

NARA REPORT

Regulating Dimensions of Quality

in

Early Care and Education:

A Review of the Research

by

Judith A. Colbert, Ph.D.

Ontario

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Consultant to the National Association for Regulatory Administration

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FOREWORD

In 2000 the State of West Virginia contracted with NARA for consultation services that included the formulation of a new day care centers licensing rule. As the consultant with responsibility for drafting the new rule, I researched and wrote the first version of this report as part of the rule formulation process. The goals of my investigation, carried out in the summer and fall of 2000, were to provide a review of current research related to dimensions of quality in the field of early care and education, and to determine how findings from that research might be incorporated into the new rule.

A copy of the full report was presented to the State in the late fall of 2000. Summary fact sheets, based on its findings, were distributed to focus groups throughout West Virginia prior to the drafting of the rule, and have since been available to wider audiences in West Virginia and beyond.

As formulation of the rule progressed, I recognized that the information I had collected had relevance beyond a particular project in a single state. After completing the West Virginia project in the summer of 2001, I updated my own research and by early fall had created a generic version of the report. That version was revised once again in the spring of 2002, following publication of the second edition of the National Health and Safety Performance Standards.

The report proved to be a useful tool. It revealed that research has, in fact, been carried out on the regulatable dimensions of quality, and that research findings could contribute to both rule formulation, and on-going efforts to promote understanding of the requirements that rules embody. Such understanding contributes to wider public acceptance of rules and supports regulators providing technical assistance.

The findings themselves show that, for some time, researchers have addressed issues of relevance to regulators. A survey of recent work indicates that, in addition to considering regulatable variables of program quality, an increasing number of researchers are also

examining the effects of regulatory activities, such as the number and types of agency inspections, and the balance between the stringency of rules and enforcement practices. As is almost always the case, more work needs to be done. Past results, however, provide a guide for future endeavors by illustrating how researchers can be of assistance to regulators by incorporating regulatory factors and issues into the design of their investigations.

NARA is publishing this report in the hope that it will reach a wide audience, including regulators, policy-makers, legislators, researchers, providers, and parents as well as interested members of the public.

Judith A. Colbert, PhD
Ontario

EXECUTIVE SUMMARY

Two reports from the National Academy of Sciences stand as bookends to dimensions of quality in the 1990s. In 1990, *Who cares for America's children?* focused on an iron triangle of three key variables that predict child care quality – staff/child ratio, group size, and staff qualifications. Of the three, staff qualifications – particularly education and training related to child development – appeared to be most important. Discussion also extended to variables beyond the triangle, including caregiver stability, the structure of daily routine, and the adequacy of physical facilities. Throughout the 1990s most researchers confirmed the contributions of these variables, but began to look beyond isolated features of quality to explore combinations and resulting interactions, and moved to explore a wider context that included education, other factors in the child's environment, and the effects of regulatory activity. By the end of the decade, *Eager to learn* (2000) was calling for an end for the separation between “child care” and “preschool,” and identifying the child and the teacher/caregiver relationship – the product of the iron triangle variables – as the “single critical component to quality.”

In addition to findings that support the general importance of quality care and the contribution of regulation to its achievement, other results focus on specific dimensions traditionally associated with the quality of care: staff qualifications, ratios and group sizes, physical facilities including both space and equipment, the structure of the daily routine or curriculum, administration and support services, and parental involvement. Still others relate to the safety, health and nutrition of the children in care, and address issues such as disease control, injury prevention – including advice from the Consumer Product Safety Commission – and adult background checks.

Each of the dimensions of quality is also addressed in the criteria and standards of other organizations, including the accreditation criteria of the National Association for the Education of Young Children, the National Health and Safety Performance Standards of the American Academy of Pediatrics and the American Public Health Association, and the Head Start Performance Standards. Surveys of individual state initiatives provide

information about how specific features of quality have been incorporated into existing legislation and practice.

For every dimension examined in the report, higher standards translate into better, safer outcomes for children. Achieving such outcomes depends on taking action – including regulatory action – based on what is known about the dimensions of quality that prevent harm and create safe environments that support the physical, social, emotional and cognitive development of children.

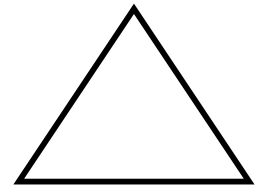
HIGHLIGHTS

The 1990s opened with considerations of quality in child care settings based on regulatable and unregulatable variables of quality (*Who cares for America's children?: Child care policy for the 1990s*, Hayes, et al., 1990). Through the decade, emphasis shifted toward interactions among those variables; the picture became larger and more complex. With the passing of the *Americans with Disabilities Act*, child care became more inclusive. Studies focused on both education and care, and reflected society's growing concerns about learning in the early years, as well as the increasingly apparent need for political and social structures, including licensing systems, to support high quality programs for children (*Eager to learn: Educating our preschoolers*, Bowman, et al., 2000; *Not by chance*, Kagan and Cohen, 1998).

THE QUALITY VARIABLES

Regulations largely focus on structural features. According to researchers, three key variables make up an “iron triangle” of features that predict child care quality:

- **group size**
- **staff/child ratio**
- **staff qualifications** (including education, ongoing training and experience).



All three are important, but **staff qualifications appear to be most important**. Recent research also indicates that positive teacher-child relationships, which are directly affected by **both ratio and group size**, are related to better outcomes for children.

Other variables that identify high quality care and foster child development, include

- **caregiver turnover and wages (not directly regulatable)**
- **the structure of daily routine (curriculum)**
- **the adequacy of physical facilities (indoor and outdoor space, and equipment)**
- **administrative and support services**
- **parent involvement.**

HEALTH AND SAFETY

Health and safety are essential supports to high quality care. According to *Caring for our children* (1992), children in child care settings must be protected from:

- **hazards and potential injuries** (both intentional and unintentional injuries); and
- **potentially serious infectious diseases.**

General Accounting Office (GAO) researchers identified

- **four critical health and safety areas for regulation:**
 - **Playground equipment** — specifically, pinch and crush points and surfaces
 - **Hand washing**
 - **Sanitation** — specifically, toys and indoor environmental surfaces
 - **Square footage** — indoors and outdoors (1998).
- **criminal background checks as critical for compliance** with regulations (2000).

RECENT FINDINGS

- **Two thirds of licensed child care settings exhibited at least one targeted safety hazard and most of the hazards were not addressed in state licensing requirements** — hazards targeted: unsafe cribs, soft bedding, playgrounds with unsafe surfaces and/or poor maintenance, safety gates not in use, blind cord loops, drawstrings on children’s outerwear, and recalled products in use (US Consumer Product Safety Commission study, 1998)
- **Most US playgrounds in schools, parks and child care centers were “unfit for children”** — a C grade for the US (National Program for Playground Safety’s survey, 1998-2000)
- In 1996 **unintentional childhood injuries cost society \$66 billion** in present and future productivity losses due to premature death or long-term disability, \$14 billion in lifetime medical spending and \$1 billion in other resource costs — most were preventable by education, environment and product changes, and legislation (Packard Foundation, 2000)

CONCLUSIONS

- **High quality** early childhood programs lead to **better school outcomes** for children.
- **Improvements to licensing standards raise child care quality.**
- Policies **keeping regulations at a minimum, and exempting categories** of providers from licensing “encourage” the use of lower quality informal and unregulated care and **are “harmful to children.”**
- **Standards that are good predictors of high quality care focus on caregiver education and training, staff/child ratios, and group size — the iron triangle — and safety and health** (Other key issues are caregiver turnover and wages) (GAO).
- **Legislation and regulation are among the most powerful tools to reduce childhood injuries, and most enforcement and product design changes require legal action** (Packard Foundation).

I: AN INTRODUCTION TO QUALITY

Two major reports from the National Academy of Sciences stand as bookends to discussions of quality in early childhood settings in the 1990s. The first, *Who cares for America's children? Child care policy for the 1990s* (Hayes, et al., 1990) introduced the decade with a summary of research to date, and a discussion of quality based on the regulatable and non-regulatable dimensions of quality. The second, *Eager to learn: Educating our preschoolers* (Bowman, et al., 2000) closed the decade focusing on education and care, and reflecting society's growing concerns about learning in the early years.*

The Variables

Summarizing research through the end of the 1980s, the editors of *Who cares for America's children?* distinguish between structural and interactive dimensions of quality, and use this distinction to differentiate between government regulations and professional standards — “the two arenas where efforts can be made to enhance the quality of child care” (p. 85). They suggest that while professional standards cover both aspects of care, regulations largely focus on structural features, especially the three key variables that make up an “iron triangle:”

- group size;
- staff/child ratio; and
- staff qualifications.

