

## Research and Practices in Child Maltreatment Prevention, Volume 1: Definitions of Abuse and Prevention

Presented to: Office of the Assistant Secretary for Planning and Evaluation and Health Resources and Services Administration/Maternal and Child Health Bureau U.S. Department of Health and Human Services

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The purpose of this research brief is to provide guidance for state child care agencies as they think about revising their state child care regulations. The brief is based upon a synthesis of literature around the health and safety standards for out-of-home child care found in *Stepping Stones to Using Caring for Our Children*, using 13 predictor/indicator topics to provide focus. The brief examines evidence that exists to support how these standards protect children from harm. The audiences for this research brief are state administrators and policymakers, child care providers, and early childhood researchers. It combines two licensing measurement methodologies (Fiene & Kroh, 2000): 1) Licensing weighting and 2) indicator systems. Licensing weighting and indicator systems are two licensing measurement tools that have been utilized in the licensing literature for the past 20 years. These two methodologies are part of the Licensing Curriculum developed by the National Association for Regulatory Administration. These methodologies constitute the most researched tools for conducting inferential inspections by licensing agencies.

The National Resource Center for Health and Safety in Child Care utilized the two licensing measurement methodologies to develop a user-friendly, shortened assistance tool based upon *Caring for Our Children: National Health and Safety Performance Standards for Out-of-Home Child Care*, a comprehensive standards document containing over 900 standards. The shortened assistance tool, *Stepping Stones to Using Caring for Our Children*, is a statistically determined version of *Caring for Our Children*, based upon the most critical standards to protect children from harm in out-of-home child care. Employing the indicator system methodology, this research brief builds upon *Stepping Stones* by focusing on those standards that protect children from harm in child care. These standards are also key predictors regarding children's positive outcomes while in child care and are statistical indicators of overall compliance with child care regulations. The indicators in this brief contain a reduced number of standards from those presented in *Stepping Stones*. These standards have gone through a weighting consensus based on risk factors as well as an indicator methodology

that selects standards on the basis of being able to predict overall compliance with standards and positive outcomes for children. As state regulations are rewritten, this brief will constitute a major step forward in support of state child care agencies as they attempt to ascertain which standards are the keys to protecting children.

This research brief is the final product of a lengthy process that started in 1979, when the Federal Interagency Day Care Requirements (FIDCR) were being drafted and the Department of Health, Education and Welfare (HEW) was looking for a streamlined tool for conducting monitoring reviews. The weighted licensing indicator system was just being developed in Pennsylvania (Fiene & Nixon, 1981) and this new methodology looked like a potential solution for the FIDCR standards. Although the FIDCR standards went through several drafts, the standards were never finished and implemented. However, the interest of HEW (became the Department of Health and Human Services (HHS) in 1980) in the weighted licensing indicator system methodology never wavered. A federal demonstration grant was given to Pennsylvania to further develop this methodology and begin pilot testing it in a consortium of states from 1980-1985 (Fiene, 1988). After 1980 it became clear that the monitoring focus for child care programs was shifting from the federal government to the states. HHS wanted to assist states in their monitoring efforts and felt that the weighted licensing indicator system was an innovative means for doing this.

During 1980s and early 1990s, many states utilized this methodology to help streamline their licensing enforcement systems. In 1994, a study from the U.S. General Accounting Office (GAO) estimated that 30 states were using the methodology in one form or another. The methodology has been used in child care and in other human services areas as well, including: mental health, early intervention, child welfare, and youth services (Fiene, 1988). During this time, a national data base was established at the Pennsylvania State University in order to track the various state regulations that constituted respective states weighted licensing indicator systems. The remarkable aspect of this data collection effort and data base was that a core set of indicators began to appear. Although the wording was not exact from state to state, every state had the same indicators appearing on their indicator checklists in some fashion. Thirteen key indicators consistently appeared. The 13 indicators were the following: child abuse reporting and clearances, proper immunizations, staff child ratio and group size, director and teacher qualifications, staff training, supervision/discipline, fire drills, administration of medication, emergency plan/contact, outdoor playground safety, inaccessibility of toxic substances, and hand washing/diapering.

From the early 1990s, the methodology began to gain the attention of national organizations that were interested in utilizing it outside of the licensing domain. For example, the National Child Care Association was interested in using it for their newly developing accreditation system (Fiene, 1992). In 1994, the Maternal and Child Health Bureau and the National Resource Center for Health and Safety in Child Care became interested in exploring a means for targeting certain standards in Caring for Our Children based upon the methodology. Stepping Stones is the product of that endeavor. However, only the weighting consensus portion of the methodology was utilized in the development of Stepping Stones . This research brief completes that process by incorporating the key indicator portion of the methodology.

This research brief updates reviews of recent research that is related to the 13 indicators that form the basis of the national database maintained at the Pennsylvania State University. It also lists the standards from Caring for Our Children that correspond to the 13 indicators. In many of the indicators, several standards are listed because the indicator was represented by different wording or emphases in the various state regulations. Therefore, when the comparison between the Caring for Our Children standards and the national data base of the state child care regulations was completed, many variations on each specific indicator were included.

The research brief then summarizes the research that has been completed in the 1990s and identifies gaps where additional research is needed. Following that, a summary table gives additional detail in an annotated bibliographic fashion on key studies that demonstrate the importance of the particular indicator. This research base and review clearly documents the importance of the 13 indicators when determining the health and safety of young children in child care and the overall quality of a program.

These key indicators support and embrace the overall research literature related to child care quality. Many of the indicators have been identified as key surrogates of child care quality that have an impact on young children and as being a reliable tool for identifying high compliant versus low compliant programs. The research literature over the past 20 years has demonstrated that these indicators accomplish two things. One, they statistically predict overall compliance with regulations in particular states. And two, a significant relationship exists between compliance with these indicators and positive outcomes for young children (Fiene, 1994).

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The Office of the Assistant Secretary for Planning and Evaluation and the Bureau of Maternal and Child Health in the

U.S. Department of Health and Human Services have commissioned this research brief through an interagency agreement; it was developed from a comprehensive literature search conducted by the National Resource Center for Health and Safety in Child Care.

The purpose of this research brief is to review and to provide an analysis of the research literature focused on 13 key licensing indicators of quality in child care. These 13 indicators were used in the development of Stepping Stones to Using Caring for Our Children (1997). Stepping Stones is a publication developed from the National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs [Caring for Our Children(CFOC)] to identify those standards most needed for the prevention of injury, morbidity, and mortality in child care settings. The National Resource Center developed Stepping Stones and is currently revising the National Health and Safety Performance Standards .

The 13 key licensing indicators, empirically identified in the research literature (Fiene & Nixon, 1981, 1983; Fiene, 1988; Fiene, 1994), have been part of a generic child care regulatory database for the past two decades. This database has been used by many states in the development of their respective licensing indicator systems.

This research brief will highlight the latest pertinent research studies related to the 13 indicators that have been completed since the publication of the National Health and Safety Standards in 1992. The research brief will also focus on gaps in the research literature where additional empirical research needs to occur. In some cases, research going back further than the last decade was used because of the classic nature of the studies and their significance to the 13 key indicators. The 13 indicators are the following: child abuse reporting and clearances, proper immunizations, staff:child ratio and group size, director and teacher qualifications (two indicators), staff training, supervision/discipline, fire drills, administration of medication, emergency contact/plan, outdoor playground safety, inaccessibility of toxic substances, and handwashing/diapering. The order in which the indicators are reviewed in this research brief is arbitrary and does not reflect the degree of risk associated with an indicator.

This research brief is organized by indicator, followed by each related standard from Caring for Our Children. Next, the latest empirically-based research that demonstrates the importance of the indicator and any noted gaps in the research literature are listed. Finally, a summary table that lists pertinent research citations related to each indicator is included. When fewer research citations were available, the summary table of research selections mirrors the research cited in the review section. When many research selections were available, the summary table and the

research review sections are very different due to the large number of research citations. A conclusion summarizing the results of this research brief concludes the document.

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The following list of standards based upon Caring for Our Children (CFOC) are taken from the National Data Base of Key Weighted Licensing Indicators that is maintained at the Pennsylvania State University. This national data base maintains all the state licensing regulations that fall under this particular indicator. State regulations are sometimes worded a bit differently or emphasize different aspects of this indicator. Therefore, in comparing the national data base of state regulations with CFOC standards, several different standards are selected for inclusion under this particular indicator. Twelve standards from CFOC were selected because states measure the child abuse indicator in 12 different ways.

Caring for Our Children (CFOC) Standards (1992):

HP 094: The facility shall report to the department of social services, child protective services, or police any instance where there is reasonable cause to believe that child abuse, neglect, or exploitation may have occurred.

HP 095: Caregivers and health professionals shall establish linkages with physicians, child psychiatrists, nurses, nurse practitioners, physicians' assistants, and child protective services who are willing to provide them with consultation about suspicious injuries or other circumstances that may indicate abuse or neglect. The names of these consultants shall be available for inspection.

HP 096: Caregivers must be aware of the common behaviors shown by abused children and, if many such children are in the center, make special provisions for them by the addition of staff.

HP 097: Caregivers who report abuse in the settings where they work shall be immune from discharge, retaliation, or other disciplinary action for that reason alone, unless it is proven that the report was malicious.

