% of centers*	% of methods
Sprayed pesticide	106	44%	18%
Poison pellets or powder	3	1%	0%
Pest bombs or foggers	1	0%	0%
Bait stations	46	19%	8%
Sticky trap	8	3%	1%
Snap trap	2	1%	0%
Remove food	112	46%	19%
Cleaned the area	150	62%	25%
Sealed cracks/openings	46	19%	8%
Installed screens or barriers	12	5%	2%
Fixed leaks	5	2%	1%
Soapy water spray	67	28%	11%
Other	43	18%	7%
Total methods used	601		100%

*242 centers reported ants were a pest (average 2.5 methods per center)

Other methods: pest control company, home remedies (vinegar, peroxide and borax mentioned), outdoor use only, clearing shrubs away from building, and contacting the school district.

Table 3. Spiders. Methods used to manage spiders (More than one response allowed)

	N	% of centers*	% of methods
Sprayed pesticide	91	45%	38%
Poison pellets or powder	0	0%	0%
Pest bombs or foggers	4	2%	2%
Bait stations	2	1%	1%
Sticky trap	2	1%	1%
Snap trap	1	0%	0%
Remove food	6	3%	3%
Cleaned the area	65	32%	27%
Sealed cracks/openings	13	6%	5%
Installed screens or barriers	4	2%	2%
Fixed leaks	2	1%	1%
Soapy water spray	10	5%	4%
Other	39	19%	16%
Total methods used	239		100%

*204 centers reported spiders were a pest (average 1.2 methods per center)

Other methods: active approach (mentioned: removing them and checking or altering play structures), pest control company, outdoor use only, home remedy

**Table 4. Bees. Methods used to manage bees
(More than one response allowed)**

	N	% of centers*	% of methods
Sprayed pesticide	45	25%	22%
Poison pellets or powder	0	0%	0%
Pest bombs or foggers	0	0%	0%
Bait stations	27	15%	13%
Sticky trap	6	3%	3%
Snap trap	0	0%	0%
Remove food	8	4%	4%
Cleaned the area	16	9%	8%
Sealed cracks/openings	19	11%	9%
Installed screens or barriers	10	6%	5%
Fixed leaks	3	2%	1%
Soapy water spray	7	4%	3%
Other	62	35%	31%
Total methods used	203		100%

*179 centers reported bees were a pest (average 1.1 methods per center)

Other methods: pest control company, hive removal, home remedy, no kill bee removal and smoke/spray, active approach (cutting back clover and trees, and eating indoors)

**Table 5. Mice. Methods used to manage mice
(More than one response allowed)**

	N	% of centers*	% of methods
Sprayed pesticide	3	2%	1%
Poison pellets or powder	3	2%	1%
Pest bombs or foggers	0	0%	0%
Bait stations	53	36%	13%
Sticky trap	64	44%	16%
Snap trap	57	39%	14%
Remove food	58	39%	15%
Cleaned the area	58	39%	15%
Sealed cracks/openings	50	34%	13%
Installed screens or barriers	30	20%	8%
Fixed leaks	5	3%	1%
Soapy water spray	2	1%	1%
Other	11	7%	3%
Total methods used	394		100%

*147 centers reported mice were a pest (average 2.7 methods per center)

Other methods: pest control company, home remedy, alerting the school district

Table 6. How many centers used high exposure potential pesticides?

	N	Percent
No high exposure potential pesticides used	292	60.7
High exposure potential pesticides used	189	39.3
Total	481	100.0

Table 7. Over the past year, how frequently were pesticides sprayed, scattered, or "bombed"?