They conclude that group size is an important determinant of child development, as is the ratio of staff to children** (especially for infants and toddlers), and call for further study of the relationship between group size and ratios. They also state that caregiver education and training in child development are important, noting that two national studies have identified training in child development as the more important.

* The two reports emerge from the same tradition. For example, Barbara Bowman, one of the authors of *Eager to learn*, was a member of the National Research Council's Panel on Child Care Policy that produced *Who cares for America's children*.

** Cited in the report as a ratio of staff to children except when quoting from the work of others who refer to a ratio of children to staff.

These conclusions have since found support from many quarters. For example, they are echoed in the staffing guidelines of the National Health and Safety Performance Standards for Out-of-Home Care (NHSPS) (1992 and 2002).^{*} They also stand behind a General Accounting Office (GAO) (1998) report on the use of child care standards. Its authors state that “a clear consensus” emerged from their analysis: standards that are good predictors of high quality care focus on caregiver education and training, staff/child ratios, and group size — the familiar triangle — and safety and health (p. 4). Other key issues are caregiver turnover and wages (pp. 12-13).

At the same time, Hayes et al. also looked beyond the triangle to identify other variables that foster child development, including:

- caregiver stability (which they note is not directly regulatable);
- the structure of daily routine; and
- the adequacy of physical facilities (p. 91).

Linking Care and Education

The individual variables that appear to predict quality in child care settings will be discussed in more detail below. Meanwhile, it is important to note that by the end of the 1990s, researchers were exploring broader issues. Links were being established between “child care” and “education,” and findings related to quality in early childhood settings were increasingly being used to address issues pertaining to school readiness and risk factors for poor school outcomes. At the outset of *Eager to learn*, Bowman et al. argue that the historical, and often conflict-ridden, separation between “child care” and “preschool” traditions must end:

A central premise of this report, one that grows directly from the research literature, is that *care and education cannot be thought of as separate entities in dealing with young children*. Adequate care involves providing quality cognitive stimulation, rich language environments and the facilitation of social, emotional and motor development. Likewise, adequate education for young children can occur only in the context of good physical care and of warm affective relationships.

^{*} The second edition of the NHSPS appeared just as this paper was going to print. For a note on the two editions, see Appendix A.

.....

This report argues, therefore, that promoting young children’s growth calls for early childhood settings (half day or full day, public or private, child care or preschool) that support the development of the full range of capacities that will serve as a foundation for school learning. As the child is assimilated into the culture of education in a setting outside the home, early childhood programs must be sensitive and responsive to the cultural contexts that define the child's world outside the school or center, and they must build on the strengths and supports that those contexts provide.

Executive summary, *Eager to learn*, p. 2.

The editors of a companion report from the National Academy of Sciences, *From neurons to neighborhoods* (Shonkoff and Phillips, eds., 2000) also foresee an end to the distinction, as they seek a new definition of child care:

What do we mean by child care? It is not just *day care*, given the growing numbers of children who require supervision while their parents work nontraditional and shifting hours. It is also not just *care*. Beneficial outcomes for children in child care are associated with settings that provide both nurturance and support for early learning and language development. Accordingly, previous distinctions between “early education” or “preschool” and “day care” have unraveled. (p. 299)

Furthermore, they see that the blurring of this distinction is occurring, not just in response to educational needs and goals, but also in policy areas. They observe that what they call the “political divide” between the two tiers of child care policy making is becoming less distinct and funding streams are increasingly being merged at the federal, state, and program levels for state pre-kindergarten, Head Start and programs funded by the Child Care and Development Fund (pp. 299-300).

A More Complex Picture

This merging of the worlds of care and education, and persistent concerns for the contexts in which programs exist, reflect the increasingly sophisticated manner in which researchers are not only adopting an ecological perspective, but also exploring interactions between and among the variables in the young child’s environment. Subsequent research has taken up the challenge of *Who cares for America's children?* to look beyond isolated factors and explore relationships among variables, such as group size and staff/child ratio within a broader context.

Summarizing the search for the “central features of quality care,” the editors of *From neurons to neighborhoods* suggest that researchers have identified three tiers of interacting variables: the child-provider relationship, the structural features of care — including the elements of iron triangle — and the surrounding community and policy context where the regulatory structures and systems of standards reside. They see these tiers as “nested-levels” where the quality of the caregiver-child interaction is affected by the quality of the structural features and community context of care (p. 314ff). In looking to this broader context, they acknowledge the pervasive effects of regulations and standards and their impact on quality.

Nonetheless, the elements of the iron triangle remain central to discussions of quality programming for young children. *Eager to learn* recommends that all states develop and monitor standards for early childhood programs. Essential components of such standards include class size and teacher ratios, as well as educational requirements for early childhood educators. Others are school-home relationships; specification of pedagogical goals, content, and methods; assessment for instructional improvement; and monitoring quality/external accountability (Recommendation 10, p. 13).

In *Eager to learn* Bowman et al. note that meeting their recommendations will require effort in four areas, including the development of public policies that support quality preschool experiences through standards, appropriate assessment, regulations and funding (p. 10). Similarly, facility licensing and enforcement form one of five essential elements of the integrated early care and education infrastructure envisioned in *Not by chance*, the report of Yale University’s Quality 2000 Initiative (Kagan and Cohen, 1997). Like *From neurons to neighborhoods*, these reports place regulators within a *broader* sphere where care *and* education are merged. Such merging invites an extension of the regulatory role that can be justified by an extension of traditional interpretations of statutes designed “to protect the health, safety and well-being/welfare” of children. In such circumstances, one of the conditions of well-being becomes something like *able or ready to learn or to reach learning potential*, and society begins to consider risk of school failure among the risks that child care licensing and other mechanisms are designed to prevent.

Linking Regulatable Variables and Better Child Outcomes

High quality programs have, in fact, already been shown to lead to better school outcomes for children. The long-term positive benefits from the High/Scope Perry Preschool Study, which has now examined the effects of early intervention for more than 30 years, are well-known (Schweinhart et al., 1993). Scientific evidence from the Abecedarian Study, which followed children from early infancy through age 21, also shows that “early childhood education significantly improves the scholastic success and educational attainments of poor children even into early adulthood” (FPG, 1999). Even more dramatically, findings from the Chicago Child-Parent Centers Study, which tracked over 1,500 children enrolled in large-scale public programs from age 5 through 20, show that children who attend intensive preschool classes are more likely to graduate from high school and experience long-term success (Reynolds et al, 2001).

Similarly, the observed quality of Head Start Classrooms has been linked with positive outcomes over time in the most recent report of the Head Start Family and Child Experiences Survey (FACES), an ongoing, national, longitudinal study of the cognitive, social, emotional and physical development of children, and of specific characteristics of their families, classrooms and teachers (ACYF, 2001). Again, the iron triangle variables are associated with quality. Researchers found, for example, that children in classrooms with richer teacher-child interaction and more language learning opportunities had higher vocabulary scores, while those in classrooms with more favorable staff/child ratios showed greater gains in vocabulary over the Head Start year (pp. v and 94). In contrast, when classes were larger and teachers were rated as being less sensitive and responsive, children spent more time in uninvolved, non-play (pp. v and 40). Classrooms with higher quality ratings and more sensitive teachers also had teachers with significantly higher qualifications (pp. v and 83). Results to date also suggest that children leave Head Start “ready to learn.” By the end of kindergarten, although their performance continues to fall below national norms, the gaps are smaller than when they left Head Start (pp.iii and 43).

Other studies of center-based care focus on the relationship between positive outcomes for children and child care standards as represented by licensing requirements. Findings

from the National Institute of Child Health and Human Development Study of Early Child Care (NICHD) (1998 and 2002; NIH, 1999), begun in 1991, indicate that there is a relationship between human development and the “ ‘regulatable’ aspects” of child care centers (staff/child ratio, group size and teacher education and training). Children in centers that met more guidelines in those areas had better language comprehension and school readiness, and fewer behavior problems at 24 and 36 months. When none of the guidelines were met, children fell below average in these areas (NICHD,1998). Taking a broader view, researchers analyzing NICHD data confirm a mediated path from structural features of child care quality through process features to child outcomes. They conclude that their analyses provide “empirical support for policies that improve state regulations for caregiver training and child-staff ratio.” As a result of such improvement, they predict that more caregiver training may lead to *better* interactions between adults and children, while lower ratios may lead to *more* interactions (NICHD, 2002, p. 206).