HP 098: Employees and volunteers in centers shall receive an instruction sheet about child abuse reporting that contains a summary of the state child abuse reporting statute and a statement that they will not be discharged solely

because they have made a child abuse report.

HP 099: All caregivers in all settings and at all levels of employment shall know the definitions of the four forms of child abuse and shall be able to give examples. They shall know the child abuse reporting requirements as they apply to themselves, and how to make a report.

HP 100: Caregivers with a year of experience in child care, and all small family home caregivers, shall know the symptoms and indicators of abuse that abused children may show. They shall know the common factors, both chronic and situational, that lead to abuse, and some ways of helping persons who are prone to abuse to avoid committing abuse. These symptoms and indicators shall be listed in the written policies.

HP 101: Center directors shall know methods for reducing the risks of child abuse. They shall know how to recognize common symptoms and signs of child abuse.

HP 102: Caregivers shall have ways of taking breaks and finding relief at times of high stress (e.g., they shall be allowed 15 minutes of break time every four hours, in addition to a lunch break of at least 30 minutes).

HP 103: The physical layout of facilities shall be arranged so that all areas can be viewed by at least one other adult in addition to the caregiver at all times to reduce the likelihood of isolation or privacy for individual caregivers with children, especially in areas where children may be undressed or have their genitals exposed.

HP 104: Caregivers shall be knowledgeable about the symptoms and signs caused by sexually transmitted diseases (STDs) in children. They must refer such children for care by calling the health care provider as well as the parent in order to be certain that the child is taken for care. They must determine from the health care provider when the child may return to the site and what precautions, if any, are needed to protect other children. Caregiver training on these items shall be documented.

ST 034: Directors and large family home caregivers shall check references and examine employment history before employing any staff, including substitutes, who will be alone with a child or a group of children in child care.

Research Review/Gap Analysis:

A major concern of parents when they drop their children off at child care is the safety of their children in the hands of the caregivers. The abuse of children in out-of-home settings has generated a good deal of concern. However, all documented research in this area indicates that fewer instances of abuse occur in child care programs than in homes or residential facilities (Finkelhor & Williams, 1990; Goldman, 1993; Margolin, 1991). If abuse does occur, though, parents must be aware of several signs that are cause for concern. According to research, physical abuse most frequently occurs in the form of excessive discipline, often as a response to prior conflict with the child. Sometimes, excessive discipline may have been inadvertently supported by parental permission for corporal punishment. Although sexual abuse occurs less frequently in centers than in homes, the effects of sexual abuse on the child seems worse in centers. Sexual abuse often involves physical abuse (Schumacher & Carlson, 1999).

Several things that a program can do to foster an effective and harm-free child care experience include increased caregiver support (high staff-child ratios, sufficient breaks, etc.), a model of care, a focus on positive behavior, a consumer orientation, training opportunities, program evaluation, and an internal program audit (Daly & Dowd, 1992). Any effective staff development program incorporates these elements. When the staff is fully supported with these elements, the risk for abusive behavior decreases substantially. Research (Reyome, 1995) has also shown that satisfaction in the role of child care worker is inversely related to abusive attitudes. However, overall competence and feelings of efficacy in the role of child care worker are not significantly related to abusive attitudes.

Other research (Thompson, Laible, & Robbennolt, 1997) indicates that child maltreatment might be prevented through child care programs that offer social support, parent networking, child-rearing advice, and informal counseling to troubled parents. This idea is attractive in the abstract, but it is often difficult to implement. The Thompson et al. study examines the nature of social support and its efficacy in preventing child abuse and neglect, the characteristics and needs of abuse-prone parents, the roles of child care providers, and the institutional and economic conditions that can make child care programs uniquely valuable but challenging settings for assisting families at risk.

Another area that should be addressed is the caregivers ability to recognize abuse when it has occurred. Research (Wurtele & Schmitt, 1992) indicates that child care personnel know significantly less about the procedures for reporting suspected abuse and their protection under the law when compared to child sexual abuse experts. While child care staff are potential resources for abused children, they may fail to report suspected abuse if they do not know their legal responsibilities and their rights and protections under the law. These researchers have made suggestions

for improving child care workers knowledge about reporting suspected sexual abuse cases. A basic educational program clearly delineating the legal responsibilities of staff, including requirements for reporting, is needed.

Linking nurses with child care programs seems to be a viable alternative (Mondor & Wray, 1994). Such an innovative program was implemented in Edmonton, Alberta, Canada, in which a health program focusing on child abuse and neglect was linked with local child care programs. This program grew out of a study done by OMara and Chambers in which 53 percent of child care operators felt they needed more information on child abuse and how to detect potential abuse related to children in their care.

User manuals can also be excellent training tools. One user manual of particular note was developed by the National Center on Child Abuse and Neglect, titled *Caregivers of Young Children: Preventing and Responding to Child Maltreatment*. Another good user manual is the *Arkansas Healthy Children Handbook* (1998), which has an excellent section on Child Maltreatment. The American Camping Association has an excellent guide, *For Their Sake: Recognizing, Responding to, and Reporting Child Abuse* (1992). Additionally, a Teaching Strategies text called *Caring for Infants and Toddlers: A Supervised, Self-Instructional Training Program (Volume I)* (1991) has an exceptional chapter that recognizes child abuse and neglect. All of these handbooks, texts, and manuals are useful tools to be used for training child care staff on what to look for and how to report suspected child abuse and neglect. These tools also provide directors of child care programs with helpful information on designing a prevention program at their child care centers.

The community context in which child abuse and neglect takes place may influence both reporting and outcomes of investigations into such incidents (Craft & Staudt, 1991). The general purpose of the Craft & Staudt (1991) study was to determine if two types of communities (rural and urban) would present differences in the reporting and substantiating of possible child neglect situations. For example, although where one lives (rural or urban) does not significantly influence the projected likelihood of a situation being reported as neglect; considerable agreement exists between urban and rural respondents on what should be reported as neglect. Even so, workers in both communities did not agree about what would be substantiated in those communities. To further clarify this issue, Groeneveld and Giovannoni (1977) found that if a complaint was reported by a professional source it was more likely to be substantiated than if reported by a relative or neighbor.

Summary Table:



Citation: Margolin (1991), Abuse and neglect in non parental child care: a risk assessment, Journal of Marriage & the Family, 53(3):694-704.

Summary: Interviews were conducted with 982 mothers of young children to assess factors related to childrens risk of abuse and neglect by non parents temporarily responsible for child care. The target populations consisted of mothers who had given birth to at least one child during the previous six years (May 1984 through April 1990). Mothers were identified through certificates of live births located in the courthouse of a Midwestern county. Equal numbers of mothers were randomly selected from each month of the survey years. One hundred twenty-five mothers (13% of those surveyed) said that one or more of their children had been harmed or neglected by a nonparental caregiver. The strongest correlates of child abuse were caregiver gender and age. Although males were responsible for only 6.1% of non parental child care, they committed 40% of the child abuse. Adolescents performed 8.5% of non parental child care but committed 44% of the child abuse. Children were significantly less likely to be abused in a day care center or preschool than in home-based child care. The strongest correlates of neglect were the childs age, the caregivers age, and the child care setting. Babies under the age of one year were three times more likely to be neglected, adolescent caregivers were twice as likely to be neglectful, and as was true of child abuse, home-based care was the setting with the greatest risk.

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Citation: Bybee & Mowbray (1993), An analysis of allegations of sexual abuse in a multi-victim day care center case, Child Abuse and Neglect, 17(6):767-83.

Summary: This study applied criteria from Statement Validity Analysis (SVA) protocols to aggregate record review data of alleged sexual abuse of over 100 children in a day care center. The use of SVA criteria supported the veritability of allegations in this case, with the data analysis reflecting consistency, logical structure, and spontaneity of allegations.

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Citation: Wurtele & Schmitt (1992), Child care workers knowledge about reporting suspected child sexual abuse, Child Abuse & Neglect, 16(3):385-90.

Summary: As reports of the sexual abuse of preschool aged children increase and the number of children in day care expands, it is important to recognize child care workers as potentially important resource persons for sexually abused preschoolers. Although they are potential resources for abused children, they may fail to report suspected abuse if they do not know their legal responsibilities and their rights and protections under the law. The purpose of this study was to determine child care workers knowledge about their reporting rights and responsibilities. Relative to child sexual abuse experts, day care personnel knew significantly less about the procedures for reporting suspected abuse and their protection under the law. Suggestions for improving child care workers knowledge about reporting suspected sexual abuse cases are provided.

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Citation: Bassoff & Willis (1991), Requiring formal training in preventive health practices for child day care providers, Public Health Reports, 106(5):523-9.

Summary: The study was a test of the feasibility of mandating training in preventive health practices for child day care providers in California. Three approaches were taken to determining the feasibility of mandatory training. They were (a) to identify persons and groups with the capability to provide training, (b) to identify systems and networks for communication and collaboration on health issues related to day care at the local level, and (c) to determine the child day care providers concerns, needs, and future interests regarding child health. Information was collected on relevant courses offered by universities, colleges, and adult education programs; on training offered by child health authorities; and on formal curriculums offered by local and national sources. Day care center and family day care home providers were surveyed to determine their knowledge of child health issues, their concerns, and their future needs. The providers surveyed cared for a total of 14,340 children. Information on local networks was obtained from the surveys, from interviews, and from a special task force that had been set up to advise the State legislature. Study results supported the conclusion that a coordinated system of State-wide training was feasible, given the existing networks of training and educational resources, the number of day care providers who had already been motivated to seek some training in child health practices, and the almost unanimous interest among day care providers in obtaining training. Mandatory training in child health for day care providers will require a commitment in the form of new legislation outlining basic requirements and allocating funding. The implementation and costs of such a mandate at the State and local level are discussed.

