National Health and Safety Standards: Family Child Care Homes Compared With Child Care Centers

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ABSTRACT

Introduction: The study objectives are to describe the national health and safety standards in family child care homes (FCCHs) and child care centers and compare them by child care type.

Method: Child care health consultants and research assistants completed the standardized Health and Safety Checklist, which comprised key national health and safety standards, in a convenience sample of 21 FCCHs and 31 child care centers enrolled in two larger studies conducted in CA.

Results: The checklist was completed in 1 or 2 hours in FCCHs and centers, respectively. The internal consistency of the overall checklist subscales was moderate to strong. Eight of 10 checklist subscales were not significantly different in FCCHs and centers, but outdoor facilities ($p < .05$) and supervision, interaction, and physical activity ($p < .05$) were different.

Discussion: The Health and Safety Checklist is valid in FCCHs and centers and identifies targeted interventions for nurses to improve child care quality. J Pediatr Health Care. (2021) *35*, 5–15

KEY WORDS

Child care, early care and education, family child care homes, national standards, health and safety

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INTRODUCTION

Health and safety are the foundations of high-quality child care (Banghart & Kreader, 2012); however, CA's child care licensing regulations for child care centers and family child care homes (FCCHs) are minimal (California Department of Social Services, 2017). Children's academic, socioemotional, and behavioral development, and their long term wellbeing, are affected by the overall quality of the child care programs they attend early in life (Campbell et al., 2014; Galinsky, 2006; Loeb, Fuller, Kagan, & Carrol, 2004; Peisner-Feinberg et al., 2001) Quality child care is usually defined by the Environment Rating Scales, developed for child care centers and family child care homes, to be the quality of adult-to-child interactions, language-reasoning, activities, program structure, space and furnishings, personal care routines (i.e., health and safety) and parents and staff engagement (Harm, Clifford, Cryer, & ECERS, 2014). Children who attend high versus low-quality child care programs are more likely to develop healthy habits (e.g., no smoking, wear

seat belts, exercise, eat healthy foods), social behaviors (e.g., not violent behavior, fewer arrests and incarceration, cognitive and character skills), and long term economic benefits (e.g., employment, earn higher wages, health insurance; Campbell et al., 2014; Dupere, Leventhal, Crosnoe, & Dion, 2010; Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010). Parent's top concern in finding a child care program for their children is the quality of the program (California Child Care Resource and Referral Network, 2019). Studies of the quality of health and safety in child care primarily focus on child care centers, not FCCHs (Alkon, Bernzweig, To, Wolff, & Mackie, 2009; Kotch et al., 2007; Kotch, Hussey, & Carter, 2003); thus there is a need to evaluate the health and safety across different types of child care programs.

Licensed FCCHs are defined as "regularly provided care, protection and supervision of children, in the caregiver's own home, for periods of less than 24 hours per day, while the parents or authorized representatives are away" (California Department of Social Services, 2017, p. 8). FCCHs serve more infants and toddlers, and children from low-income, minority families, are lower in cost and have more flexible hours than child care centers (California Child Care Resource and Referral Network, 2019). However, FCCHs have been rated as lower in quality than child care centers. In CT, licensed FCCHs have lower ratings on provider education, emergency preparedness, indoor safety, and medications than centers (Crowley & Rosenthal, 2009). Regardless of the type of child care program that families choose for their children, all children should be cared for in a safe and healthy child care environment.

In the United States, 61% of children less than 5 years of age attend child care programs (United States Census Bureau, 2013). As of 2017, there were a total of 10,866 licensed child care centers and 27,528 FCCHs in CA (California Child Care Resource and Referral Network, 2019). Two studies, one with 77 child care programs, including centers and FCCHs, in NC and the other with 111 centers in CA, showed that the majority of programs had no written policies that addressed medication administration, the inclusion of children with special health care needs, and transportation safety (Alkon et al., 2009; Isbell et al., 2013). In CA, only 60% of the centers met the recommended national health and safety standards for storing medications properly, 50% for properly diapering infants and toddlers, and 20% for staff and children washing their hands before and after toileting and meals (Alkon et al., 2009). Thus, the majority of centers did not meet the key national health and safety standards (American Academy of Pediatrics, American Public Health Association, & National Resource Center for Health and Safety in Child Care and Early Education, 2019b).

According to the Centers for Disease Control and Prevention, unintentional injuries are the number one cause of childhood deaths (Borse et al., 2008). In a Consumer Product Safety Commission study of 220 licensed child care programs, 67% of the programs had at least one safety hazard. These hazards included soft bedding, no safety gates on stairs, and unsafe playground surfaces (Consumer Product Safety Commission, 1999). Common safety hazards found in licensed child care centers in CA are inadequate impact surfaces, hazardous equipment, or tripping hazards (Alkon, Rose, Wolff, Kotch, & Aronson, 2016).

Many child care programs are assessed for overall quality using the standardized Environment Rating Scales (ERS); for example, the *Early Childhood Environment Rating Scale 3rd Edition* (Harm, Clifford, Cryer, & ECERs, 2014) for preschool classrooms and the *Infant and Toddler Environment Rating Scale 3rd Edition* (Harms, Cryer, Clifford, & Yazejian, 2017) for infant/toddler classrooms. The ERSs are in widespread use across the nation to assess quality in a growing number of states using Quality Rating and Improvement Systems. The *Early Childhood Environment Rating Scale 3rd Edition* has a Personal Care Routines subscale with five items specifically on health and safety: meals/snacks, nap/rest, diapering/toileting, health practices, and safety practices. The Personal Care Routines subscale had the lowest ratings on the ERS in a study in four states that included 228 infant/toddler classrooms (Cost Quality and Child Outcomes Study; Team, 1995). Seventy-five percent of all the infant/toddler classrooms had a score of 1 (i.e., inadequate) of 7 on one or more of the health and safety items. Therefore, health and safety is a key aspect of overall quality that is not being met.