Following-up on the Cost, Quality, and Child Outcomes in Child Care Center Study (CQO) (initiated 1993, reported 1995), researchers explored the long-term effects of typical community child care programs on children from families of all income levels to find out more about the long-term consequences of early child care experiences. The Children of the Cost, Quality, and Outcomes Study Go to School Study (CQOGS) (1999) revealed that after controlling for differences in background characteristics, children who have “more positive child care experiences” during the preschool years have “better outcomes” through the elementary school years:

Whether child care experiences are examined in terms of the global quality of classroom practices, the nature of teacher-child relationships, or the social-emotional climate, more positive experiences are related to better outcomes in both social and cognitive domains. (n.p.)

Researchers concluded that a lack of quality child care is “having negative effects on children’s readiness for school and on their development during the early years.” They see improvements to licensing standards as one means to raise child care quality. Further, they state that policies keeping regulations at a minimum, and exempting categories of providers from licensing to help expand the supply of child care, “encourage” the use of lower quality informal and unregulated care and are “harmful to children.”

Recent reports of research into the effects of program quality on very young children have shown that quality care is a “consistent, if modest, predictor” of cognitive and language development in the first three years (NICHD, 2000). Although NICHD researchers remain uncertain about the persistence of the association between the quality of care and cognitive and language competence, they were able to draw conclusions in relation to the very young child:

The more that child care environments are characterized by caregiver-child interactions that are both supportive and verbally stimulating, the better children perform. Conversely, the less verbally stimulating and supportive the care experience, the more poorly children perform. (p. 977)

Similarly, Burchinal et al (2000) found that in community-based child care centers, quality of care — as defined by the variables that include the iron triangle — was a “consistent predictor” of cognitive and communication development during the first three years for African American children from predominately low-income families. They suggest that this relationship, the generally poor to mediocre quality of care observed in many studies, and the lack of consistent evidence of moderating factors indicate that “poor quality care could be impairing the cognitive and language development of children.” They place their study with others linking regulatable aspects of care to cognitive and language development with the goal of helping parents and policymakers “design child-care policies that will enhance, not impair, children’s development” (p.355).

A Different Perspective

Other researchers, approaching from a rather different perspective, examine how changes in specific variables influence child care supply and demand, as well as the availability of quality programs. In fact, the trend toward seeing early childhood programs — and their regulation — within a broader context is apparent in studies that subject existing child care data to economic analysis and/or examine child care quality from the perspective of parents. Parents, they note, often select and evaluate child care using criteria that appear to differ from the priorities established by researchers with a developmental focus.

For example, while economist David Blau acknowledges the “reasonableness” of research by developmental psychologists into the determinants of child care quality, he questions the “robustness” of their findings in relation to the iron triangle (1997). As a result, he challenges the feasibility of using these determinants as a basis for regulations and subsidies to improve the quality of care. Although he points to limitations in his own study, Blau notes that a survey of studies of similar variables in schools reached essentially the same conclusions. Further, he questions whether parents are willing to pay higher costs of inputs currently associated with higher quality care. In a later study (1999), reporting what he considers to be “provisional” conclusions, Blau once again challenges whether the variables of the iron triangle are likely to be good indicators of quality. Again, noting that parents appear unwilling to spend more for higher quality care, he questions whether parents know how to distinguish between higher and lower quality care or are aware of the benefits of high quality care, and asks whether, in fact, parents have quite different definitions of quality.

Similar issues arise in Holforth and Chaplin’s paper, *State regulation and child care choice* (1998), which they claim is the first to examine the influence of both state regulations and inspections on parents’ use of care through their effects on the price, quality and availability of child care arrangements (p. 120). Their primary proxy for quality was the staff/child ratio, although they also considered regulations governing staff training and education. The influence of inspections was determined by examining the effect of the required number of annual inspections per provider by state on the price, quality, availability and use of centers and family day care homes (p. 113).

Like Blau, Holforth and Chaplin question whether lack of information about low quality care and the failure of parents to recognize the benefits of high quality care are also factors affecting parental decisions about child care. In addition, Holforth and Chaplin suggest that this lack of knowledge may also influence the quality of available care (p. 113). Further, they suggest that parents may also choose lower quality care because they are unable to recognize or monitor child care services, or because some of the benefits of higher quality care accrue to society as a whole, not to individual families (p. 114).

After extensive data analysis, Holforth and Chaplin conclude that, although they do not fully understand why, regulations appear to have a negative effect on the *use* of centers and family day care homes, while inspections have a positive influence (p. 133). Their results seem to support two general principles of the effects of regulation: stricter regulations are weakly associated with increased prices and increased prices reduce use; and, stricter regulations are also weakly associated with reduced availability, and reduced availability lowers use. In contrast, inspections, which were found to facilitate use of care, were associated with increases in both use and availability. Although they say they cannot explain this result, the authors suggest that inspections may provide better quality care that, in turn, increases its use.

More recently, Currie and Hotz (2001) have published data showing the beneficial effects of increased inspections, specifically with respect to unintentional injuries among children. They conclude that “having more than one annual inspection is associated with lower rates of accidents requiring medical attention” (p. 24). Further, even though they suspect that other factors may “crowd out” the positive effects of inspections, they still believe that their “estimate of the effects of inspection underestimate the positive direct effects of inspection on the safety of children in child care” (p. 31).

Each of these studies balances the positive effects of strengthening dimensions of quality with the possibility that these effects will be negated by changes in other factors, especially costs. Evidence suggests that researchers and regulators need to explore both sides of the balance. While acknowledging studies showing that regulation can improve child care quality, Gormley (1990) also notes that by helping to decrease supply and raising costs, regulation can also lead to fewer regulated facilities, with the net effect that fewer children experience high quality care. In contrast, the Georgia Impact Study (1991), carried out following *actual* revisions to licensing requirements in the State of Georgia, indicated that *no* serious negative consequences were reported following an increase in staff/child ratios, the introduction of limits to group sizes, and an increase in staff training requirements.

A Broader Perspective

Blau's psychometric studies question the fundamental relationship between the iron triangle and quality, and hence, the value of the current practice of regulating variables such as group size, staff/child ratios, and caregiver training and education. His work, along with other investigations, points to the need to recognize that relationships among currently accepted indicators of quality, and between those indicators and the enforcement process, are complex and can only be captured in research based on ecological models. They indicate that raising overall quality of care, as well as parents' perception and use of such care, is dependent on factors beyond the rule-writing process, such as public education programs and measures that offset the costs of implementing more stringent requirements. By extending their study to regulatory practices, Holforth and Chaplin, like Currie and Hotz, provide a reminder that achieving higher quality through regulation is a dual process, involving both written rules and enforcement activities that must be supported by public education.

Reporting on a multi-site study of typical center-based child care in three states, Phillips et al (2000) confirm this view and draw attention to the complexity of what they call the "regulatory dimension of quality" (p. 493). Their findings confirm prior evidence of the importance of the iron triangle variables, but also the value of looking beyond those variables to consider the effects of more or less stringent child care regulations and enforcement practices. Ultimately, their results point to the need to include economic and regulatory considerations in future studies.

The higher profile of the relationship between child care regulation and the quality variables is apparent in materials designed for wider dissemination. For example, the National Institute on Early Childhood Development and Education chose to focus on child care regulation in a Research and Policy Brief and accompanying Fact Sheet (NCEDL, Winter 2002). The new edition of *Caring for our children* (2002) retains its chapter on licensing and community relations (Chapter 9).

Understanding the Variables

With respect to implementation, *Not by chance* addresses both licensing requirements and enforcement practices. In calling for streamlined facility licensing and the maintenance of standards for staffing levels, the report calls for standards that increase flexibility and an exploration of how the variables that seem to lead to quality interact:

Such standards should allow programs options, however, to group children and organize staff in ways that maximize quality. Programs need alternatives to the single approach of low child-staff ratios, same-age groups, and static group size promoted by facility licensing in many states. Research is needed to examine the interactions among teacher training and education, children's characteristics, group size, and child-adult ratios to identify the range of combinations of these variables that can lead to quality for children and families. (p. 31)

Flexible staffing level requirements may also be possible, if research provides evidence that such levels can be safely altered. Such research may show, for example, that better qualified staff might be permitted to work with larger numbers of children.