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Citation: Craft & Staudt (1991), Reporting and founding of child neglect in urban and rural communities, Child Welfare, 70(3):359-70.

Summary: The community context in which child abuse and neglect takes place may influence both reporting and outcomes of investigations into such incidents. This study examines and contrasts urban versus rural community perceptions of neglect by lay citizens and protective service workers.

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Citation: Cohen (1998), Bettering your odds of not getting sued, Child Care Information Exchange, 123, 74-78.

Summary: Reviews five serious issues that can result in lawsuits against child care centers and suggests ways directors can make them less likely. Discusses suits resulting from: injuries to a child; sexual abuse of a child; contractual matters with parents; wrongful termination of employees; and failing to care for a child with special health needs.

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Citation: Goldman (1995), Recognizing child abuse and neglect in child care settings, Day Care & Early Education, 22(3):12-15.

Summary: Draws attention to the prevalence of child abuse in homes, and discusses the extent of the problemits definition and its physical, behavioral, and environmental indicators. Discusses the child care workers role in knowing how to report the crime, teaching a child how to prevent it, and combating it by being informed and aware personnel.

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Citation: Daly & Dowd (1992), Characteristics of effective, harm free environments for children in out of home care,

Child Welfare, 71(6):487-96.

Summary: Discusses specific elements that can foster effective and abuse free out of home care, increase program effectiveness, and reduce negative outcomes such as staff burnout. Elements include caregiver support, a model of care, a focus on positive behavior, a consumer orientation, training, program evaluation, and an internal program audit.

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Citation: Mondor & Wray (1994), Whats the matter with Johnny? telltale signs of child abuse and neglect, Canadian Nurse , 90(4):35-8.

Summary: Day care workers must be able to recognize and respond to the telltale signs of child abuse and neglect. They also need a sound understanding of the services available to these children and their families. Nurses can help.

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Citation: Schumacher & Carlson (1999), Variables and risk factors associated with child abuse in day care settings, Child Abuse & Neglect, 23(9):891-898.

Summary: Identified variables associated with abuse of children in day care centers and homes and specified risk factors. Literature regarding physical (PA), sexual (SA) and ritual child abuse (RA) was reviewed, focusing on identification of variables associated with victims, perpetrators, and settings. PA most frequently occurred in the form of over discipline, was a response to prior conflict with the child, and may have been inadvertently supported by parental permission for corporal punishment. SA often include PA and occurred less frequently in centers than in homes, but effects on the victim seemed worse in centers because severity was worse. A Satanic overtone frequently associated with RA, and RA with SA was most devastating. Effects were not temporary. Males predominated the perpetrator profile. Multiple perpetrator abuse was worse. Failure of center staff to report suspicion of abuse by fellow staff or parents was cited as a worry by several researchers.

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Citation: Thompson, Laible, & Robbennolt (1997), Child care and preventing child maltreatment, in Dunst & Wolery (Ed.), Advances in early education and child care, Vol. 9, 173-202.

Summary: Examines the nature of social support and its efficacy in preventing child abuse and neglect, the characteristics and needs of abuse prone parents, the roles of child care providers, and the institutional and economic conditions that can make child care programs uniquely valuable but challenging settings in which to assist families at risk.

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Citation: Zellman (1992), The impact of case characteristics on child abuse reporting decisions, Child Abuse & Neglect, 16(1):57-74.

Summary: Surveyed 1196 mandated reporters (physicians, social workers, psychologists, principals) about their child abuse reporting behavior, using vignettes in which case and characteristics were systematically varied. Data reveal that abuse relevant judgments and reporting intentions varied as a function of case characteristics. Three case characteristics (previous abuse, severity of abuse, and recantation) were powerful predictors of vignette outcomes. Previous abuse led to judgments of greater seriousness. When the alleged victim retracted his/her accusation on questioning by an authority figure, respondents were significantly less likely to intend a report. Child age, perpetrator intent, and family socioeconomic status also influenced abuse relevant judgments and reporting intentions. Respondents were more likely to intend a report (make a report) when younger children, lazy or angry perpetrators, and children from poorer families were portrayed.

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Citation: Haldopoulos & Copeland (1992), Case studies of child care training volunteers found to be at risk for abuse, Early Child Development & Care, 68, 149-158.

Summary: Conducted a comprehensive screening and training program designed to train women interested in obtaining jobs as infant caregivers. Over 100 women registered for training over a three year period, most of them low socioeconomic status urban dwellers seeking minimum wage jobs in the suburbs. Subjects were administered an open ended screening

interview that assessed past history, child care knowledge, and individual personality dynamics. Ten percent of subjects were screened out of the program because they were rated as being high risk for child abuse. The case histories of six subjects are presented to illustrate the dynamics involved in the high risk rating, which included history of physical abuse, potential emotional abuse, and sources of anger. All of the high risk subjects sincerely saw themselves as potentially good child care providers, indicating the need for effective screening of potential child care providers.

Additional Resources:

Child Welfare Information Gateway [www.childwelfare.gov](http://www.childwelfare.gov) 1250 Maryland Avenue, SW Eighth Floor Washington DC 20024  
1.800.394.3366 [info@childwelfare.gov](mailto:info@childwelfare.gov)

National Committee for the Prevention of Child Abuse PO Box 2866 Chicago, IL 60690-9950 Phone: 312-663-3520  
<http://childabuse.org>

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This indicator only has one standard selected because the ACIP and AAP are the standards in the field related to immunizations for young children.

CFOC Standard (1992):

APP 26 the latest version of the Advisory Committee on Immunization Practices (ACIP) of the U.S. Public Health Service and the American Academy of Pediatrics (AAP) immunization schedule.

Research Review/Gap Analysis:

Since child care settings are associated with outbreaks of illness, and attendees have more frequent and severe infectious illnesses and receive more antimicrobial agents than children cared for at home, the increased use of child care has significantly impacted the epidemiology and cost to society of infectious diseases in the United States (Holmes, Morrow, & Pickering, 1996).

Immunizations are both a process indicator and an outcome indicator, which help protect children not just during childhood but for the rest of their lives. Immunizations are one of the most effective means for controlling the spread of infectious diseases in child care. Young children in child care face a greater risk of acquiring infectious diseases as compared to older children and adults (Pickering & Solomon, 1994). Licensed child care facilities typically require up-to-date immunizations for entrance, so vaccine-preventable diseases should have a reduced incidence compared to the general population. For example, the use of the Hib vaccine has led to a dramatic decline in the incidence of invasive disease caused by haemophilus influenzae type B.

Though immunization rates in child care have increased over the years, higher overall immunization rates are still needed. Linking child care payments to immunizations is one approach. Most parents believe immunizations should be undertaken for health reasons rather than monetary reasons and are ambivalent about linking child care payments to immunizations. However, research (Bond, Nolan, & Lester, 1999) has shown that immunization levels in child care could be increased by as much as 10% with this strategy. Responses from parents indicate that opportunistic immunizations (e.g., immunizations given at child care facilities or in a mobile immunization van) and evening immunization services would be welcome changes to current immunization services. This study suggests that both flexible immunization provision and government incentives may work together to increase immunization rates.

Statewide systems can help by keeping track of immunization rates and enacting systems for continued improvement. ECELS Early Childhood Education Linkage System, in Pennsylvania, is a very effective and highly evaluated program where the licensing inspection system shares data with ECELS on a quarterly basis so that ECELS can follow up with sites that are having difficulty meeting immunization standards. This is a unique partnership between a state agency and one of its contractors (Fiene, 1995). Another study (OMara & Isaacs, 1993) demonstrated that reviewing and monitoring child care center records increases the reported rate of correctly immunized preschool children. Other studies have also shown that monitoring records increases compliance with guidelines (Aronson & Aiken, 1980). ECELS has utilized the latest computer technology by using software algorithms to determine vaccine compliance for children. Not only does this technology track childrens immunization status, it holds particular promise in producing positive change by following up with programs that have low compliance levels.

Two very important studies regarding illnesses in child care that have been conducted by the Washington Department of Public Health and the Centers for Disease Control and Prevention (MacDonald et al. 1997, Cordell et al. 1997). These studies address illnesses and absence due to illness among children who attend child care facilities in Seattle-King

County, Washington. The first study (Cordell et al., 1997) compared incidence of illness and absence among children attending child care homes and child centers. The other study (MacDonald et al., 1997) explored passive surveillance for communicable diseases, seeking to develop and evaluate models for public health surveillance of illnesses among children in out-of-home child care facilities. States can consider the alternative models that these two studies provide when attempting to establish and implement a statewide surveillance system for tracking illnesses in child care.

Summary Table:

Citation: Bond & Lester (1999), Immunization uptake, services required and government incentives for users of formal day care, Australian & New Zealand Journal of Public Health, 23(4):368-76.