National health and safety standards for child care programs were initially developed in 1992 by the American Academy of Pediatrics, the American Public Health Association, and the National Resource Center for Health and Safety in Child Care and Early Education, funded by the Maternal Child Health Bureau and they are called *Caring for our Children* (CFOC): *National health and safety performance standards: Guideline for early care and education programs.* The standards were developed by the lead agencies (American Academy of Pediatrics, American Academy of Pediatrics, the American Public Health Association, National Resource Center), along with 86 technical experts, grouped into 10 technical panels. The standards were revised and updated in 2002 and 2011 by reviewing the existing standards or writing new evidence-based standards (American Academy of Pediatrics, American Public Health Association, & National Resource Center for Health and Safety in Child Care and Early Education, 2011). Since 2011, CFOC is regularly updated by key agencies and technical experts, and the changes are posted online (http://nrckids.org) and available in print as of 2019 (American Academy of Pediatrics, American Public Health Association, & National Resource Center for Health and Safety in Child Care and Early Education, 2019a).

The Child Care Development Fund Block Grant by the Health and Human Services Department (Health and Human Services Department and Administration for Children and Families (ACF), 2013) stated that ". . .health and safety is the foundation for building a high quality early learning environment" (p. 29446). The leadership of federal agencies supporting the importance of health and safety has

also been evident in national and some statewide quality improvement initiatives for child care. Accountability starts with measuring child care programs' ability to meet the national health and safety standards in *CFOC*. Currently, the Health and Safety Checklist for Early Care and Education Programs: Based on Caring for Our Children National Health and Safety Performance Standards (Health and Safety Checklist) is the only standardized instrument to assess the implementation of key CFOC standards objectively; however, it was only validated in licensed child care centers, (Alkon et al., 2016) not FCCHs.

Health and safety interventions conducted by trained child care health consultants (CCHCs) have been shown to help child care programs maintain or develop up-to-date health and safety policies, support healthy hygiene, improve immunization rates, improve handwashing practices, and reduce infectious illnesses (Alkon et al., 2009; Department of Human Services Public Health Division, Pacific Research and Evaluation, & LLC, 2008 (Hanna et al., 2012; Isbell et al., 2013; Kotch et al., 2007; Ramler, Nakatsukasa-Ono, Loe, & Harris, 2006). Many nurses have been trained to be CCHCs at the state and federal levels (Ulione & Crowley, 1997). CCHCs conduct assessments to determine the health and safety practices that meet national standards and/or state licensing regulation in a child care program and to develop interventions to help their programs improve their practices (Alkon et al., 2009; Cianciolo, Trueblood-Noll, & Allingham, 2004; Crowley & Sabatelli, 2008; Isbell et al., 2013).

Child care licensing regulations are determined independently by each state and provide a range of standards for health and safety. Only 16 states' licensing regulations include the 10 basic health and safety standards, such as handwashing, sanitation, medication administration, and storage of toxic substances, recommended by Child Care Aware of America (Child Care Aware of America, 2013). Some child care programs are accredited by professional organizations (e.g., National Association for the Education of Young Children) and/or government agencies (e.g., Department of Defense, Office of Head Start, National Institute for Early Education Research). Such accreditation systems include a wide range of regulations and standards to identify programs meeting the highest levels of quality. Some of these regulations or accreditations include specific health and safety practices based on CFOC (National Association for the Education of Young Children, 2006; U.S. Department of Health and Human Services & Administration for Children and Families, & Office of Head Start, 2015). Child care and health professionals, along with researchers and policy makers, should use a standardized health and safety instrument to assess and compare national health and safety standards for child care centers and FCCHs across the United States.

This paper addresses the following research questions: (1) What are the means of the items, subscales, and total scores of the Health and Safety Checklist? (2) Do the subscale means on the Health and Safety Checklist differ by child care type (FCCH, center)? (3) What is the internal consistency of the subscales on the Health and Safety Checklist? and (4) Does the time to complete the Health and Safety Checklist differ by child care type (FCCH, center)?

METHODS

Study Design

This study was a cross-sectional design of baseline assessments using the same Health and Safety Checklist of key national health and safety standards in two studies. The Health and Safety Checklist was completed as a part of larger intervention studies evaluating the effect of an integrated pest management intervention in FCCHs and child care centers.

Setting and Sample

The studies were conducted in 21 licensed FCCHs (2016, 2017) and 31 child care centers (2018 and 2019) located in northern CA. Each study included a convenience sample of child care programs recruited through county-level child care resource and referral agencies, newsletters, or word-of-mouth. The child care programs met the inclusion criteria of being state-licensed, enrolled at least 25% of children who received federal or state child care subsidies, enrolled children aged 0−5 years (FCCHs) or preschool-age children (centers), and were planning on being in business for at least another 12 months. The FCCH study included infants and toddlers in addition to preschool-age children. The child care center study only enrolled children who were aged 3−5 years.

The University of California, San Francisco (UCSF) Institutional Review Board's Committee on Human Research approved the study protocols and consent forms. The program directors received gift cards for their participation. The Health and Safety Checklist for Early Care and Education Programs: Based on Caring for Our Children National Health and Safety Performance Standards (referred to as the checklist) was designed to be an observational, objective assessment completed in child care programs. The checklist was modified and updated in 2014 based on the UCSF School of Nursing's California Childcare Health Program Health and Safety Checklist developed in 2001 and revised in 2005 (Alkon, To, Wolff, Mackie, & Bernzweig, 2008) based on *Caring for Our Children, 3nd Edition* (American Academy of Pediatrics et al., 2011). The checklist was standardized and validated for use in child care centers (Alkon et al., 2016) but not in FCCHs. The 124 items on the checklist are written in simple, objective language at the eighth-grade literacy level and include 72 national health and safety standards. The checklist has three sections: (1) Facilities, Supervision, Interaction, Activity, Sanitation, Nutrition; (2) Pools, Spas, and Hot Tubs; and (3) Infants/Toddlers and subscales within each section. A User Manual explains how to complete the checklist by defining the items and different levels of rating for each item (available on the website https://ucsf.cchp.edu).