Similarly, in their book *America's child care problem: The way out* (2002), economists Suzanne Helburn and Barbara Bergmann place licensing and enforcement at the heart of their recommendations, envisioning a system where funding would be directed only to licensed providers and where licensing agencies would have sufficient resources to ensure adequate enforcement. Although this publication appeared too late for detailed consideration in this report, it is noteworthy that Suzanne Helburn was the principal investigator for the CQO study and her work is thus grounded in knowledge of child development and child outcomes as well as economics.

While work is in progress to increase understanding of both the factors influencing quality and the means of increasing program quality, a large body of research already exists. Building on the foundation established by *Who cares for America's children?* it may be useful to learn more about the traditional dimensions of quality by exploring the regulatable variables identified there to determine what researchers have discovered about those variables since 1990.

II: TRADITIONAL DIMENSIONS OF QUALITY

II.1: STAFF QUALIFICATIONS

Staff qualifications have consistently been associated with program quality, even by researchers who question the iron triangle of variables. *Eager to learn* (2000) identifies the professional development of teachers as one of the components of quality preschool programs and a predictor of developmental outcomes for children. In identifying this link, the report notes that “the strongest relationship is between the number of years of education and training and the appropriateness of a teacher’s classroom behavior” (p.7). The professional development of teachers is another of the four areas where further work is required. The committee’s first seven recommendations relate to teacher education. In summary:

1. Each group of children in an early care and education program should be assigned a teacher with a bachelor’s degree with specialized education related to early childhood
2. Education programs should provide teachers with a stronger and more specific foundational knowledge of the development of children’s social and affective behavior, thinking and language.
3. Teacher education programs should require mastery of information on the pedagogy of teaching preschool-aged children
4. A critical component of preservice preparation should be a supervised, relevant student teaching or internship experience in which new teachers receive ongoing guidance and feedback from a qualified supervisor.
5. All early childhood education and child care programs should have access to a qualified supervisor of early childhood education.
6. Federal and state departments of education, human services, and other agencies . . . should initiate programs of research and development aimed at learning more about effective preparation of early childhood teachers.
7. The committee recommends the development of demonstration schools for professional development. (pp. 10-12)

With respect to public policy, the committee also recommends the establishment of “a single career ladder, with differentiated pay levels . . . ” (Recommendation 12, p. 14).

Eager to learn follows both the CQO study which identified teacher training and compensation as important target areas for improving quality, and CQOGS study which focused largely on two dimensions of child care quality: classroom practices and teacher-child relationships. The results showed that the quality of child care was related to both levels of formal education and the specialized early childhood training of classroom teachers, as well as teacher compensation. Recommendations from the study include:

- Regulations at the state level requiring much higher minimum levels for teachers, including formal training for teacher preparation with a form of credentialing;
- Teacher preparation initiatives;
- Inservice training; and
- Improvements in teacher compensation.

These two sets of recent recommendations build on the finding of the National Day Care Center Study (NDCS) (1979) and the National Day Care Home Study (NDCHS) (1981) that training was one of the most influential factors in determining child care quality. A decade later, following a study in Bermuda, Arnott (1989), concluded that “regulations requiring even a modest level of training for caregivers in day-care centers could have important and salutary effects on their job performance and on the quality of day-care environments” (p. 551). The National Child Care Staffing Study (NCSS) (Whitebook, Howes & Phillips, 1989) found that the education of child care teaching staff was an “essential determinant” of the quality children’s services.

Hayes et al. (1990) consider staff qualifications in relation to the three aspects identified in the NDCS — education, training in child development, and experience. They conclude that research following the NDCS confirms the importance of both child-related training and overall education, noting that two existing national studies (NDCS and NDCHS) point to caregiver training as the more important factor (p. 91). On the other hand, they find little evidence to suggest that greater caregiver experience is positively associated with staff/child interactions or child outcomes (p. 90). Given the importance of caregiver qualifications, they call for the regulation of this key dimension of quality. This position is echoed by Dunn (1993). Findings from her study of proximal and distal quality

variables, indicate that while experience was a negative predictor of children's development, specialized training of caregivers at the college level may have a positive influence on children. In contrast, ratio and group size appeared to have little influence. In fact, she suggests that regardless of other features of the day care environment, "a well-trained caregiver can make an important difference in children's day care experience" (p. 190).

In their report for the National Center for Education Statistics, *Measuring the quality of program environments in head start and other early childhood programs*, Love, Meskstroth, Sprachman and West (1997) observe that several mechanisms for measuring staff qualifications confirm links between staff quality and other dimensions of program quality, particularly classroom dynamics (pp. 16-17). The importance of staff qualifications as a predictor of program quality is even acknowledged by Blau (1997) who otherwise questions efforts to improve day care quality through regulation and subsidization. He found that even when they were statistically significant, the effects of group size and staff/child ratio were "relatively small in magnitude," while some measures of teacher training and education had "robust positive effects on child care quality" (p. 382).

More recent studies, focusing on specific dimensions of quality, confirm the value of teacher qualifications and training. Rhodes and Hennessy (2000), reporting on the effects of introducing a 120-hour preschool training course, show that the training resulted in improved caregiver knowledge and behavior and that the children in their care also made significant gains in complex social and cognitive play from pre- to post-training. Currie and Hotz (2001) have quantified a link between increased safety in child care settings and both higher teacher qualifications and more frequent regulatory activity. Their data show that "requiring training beyond high school for caregivers reduces the incidence of both fatal and non-fatal accidents" (p.3). As noted earlier, while there is a possibility that other factors may mitigate — or "crowd out" — some of the positive effects of increased inspections, the researchers are clear about the effects of training and the influence of regulation on caregiver qualifications:

In an examination of the choice of child care modes, we find no evidence that higher education requirements lead to children being crowded out of the regulated sector. Thus, higher education requirements appear to be good public policy. They reduce both fatal and non-fatal accidents without reducing children's access to regulated care." (p. 31)

With respect to child care homes, regulatable features of care, especially caregiver education and training, appear to affect children's development. Researchers analyzing data from the NICHD Study of Early Child Care conclude that their findings "make a case for regulating caregiver's education and training and for requiring that child care homes not exceed the recommended age-weighted group size" (Clarke-Stewart, et al. 2002). Others, following secondary analyses of two large studies of over 300 child care homes, indicate that their findings suggest that, in settings where group sizes are "too small to moderate," parents and policy makers should "rely more heavily on characteristics such as caregiver training or education than on group size or child:adult ratios as they make decisions about child care homes" (Burchinal, et al., 2002).

Studies of the relationship between staff quality and other dimensions of quality serve to validate and give specificity to broader statements of the importance of caregiver qualifications. The conclusion of *Eager to learn* (2000, 2001) emphasizes the teacher/caregiver's leading role in the provision of higher quality care:

We know that the quality of programs in which [parents] leave their children matters. If there is a single critical component to quality, it rests in the relationship between the child and the teacher/caregiver, and in the ability of the adult to be responsive to the child. (2000, pp. 20-21; 2001, p. 322)

Such conclusions make it clear that regulators who wish to influence child care quality should make the development and enforcement of requirements for higher staff qualifications a priority.

What does NAEYC Say?

In presenting its accreditation criteria, the National Association for the Education of Young Children (NAEYC) affirms that the quality of staff is "the most important determinant of the quality of an early childhood program" (p. 35). NAEYC makes the

following recommendations for a differentiated staffing structure:

- Staff who work directly with children should be 18 years of age or older.
- Early Childhood Teacher Assistants should be high school graduates, or the equivalent, with some training in early childhood education/child development (ECE/CD) and/or participate in ongoing professional development.
- Early Childhood Teachers should have at least a Child Development Associate Credential (CDA) awarded by the Council for Professional Recognition or an associate degree in Early Childhood Education (ECE)/Child Development (CD) or equivalent, and preferably a baccalaureate degree in ECE/CD.
- Staff working with school-age children should have professional preparation in ECE, CD, elementary education, recreation or a related field.
- Administrators should have at least a baccalaureate degree in ECE/CD and three years of full-time teaching experience with young children and/or a graduate degree in ECE/CD.
- Programs should provide ongoing professional development for staff. (pp. 36-39)

What do the NHSPS Say?

The National Health and Safety Program Standards (NHSPS) (1992 and 2002) include standards related to qualifications by role (for example, director and teacher in various circumstances), general qualifications for all staff, training, substitutes and other related issues (Chapter 1). For details about the specific combinations of coursework and experience that meet those qualifications, readers are referred to NAEYC and other organizations.