Summary: To determine immunization uptake in children attending formal day care prior to the introduction of certificates and parent incentives, and to document parent and child caregivers attitudes to these strategies. In 1997, 60 child care centers and 300 family day care providers in suburban Melbourne were randomly sampled. Immunization dates, service use and preference, and views on government incentives were obtained from parents of children under three years of age. Providing client focused, flexible immunization services and government incentives and legislation may work together to boost immunization levels for those in formal child care.

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Citation: Ferson (1997), Infection control in child care settings, Communicable Diseases Intelligence, 21(22):333-7.

Summary: Over one-third of all under 5-year-old Australian children use some form of licensed child care. The majority of research on infectious diseases in children using care, mainly emanating from North American and Scandinavia, suggests that children in preschool or long day care suffer more frequent infections and more days of illness than those cared for at home or in family day care. In order to minimize these risks it is necessary to apply infection control principles. In this study infection risk factors are outlined and recommendations for immunization, preventative practices, the use of antibiotics and outbreak management are presented.

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Citation: OMara (1993), Evaluation of registered nurses follow-up on the reported immunization status of children attending child care centers, Canadian Journal of Public Health, 84(2):124-7.

Summary: The purpose of this study was to evaluate whether follow up by nurses increased the reported rate of correctly immunized preschoolers in child care centers. Records from 14 randomly selected child care centers from the Hamilton-Wentworth area (n=514 records) were assessed for the number of correctly immunized preschoolers by two nurses operating in different centers. The nurses advised the centers about all incomplete records and reminded parents to update their child's immunization status. One nurse revisited all her assigned centers two to five weeks later. Both nurses returned to the child care centers to reevaluate the records two to eight months after the initial contact. Three hundred and eighty-two records were available for the second review (25% drop out rate). The reported rates increased significantly for all immunizations. There was no difference when the follow up intervention was greater. This study suggests that monitoring records improves the completeness of records in child care centers.

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Citation: Fiene (1995), Utilizing a statewide training system to improve child day care quality, Child Welfare , 74(6):1189-1201.

Summary: Describes Pennsylvanias comprehensive child day care and early childhood development training system, focusing on the Early Childhood Education Linkage System (ECELS) and its immunization initiative. The initiative was established to improve the overall immunization status of all children in child day care in the state.

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Citation: Carter & Bumpers (1992), We must immunize every child by two, Dimensions , 20(2):5-6.

Summary: Discusses the development and initial implementation of the Every Child By Two project. The project is designed to immunize as many newborn through two year old children in the United States as possible against communicable childhood diseases and to create a program to systematically immunize this age group in the future.

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Citation: Middleton (1995), Child care diseases: the risks and how to minimize them, Consultant , 35(2):195-8.

Summary: Is it safe to send a child with a temperature of 100 degrees F to child care? How soon after the start of therapy can a preschooler with conjunctivitis return to child care? As the number of children attending such facilities rises, you can expect to hear more of these questions from anxious parents. You can help reduce the risk of infectious disease transmission by making sure that vaccination is up to date in all preschoolers; also, pneumococcal vaccination is mandatory for children 2 years and older with serious pulmonary, cardiac, or hematologic illnesses. Give parents a checklist of safety features to consider when they are looking for a child care center; remind them that the risk of injury can be lowered by such measures as continuous staff supervision, use of child safety devices, and provision of foods and toys that cannot easily be aspirated.

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Citation: Pickering & Solomon (1994), Day care infections: children at risk, Patient Care, 28(9):118-21.

Summary: Day care centers provide a setting for transmission of respiratory and GI infections. Proper immunization, preventive measures, and prompt reporting of outbreaks are the keys to control.

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Citation: MacDonald, Boase, Stewart, Alexander, Solomon & Cordell (1997). Active and passive surveillance for communicable diseases in child care facilities, Seattle-King County, Washington. American Journal of Public Health, 87(12), 1951-55.

Summary: This study presents the results of a 1992 project by the Seattle-King County Department of Public Health and the Centers for Disease Control and Prevention to develop and evaluate models that could be used for public health surveillance in child care settings. The study was to determine the feasibility of active public health surveillance in child care settings. The surveillance objectives were to 1) rapidly detect illness outbreaks in particular facilities, 2) give local health officials information on the scope and patterns of illnesses among children in child care, and 3) create a channel for information sharing between child care providers and the Department of Public Health. The study was conducted from July 1992 through March 1994. It began with active surveillance, but changed to

passive surveillance based upon the increased effort needed from both child care and the Department of Public Health staff to maintain the system. The study discusses the implementation of the two surveillance models pointing out the pluses and minuses of both approaches.

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Citation: Cordell, MacDonald, Solomon, Jackson, & Boase (1997). Illnesses and absence due to illness among children attending child care facilities in Seattle-King County, Washington, *Pediatrics* , 100(5), 850-855.

Summary: Although much of the economic impact of child care associated illness in the U.S. is due to parents time lost from work, there are no data on the incidence of absence due to illness among children in various types of out-of-home child care settings. The goals of this study were to compare the incidence of illness and absence due to illness among children attending child care centers and child care homes. From July 1992 through June 1993, child care providers from 91 child care homes and 41 child care centers in Seattle-King County, Washington, provided information on absenteeism and illness for 96,792 child-weeks of observation. The age-adjusted incidence of provider-reported illness episodes among children in child care homes was greater than that among children in child care centers. The age-adjusted incidence of absence due to illness among children in child care homes was less than that among children in child care centers. Results comparing the incidence of illness between children in various types of child care settings may be influenced by information sources. The incidence of illness among children in child care homes may be greater than that among children in child care centers. The increased incidence of absence due to illness among children in child care centers compared with that among children in child care homes probably reflects differences in exclusion and attendance policies and practices between there two types of settings.

Additional Resources:

American Academy of Pediatrics (AAP) 141 Northwest Point Boulevard Elk Grove Village, IL 60007-1098 Phone: 847-228-5005 Fax: 847-228-5097 <http://www.aap.org/>

Centers for Disease Control National Immunization Program 1600 Clifton Road Building 16, D25 Atlanta, GA 30333  
Hotline: 1-800-232-2522 <http://www.cdc.gov/nip/>

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These indicators only have one standard represented because in the national data base a specific state regulation that deals with staff child ratio and group size exists. Even so, the variation of these regulations among the states is great. While some states meet or almost meet these standards for staff child ratio and group size, many states do not. Of all the indicators, the greatest variation occurs in how state regulations match up with the national standard for staff child ratio and group size.

CFOC Standard (1992):

ST 002Child:staff ratios for centers and large family child care homes shall be maintained as follows during all hours of operation:

Age Child-staff ratio Maximum group size Birth-12 months 3:1 6 13-24 months 3:1 6 25-30 months 4:1 8 31-35 months 5:1 10 3 year olds 7:1 14 4 year olds 8:1 16 5 year olds 8:1 16 6-8 year olds 10:1 20 9-12 year olds 12:1 24

When there are mixed age groups in the same room, the child:staff ratio and group size shall be consistent with the age of the majority of the children when no infants or toddlers are in the mixed age group. When infants or toddlers are in the mixed age group, the child:staff ratio and group size for infants and toddlers shall be maintained.

Research Review/Gap Analysis:

Health

Review of all the major research in child care clearly demonstrates the importance of maintaining appropriate child:staff ratios and group sizes. Child:staff ratios and group sizes are two of the best indicators for determining the quality of a child care program and they significantly effect many other health and safety issues. Smaller group size is associated with a lower risk of infection in child care. The risk of illness in children between the ages of one and three years of age increases as the group size increases to four or more, whereas children in groups of three or fewer have no more risk of illness than children cared for at home (Bartlett, Orton, & Turner, 1986; Bell, Gleiber, Mercer, Hifer, Guinter, Cohen, Epstein, & Narayanan, 1989). The risk of repeated ear infections increases in one- to

six-year-old children who attend child care in groups of more than six children (Hardy & Fowler, 1993).

The risk of hemophilus influenzas increases for children one year of age or older in a child care setting with four or more children, and the risk of infection peaks in settings with 21 or more children. Research indicates that group size should be limited to twice the maximum number of children allowed per adult. Smaller child care centers, not just those with smaller class sizes, have lower rates of disease. Outbreaks of Hepatitis A occur at the rate of 3% in centers that enroll less than 20 children but 53% in those that enroll 51 or more children (Hadler, Erben, Francis, Webster & Maynard, 1982). Children in small child care centers in France had two to three times the risk of repeated infections (e.g., upper respiratory tract infections, otitis media, conjunctivitis) than children in family child care settings with no more than three children (Collet, Burtin, Kramer, Bossard & Ducruet, 1994).

Lower child:staff ratios reduce the transmission of disease. Although there is little research available that examines the relationship between particular child:staff ratios and childrens health (a major gap that needs to be addressed), the research that is available suggests that fewer children per adult reduces the transmission of disease because caregivers are better able to monitor and promote healthy practices and behaviors (Bredenkamp, 1990; Hayes, Palmer, & Zaslow, 1990).