Each item on the checklist is rated according to the program's ability to meet the national standard using a scale of 1 to 4: 1 = *never* (none of the components of the item are met), 2 = *sometimes* (less than or 50% of the components in the item are met), 3 = *usually* (more than 50% but less than 100% of the components in the item are met), and 4 = *always* (every component in the item is met). For some items, the rater can also choose not applicable (NA) or No opportunity (NO). Some complex standards have several items listed in the checklist to disaggregate the components of the standard.

Data Collection Procedures

The checklist was completed by three CCHCs and one research assistant during one visit to a child care facility. The gold standard rater (first author) established 90% interrater reliability with each rater before the data were collected. The checklist assessments were completed with minimal interaction with the child care staff.

Data Analysis

Descriptive statistics were calculated for the demographic data and the checklist's items, subscales, and total scores. The total scores included all of the items except the infant/toddler items that were not rated in the child care centers because they enrolled preschool-aged children. The highest and lowest-rated items were compared by child care types. Ratings of NA and NO were compared at the item level by child care type. The mean scores for each subscale and overall score were calculated and compared by child care type using *t* tests. Cronbach alpha coefficients were calculated to establish internal consistency as a measure of reliability for the items in each of the subscales. The mean (standard deviation [*SD*]) time to complete the checklist were calculated and compared by child care type (FCCH or child care center) using *t* tests.

RESULTS

Twenty-one FCCHs and 31 child care centers had checklists completed. The FCCHs enrolled 216 infants, toddlers, and preschool-age children. The children were white (36%). Latinx/Hispanic (29%), African American (13%), Asian (6%), or mixed-race or other ethnicities (16%). The child care centers enrolled 158 preschool-aged children and were Latinx/Hispanic (35%), white (25%), mixed-race (10%), African American (10%), Asian (4%), or unknown or not reported (15%).

The FCCHs and center directors were 100% female. The ethnic and racial background of the child care directors was collected differently in each study. The FCCH directors were white (45%), Latinx (25%) or African American, Asian, or mixed-race (30%). The child care center directors were Latinx (41%), and the non-Latinx directors were white (50%), African American (22%), Asian or other ethnic groups (28%). Of the FCCH directors, 20% had a bachelors' degree and 69% of the child care center directors had a bachelors' degree. The FCCH directors had a mean of 16 years of work experience, and the child care center directors had a mean of 25 years of work experience in the child care field.

The mean (*SD*) for each item, subscale, and the total scale is shown in Table 1. There was a range of ratings for each of the individual items, and some items were different by child care type (Table 1). For each item, the number of facilities rated is noted. The items with the lowest ratings regardless of child care type were having well-stocked first aid supplies, using helmets when children were on tricycles, having carbon monoxide detectors, covering electrical outlets, and applying sunscreen on the children. Some of the items that were lower for FCCHs compared with the child care centers were the following: Phone numbers posted to report child abuse and neglect and poison control centers, medication storage, window guards, shock-absorbing surfaces under playground equipment, fall zones around climbing equipment, guardrails, posting food allergies, and separate food preparation area from child care area.

The infant and toddler items and subscales were completed in the 17 FCCHs that enrolled infants and toddlers (Table 1). The lowest ratings were for posting diaper changing procedures, following the diaper changing procedures, and labeling bottles prepared with formula or breast milk. The pools, spas, and hot tubs subscale and items were completed in one facility because the other facilities did not have a pool, spa, or hot tub.

There were several items rated as either NO or NA and thus, not included in the mean (*SD*) scores. FCCHs had more items rated as NO than child care centers.

The overall mean (*SD*) of the total checklist was 3.47 (0.21), with a range of 2.87−3.95. There was no significant difference in the overall means by child care type (FCCH: 3.51 (0.23), $n = 21$; center: 3.45 (0.19), $n = 31$).

The FCCHs and child care centers had similar ratings (mean [*SD*]) on the following subscales: emergency, medications, indoor and outdoor furnishings and equipment, nutrition, personal hygiene, toothbrushing, food safety and handling, and environmental health (Table 1). The two subscales that were significantly different by child care type were outdoor facilities and equipment ($t[df] = -3.41[48]$, $p = .001$) and supervision, interaction, and physical activity ($t[df] = -3.04[49]$, $p = .004$).

The subscales with the highest ratings for both the child care centers and FCCHS (i.e., the standard was met) were medications, supervision, interaction and activity, toothbrushing, and environmental health. The subscales for both the child care centers and FCCHS with the lowest ratings (i.e., not met) were handwashing, outdoor furnishings and equipment, emergencies, and food safety/food handling.

The internal consistency of the subscales ranged from moderate (.40) to strong (.70; Table 2). The strongest internal consistency was for the subscale's indoor and outdoor equipment and furnishings (.72) and handwashing (.67). The lowest internal consistency was for the subscales related to nutrition, eating and drinking (.35), and food safety/food handling (.39). Alpha coefficients could not be calculated for four subscales (medications, outdoor only equipment, and