What Does Head Start Say?

The Head Start Program Performance Standards (1996; 1999) address staff qualifications and training in 45 CFR 1304, Subpart D — Program Design and Management. Standards in this part (§1304.52) set out goals for specific roles that are described in more detail in the accompanying guidance (1999).

Classroom teachers must meet the qualifications specified in section 648A of the *Head Start Act*. According to the most recent amendment, classroom teachers must have, at least, a current CDA appropriate to the program and ages of the children served or a State-awarded certificate that meets or exceeds the CDA (1304.52(d)(1); 1999, p. 196). Early Head Start and Head Start staff working as teachers with infants and toddlers must get a CDA for Infant and Toddler Caregivers or equivalent credential within one year of hire, and additional training in infant and toddler development and safety (§1304.52(f)).

Head Start grantees and delegate agencies are responsible for establishing a structure for providing staff, as well as volunteers and consultants, with orientation and ongoing training. This training must be designed to give them the knowledge and skills to implement the Performance Standards, and information about methods for identifying and reporting child abuse and neglect and for planning successful child and family transitions to and from the Early Head Start or Head Start program. In addition, they must provide training and orientation to members of governing bodies, and policy councils and committees (§1304.52(k)).

What Do the States Do?

Pointing out that there is considerable variation in state child care licensing requirements, and using data collected by Wheelock College's Center for Career Development (now the Institute for Leadership and Career Initiatives), Sheri Azer identifies regulatory aspects that might be included in regulations to promote a career development approach to staff development:

- Specialized early childhood pre-service and ongoing training;
- Progressive qualifications;
- Role progression;
- Specification and distribution of content areas; and
- Experience requirements.

Azer indicates that since it is difficult to find all of these in one state, her report will highlight examples from four states with strengths in one or more aspects: Massachusetts, Kansas, Vermont and Colorado. Massachusetts has a number of teacher levels, while Kansas and Vermont both set requirements according to center size, and Colorado requires ongoing training in specific topic areas (Wheelock — Azer and Bowie, 2000).

In another Wheelock report, *Trends in Child Care Licensing and Regulation* (2000), Morgan and Azer report that a comparative study from 1986 to 1997 shows states adding more annual ongoing training to their regulations, a trend that continued in 1999 and 2000 (Wheelock — Morgan and Azer, 2000). Wheelock (2000) also reports that, as of November 2000, at least 15 states had a director credential. Three organizations were awarding a national director credential: the Child Development Alliance (the Administrator's Christian Child Development Education Credential), the National Child Care Association (National Administrators Credential), and the National Association of Professional Administrators (Professional Administrator National Credentialing).

Many states are improving staff qualifications through apprenticeship — a combination of on-the-job training and related college-level instruction targeted toward practitioners in the field. Under its recent Quality Child Care Initiative, the U.S. Department of Labor provides grants help states develop registered apprenticeship programs to train early care and education workers. Up to 2000-2001, the initiative had awarded 21 grants to sustain and implement statewide registered apprenticeship programs. As a result, at least 39 states now have some type of apprenticeship program in place, including three — Maine, Minnesota and West Virginia — whose statewide registered apprenticeship programs were in place before the Department of Labor initiative (Wheelock, 2001c).

The need for higher qualified staff is great. The GAO (1998) concluded that even though caregiver education and training is considered one of the “most critical” areas for child care standards, only two states incorporated NAEYC standards, and only for teachers. Other state standards for teacher and director qualifications were lower than those recommended by NAEYC (pp. 9-10). Given that NAEYC requires at least a CDA

credential for teachers, Wheelock's data for 2001 (2001a) show that while there has been some improvement since 1998, the vast majority of jurisdictions still fall short. Of the 22 states that require teachers in child care centers to have training, only nine appear to meet NAEYC's minimum. Seven states require at least a CDA or the National Child Care Association's Certified Child Care Professional Credential (CCP). Rhode Island specifies a bachelor's degree in any field and, with that, the teacher must also meet the standards for Rhode Island Early Childhood Certification. New York City (considered as a separate jurisdiction for data collection) requires early childhood teacher certification but Wheelock does not provide details. Of the 12 states that require providers in large family child care homes to have training, only five require a CDA, and, of the nine requiring training for providers in small family child care homes, only Vermont specifies a CDA.

II.2: RATIOS AND GROUP SIZE

Recent reports also confirm the importance of ratios and group size, the two policy variables that join with staff qualifications to create the “iron triangle.” Of these three, the NDCS concluded that group size had the “most consistent and pervasive effects” on teacher and child behavior, while ratios were important, especially for infants and toddlers (Hayes, et al., 1990, p. 87). Since, in their view, appropriate ratios depend on related features such as group size, the availability of other adult caregivers, the arrangement of physical space, and the qualifications of the caregivers, the editors of *Who cares for America’s children* suggest reasonable ranges, based on research and best practice. Similarly, they provide suggested ranges for group size, noting that although children benefit from social interactions with peers, larger groups are associated with less positive interactions and developmental outcomes. Their suggestions are presented in Table 1 below.

Table 1 — Suggested Ranges: *Who cares for America’s children*

Age	Staff/Child Ratio	Group Size
0 - 1 year old	1:4	6 - 8
1 - 2 years old	1:4	6-12
2 years old	1:3 to 1:6	6-12
3 years old	1:5 to 1:10	14-20
4 and 5 years old	1:7 to 1:10	16-20

Subsequent research findings related to both ratios and group size are not nearly as consistent as results related to staff qualifications. In fact, they range from the negative findings of Blau (1997 and 1999) and Holferth and Chaplin (1998), who are mainly concerned with influences on the supply and use of child care services, to the very positive assertions of the Committee on Early Childhood Pedagogy in *Eager to learn* (2000) that class size and adult-child ratios are correlated with greater program effects. However, even developmental researchers achieve mixed results in studies involving ratios and group size. Perhaps for that reason, NAEYC (1998) permits variations when

programs demonstrate “a very high level of compliance” with criteria for other dimensions, including interactions, curriculum, staff qualifications, health and safety, and the physical environment. Similarly, as noted above, *Not by chance* (1997) urges licensing agencies to provide for flexibility by allowing mixed-age groups, and giving programs the option of regulating staffing levels by group size or program size, and, possibly (if justified by research), permitting better qualified staff and higher staff/child ratios, especially for three- to five-year-olds (pp. 22 and 32).

What Does NAEYC Say?

NAEYC confirms the importance of both group size and staff/child ratios, stating in its revised accreditation criteria (1998) that smaller group sizes and larger numbers of staff to children are related to positive outcomes for children. NAEYC defines a group as “the number of children assigned to a staff member or team of staff members occupying an individual classroom or well-defined space, with clear physical barriers that prevent intermingling of children within a larger room.” (pp. 45-66)

Groups may be age-determined or multi-age, and size is determined by the distribution of ages in the group. Size may be limited by a number of factors, including

- Type of activity;
- Whether indoors or outdoors; and
- The inclusion of special needs children.

Similarly, ratio depends on

- The age of the children;
- The size of the group;
- Type of activity;
- The inclusion of special needs children; and
- Time of day.

According to NAEYC, multiage grouping is both “permissible and desirable.” When no infants are included, ratio and group size requirements are based on the age of the majority of the children in the group. When infants are present, the ratio and size for infants must be maintained. When regular staff are absent, ratios can be maintained through substitutes and volunteers. Volunteers, however, must meet appropriate staff qualifications, unless they are parents or guardians. Every effort should be made to maintain continuity within the day and over time, and reduce daily transitions and regroupings.

Table 2 shows ratios and group sizes recommended by NAEYC.

Table 2 — NAEYC Criteria for Ratios and Group Size in High Quality Programs

Age	Staff/Child Ratio	Group Size
0 - 1 year old	1:3 or 1:4	6 or 8
1 - 2 years old	1:3 or 1:4 or 1:5 or 1:4	6 or 8 or 10 or 12
2 years old (to 30 months)	1:4 or 1:5 or 1:6	8 or 10 or 12
2 ½ years old (30 -36 months)	1:5 or 1:6 or 1:7	10 or 12 or 14
3 years old	1:7 or 1:8 or 1:9 or 1:10	14 or 16 or 18 or 20
4 years old	1:8 or 1:9 or 1:10	16 or 18 or 20
5 years old	1:8 or 1:9 or 1:10	16 or 18 or 20
Kindergartners	1:10 or 1:11 or 1:12	20 or 22 or 24
6 - 8 years old	1:10 or 1:11 or 1:12 or 1:15	20 or 22 or 24 or 30
9-12 years old	1:12 or 1:15	24 or 30

In making its recommendations for ratios and group size, NAEYC cites earlier research, including the NDCS and the CQO study, which demonstrated that limited group size is related to positive outcomes for children. In the wake of CQO, the CQCGS study (1999) found that positive teacher-child relationships, which are directly affected by both ratio and group size, are related to better outcomes for children in both social and cognitive domains (p. 9).