#### Safety

Smaller group size improves the caregiving behaviors of staff and the safety of children. The North Carolina Office of Child Care Licensing found that the severity and frequency of complaints (such as reports of severity and frequency of complaints or reports of abuse and neglect) were higher in child care centers serving 30 or more children (Russell & Clifford, 1987). Caregivers in small groups spend substantially more time interacting (praising, responding, comforting, questioning, and instructing) with children and are more actively involved with the children in their care (Ruopp, Travers, Glantz, & Coelen, 1979).

Lower child:staff ratios are associated with fewer situations involving potential danger (such children climbing on furniture (Hayes, Palmer & Zaslow, (1990); and child abuse (Howes, 1990). Having a second adult in a child care facility reduces the chances for child abuse (Howes, 1990). When centers and family child care homes have insufficient staff, caregivers are often burdened with the care of more children than they can manage, which increases their stress and makes it more likely that they will abuse the children (Deitch, 1987). Additional staff enables teachers to leave

stressful situations until they are ready to cope with and respond to the children in a manner that does not inflict harm.

#### Mental Health/School Readiness

Research suggests that children in groups of 12-14 with two caregivers are more cooperative, compliant, and exhibit more reflection/innovation than children in groups of 24-28 with four caregivers. Children in smaller groups also exhibit more social competence than children in larger groups (Clarke-Stewart, Gruber, & Fitzgerald, 1994). Children become securely attached to individuals whom they trust to care for them in a responsive and sensitive manner. Caregivers with small groups are more actively involved and spend more time interacting with children; they are more responsive, more socially stimulating, and less restrictive than caregivers in larger groups (NICHD Early Child Care Research Network, 1996). These behaviors correspond to those found in caregivers of securely attached children. Securely attached children tend to be more advanced in their play, less aggressive and withdrawn, and more socially competent than children who are insecurely attached (NICHD Early Child Care Research Network, 1996).

Children receive less attention, affection, responsiveness, and stimulation from caregivers each time a single child is added to a group (Clarke-Stewart, Gruber, & Fitzgerald, 1994). Caregivers have more positive, nurturing interactions with children and provide children with more individualized attention when they are in charge of smaller groups of children with smaller child:staff ratios (Dunn, 1993). Children who have highly involved caregivers tend to exhibit behaviors suggestive of secure attachment (e.g., they explore unfamiliar surroundings more, have more contact with the caregiver, and orient more to the caregiver than to a stranger) more than children with less involved caregivers (Anderson, Nagle, Roberts, & Smith, 1981).

Children who are members of larger groups and receive less individual attention show lower gains in PSI (Preschool Inventory) scores than children who are members of smaller groups and receive more individual attention. Children with higher language development scores tend to have caregivers who are more responsive, more sensitive, and less detached (Whitebook, Howes, & Phillips, 1989).

Smaller group size is associated with more developmentally appropriate classroom activities than larger group size. Groups of six or fewer infants, 12 or fewer toddlers, and 18 or fewer preschoolers are more likely to engage in developmentally appropriate activities than children in groups that exceed these numbers (Howes, Phillips, &

Whitebook, 1992). When children are expected to perform at unattainable levels, they may feel overwhelmed and thus be less motivated to excel at academic pursuits (Eccles, Wigfield, & Schiefele, 1998).

Lower child:staff ratios are associated with less distress in toddlers, less apathy and distress in infants (Hayes, Palmer, & Zaslow, 1990), and greater social competence (Clarke-Stewart, Gruber, & Fitzgerald, 1994). Children in classrooms with lower child:staff ratios engage in more talk and play (Howes & Rubenstein, 1981) and display more gestural and vocal imitation (Francis & Self, 1982) than children in classrooms with higher child:staff ratios. Children who engage more frequently in conversations with caregivers tend to develop better socially (Clarke-Stewart, 1987).

Children in classrooms having lower child:staff ratios (i.e., 3:1 for infants, 4:1 for toddlers, 9:1 for preschoolers) are more likely to have positive interactions with caregivers, be properly supervised, and be engaged in activities rated as good or very good (NICHD Early Child Care Research Network, 1996; Howes, Phillips, Whitebook, 1992). Lower child:staff ratios relate to more developmentally appropriate caregiving and sensitivity (Whitebook, Howes, & Phillips, 1989); more contact (e.g., talking, playing, touching, and laughing) with children (Smith & Connolly, 1981); more responsive and stimulating behavior (NICHD Early Child Care Research Network, 1996); and less restriction of children's behavior (e.g., less commanding, correcting (Howes, 1983). Additional caregivers reduce the amount of irritability and restrictiveness that caregivers express to the children in their care (Rubenstein, Howes, & Pederson, 1982). Lower child:staff ratios are associated with higher rates of secure attachments between toddlers and their caregivers (Howes, Rodning, Galluzzo, & Myers, 1988).

Lower child:staff ratios are associated with more verbal communication between caregivers and children, which appears to foster language development in children. Adults and children talk to one another more when there is a lower child:staff ratio (Palmerus, 1996), and caregivers engage in more dialogues (i.e., verbal communications between a caregiver and child that involve an exchange of at least three turns) and fewer monologues (i.e., verbal communications between a caregiver and child that contain only one or two sentences and involve only one or two turns (Palmerus, 1996)). More adult-child verbal interactions predict better scores on language inventories, whereas more peer verbal interactions predict lower scores on these measures (McCartney, 1984). Lower child:staff ratios allow caregivers to engage in more educational activities (e.g., teaching, promoting problem-solving) with children (Palmerus, 1991).

Summary Table:

Citation: NICHD Team (1999), Child outcomes when child care center classes meet recommended standards for quality, American Journal of Public Health, 89(7):1072-7.

Summary: This study assessed outcomes for children when child care centers meet recommended care standards. Data from the NICHD study of early child care were used to examine the association between meeting standards for child staff ratios, group sizes, caregiver training, and caregiver education and childrens development at 24 and 36 months of age. There were five major findings: 1) most classes observed did not meet all four recommended standards; 2) linear associations were found between number of standards met and child outcomes, and this was more the case at 36 months than at 24 months of age; 3) there was no evidence of threshold effects; 4) children in classes that met more standards had better school readiness and language comprehension scores as well as fewer behavior problems at 36 months of age; 5) child outcomes were predicted by child staff ratio at 24 months and caregiver training and education at 36 months of age. Outcomes were better when children attended classes that met recommended child staff ratios and recommended levels of caregiver training and education.

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Citation: Moore (1996), Substitute child care at different ages: relationship to social emotional functioning in preschool, American Journal of Orthopsychiatry, 66(2):305-8.

Summary: In a pilot study based on parent and teacher ratings, the number of hours spent in substitute care during the first three years of life correlated with childrens levels of behavior problems in preschool. The developmental period from 18 to 24 months was the most sensitive to the use of substitute care, and boys were more negatively affected than girls. The child adult ratio and setting were not significant factors. Results suggest reconsideration of parental leave policies and direction for future research.

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Citation: Deater-Deckard, Kinkerton, & Scarr (1996), Child care quality and childrens behavioral adjustment: a four year longitudinal study, Journal of Child Psychology & Psychiatry & Allied Disciplines , 37(8):937-48.



Summary: Studies of extensive, full time child care in infancy and early childhood have shown negative, positive and no effects on childrens social emotional development. The current study explored the prediction of childrens behavioral adjustment four years after assessments of day care center quality and of the home and family environment. Participants included 141 school age children and their employed mothers who had made use of full time child care when the children were toddlers or preschoolers. Home environment factors and earlier behaviors were predictive of individual differences in adjustment four years later, particularly for maternal ratings of child behaviors. By contrast, indicators of center quality were generally unrelated to mother and teacher ratings of behavioral adjustment.

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Citation: Rosenthal & Vandell (1996), Quality of care at school aged child care programs: regulatable features, observed experiences, child perspectives, and parent perspectives, Child Development, 67(5):2434-45.

Summary: This study investigates childrens experiences at 30 school aged child care programs. Regulatable features such as total enrollment, child staff ratio, and staff education were assessed via director report. Observers recorded positive/neutral and negative interactions, and rated programs in terms of flexibility and age appropriateness. Negative staff child interactions were more frequent when child staff ratios were larger and when staff had less formal education. The presence of a greater number of different types of program activities was associated with staff having more frequent positive interactions with children and with observers rating programs as flexible and age appropriate.

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Citation: Burchinal, Roberts, Nabors, & Bryant (1996), Quality of center child care and infant cognitive and language development, Child Development , 67(2):606-20.

Summary: The relations between quality of center based child care and infant cognitive and language development were examined in a sample of 79 African-American 12 month old infants. Both structural and process measures of quality of child care were collected through interviews with the center director and observation of the infant classroom. Results indicated that quality of infant care positively correlated with scores on standardized assessments of cognitive

development, language development, and communication skills. These findings, in conjunction with the growing child care literature, suggest that researchers and policymakers should focus on how quality of child care can be improved to enhance, not impair, infant development.

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Citation: Osguthorpe & Parsons (1995), Day care and the incidence of otitis media in young children, Otolaryngology-Head and Neck Surgery, 112(6):695-9.

Summary: This study assesses whether day care is a significant risk variable for otitis media in children younger than 2 years in the United States after controlling for the number of children in the day care group. After controlling for the total size of the day care group for children younger than 12 months, the previously established relationship between attending a day care center and frequent ear infections is reduced from an odds ratio of 3.17 to an odds ratio of 1.34. The total size of the day care group is an important intervening variable in the relationship between attending day care and frequent ear infections for children younger than 12 months. The size of the day care group rather than the day care per se is the primary modifiable risk variable for many working parents.