TABLE 1. Health and safety checklist items by FCCH and child care center

Health and safety checklist items	FCCH Mean (*SD*)	FCCH *n*	Center Mean (*SD*)	Center *n*
Facilities: Emergencies, medication, equipment, and furnishings				
Facilities: Emergencies				
• A sign-in/sign-out system tracks who (other than children) enters and exits the facility. (Std. 9.2.4.7)	3.10 (1.29)	20	2.97 (1.40)	31
• Phone numbers to report child abuse and neglect (Child Protective Services) are clearly posted. (Std. 3.4.4.1)	2.65 (1.53)	20	3.48 (1.12)	31
• Phone number for the poison center is posted where it can be seen in an emergency. (Stds. 5.2.9.1 and 5.2.9.2)	2.30 (1.49)	20	3.48 (1.12)	31
• Fire extinguishers are inspected annually. (Std. 5.1.1.3)	3.29 (1.31)	21	3.90 (0.55)	30
• Each building or structure has at least two unobstructed exits leading to an open space on the ground floor. (Std. 5.1.4.1)	4.00 (0)	18	3.77 (0.76)	31
• A smoke detector system or alarm in working order is in each room or place where children spend time. (Std. 5.2.5.1)	4.00 (0)	21	3.87 (0.43)	31
• Carbon monoxide detectors are outside sleeping areas. (Std. 5.2.9.5)	3.83 (0.71)	18	2.65 (1.52)	31
• First aid supplies are well-stocked in each location where children spend time. (Std. 5.6.0.1)	3.95 (0.22)	21	3.32 (0.83)	31
• First aid supplies are kept in a closed container, cabinet, or drawer that is labeled. (Std. 5.6.0.1)	3.95 (0.22)	21	3.32 (0.87)	31
• A well-stocked first-aid kit is ready for staff to take along when they leave the facility with children. (Std. 5.6.0.1)	3.59 (0.87)	17	2.97 (1.08)	31
Emergencies subscale: t(df) = −0.62(50), $p = .54$	3.45 (0.44)	21	3.37 (0.43)	31
Facilities: Medications				
• Medications are stored in an organized fashion and are not expired. (Std. 3.6.3.2)	3.88 (0.35)	8	4.00 (0)	15
• Over-the-counter medications are in the original containers. (Stds. 3.6.3.1 and 3.6.3.2)	4.00 (0)	6	4.00 (0)	8
• Prescription medications are in their original, child resistant container. (Stds. 3.6.3.1 and 3.6.3.2)	4.00 (0)	5	4.00 (0)	15
Medications subscale: t(df) = 1.45(22), $p = .16$	3.88 (0.13)	8	4.00 (0)	16
Equipment and furnishings: Indoors and outdoors				
• There is fresh air provided by windows or a ventilation system. (Stds. 5.2.1.1, 3.3.0.1, and 5.2.8.1)	3.89 (0.46)	19	3.55 (0.81)	31
• Windows accessible to children open less than 4 inches or have window guards so that children cannot climb out. (Std. 5.1.3.2)	2.07 (1.27)	14	2.84 (1.43)	26
• There are no unvented gas or oil heaters or portable kerosene space heaters. (Std. 5.2.1.10)	4.00 (0)	19	4.00 (0.0)	31
• Gas cooking appliances are not used for heating purposes. (Std. 5.2.1.10)	4.00 (0)	18	4.00 (0.0)	16
• Portable electric space heaters are not used with an extension cord and are not left on when unattended. (Std. 5.2.1.11)	4.00 (0)	7	3.75 (0.5)	4
• All electrical outlets within children's reach are tamper-resistant or have safety covers. (Std. 5.2.4.2)	3.67 (0.77)	18	3.29 (0.90)	31
• All cords from electrical devices or appliances are out of children's reach. (Stds. 4.5.0.9 and 5.2.4.4)	3.58 (0.84)	19	3.07 (1.01)	30
• There are no firearms, pellet guns, or objects manufactured for play as toy guns visible. (Std. 5.5.0.8)	4.00 (0)	17	4.00 (0)	31
• Plastic bags, matches, candles and lighters are stored out of children's reach. (Stds. 5.5.0.7 and 5.5.0.6)	4.00 (0)	18	3.97 (0.18)	31
• There are no latex balloons or inflated objects that are treated as balloons on site. (Stds. 6.4.1.5 and 6.4.1.2)	4.00 (0)	19	4.00 (0)	31
• Bathtubs, buckets, diaper pails, and other open containers of water are emptied immediately after use. (Std. 6.3.5.2)	3.69 (0.85)	13	4.00 (0)	7
• Children do not play in areas where there is a body of water unless a caregiver/teacher is within an arm's length. (Std. 2.2.0.4)	3.67 (1.00)	9	1.00 (0.0)	3
• Hot liquids and food are kept out of children's reach. Adults do not consume hot liquids in child care areas. (Std. 4.5.0.9)	3.89 (0.32)	19	3.78 (0.62)	31
• Equipment and play areas do not have objects or small parts that may present a choking, aspiration, ingestion, or strangulation hazards. (Stds. 5.3.1.1, 6.2.1.9, and 6.3.1.1)	3.50 (0.86)	18	3.87 (0.34)	31
• All openings in play or other equipment are smaller than 3.5 inches or larger than 9 inches. (Stds. 6.2.1.9 and 5.3.1.1)	3.42 (0.84)	19	3.94 (0.25)	31
• All openings in play or other equipment are smaller than 3/8 of an inch or larger than 1 inch. (Std. 6.2.1.9)	3.47 (0.84)	19	4.00 (0)	31
• Climbing equipment is placed over and surrounded by a shock-absorbing surface. (Std. 6.2.3.1, Appendix Z)	1.64 (1.03)	11	3.32 (0.98)	31
• Fall zones extend at least 6 feet beyond the perimeter of stationary climbing equipment. (Std. 6.2.3.1)	2.08 (1.44)	13	3.52 (0.85)	31
• Equipment and furnishings are sturdy and in good repair. There are no tip-over or tripping hazards. (Std. 5.3.1.1)	3.17 (1.15)	18	3.68 (0.60)	31
• There is no hazardous equipment accessible to children. (Stds. 5.7.0.4 and 6.2.4.4)	3.84 (0.69)	19	4.00 (0)	31
• Open sides of stairs and other walking surfaces, > 30 inches to fall, have guardrails or protective barriers. (Std. 5.1.6.6)	2.93 (1.33)	14	3.67 (0.71)	9
• Children 1 year of age and older wear helmets when riding toys with wheels. (Std. 6.4.2.2)	1.80 (0.84)	5	1.00 (0)	24