What do the NHSPS Say?

The NHSPS (1992 and 2002) recommend more stringent ratios than NAEYC for centers and large family homes. As Table 3 illustrates, unlike the other two standards discussed here, the NHSPS do not include ranges. The standard with respect to mixed age groupings is the same as that recommended by NAEYC (1992, ST2; 2002, 1.002).

Table 3 — National Health and Safety Performance Standards for Ratios and Group Size in Centers and Large Family Homes

Age	Child/Staff Ratios	Maximum Group Size
Birth - 12 months	3:1	6
13 - 30 months	4:1	8
31 - 35 months	5:1	10
3 years old	7:1	14
4 years old	8:1	16
5 years old	8:1	16
6 - 8 years old	10:1	20
9 - 12 years old	12:1	24

In providing a rationale for their recommendations, NHSPS authors cite both fire safety and developmental concerns. Low ratios for nonambulatory children are “essential” for fire safety. The National Fire Protection Association recommends in its *NFPA-101 Life Safety Code* that no more than three children under two years of age be permitted in large family child care homes with two staff members caring for up to 12 children.

Developmental concerns focus on the need to limit group size and ratios to foster more positive interactions and developmental outcomes:

Child:staff ratios are not predictors of quality of care, but direct, warm, social interaction between adults and children is more common and more likely with lower child:staff ratios.

Reasons for the NHSPS recommendations include:

- Evidence that infant development is impaired if large numbers are permitted per caregiver;

- The fact that overall size of the group was found by the NDCCS to have a “powerful” effect on the quality of a facility “without a concomitant effect on the cost” (1992);
- The fact that three- to five-year-olds require continued adult support and guidance while being encouraged to participate in independent, self-initiated play and other activities;
- The need for staff who are not “fragmented by excessive demands” to ensure children's physical safety and maintain sanitation routines; and
- The fact that excessive numbers of young children increase the danger of high caregiver stress and loss of control.

The authors define a “group:”

... the number of children assigned to a caregiver or team of caregivers occupying an individual classroom or well defined space within a larger room.

They suggest that for school-age children, the group represents a “homeroom” and is “the psychological base that the child identifies with and from which the child gains continual guidance and support.” It does not prohibit larger numbers of children from joining together from time to time “as long as child:staff ratios and the concept of ‘homeroom’ are maintained.”

Comments on this standard emphasize the importance of meeting the costs of maintaining recommended ratios and group sizes. Those who question such costs are said to “overlook the basic needs of children” and have a “lower priority for children than is acceptable.” To confirm compliance with this standard requires unscheduled inspections by licensors.

In addition to recommendations for centers and large family homes, the NHSPS recommend that ratios be maintained during transportation (1992, ST3; 2002, 1.004) and provide additional ratios for wading or swimming (1992, ST4; 2002, 1.005) and facilities serving special needs children (1992, CSN37; 2002, 1.003). In all cases, ratios do not include other personnel, such as bus drivers, who may be present.

What Does Head Start Say?

The Head Start Program Performance Standards (1996; 1999) address classroom staffing in 45 CFR 1304 and 1306. Each teacher working exclusively with infants and toddlers must have responsibility for no more than four infants and toddlers and no more than eight infants and toddlers can be placed in one group. If state, tribal or local requirements are more stringent, then the grantee or delegate agency must follow them (§ 1304.52(g)(4)).

When a grantee provides a center-based Head Start program (i.e., a program provided primarily in a classroom), the grantee must ensure that the class is staffed by a teacher and an aide or two teachers and, whenever possible, a volunteer (§1306.20). As shown in Table 4, class size is based on the predominant age of the children in the class, and whether a center-based double session variation is being implemented (i.e., a variation that operates with one teacher who works with one group of children in a morning session and a different group of children in an afternoon session) (§ 1306.32).

Table 4 — The Head Start Program Performance Standard for Class Size

Predominant Age of Children in Class	Funded Class Size (Funded Enrollment)
4 and 5 year olds	Program average of 17-20 children enrolled per class. No more than 20 children enrolled in any class.
4 and 5 year olds in double session classes	Program average of 15-17 children enrolled per class. No more than 17 children enrolled in any class.
3 year olds	Program average of 15-17 children enrolled per class. No more than 17 children enrolled in any class.
3 year olds in double session classes	Program average of 13-15 children enrolled per class. No more than 15 children enrolled in any class.

What Do the States Do?

According to statistics gathered by Wheelock College (2001b), many states are still not regulating group size, even though its importance was identified more than twenty years ago. In addition, many states continue to permit higher than recommended staff/child ratios so that many of those who do regulate group size, permit groups whose size is much beyond the optimal. With respect to four-year-olds, for example, of 52 jurisdictions surveyed (including both New York and New York City), 20 do not regulate group size. Of the 32 that do regulate both group size and ratios, only 13 are within limits recommended by NAEYC, requiring a ratio of 1:10 with a group size of 20, at the outer limit of NAEYC's range. New York State requires a ratio of 1:8, but permits a group size of 21. At the other end of the spectrum, four states permit a maximum ratio of 1:20, with Texas also allowing a group size of 35. Georgia's ratio is 1:18 with a group size of 36.

The GAO found that many state staff/child ratios mirrored those set out in NAEYC's standards and that when they did not, the range of deviation was relatively small, at least for younger age groups (p. 10). In contrast, fewer states mirrored standards for group size and state standards reflected a wide range for all age groups (p. 11).

II. 3: *PHYSICAL FACILITIES - SPACE AND EQUIPMENT*

Moving beyond the “iron triangle” variables, Hayes et al. (1990) identify space and facilities, including equipment, as additional dimensions of quality. With respect to center-based care, they note that the relevant issues are sufficiency of space and the organization of space and equipment (p. 94). They cite research indicating that spacious child care centers appear to be associated with focused solitary play, while the presence of a variety of age-appropriate materials and the arrangement of the space to accommodate group size, seem to influence social problem-solving skills (Holloway and Reichhart-Erickson, 1988). Better cognitive and social skills have also been observed in centers that were more orderly, had more varied and stimulating materials, and were organized into activity areas (Clarke-Stewart, 1987).

Much later, Moore et al. (1999) report that more stimulating care is associated with centers and homes with better organized space and more varied materials, but comment that few researchers have analyzed this dimension of quality care.

Nonetheless, several instruments have been developed to measure the attributes of classroom structure, including the physical space. In reviewing these instruments, Love et al. (1997) consider the quality and quantity of space for both children and adults, as measured by specific features, including:

- Square footage;
- The provision of private, comfortable areas for children;
- Child-sized facilities;
- Space for group activities;
- Safety features - inside and outside;
- Separate space exclusively for adults;
- Space that is accessible for special needs children; and
- A professional library for staff (p.13).

Learning materials are mentioned elsewhere in their review under Classroom Dynamics.

What Does NAEYC Say?

Since the quality of the physical space and materials provided is believed to affect both the level of children's involvement and the quality of interactions between children and adults, the physical environment is assessed as part of NAEYC's accreditation process.

Features that enhance quality include:

- Indoor and outdoor environments that are safe, clean, attractive, and spacious;
- Sufficient space — preferably more than the *minimum* of 35 square feet of usable playroom floor space indoors per child and *minimum* of 75 square feet of outdoor play space per child;
- Clearly defined activity areas;
- Age-appropriate materials and materials of sufficient quantity, variety and durability and accessible to children;
- Individual spaces for children to store personal belongings;
- Private areas for children to have solitude, indoors and outdoors;
- The presence of soft elements, including furniture, play surfaces and materials;
- Sound absorbing materials that reduce noise;
- A variety of outdoor surfaces and equipment as well as barriers to protect children from danger; and
- A comfortable work environment and separate areas and facilities for adults. (pp. 49-52)

What Do the NHSPS Say?