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Citation: Laborde, Weigle, Weber, & Kotch (1993), Effect of fecal contamination on diarrheal illness rates in day care centers, American Journal of Epidemiology, 138(4):243-55.

Summary: Contact spread of enteropathogens in day care centers is supported by the recovery of fecal coliforms from hands and day care center fomites. This prospective study was conducted to determine what, if any, quantitative measures of fecal coliforms predict the risk of diarrhea among day care center attendees. Diarrheal illness without concomitant respiratory symptoms was monitored among 221 children under 3 years of age in 37 classrooms through biweekly parental telephone interviews from 10/88 to 5/89 in Cumberland County, North Carolina. This was the first study to demonstrate an increased risk of diarrhea associated with fecal contamination and the frequent sink contamination in day care centers.

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Citation: Howes & Whitebook (1992), Thresholds of quality: implications for the social development of children in center based child care, Child Development, 63(2):449-60.

Summary: The quality of center child care relationships with adults and peers for 414 children (ages 14 to 54 months) were assessed. Classrooms were classified by ratio and group size provisions of the FIDCR and by the ECERS and ITERS. Children cared for in classrooms meeting the FIDCR ratios were more likely to be in classrooms rated as good or very good in caregiving and activities. Children in classrooms rated as good or very good in caregiving were more likely to be securely attached to teachers. Securely attached children were more competent with peers. Children cared for in classrooms meeting FIDCR group size were more likely to be in classrooms rated higher in activities. Children in classrooms rated high in activities were likely to orient to both adults and peers. Children with social orientations to adults and peers were more competent with peers.

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Citation: Phillips, Howes, & Whitebook (1992), The social policy context of child care: effects on quality, American Journal of Community Psychology , 20(1):25-51.

Summary: Examined effects on the quality of childrens child care environments of a) the stringency of state child care regulations; b) voluntary compliance with proposed federal child care standards; and c) the legal auspice of the center. Quality of care was assessed in 227 child care centers in five metropolitan areas. Centers in states with more stringent child care regulations tended to have better staff child ratios, staff with more child related training and lower staff turnover rates. Similarly, centers that more fully complied with the ratio, group size, and training provisions of a set of proposed federal child care standards had significantly lower staff turnover rates, more age appropriate classroom activities, less harsh and more sensitive teachers, and more teachers with specialized training. For profit centers offered children less optimal care than did nonprofit centers. These findings are placed in the context of ecological models of research and of contemporary policy debates about child care.

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Citation: Fiene (1997), Searching for a solution to the child care trilemma, Child Care Information Exchange, 117:57-60.

Summary: Describes the trilemma of inadequate quality, accessibility, and affordability of American child care. Proposes addressing the quality sector by utilizing a model which determines adult child ratios based upon quality of staff. Model argues the more highly qualified the program staff, the higher the quality of the overall program.

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Citation: Howes (1997), Childrens experiences in center based child care as a function of teacher background and adult child ratio, Merrill-Palmer Quarterly, 43(3):404-25.

Summary: Two studies examined impact of teacher background and teacher child ratio on child and teacher behavior in a child care environment. Both studies indicate more effective performances produced by teachers with higher degrees. One study suggests lower ratios are more effective. No interactive effect of ratio and background was noted.

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Citation: Kontos & Wilcox (1997), Teachers interactions with children: why are they so important: research in review, Young Children , 52(2):4-12.

Summary: Reviews research demonstrating a positive relationship between childrens quality interactions with teachers and their enhanced cognitive, socio-emotional, and language development. Discusses most frequently studied aspects of teacher behavior including roles, sensitivity/detachment, involvement and teacher talk. Describes influences on interactions including child characteristics, training, ratio, group size and curriculum. Summarizes implications for teachers, and lists recommended adult child ratios.

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Citation: Howes & Marx (1992), Raising questions about improving the quality of child care, Early Childhood Research Quarterly , 7(3):347-66.

Summary: Describes and contrasts aspects of child care systems in France and the US to stimulate discussion of child care standards. French child care is characterized by highly trained and reasonably compensated teachers who work in

classrooms with class sizes and child adult ratios considered excessive by US standards.

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Citation: Howes et al. (1992), Thresholds of quality: implications for the social development of children in center based child care, Child Development , 63(2):449-60.

Summary: Examined thresholds for two aspects of child care: adult child ratio and group size. Investigated associations among different levels of these variables and with quality of care and childrens social development. Findings suggest that meeting licensing standards for ratios and groups has a positive effect on ratings of the quality of care provided for children.

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Citation: Essa (1998), When, how and why child caregivers respond to childrens behaviors, Early Child Development and Care, 141, 15-29.

Summary: Forty-two female child caregivers participated in one of six focus groups to examine how, when, and why they discipline young children. Aggressive behavior, not listening, and sexually related behaviors were the most likely behaviors to concern caregivers. These behaviors most frequently elicited the disciplinary strategies of time out, explanations, and redirection. How caregivers respond to misbehaviors was analyzed in terms of the attributions the caregivers make in regard to these misbehaviors. Age, gender, home, family, society, caregiver emotion, and child care setting circumstances were the most frequently mentioned factors to affect caregiver discipline. Results also indicate that caregivers with higher levels of early childhood education and experience, and those working with smaller group and adult to child ratios provide more thoughtful answers that are more congruent with developmental appropriateness.

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Citation: McCartney, Scarr, Rocheleau, Phillips (1997), Teacher child interaction and child care auspices as predictors of social outcomes in infants, toddlers, and preschoolers, Merrill Palmer Quarterly, 43(3):426-450.

Summary: Examined 718 infants, toddlers and preschoolers who were enrolled in 120 child care centers from Massachusetts, Virginia, and Georgia to determine the effects of quality of care on childrens social outcomes. Four auspices of child care centers were sampled: nonprofit, local for profit, national chains for profit, and church sponsored. Social outcomes included mothers ratings of attachment, observations of social skills in classroom, and parents rating of behavior problems. Quality of care assessment was based on teacher characteristics, teacher child ratio, and teacher child interactions. Results show that there were few associations between teacher child interaction and childrens social outcomes. Higher work family interference was associated with poorer social outcomes generally. Children in nonprofit centers had better social outcomes on some measures.

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Citation: Palmerus (1996), Child caregiver ratios in day care center groups: impact on verbal interactions, Early Childhood Development and Care , 118, 45-57.

Summary: Explored the effect of caregiver child ratio on verbal interactions in six public day care center groups for preschool children in Sweden. Detailed records of verbal interactions were studied in one group where the number of children/caregiver had changed from 4.25 to 5.67. Caregivers were the main target for observation. Audio recorded verbal communications were coded and analyzed. Data were collected on three occasions in year 1 and on three occasions in year 2. With a high ration the proportion of child initiated verbal activities to the caregivers decreased, the proportion of adult initiated verbal activities increased, and the amount of verbal interaction between caregivers decreased.

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Citation: Scarr, Eisenberg, & Deater-Deckard (1994), Measurement of quality in child care centers, Early Childhood Research Quarterly , 9(2):131-151.

Summary: Assessment of quality of care in 363 classrooms with infants, toddlers, and preschool children was conducted in 120 child care centers in three states. Assessment measures included the ITERS, ECERS, and the Assessment Profile. Regulatable aspects of quality of child care included: ratio of caregivers to children, group size, teacher training in child development or child care, teacher education, highest wage paid to a center teacher, and staff turnover.

Process measures proved to be highly redundant, both internally and with each other. Much smaller sets of items, drawn randomly from the instruments item pools were found to be perfectly acceptable measure of quality. Regulatable measures did not prove to be acceptable measure of quality, except for teachers wages, which were highly correlated with process measures of quality.

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Citation: Dunn (1993), Ratio and group size in day care programs, Child & Youth Care Forum, 22(3):193-226.

Summary: Reviews literature on the influences of ratio and group size on childrens development in day care. When measured separately, ratio and group size are sometimes, but not always related to childrens development. When included as variables in quality clusters, ratio and group size are more likely to be related to developmental outcomes. Group size more consistently influences development in the expected direction than ratio. This suggests the need for increased attention to group size in the policy arena. Ratio and group size have been found to have both direct and indirect effects on development indicating that they are potentially valuable as proxy measures of childrens experience in day care programs.

Additional Resources:

National Association for the Education of Young Children (NAEYC) 1509 16 th Street, NW Washington DC 20036  
1-800-424-2460<http://www.naeyc.org>

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These two indicators overlap some with the next indicator that deals with training. Separating out state regulations that deal with these two indicators is difficult because qualifications and training form a continuum. Therefore, drawing a line between these indicators is generally arbitrary. Fifteen standards are related to this indicator and four standards are related to the training indicator.

CFOC Standards (1992):

ST 006: The director of a center enrolling fewer than 60 children shall be at least 21 years old and shall have an undergraduate degree in early childhood education, child development, social work, nursing, or other child related field, or a combination of college coursework and experience under qualified supervision. Education shall include a course in business administration or equivalent on the job training in an administrative position; a minimum of four courses in child development and early childhood education; and 2 years' experience as a teacher of children of the age group(s) in care.