(*continued on next page*)

TABLE 1. (*Continued*)

Health and safety checklist items	FCCH Mean (*SD*)	FCCH *n*	Center Mean (*SD*)	Center *n*
Indoor equipment subscale: t(df) = 0.93(49), $p = .36$	3.49 (0.41)		3.57 (0.22)	
Equipment and furnishings: Outdoors only				
• Children play each day outdoors. Children stay inside only if the weather poses a health risk. (Std. 3.1.3.2)	3.82 (0.53)	17	4.00 (0)	30
• Outdoor play areas are enclosed with a fence or natural barriers that allow caregivers and/or teachers to see children. (Std. 6.1.0.8)	3.84 (0.69)	19	3.52 (0.81)	31
• Enclosures outside have at least two exits, one being remote from the building. (Std. 6.1.0.8)	2.94 (1.39)	18	3.42 (0.96)	31
• Each gate has a latch that cannot be opened by children. Outdoor exit gates have self-closing, positive latching closures. (Std. 6.1.0.8)	3.31 (1.20)	16	2.35 (1.02)	31
• Shade is provided outside. Children wear hats or caps with a brim to protect their faces from the sun if not in a shaded area. (Std. 3.4.5.1)	3.17 (1.15)	18	2.50 (0.82)	30
• Broad-spectrum sunscreen with SPF of 15 or higher is available for use. (Std. 3.4.5.1)	2.89 (1.49)	19	1.97 (1.43)	31
Outdoor equipment subscale: t(df) = −3.41(48), $p = .001$	3.33 (0.10)		2.96 (0.06)	
Supervision, interaction, and physical activity				
• Ratios: Indoors (Stds. 1.1.1.1 and 1.1.1.2)	3.60 (1.06)	15	3.20 (1.35)	30
• Ratios: Outdoors (Stds. 1.1.1.1, 1.1.1.2)	3.50 (1.17)	3	3.33 (1.27)	27
• Caregivers/teachers directly supervise children by sight and hearing at all times. (Std. 2.2.0.1)	3.89 (0.32)	19	3.81 (.60)	31
• Caregivers/teachers encourage positive behavior and guide children to develop self-control. (Std. 2.2.0.1)	3.95 (0.23)	19	3.84 (0.37)	31
• Caregivers/teachers support children to learn appropriate social skills and emotional responses. (Std. 2.2.0.6)	4.00 (0)	19	4.00 (0)	31
• There is no physical or emotional abuse or maltreatment of a child. (Std. 2.2.0.9)	4.00 (0)	19	4.00 (0)	31
• Caregivers/teachers do not use threats or humiliation. There are no derogatory remarks about a child or a child's family. (Std. 2.2.0.9)	3.95 (0.23)	19	4.00 (0)	31
• Children are not physically restrained unless their safety or that of others is at risk. (Std. 2.2.0.10)	4.00 (0)	19	4.00 (0)	31
• Physical activity/outdoor time are not taken away as punishment. (Std. 2.2.0.9)	4.00 (0)	19	3.81 (0.75)	31
• Children engage in moderate to vigorous physical activities. All children have opportunities to develop and practice gross motor and movement skills. (Std. 3.1.3.1)	3.94 (0.24)	18	3.84 (0.52)	31
• There are structured or adult-led physical activities and games that promote movement for children. (Std. 3.1.3.1)	3.47 (1.31)	17	2.52 (1.34)	31
Supervision, interaction, and PA subscale: t(df) = −3.04(49), $p = .004$	3.89 (0.15)		3.67 (0.30)	
Nutrition: Eating and drinking				
• Individual children's food allergies are posted where they can be seen in the classroom and wherever food is served. (Std. 4.2.0.10)	2.71 (1.60)	7	3.70 (0.84)	30
• Children two years of age and older are served skim or 1% milk. (Std. 4.9.0.3)	3.67 (0.97)	18	3.84 (0.69)	19
• Drinking water is available, indoors and outdoors, throughout the day for children over 6 months of age. (Std. 4.2.0.6)	3.58 (0.84)	19	3.45 (0.85)	31
• A variety of nourishing foods is served at meals and snacks. (Std. 4.2.0.3)	3.82 (0.39)	17	3.24 (1.02)	29
• Foods that are choking hazards are not served to children under 4 years of age. (Std. 4.5.0.10)	4.00 (0)	18	3.80 (0.76)	30
• Children are always seated while eating. (Std. 4.5.0.10)	4.00 (0)	19	3.73 (0.52)	30
• Food is not used or withheld as a bribe, reward, or punishment. (Std. 2.2.0.9)	4.00 (0)	18	3.71 (0.90)	31
Nutrition/eating subscale: t(df)= −1.50(48), $p = .14$	3.78 (0.05)		3.63 (0.07)	
Personal hygiene: Handwashing				
• Situations or times that children and staff should perform hand hygiene are posted in food preparation, hand hygiene, diapering, and toileting areas. (Std.3.2.2.1)	2.39 (1.42)	18	1.94 (1.26)	31
• Handwashing procedures: Staff moisten hands with water and apply soap (not antibacterial). Rub hands together into a soapy lather for 20 seconds. All hand surfaces are washed, including fronts and backs, and between fingers from wrists to fingertips. Hands are rinsed with running water and dried with a paper or single-use cloth towel. (Std. 3.2.2.2)	2.00 (1.33)	17	1.83 (0.90)	31
• Handwashing Procedures: Children wash their hands or have their hands washed. Moisten hands with water and apply soap (not antibacterial). Rub hands together into a soapy lather for 10–20 seconds. All hand surfaces are washed, including fronts and backs, and between fingers from wrists to fingertips. Hands are rinsed with running water and dried with a paper or single-use cloth towel. (Std. 3.2.2.2)	2.89 (1.41)	19	2.63 (1.03)	30