Chapter 5 of the NHSPS includes a number of standards (1992, FA1-FA323; 2002, 5.001-5.242) related to facilities, supplies, equipment and transportation. These standards consider a wide range of issues, including layout and construction, usage and safety.

With respect to indoor space, for example, the NHSPS recommend a minimum of 35 square feet of available play space per child which should be free of furniture and equipment, and suggest that “with a usual furnishing load,” this usually amounts to 50 square feet measured wall-to-wall (1992, FA138; 2002, 5.112). When care is provided for

infants, the standard is a minimum of 30 square feet for infant sleeping areas that are separate (1992, FA210; 2002, 5.143).

Similarly, the NHSPS recommend an outdoor playground with at least 75 square feet for each child using the playground at any one time (1992, FA219; 2002, 5.162). Again, there is an exception for younger children — a minimum of 33 square feet of accessible outdoor play space is required for each infant, and 50 square feet for each child from 18 to 24 months (1992, FA220; 2002, 5.162).

What Does Head Start Say?

The Head Start Program Performance Standards (1996; 1999) address facilities, materials and equipment in 64 CFR1304.53. Standards in these areas are designed to support programming for the ages and individual needs of the children served. The program guidance provided to support this section is based upon resources from Head Start and NAEYC as well as the NHSPS. For example, like both NAEYC and the NHSPS, the Head Start standards require 35 square feet of usable indoor space and 75 square feet of usable outdoor play space for each child (§1304.53 (a)(5)).

II.4: THE STRUCTURE OF DAILY ROUTINE - CURRICULUM

Hayes et al. (1990) also regard the structure and content of daily activities — essentially, the curriculum — as variable dimensions of quality. Contrasting what they term “unstructured custodial care” with care that includes structured daily activities, they cite research indicating that children in settings that offered organized activities designed to prepare children for school, showed gains in language development and cognitive measures. Further, with respect to specific program content, they note that findings of the High/Scope Perry Preschool Study indicate that a number of curriculum models were *equally* effective in improving children’s education, although they may have different implications for social development (pp. 92-93).

In the intervening years, following on the establishment in 1990 of the first National Education Goal, that by the year 2000, all of America’s children would be ready to learn, school readiness has become an increasingly important objective in early childhood settings. As noted at the outset, recent reports, such as *Not by chance* (1997), *From neurons to neighborhoods* (2000) and *Eager to learn* (2000; 2001), address the merging of custodial care and education. Although the authors of *Eager to learn* say they cannot identify a “single curriculum or pedagogical approach,” they note that children learn more and are “better prepared” for formal schooling who attend “well-planned, high-quality early childhood programs in which curriculum aims are specified and integrated across domains” (p. 6). The development of teaching materials is the second of the four areas in which they make recommendations for the development and delivery of curriculum (pp. 10 and 12-13).

What Does NAEYC Say?

In establishing a rationale for its curriculum criteria, NAEYC states (1998) that curriculum includes the program goals or content, planned activities, daily schedule, routines and transitions, and materials. Curriculum features of high quality programs include:

- A written statement of program philosophy and goals that is available to all;

- Written curriculum plans and goals based on knowledge of child development and learning, and assessment of the needs and interests of individual children;
- Inclusive programming, based on individualized education plans as appropriate;
- A daily schedule that considers the child’s total daily experience and includes a balance of indoor and outdoor (when safe) activities, periods of quiet and active play, large and small muscle activities, types of group activities, and child- and teacher-initiated activities;
- Developmentally appropriate materials and equipment, including some active media (e.g., videotaping), but limited passive media (e.g., television);
- Communication with parents to inform them of materials that are important to children at home;
- Opportunities for children to choose their own activities;
- Planned transitions and routines that serve as vehicles for learning; and
- Flexibility to accommodate children’s needs and interests, as well as weather conditions and other unforeseen situations. (pp.22-29)

What Do the NHSPS Say?

Chapter 2 of the NHSPS includes a number of standards (1992, PR1-PR63; 2002, 2.001-2.067) related to programming, particularly program aspects most relevant to health and safety. The NHSPS begin with basic requirements, including the need to establish a planned program of activities based each stage of the child’s development. In addition, centers must develop a written plan that sets out the basic elements from which the daily program is to be built. These elements are considered more fully in subsequent standards. The rationale behind this standard derives from the fact that early childhood specialists agree that

- Cognitive, physical, emotional and social development are inseparable;
- Continuity of affectionate care is of central importance;
- The phase or stage concept is relevant to development; and
- Action (including play) is an important mode of learning.

For program planning resources, readers are referred to *NAEYC Accreditation Criteria and Procedures*, the National Association for Family Child Care (NAFCC) accreditation standards, and the standards of the National Child Care Association (1992 PR1; expanded in 2002, 2.001).

What Does Head Start Say?

The Head Start Program Performance Standards (1996; 1999) address education and early childhood development in 45 CFR 1304.21 — as an approach for all children (§1304.21(a)), for infants and toddlers (§1304.21(b)) and preschoolers (§1304.21(c)). Program guidance in these areas is based on a developmentally appropriate model and the conviction that a planned, organized, consistently implemented curriculum support child development and education (1999, pp. 58-59). Curriculum is defined in the Program Standards:

Curriculum means a written plan that includes

- (i) the goals for children’s development and learning;
- (ii) the experiences through which they will achieve these goals;
- (iii) what staff and parents do to help children achieve these goals; and
- (iv) the materials needed to support the implementation of the curriculum.

The curriculum is consistent with the Head Start Performance Standards and is based on sound child development principles about how children grow and learn. (§1304.3(a)(5)).

III: OTHER DIMENSIONS OF QUALITY

In 1990 Hayes et al. called for further study of other structural features that might be important to the quality of care, including center size, parent involvement, sensitivity to diversity and caregiver autonomy (p. 97). By 1997, *Not by chance* researchers were questioning whether the variables of the iron triangle — which they call “the three ‘sacred’ factors” — were the most important determinants of quality, or whether “the combination of these and other factors might be more significant” (p. 15). Among the other factors they discuss are diversity, accreditation and the organizational climate. A whole chapter of the report is devoted to parent involvement. Safety and health has been identified by the GAO as a further area where standards appear to be “good predictors of high quality child care” (1998, p. 4).

In their Working Paper (97-36, 1997) for the National Center for Education Statistics (NCES), *Measuring the quality of program environments in head start and other early childhood programs*, Love et al. review the quality dimensions of early childhood program environments as measured by five instruments* in 11 studies.** They describe the measurable dimensions of classroom and program environments under five headings:

- Classroom Dynamics;
- Classroom Structure;
- Staff Characteristics;
- Administration and Support Services; and
- Parent Involvement.

Reference has already been made to items under the first three of those headings. It may be instructive to turn now to the variables associated with the other two.

* The five instruments are: Early Childhood Environment Rating Scale (ECERS), Assessment Profile for Early Childhood Programs (Assessment Profile), Arnett Scale of Caregiver Behavior (Arnett Scale), Classroom Practices Inventory (CPI), and Preschool Classroom Snapshot (PCS).

** The 11 studies are the Comprehensive Child Development Program evaluation (CCDP); Cost, Quality, and Child Outcomes in Child Care Centers (CQCO); California Staff/Child Ratio study (CSCR); Even Start family literacy national program evaluation (ES); Head Start Family Service Center demonstration (HSFCC); Job Opportunities and Basic Skills training program evaluation (JOBS); National Child Care Staffing study (NCCS); National Transition Study (NTS); Observational Study of Early Childhood Programs (OSECP); Profile of Child Care Settings study (PCCS).

III.1: ADMINISTRATION AND SUPPORT SERVICES

Love et al. state that while evidence of relationships between administrative variables and child outcomes is “scant,” all of the studies they examined collected data related to administrative elements (p. 21). In contrast, they note that the literature does offer “insights” into the relationship between administrative/support services and quality, and say they discuss these variables because they believe they represent “important dimensions of overall program quality” (p. 22).

Love et al. examined six attributes of administration and support services:

- Qualifications of the director or administrator;
- Coordination with and assessment of staff;
- Program administrative characteristics;
- Program schedule;
- Financial capacity; and
- Supportive services for children and families.