ST 007: The director of a center enrolling 60 or more children shall be at least 21 years old and shall have an undergraduate degree in early childhood education, child development, social work, nursing, or other child related field, or a combination of college coursework and experience under qualified supervision. Education shall include one course in administration or at least 6 months' experience in administration, and 3 years' experience as a teacher of children of the age group(s) in care.

ST 008: Centers enrolling 30 or more children must employ a non-teaching director. Centers with fewer than 30 children may employ a director who teaches as well.

ST 009: In addition to the credentials listed in Appendix A, a director of a center or a small family child care home system enrolling 30 or more children shall provide documentation of one course or 26 to 30 clock hours of training in health and safety issues for out of home facilities, in addition to other educational qualifications, upon employment. This training requirement shall be reduced to a minimum of 17 clock hours for directors of facilities caring for fewer than 30 children. This training shall include at least the following content:

Mechanisms of communicable disease spread. Procedures for preventing the spread of communicable disease, including handwashing, sanitation, diaper changing, health department notification of reportable disease, equipment, toy selection and proper washing, disinfecting to reduce disease and injury risk, and health related aspects of pets in the facility. Immunization requirements for children and staff. Common childhood illnesses and their management, including child care exclusion policies. Organization of the facility to reduce illness and injury risks. Training child care staff and children in infection and injury control. Emergency procedures. Promotion of health in the child care setting.

ST 010: In addition to the general requirements in Qualifications of Directors of Centers, the director of a facility



for children under 5 years of age shall have not less than 2 to 3 years of experience, depending on the size of the center, as a teacher of infants, toddlers, and preschoolers. Directors of facilities for children ages 0 to 35 months shall have their 2 to 3 years of experience with infants and toddlers. Directors of facilities for children ages 3 to 5 years shall have their 2 to 3 years of experience with preschoolers.

ST 011: In addition to the general requirements in Qualifications of Directors of Centers, the director of a school-age child care facility shall hold an undergraduate degree in early childhood education, elementary education, child development, recreation, or other child related field, or a combination of college coursework and experience under qualified supervision, and not less than 2 years' experience working with school-age children.

ST 034: Directors and large family home caregivers shall check references and examine employment history before employing any staff, including substitutes, who will be alone with a child or a group of children in child care.

ST 012: Caregivers shall have knowledge of child development and early childhood education; an undergraduate degree in early childhood education, child development, social work, nursing, or other child related field, or a combination of experience under qualified supervision and college coursework; 1 year's experience (or the equivalent as specified in Appendix A); and on the job training to provide a nurturing environment and to meet the child's out of home needs.

ST 013: Centers shall employ licensed, certified teaching, caregiving staff for direct work with children in a progression of roles such as the following:

aides, assistant teachers, associate teachers, teachers, lead teachers, and; education coordinators; Each role with increased responsibility shall have increased educational qualifications as outlined in Appendix A.

ST 014: Every center, regardless of setting, shall have at least one licensed/certified lead teacher (or mentor teacher) who has a Bachelor of Arts, Bachelor of Science, Bachelor of Education, or Master of Education degree in early childhood education, child development, social work, nursing, or other child-related field, in addition to at least 1 year of experience working in child care serving this age group. All teachers in charge of a group shall be licensed/certified as lead teachers, teachers, or associate teachers, with education and experience related to the care and development of infants and toddlers, as well as supervised experience with this age group.

ST 015: Caregivers shall want to work with infants and toddlers when asked and shall know what the job entails-fostering interaction, diapering, bathing, feeding, holding, comforting, and responding.

ST 016: Every center, regardless of setting, shall have at least one licensed/certified lead teacher (or mentor teacher) who has a Bachelor of Arts, Bachelor of Science, Bachelor of Education, or Master of Education degree in early childhood education, child development, social work, nursing, or other child-related field, as well as at least 1 year of experience working in child care with this age group. All teachers in charge of a group shall be licensed/certified as lead teachers, teachers, or associate teachers, with education in child development and early childhood education specific to this age group, as well as supervised experience with preschool children.

ST 017: Caregivers shall demonstrate an ability to apply their understanding of the developmental characteristics of 3- to 5-year-olds. Caregivers shall demonstrate knowledge and understanding of these children's independence and social competence, more complex inner lives, and increasing ability to adapt to their environment and cope with stress.

ST 018: Every center, regardless of setting, shall have at least one licensed/certified group leader (or mentor teacher) who has a Bachelor of Arts, Bachelor of Science, Bachelor of Education, or Master of Arts degree in child development or early childhood education covering ages newborn to 8 or 3 to 8, elementary education, recreation, or a related field, as well as at least 1 year of experience working in child care. Teachers in charge of a group shall be licensed/certified as lead teacher, teacher, or associate teacher with education in child development and programming specific to this age group; they shall also have supervised experience with school-age children. Caregivers shall have training and supervised experiences in child development and education.

ST 019: Caregivers shall demonstrate knowledge about the social and emotional needs and developmental tasks of 5- to 12-year-old children, and shall know how to implement a nonacademic, enriching program.

Research Review/Gap Analysis:

Caregivers should be encouraged or required to have as much general education and/or specific training in child development, health, and safety as possible because educated and trained caregivers are more likely to promote the physical and mental health, safety, and cognitive development of the children in their care. Child care directors who

have more experience and education are more likely to appropriately monitor staff, which promotes childrens health. Higher rates of diarrhea have been found in child care centers where the directors had less than eight years of experience (Soto, Guy, Deshaies, Durand, Gratton & Belanger, 1994). Caregivers are more likely to exhibit behaviors that protect childrens health and safety if their behavior is monitored (Black et al., 1981). Staff surveillance requires knowledge of behaviors that reduce the transmission of disease; this suggests that child care directors should have as much or more education in child development and health than the direct caregivers they supervise.

Caregivers with a bachelors degree with or without specialized training or with no bachelors degree but with specialized training at the college level behave more sensitively and less harshly, engage in more positive interactions (more warmth, more enthusiasm, and more developmentally appropriate communication with children) and display less detachment (more involved with and interested in the children) and less punitiveness (less hostile, threatening, and harshly critical of children) (Arnett, 1989; Whitebook, Howes, & Phillips, 1989).

Caregivers with more education have children who are more compliant and socially competent (Clarke-Stewart, Gruber, & Fitzgerald, 1994). College-educated caregivers encourage children more, exhibit more teacher direction (developing goals for children without pressuring the children to accept them), and engage in less restrictive behavior with children than do high-school-educated caregivers (Berk, 1985). Caregivers who complete at least two child-related courses at the community college level hold less authoritarian attitudes (like strict rules, little give-and-take about rules, assertive discipline strategies, and emphasis on conformity) than those who have no training at all (Arnett, 1989). Such attitudes toward caregiving appear to influence the behavior exhibited by caregivers (Holden, 1995). The promotion of independence contributes to the development of social competence and school readiness in children.

Caregivers with more education are more likely to continue in child care employment (Berk, 1985), which promotes attachment and social development in children. Caregivers who plan to continue in child care employment are less restrictive, place a greater emphasis on the development of childrens verbal skills, and have better child-oriented attitudes than those who do not plan to continue working in child care. Children who have stable caregivers are more likely to engage in social activities, spend less time aimlessly wandering around the center (Whitebook, Howes, & Phillips, 1989), and are more likely to display secure attachments (Hayes, Palmer, & Zaslow, 1990), which is a major component of later healthy personal/social development.

Caregivers with college educations tend to engage children in interactions that expand upon and extend childrens ongoing activities and promote the development of verbal skills (Berk, 1985). College-educated caregivers are almost three times as likely to display behaviors that promote the development of verbal skills (such as encouraging children to express themselves verbally, explaining the meaning of words, giving factual information) than caregivers with only a high school diploma (Berk, 1985). Children who have caregivers who answer their questions, engage them in more informative talk, and give information to and request information from them have higher language competence and intelligence test scores (McCartney, 1984).

Children tend score higher on the Preschool Inventory (a measure of childrens knowledge of shapes, sizes, parts of the body, spatial relationships, etc.) and other measures of intellectual ability (like language comprehension, verbal fluency, memory, object recognition, and knowledge of concepts) when they are cared for by caregivers with more years of education (Clarke-Stewart & Gruber, 1984).

Summary Table:

Citation: Bloom (1997), Navigating the rapids: directors reflect on their careers and professional development, *Young Children* , 52(7):32-38.

Summary: In an effort to address issues concerning credentialing early childhood directors, explores career decisions and provides a framework for understanding the growth and development of director competence through the career cycle. The career cycles of beginning, competent, and master directors, and the growth and change which occur, are detailed.

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Citation: Phillipson, Burchinal, Howes, & Cryer (1997), The prediction of process quality from structural features of child care, *Early Childhood Research Quarterly*, 12(3):281-303.

Summary: This study examined the structure of child care classrooms and centers to predict process quality. Costs and quality of early childhood center based care in four states with varying levels of regulation were analyzed to identify characteristics of the teacher, classroom, director, and center related to child care quality.

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Citation: Galinsky, ODonnell, Sazer, & Boose (1996), Florida child care quality improvement study .