(*continued on next page*)

TABLE 1. (*Continued*)

Health and safety checklist items	FCCH Mean (*SD*)	FCCH *n*	Center Mean (*SD*)	Center *n*
• Caregivers/teachers help children wash their hands when children can stand but cannot wash their hands by themselves. (Std. 3.2.2.3)	3.63 (0.96)	19	3.77 (0.50)	30
• Adults and children (> 2 years) only use alcohol-based hand sanitizers as an alternative to handwashing with soap and water if hands are not visibly soiled. (Stds. 3.2.2.2 and 3.2.2.3)	3.80 (0.45)	5	3.00 (1.73)	3
Handwashing subscale: t(df) = −1.21(49), p = .23	2.81 (0.20)		2.55 (0.12)	
Personal hygiene: Toothbrushing				
• When toothbrushes are present, they are not worn or frayed. Fluoride toothpaste is present. (Std. 3.1.5.1)	3.57 (0.79)	7	3.69 (0.75)	13
• Caregivers/teachers brush children's teeth or monitor tooth-brushing activities except where children brush their teeth at home. (Std. 3.1.5.1)	4.00 (0)	7	4.00 (0)	8
Toothbrushing subscale: t(df)= −0.30(18), p = .76	3.79 (0.15)		3.69 (0.21)	
Food safety/food handling				
• The food preparation area of the kitchen is separate from eating, play, laundry, toilet, bathroom, and diapering areas. (Std. 4.8.0.1)	3.53 (1.12)	19	3.87 (.63)	23
• The food preparation area is separated from child care areas by a door, gate, counter, or room divider. (Std. 4.8.0.1)	2.58 (1.54)	19	3.59 (1.05)	22
• There is no home-canned food or food in cans without labels. Food from dented, rusted, bulging, or leaking cans is not used. (Std. 4.9.0.3)	4.00 (0)	17	4.00 (0)	22
• Meat, fish, poultry, milk, and egg products are refrigerated at 41°F or lower or frozen before use. (Std. 4.9.0.3)	3.63 (1.02)	16	3.53 (0.96)	19
• Meat product labels state government-inspected sources and/or dairy product labels state they are pasteurized. (Std. 4.9.0.3)	3.93 (1.02)	14	4.00 (0)	11
• All fruits and vegetables are washed thoroughly with water before use. (Std. 4.9.0.3)	4.00 (0)	5	4.00 (0)	2
• Store-bought fruit juice labels state the juice is pasteurized. (Std. 4.9.0.3)	4.00 (0)	3	3.00 (1.73)	3
• Food surfaces and/or objects intended for the mouth are sanitized. (Std. 3.3.0.1)	3.74 (0.56)	19	2.17 (1.15)	30
Food subscale: t(df) = −1.44(50), p = .16	3.50 (0.14)		3.19 (.15)	
Environmental health				
• The kitchen equipment is clean and in working order. Food surfaces are in good repair and free of cracks and crevices. (Std. 4.8.0.3)	3.83 (0.38)	18	3.79 (0.51)	24
• There are no cracks or holes in walls, ceilings, floors, or screens. (Std. 5.2.8.1)	3.58 (0.61)	19	3.61 (0.50)	31
• There is no clutter, trash, water damage, or standing water. Leaking pipes and pest breeding areas are not on site. (Std. 5.2.8.1)	3.63 (0.76)	19	3.55 (0.57)	31
• Objects and surfaces are kept clean of dirt, debris and sticky films. (Std. 3.3.0.1)	3.84 (0.37)	19	3.84 (0.37)	31
• Hard, non-porous surfaces soiled with potentially infectious body fluid are disinfected with EPA registered products according to label instructions. (Std. 3.3.0.1)	3.25 (1.22)	12	3.22 (1.30)	9
• There are disposable gloves available for handling blood and blood-containing body fluids. (Std. 3.2.3.4)	3.53 (1.12)	19	3.90 (0.54)	31
• Infectious waste and toxic waste are stored separately from other waste. (Stds. 5.2.7.6 and 5.2.9.1)	3.67 (1.00)	9	3.50 (1.22)	6
• Sanitizing and disinfecting are not done when children are nearby. (Std. 3.3.0.1)	3.45 (1.21)	11	3.54 (0.86)	26
• Pesticides are not applied when children are present. (Std. 5.2.8.1)	4.00 (0)	17	4.00 (0)	30
• Toxic substances are stored in the original, labeled containers. Safety data sheets are on site for each substance. (Std. 5.2.9.1)	2.80 (1.64)	5	2.76 (0.97)	25
• Toxic substances are inaccessible to children and stored in a locked room or cabinet when not in active use. (Stds. 5.2.9.1, 5.2.8.1, and 3.2.3.4)	3.00 (1.32)	18	3.42 (0.72)	31
Environmental health subscale: t(df) = 0.46(49), p = .65	3.55 (0.09)		3.59 (0.05)	
Pools, spas, and hot tubs				
• Ratios: Supervision for swimming, wading, and water play (Std. 1.1.1.5)	Not observed	1		
• All outdoor water hazards are enclosed with a fence. Exits and entrances around bodies of water have self-closing, positive latching gates, or doors. (Stds. 6.1.0.6 and 6.3.1.1)	4.00 (0)	1		
• When not in use, in- and above-ground swimming pools, spas, hot tubs, or wading pools are covered with a safety cover. (Std. 6.3.1.4)	1.00 (0)	1		
Pools, spas, and hot tubs subscale:	2.50 (0)	1		
Infants and toddlers				

(*continued on next page*)

TABLE 1. (*Continued*)