	N	Percent
Once a week	2	1.0%
Once a month	60	31%
A few times per year	74	38%
Whenever pests became a problem	50	26%
Don't know/not applicable	3	1.5%
No frequency noted	5	2.5%
Total	194	100.0%

Table 8. In the last year, why were pesticides used? (More than one response allowed)

	N	% of centers	% of reason
Effective	165	34.3%	23%
Pesticides not used	139	28.9%	20%
Recommended/decided by pest control company	98	20.4%	14%
Safety	94	19.5%	13%
Other	44	9.1%	6.2%
Cleanliness	40	8.3%	5.6%
Required	40	8.3%	5.6%
Convenient	38	7.9%	5.4%
Don't know/not sure	22	4.6%	3.1%
I didn't know what else to do	16	3.3%	2.2%
Inexpensive	13	2.7%	1.8%
Total	709		

Other: used as a preventative measure, used for weed control, routine maintenance, outdoor use only, and applied when children were not present.

Table 9. Who decides how to control pest problems at your child care facility? (More than one response allowed)

	N	% of centers	% of decision makers
Director	311	64.7%	38%
Property owner	145	30.1%	18%
Pest control company	122	25.4%	15%
Other decision maker	100	20.8%	12%
Custodial staff	83	17.3%	10%
Another staff member	25	5.2%	3.0%
Do not know/not sure	4	.8%	0.5%
Total	790		

Other responses written in: school district staff, CCL, MOT manager, safety coordinator, facilities/maintenance/operations, church staff, board of directors/members, property manager, and IPM staff.

Table 10. Who orders/uses high exposure potential pesticides for each pest

	Director	Property owner	Pest control company	Custodial
Ants	31%	29%	36%	36%
Roaches	18%	16%	15%	16%
Bees	13%	15%	14%	13%
Mice	3%	1%	1%	2%
Spiders	23%	26%	24%	30%
Flies	5%	3%	3%	0%
Termites	4%	8%	4%	3%
Head lice	3%	1%	3%	2%

Table 11. If pesticides were used at your child care facility in the past year, who applied them? (More than one response allowed)

	N	% of centers	% of applicators
Pest Control Company	223	46.4%	38%
Other decision maker	127	26.4%	21.6%
Custodial Staff	45	9.4%	7.7%
Director	33	6.9%	5.6%
Property Owner	18	3.7%	3.1%
Another Staff Member	17	3.5%	2.9%
Do not know/not sure	6	1.2%	1.0%

Table 12. What percent of centers use high exposure potential pesticides by pest, compared by if the center has a written policy for the use of environmentally friendly pesticide methods

	Written policy (44 centers)		No written policy* (145 centers)	
	N centers	%	N centers	%
Ants	26	59%	82	57%
Roaches	15	34%	47	32%
Bees	10	23%	35	24%
Mice	1	2%	5	3%
Spiders	18	41%	74	51%
Flies	3	7%	8	6%
Termites	2	5%	10	7%
Lice	3	7%	5	3%

*includes those who said no, don't know, or were missing on Q10

Table 14. Over the past twelve months, did your child care facility send an annual written notice before pesticides were applied at your facility?

	N	Percent
Always	113	25.3%
Sometimes	22	4.9%
Never	79	17.7%
Pesticides not used	124	27.7%
Don't know/not applicable	109	24.4%
Total	447	100.0%

Table 13 Where do you or your center get your information about pest control? (More than one response allowed)

	N	Percent
Pest Control Company	261	54.3%
Government Agencies	96	20.0%
The Internet	89	18.5%
Property Owner	80	16.6%
Other	59	15.2%
Product Packaging	69	14.3%
Other Child Care Providers	50	10.4%
Training sessions	49	10.2%
Associations of Child Care Providers	39	8.1%
Publication Books, Magazines or other publications	35	7.3%
Advertisements	26	5.4%
Friends	22	4.6%
University or extension personnel	14	2.9%
Retail store salesperson	9	1.9%
Other: School district facilities/maintenance/custodial staff, IPM, CCL, Greencare, church staff		

Table 15. Over the past 12 months did your child care facility post warning signs when pesticides were applied at your facility?

	N	Percent
Always	144	32.1%
Sometimes	14	3.1%
Never	74	16.5%
Pesticides not used	122	27.2%
Don't know/not applicable	95	21.2%
Total	449	100.0%

Table 16. If your landlord, building manager, or pest control company is responsible for pest control, does she/he tell you in advance when pesticides are going to be applied?