Summary: The ongoing Florida child care quality improvement study investigates how Floridas new ratios and education requirements for early education and care affect childrens development, parents lives, and the early childhood marketplace. The project consists of three interrelated studies: the childrens study, the parent study and the market study. The report summarizes the findings of all three studies in 1992 and 1994, and reports new findings from the 1996 children study. Among the findings noted are the following: 1) increased teacher education and ratio requirements significantly contributed to a number of positive outcomes in childrens development in 1994 and continue to improve in 1996; 2) in comparison with other national multi-site studies of the overall quality of early education and care, Florida has made positive strides; 3) increased staff education and more rigorous ratio requirements did not have a marked negative impact on the child care marketplace nor did requirements significantly affect consumer costs during the 1992-96 period; 4) the greatest gains in childrens development and in the quality of the early childhood education and care occurred when classrooms met professionally recommended ratios, which are higher then the new Florida ratios; and 5) teachers with an advanced education had the highest scores in terms of childrens development and classroom quality; however, in 1996, teachers with a CDA or equivalency were warmer and more sensitive as well as more responsive with children than those with less than a CDA.

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Citation: Howes (1997), Childrens experiences in center based child care as a function of teacher background and adult child ratio, Merrill-Palmer Quarterly, 43(3):404-25.

Summary: Two studies examined impact of teacher background and teacher child ratio on child and teacher behavior in a child care environment. Both studies indicate more effective performances produced by teachers with higher degrees. One study suggests lower ratios are more effective. No interactive effect of ratio and background was noted.

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Citation: Rodd (1997), The selection and preparation of early childhood teachers: perceptions of employers and

teachers, Early Child Development & Care, 130, 99-110.

Summary: Studied perceptions of early childhood teachers and employers regarding early childhood teacher education. Found that previous experience with, attitudes toward, and understanding of children and entry qualifications were weighted higher than age and gender for teacher selection.

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Citation: Kagan & Neuman (1997), Highlights of the quality 2000 initiative, Young Children, 52(6):54-62.

Summary: Describes the quality 2000 advancing early care and education initiative the purpose is to address the quality crisis in early childhood education. Details eight areas of improvement and recommendations: quality, results, family engagement, staff credentialing, staff training, licensing, funding, and governance structures.

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Citation: Snow et al. (1996), Child care center licensing standards in the United States, Young Children , 51(6):36-41.

Summary: Studied child care quality indicators via a comparison of state child care licensing requirements in three areas: child staff ratio, group size, and caregiver educational requirements. Compared these data to 1981 data to assess changes in licensing regulations. Found both positive and negative changes and that regulations vary greatly state by state.

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Citation: Honig (1996), Early childhood education, training for the future, Early Child Development & Care, 121, 135-45.

Summary: Discusses the future training of early childhood educators, focusing on techniques for teachers to build prosocial skills, develop aesthetic appreciation, inculcate acceptance and inclusion, and develop a curiosity for

learning among children.

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Citation: Lowenthal (1995), Competencies of the early childhood special educator in the United States, Early Child Development and Care , 113, 59-64.

Summary: Discusses the kinds of competencies needed by educators to better assist young children with disabilities and their families. These competencies include: knowledge of early childhood as a distinct phase of development, experiences in working with families, skills in collaboration and coordination, developmentally appropriate intervention, and delivery of services in inclusive settings.

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Citation: Bredekamp (1995), What do early childhood professionals need to know and be able to do?, Young Children, 50(2):67-69.

Summary: Describes the purpose and history of guidelines posed by NAEYC for teacher education in BA and advanced degree programs. Summarizes the result of the review processes, describing how the new curriculum guidelines differ from the earlier versions and how the guidelines can be used to shape programs and to influence policy.

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Citation: Morgan et al. (1993), Making a career of it: the state of the states report on career development in early care and education .

Summary: Noting that 11 million children are involved in early care and education outside their homes, and that the quality of the services these children receive depends on the knowledge and skills of the people who care for and teach them, this report presents the results of the first national study of career development in early care and education. It examines regulations, training opportunities, and financial support that shape the preparation of center and home based practitioners. The study revealed the lack of a coordinated system to develop well trained

practitioners to work with young children in homes, centers, Head Start programs, or schools. Millions of practitioners are not required to have early childhood training. Training that develops the full range of essential early care and education knowledge and skills is not consistently available or accessible.

Additional Resources:

The Center for Career Development in Early Care and Education Wheelock College 200 The Riverway Boston, MA 02215  
617-734-5200 x2211<http://ericps.ed.uiuc.edu/ccdece/ccdece.html>

Center for the Child Care Workforce (CCW) 733 15th Street, NW Suite 1037 Washington, DC 20005-2112 Phone:  
1-800-879-6784 Fax: 202-737-0370 E-mail: [ccw@ccw.org](mailto:ccw@ccw.org)<http://www.ccw.org/>

National Association for the Education of Young Children (NAEYC) 1509 16th Street, NW Washington DC 20036  
1-800-424-2460<http://www.naeyc.org>

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This indicator overlaps with the previous indicators that deal with training. Separating out state regulations that deal with this indicator is difficult because qualifications and training form a continuum. Therefore, drawing a line between these indicators is generally arbitrary. A great deal of variability in this indicator is exhibited when state-to-state regulations are compared. These 11 standards encompass the essence of the regulatory citations.

CFOC Standards (1992):

ST 039: Caregivers shall be educationally qualified in advance for the role they are entering and shall receive orientation training during the week immediately following employment. Caregivers shall also receive continuing education each year. In centers, directors shall ensure that 12 hours of staff meetings are held, in addition to the continuing education specified in Continuing Education.

ST 040: All new full-and part-time staff shall be oriented to, and demonstrate knowledge of, the following items a through o. The director of any center or large family-child-care home shall provide this training to newly hired



caregivers. Small family home caregivers shall avail themselves of orientation training offered by the licensing agency, a resource and referral agency, or other such agency. This training shall include evaluation and a repeat demonstration of the training lesson. The orientation shall address, at a minimum:

The goals and philosophy of the facility. The names and ages of the children for whom the caregiver will be responsible, and their specific developmental needs. Any special adaptation(s) of the facility required for a child with special needs. Any special health or nutrition need(s) of the children assigned to the caregiver. The planned program of activities at the facility. Routines and transitions. Acceptable methods of discipline. Policies of the facility about relating to parents. Meal patterns and food-handling policies of the facility. Occupational health hazards for caregivers. Emergency health and safety procedures. General health policies and procedures, including but not limited to the following: Handwashing techniques, including indications for handwashing. Diapering technique and toileting, if care is provided to children in diapers and/or needing help with toileting, including appropriate diaper disposal and diaper-changing techniques. Correct food preparation, serving, and storage techniques if employee prepares food. Formula preparation, if formula is handled. Child abuse detection, prevention, and reporting. Teaching health promotion concepts to children and parents as part of the daily care provided to children. Recognizing symptoms of illness.

ST 041: Orientation training in centers shall be documented. The director shall document the topics covered and the dates on which the orientation was provided.

ST 042: During the first three months of employment, the center director or large family home caregiver shall document, for all full-time and part-time staff, additional orientation in and the employee's satisfactory knowledge of the following topics for the purpose of noting and responding to illness in the facility. Staff shall not be assigned to tasks involving these topic areas before receiving the orientation training.

Recognition of symptoms of illness and correct documentation procedures for recording illness symptoms. Exclusion and readmission procedures. Cleaning, sanitation, and disinfection procedures. Procedures for administering medication to children and for documenting medication administered to children. Procedures for notifying parents or legal guardians of communicable disease occurring in children or staff within the facility. Procedures for performing the daily health assessment of children to determine whether they are ill and whether they need to be excluded from the facility.

ST 043: Staff members shall not be expected to take responsibility for any aspect of care for which they have not been oriented and trained.

ST 044: The director of a center or a large family-child-care home shall ensure that all staff involved in the provision of direct care are certified in pediatric first aid that includes rescue breathing and first aid for choking. At least one certified staff person shall be in attendance at all times and in all places that children are in care.

ST 045: Small family home caregivers should be certified in pediatric first aid training that includes rescue breathing and first aid for choking.

ST 046: Pediatric first aid training, including rescue breathing and first aid for choking, shall be consistent with pediatric first aid training developed by the American Red Cross, the American Heart Association, or the National Safety Council for First Aid Training Institute, or the equivalent of one of the three. The offered first aid instruction shall include, but not be limited to, the emergency management of:

Bleeding. Burns. Poisoning. Choking. Injuries, including insect, animal, and human bites. Shock. Convulsions or nonconvulsive seizures. Musculoskeletal injury (e.g., sprains, fractures). Dental emergencies. Head injuries. Allergic reactions. Eye injuries. Loss of consciousness. Electric shock. Drowning.

ST 047: Facilities that have a swimming pool or built-in wading pool shall require infant and child CPR training for caregivers. At least one of the caregivers, volunteers, and other adults who are counted in the child:staff ratio for wading and swimming (see standard ST4, p. 3) shall be trained in basic water safety and certified in infant and child CPR each year by a person certified as an instructor in water safety and in CPR. (For small family-child-care homes, the person trained in water safety and CPR shall be the caregiver.) Written verification of C

## Reference

[Seen: Despair and Anxiety in Kids and Teenagers and the Power of Connection](#)

[Focus Group Interviews in Education and Psychology](#)