Health and safety checklist items	FCCH Mean (*SD*)	FCCH *n*	Center Mean (*SD*)	Center *n*
Infants and toddlers: Personal relationships				
• Caregivers/teachers smile, talk, touch, hold, sing, and/or play with children during daily routines. (Std. 2.1.2.1)	3.94 (0.24)	17		
• Caregivers/teachers comfort children who are upset. Caregivers/teachers are aware of and respond to children's feelings. (Std. 2.1.2.1)	4.00 (0)	17		
Infants and toddlers: Diapering				
• Caregivers/teachers follow diaper changing procedures (Stds. 3.2.1.4 and 3.2.3.4)	2.33 (1.41)	9		
• Current diaper changing procedures are posted in the diaper changing area(s). (Std. 3.2.1.4)	1.94 (1.39)	17		
Infants and/or toddlers: Injury prevention				
• Strings, cords, ribbons, ties, and straps long enough to encircle a child's neck are out of children's reach. (Std. 3.4.6.1)	3.82 (0.73)	17		
• There are no potentially hazardous and unsafe toys within children's reach. (Std. 6.4.1.2)	3.53 (0.72)	17		
• Securely installed, guards are at the top and bottom of each open stairway where infants and toddlers are in care. (Std. 5.1.5.4)	2.58 (1.38)	12		
• Children over 12 months of age who can feed themselves are actively supervised by a caregiver/teacher. (Std. 4.5.0.6)	4.00 (0)	15		
• Foods that are choking hazards are not served to toddlers. (Std. 4.5.0.10)	3.93 (0.26)	15		
Infant and toddler subscale	3.42 (0.41)	17		
Infants only				
Infants only: Activity, sleep, safety				
• Sunscreen is not applied to infants ≤ 6 months. Infants aged ≤ 6 months are not in direct sunlight. (Std. 3.4.5.1)	4.00 (0)	2		
• Infants have supervised tummy time while awake at least once each day. (Std. 3.1.3.1)	4.00 (0)	2		
• Infants are not seated more than 15 minutes at a time except during meals. (Std. 3.1.3.1)	3.29 (0.76)	7		
• All infants are placed to sleep on their backs, in a crib, on a firm mattress, with a tightly fitting sheet. Only one infant is placed in each crib. (Std. 3.1.4.1)	4.00 (0)	5		
• Soft or loose bedding and other objects are kept away from sleeping infants and are not in safe sleep environments (Std. 3.1.4.1)	3.43 (1.13)	7		
• The room temperature where infants sleep is comfortable for a lightly clothed adult. (Std. 3.1.4.1)	4.00 (0)	8		
• Infants who fall asleep, any place that is not a crib, are moved and placed to sleep on their backs in a crib. (Std. 3.1.4.1)	4.00 (0)	3		
• Cribs meet the current guidelines approved by CPSC and ASTM International standards. (Std. 5.4.5.2)	3.57 (1.13)	7		
• Infants mobile enough to potentially climb out of a crib sleep on cots or mats. (Std. 5.4.5.2)	3.25 (1.50)	4		
Infants only: Nutrition				
• Bottles or containers with mother's milk are labeled and stored in the refrigerator or freezer. (Std. 4.3.1.3)	3.00 (1.41)	2		
• Bottles of the formula are labeled with the child's full name and time and date of preparation. (Std. 4.3.1.5)	2.00 (1.41)	5		
• Infant bottles are warmed under warm tap water or by placing in a container of water no warmer than 120°F. (Stds. 4.3.1.3 and 4.3.1.9)	3.50 (1.22)	6		
• Infants are not fed solid foods sooner than 4 months (preferably 6 months). Introductory foods are a single ingredient. (Std. 4.3.1.11)	4.00 (0)	2		
• Infants who are learning to feed themselves are actively supervised and seated within arm's reach of caregiver/teacher. (Std. 4.5.0.6)	4.00 (0)	3		
• Foods that are choking hazards are not served to infants. Food for infants is served in pieces ¼ inch or smaller. (Std. 4.5.0.10)	4.00 (0)	6		
Infants only subscale	3.60 (0.33)	8		

Note. *FCCH, family child care homes; SD, standard deviation; SPF, sun protection factor; PA, physical activity; EPA, Environmental Protection Agency; CPSC, Consumer Product Safety Commission; ASTM, American Society for Testing and Materials. The complete Health and Safety Checklist is available at: cchp.ucsf.edu under Resources.*

Std. = National Health and Safety Standard, Caring for Our Children (nrckids.org).

TABLE 2. Health and safety checklist subscale by child care type

Subscale	FCCH		Center		Cronbach alpha coefficient
	Mean (*SD*)	*n*	Mean (*SD*)	*n*	
Emergencies	3.45 (.44)	21	3.37 (.43)	31	.46
Medications	3.88 (.13)	8	4.00 (0)	16	—
Equipment and furnishings, indoor-outdoor	3.49 (.41)	20	3.57 (.22)	31	.72
Equipment and furnishings, outdoor only[a]	3.33 (.10)	19	2.96 (0.06)	31	—
Supervision: indoors, outdoors, interaction, and physical activity[a]	3.89 (.15)	20	3.67 (0.30)	31	.44
Nutrition: Eating and drinking	3.78 (.05)	19	3.63 (0.07)	31	.35
Personal hygiene: Handwashing	2.81(.20)	20	2.55 (.12)	31	.67
Toothbrushing	3.79 (.15)	7	3.69 (.21)	13	—
Food safety/food handling	3.50 (.14)	21	3.19 (.15)	31	.39
Environmental health	3.55 (.09)	20	3.59 (.05)	31	.47
Total: Section I	3.51(.23)	21	3.45 (.19)	31	—
Pools, spas, and hot tubs	2.50 (0)	1	—	—	—
Total: Section II pools, spas, hot tubs	2.50 (0)	1	—	—	—
Infants and toddlers: Personal relationships, diapering, and injury prevention	3.42(.41)	17	—	—	.59
Infants only: Activity, sleep, and safety	3.60(.33)	8	—	—	—
Total: Section III infant and toddler	3.44(.36)	17	—	—	—

Note: *FCCH, family child care homes; SD, standard deviation; Cronbach alpha is missing if there is insufficient variability or too few items. The item ratings of no opportunity and not applicable are coded as missing.*
[a]*Compares mean (SD) by child care type ($p < .05$).*

furnishings, toothbrushing, infants only) because they had too few items, or the ratings did not have sufficient variability. The alpha coefficients for FCCHs and child care centers were not able to be compared because many coefficients could not be calculated because of the small sample size by child care type.