	N	Percent
Always	196	44.1%
Sometimes	26	5.9%
Never	19	4.3%
Pesticides not used	86	19.4%
Don't know/not applicable	117	26.4%
Total	444	100.0%

Table 17. Does your child care facility maintain a list of parents who wish to be notified of pesticide use?

	N	Percent
Yes	69	16.6%
No	294	70.7%
Don't know/not sure	53	12.7%
Total	416	100.0%

Other explanations written: All parents are notified, would notify all parents if used pesticides, we offer parents to be on a list, but no one signed up, no one has asked.

Table 18. Does your child care facility maintain written records of applications of bug killer, rat killer, or other pesticides?

	N	Percent
Yes	202	48.3%
No	216	51.7%
Total	418	100.0%
If yes, for how long are records kept?		
Less than one year	3	1.5%
One to two years	23	11.4%
Three to five years	41	20.3%
More than five years	59	29.2%
Records kept elsewhere	24	11.9%
Would save records if used	7	3.5%
Do not know	15	7.4%
Other explanation	11	5%
No length of time provided	19	9.4%
Total	202	100.0%

Table 19: Comparing pest problems reported in 2008 and 2013

	2008	2008 %	2013	2013 %
Ants	311	52%	249	56%
Spiders	186	34%	204	47%
Bees/wasps	269	49%	179	43%
Head lice	141	26%	142	34%
Mice or rats	135	24%	147	34%
Roaches	124	22%	103	24%
Flies	121	22%	80	19%
Other	16	8%	26	13%
Termites	39	7%	52	13%

Table 20: Summary of pesticide use (indoors or outdoors) in 2008 and 2013

Year	Used any pesticide	Used high exposure potential pesticides	Used ONLY low exposure potential pesticides	Used at least one IPM Method
2008	55%	47%	8%	68%
2013	77%	39%	26%	64%

Table 21: Why were pesticides used in centers reporting use of sprays or foggers?

Reason	2008	2013
Effective	55%	66%
Safety	30%	28%
Cleanliness	14%	9%
Required	21%	11%
Convenient	20%	15%
I didn't know what else to do	6%	6%
Inexpensive	8%	5%

Table 22: Comparing Healthy Schools Act compliance between 2008 and 2013

	Annual written notice of pesticide use		Posting pesticide application warning signs		Advance notice from landlord	
	2008	2013	2008	2013	2008	2013
Always	47%	35%	42%	44%	32%	55%
Sometimes	13%	7%	7%	4%	6%	7%
Never	26%	24%	35%	23%	6%	5%
Don't Know/Not Applicable	12%	33%	14%	29%	56%	33%

Table 23: Recordkeeping of pesticide use between 2008 and 2013

	2008	2013
Yes	51%	47%
No	25%	52%
Don't Know/Not Applicable	22%	0%

Table 24: Comparing presence of a written pesticide use policy between 2008 and 2013

	2008	2013
Yes	23%	23%
No	41%	47%
Don't Know	17%	22%
Not Applicable/Other	19%	8%

Table 25: DPR child care IPM outreach efforts 2008-2013

Outreach effort	Number of items	Year(s)	Audience
Community Care Licensing online newsletters	4 articles	2006, 2008, 2010, 2013	Child care providers
California Childcare Health newsletter articles	10 articles	2008-09	Child care providers and trainers
Conference presentations	24 talks	2008-2013	Child care providers and trainers
HSA requirements postcard	1 postcard	2012	Child care providers
List server messages	12 messages	2012-2013	Child care providers and trainers
IPM pamphlet (online and mailed)	1 pamphlet	2013	Child care providers
PCOC and PAPA* newsletter articles	2 articles	2010	Pest management professionals
PAPA seminars	19 seminars	2010-2013	Pest management professionals
Licensing program analyst training	8 training sessions	2008, 2011	Child care provider trainers