There was a statistically significant difference between the mean (*SD*) time it took the raters to complete the checklist in the FCCHs (60 [27] minutes) compared with the child care centers (133 [56] minutes; t[df]= 4.76[43], $p < .001$).

DISCUSSION

The Health and Safety Checklist was valid and reliable as completed by the CCHCs and research assistants in both FCCHs and child care centers. The FCCHs and child care centers met similar key national health and safety standards, and both had their lowest ratings for handwashing. FCCHs were rated higher than child care centers on outdoor equipment and furnishings and supervision, interaction, and physical activity subscales. The FCCHs had lower ratings than child care centers on several items on posting phone numbers and food allergies, storing medications, safety measures related to windows, impact surfaces, fall zones, and separate kitchen facilities indoors.

Although we know that handwashing is the best method of prevention for spreading disease, handwashing was the most frequently rated practice that was not met for staff and children in this study and other studies. In a study of 82 child care programs in IN, only 33% of the programs posted proper handwashing procedures, 74% of the centers had preschool-age children washing their hands properly before eating, and 69% of the centers had staff washing their hands before food preparation or service (Alkon & Cole, 2012). In another study of 37 child care centers in 3 states, 38% of the centers posted proper handwashing procedures, 76% of the centers had preschool-age children washing their hands properly before eating, and 78% of the centers had staff washing their hands before food preparation or service (Alkon et al., 2016). In our present study, we had similar results using the same national health and safety standards. We found similar rates of posted handwashing procedures for preschool-aged children washing their hands properly before eating, but lower rates of centers in which staff washed their hands. Handwashing is a behavior that can improve with interventions, such as child care health consultation. In two studies, the rates of children and staff handwashing improved in child care programs (Alkon et al., 2009; Isbell et al., 2013; Kotch et al., 2007).

In our study, the FCCHs' ratings on outdoor furnishing and equipment subscale were higher than the centers because of higher ratings on two specific items: having self-closing, positive latching gates, and providing shade in the outdoor area. In addition, the FCCHs had higher ratings than the centers on the supervision, interaction, and physical activity subscale. These ratings were because of the higher ratings on several items: indoor and outdoor adult-to-child ratios for supervision, no punishment related to physical activity time, more time that children engaged in moderate to vigorous physical activity, and more structured, adult-led physical activity. There are no comparable studies to support these findings; however, FCCHs are usually physically smaller than centers, and staff are in close proximity to the children.

The checklist was completed in one visit at the FCCH or child care center, and the length of time it took to complete

the checklist varied by child care type. The checklist was completed in about an hour in the FCCHs, but more items were not observed or considered NA in FCCHs compared with the child care centers. The checklist took an average of 2 hours to complete in the child care centers, consistent with previous studies that used the Health and Safety Checklist (Alkon et al., 2008; Alkon et al., 2016). It was more challenging to observe health and safety practices in FCCHs because they tended to be physically smaller in size, and the raters did not want to interfere with the provider's routines. In the FCCHs, there was less time to observe both indoor and outdoor activities or mealtimes and naptimes. To conclude, it would be better to complete the checklist over two separate observation days in FCCHs to allow enough time to observe the full range of items on the checklist.

This Health and Safety Checklist had stronger reliability of the subscales than previous versions of the checklist. The strongest internal consistency in the present study was for emergencies, indoor and outdoor equipment and furnishings, and nutrition. In an earlier version of the Health and Safety Checklist, most of the subscales had moderate to strong internal consistency, and the lowest internal consistency was in the nutrition and equipment and furnishings subscales (Alkon et al., 2016; Alkon & Cole, 2012).

CA's Community Care Licensing Division reports on the most common deficiencies identified in licensed FCCHs annually (California Department of Social Services, 2019). In 2018, 4% of the homes did not store poisons, detergents, cleaning compounds, and medications safely. Three percent of the homes did not have up-to-date emergency information cards, 2% were not free of defects or conditions that might endanger a child, 2% did not have carbon monoxide detectors, and 2% did not have safe, healthful furnishings and equipment. These findings are consistent with our checklist findings conducted in the FCCHs in our study.

The limitations of these findings are that the FCCHs and child care centers were not assessed at the same month or year and the findings that differ by child care type may be related to historical cohort bias. The FCCHs' Checklists were completed 1 to 2 years before the child care centers. In addition, the child care facilities were recruited using a convenience sample and this limits our ability to generalize our results to all child care programs.

CONCLUSIONS

This project's findings have the potential to impact and improve the health and safety practices in FCCHs and child care centers through the use of the objective Health and Safety checklist. The checklist provides a measure of health and safety as the foundation of quality in any child care program by assessing a program's ability to meet key, observable national health and safety standards. This checklist could be used in research, evaluation, program quality rating and improvement, monitoring, and accreditation activities (Halle, Whittaker, & Anderson, 2010) to improve the health and safety of young children in out-of-home child care settings. The checklist can be used to provide comparable, standardized data to identify strengths and gaps and compare practices and conditions across states. Because parents' top concern about child care is quality (National Association of Child Care Resource & Referral Agencies, 2009), the checklist results can also inform parent choices.

The checklist supports children's overall health and development for all children in out-of-home settings regardless of type of facility, age of the children, geographic location, and cost. Improvements in health and safety in child care programs will provide the foundation for high quality child care programs and support positive health outcomes across children's lifespan (Center on the Developing Child at Harvard University, 2010).

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