Their review reports findings of three studies: the National Child Care Staffing Study (NCCS), the Profile of Child Care Settings Study (PCCS) and the Cost, Quality, and Child Outcomes in Child Care Centers Study (CQCO). The CQCO found that state licensing standards were important, with states with higher licensing standards having a smaller proportion of poor-quality centers. Similarly, accredited centers also provided higher quality care than non-accredited centers. In addition, when everything else was held constant, an increase in the center administrator's experience was associated with higher quality care (pp. 43-44).

While suggesting that combinations of factors may be more significant than individual dimensions of quality, *Not by chance* urges the adoption of a broader perspective that can take in overall programs, not just individual classrooms. That perspective includes consideration of the organizational climate and organizational leadership. The report calls upon researchers to give more attention to the total context, since “quality is contingent”

not only upon interactions between children and practitioners, but also “upon the policies, procedures, and practices of the total program” (p. 14).

What Does NAEYC Say?

NAEYC’s accreditation criteria (1998) also relate to program administration since effective administration can create “an environment that facilitates the provision of good quality care and education.” Among the elements assessed in the accreditation process are:

- Annual evaluation and goal-setting;
- Written policies and procedures in relation to
 - Program operation (scheduling of hours and holidays, fee payment and refunds, enrollment and termination of children, abuse and neglect),
 - Personnel, and
 - Governance (the roles and responsibilities of board members and staff);
- Records (on the program and related operations, and finance);
- Confidentiality;
- Insurance;
- Staff communication and support;
- Staff working conditions; and
- Provision for leadership in the event of the director’s absence or an emergency (pp. 40-44).

What Do the NHSPS Say?

Chapter 8 of the NHSPS includes a number of standards (1992, AD1-AD91; 2002, 8.001-8.079) related to administration. Topics range from the need for an identifiable governing body or accountable individual, to the necessity of a management plan and policies and procedures, as well as such administrative tools as a written statement of services, special needs plan and specific child and facility records. The NHSPS also require the director to have a course in business administration or the equivalent on-the-job training in an administrative position. (1992, ST6; 2002, 1.014).

What Does Head Start Say?

The Head Start Program Performance Standards (1996; 1999) address administrative issues in 45 CFR 1304, Subpart D — Program Design and Management. Head Start is characterized by a formal structure of shared governance, including policy groups, Parent Committees and governing bodies. §1304.50 provides standards for governance and includes a chart illustrating the relationship between governance and management responsibilities. §1304.51 focuses on management systems and procedures, including planning, communication, record-keeping, reporting and self-assessment. §1304.52 sets out standards for human resources management, including organizational structure and staff qualifications.

Qualifications for Early Head Start or Head Start directors include “demonstrated skills and abilities in a management capacity relevant to human services program management” (§1304.52(c)). Guidance in relation to this standard suggests that agencies may choose to specify education, knowledge or experience in substantive areas such as early childhood education or child development but, unlike managerial qualifications, such background characteristics are not mandatory for directors (1999, p. 194).

Grantees and delegate agencies must also secure the regularly scheduled or ongoing services of a qualified fiscal officer (§1304.52 (d)(8)).

III.2: PARENT INVOLVEMENT

Reviewing variables related to parent involvement, Love et al. examined six attributes:

- Parent participation in the classroom;
- Parent involvement in parent-education activities;
- Parent involvement in program decision making;
- Parent interaction with other parents;
- Parent approaches to child development in the home; and
- Parent interaction with staff and other community members.

They report that the Observational Study of Early Childhood Programs (OSECP) concluded that “when the level of parent involvement was high, overall classroom quality was higher.” (High parent involvement was defined as a 75 percent participation rate in at least three of a number of specified activities.) (p. 44).

The relationship between child care and parental involvement is complex. Although the NICHD Study (1998) found that, in general, family characteristics and the quality of the mother-child relationship were stronger predictors of children’s development than child care factors, researchers found that higher quality child care modestly predicted both greater sensitivity by mothers (at 15 and 36 months), and greater positive engagement of the child with the mother (at 36 months). Thus, it appears that parent involvement in a child care arrangement leads to higher quality care, and higher quality care, in turn, leads to higher quality interactions between parents and their children.

Not by chance cites research confirming the benefits of parent involvement in early childhood programming for both children and parents (p. 30 ff). *Eager to learn* recommends that states establish standards in a number of categories, including school-home relationships (Recommendation 10, p. 13), and further, urges early childhood programs and centers to “build alliances with parents to cultivate complementary and mutually reinforcing environments for young children at home and at the center” (Recommendation 15, p. 14).

What Does NAEYC Say?

NAEYC states that programs cannot adequately meet the needs of children unless they recognize the importance of the child's family and establish two-way communication, recognizing that "parents should be the principal influence in their children's lives."

Accordingly, NAEYC surveyors determine whether the following occur:

- Information about the program is given to families, including a written description of the program's philosophy and operating procedures;
- Families have input into policies and procedures, and plans to meet individual needs;
- Materials are provided in the parent's native language;
- A family orientation process is in place;
- Teachers regularly collaborate with parents to respect their wishes and cultural heritage;
- Parents are welcome to visit and participate in the program;
- Systems are in place so that staff can share information about children with parents, orally or in writing, on a regular basis;
- Decisions about children's ongoing development and learning are made following conferences with parents, on an annual basis or as needed;
- Families are informed about changes or critical issues as they arise through newsletters, bulletin boards or other means;
- Teachers and families communicate to smooth transitions from program to program;
- Staff respect parents and are sensitive to their circumstances;
- Staff connect parents with community resources as required; and
- Policies and structures are in place to help negotiate difficulties and differences between programs and families. (pp. 30-34)

What Do the NHSPS Say?

Chapter 2 of the NHSPS addresses relationships with parents (1992, PR38-PR63; 2002, 2.044-2.067). Standard PR38;2.044 says that "all aspects of child care programs shall be designed to facilitate parental input and involvement." According to the rationale for this standard, positive relationships between caregivers and parents have value for children of all ages. They create a "continuity of affection and concern" that helps the child adjust to

separation. For infants and young children, positive relationships alleviate stress and help the child deal with the separation experience. They give parents of preschoolers confidence and enhance their sense of competence. For school-age children parent/caregiver relationships serve as models of positive adult relationships and demonstrate mutual concern for the well-being of the child. The NHSPS also include standards that focus on the importance of communication between caregivers and parents, especially the need for caregivers to provide parents with information and education, in both informally, as in conversations, and in more formal ways, such as planned parent conferences.

What Does Head Start Say?

Parent involvement is a key component of Early Head Start and Head Start programs. The Head Start Program Performance Standards (1996; 1999) address parent involvement in 45 CFR 1304, Subpart C, especially §1304.40: Family Partnerships. These standards require that parents be involved in all aspects of the program and participate in the design of activities and experiences that will help them expand their own strengths and interests (§1304.40(d)(1)) as well as work with staff to support each child's growth and learning in both home and program environments (§1304.40(e)(1)) (1999, p. 133 and p. 134).

Parents are considered the child's primary caregivers and advocates. Accordingly, the Program Standards require grantees and delegate agencies to involve parents in the process of assessing the child's health status and in consulting with parents when health or developmental problems are suspected or identified (§1304.20). In addition, grantees and delegate agencies are required to give parents a role in the governance of the program. Each program must have a parent committee "comprised exclusively of the parents of children currently enrolled" (§1304.50 (a) (2)) to assist in policy development and decision-making, and parent involvement must be supported by staff or consultants with expertise in assisting parents in advocating and decision-making for their families (§1304.52 (d)(6)).

IV: SAFETY, HEALTH AND NUTRITION

Along with caregiver education and training, child-to-staff ratios and group sizes, safety and health have been identified by the GAO as a fourth area in which standards appear to predict high quality care (1998, p. 4). The authors of *Who cares for America's children* (1990) consider practices that “protect children’s health and safety in child care settings” (p. 108). As a condition for achieving quality in out-of-home child care, they recommend the development of uniform national child care standards “based on current knowledge from child development research and best practice from the fields of public health, child care, and early childhood education” (p. 310).

In the Introduction to *Caring for our children* (1992), the authors of the National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs (NHSPS), acknowledge the work of Hayes et al. and identify the basic health and safety considerations in child care settings:

- A child must be safe and protected from *hazards and potential injuries*, including both intentional and unintentional injuries; and
- A child must also be protected from *potentially serious infectious diseases*, although it may be impossible to prevent the spread of infections such as upper respiratory infections and colds [emphasis added].

Facilities should also provide a setting for nurturing and affection that not only protects the child, but also promotes achievement of the child’s full potential for physical and psychological health (1992, p. xviii).

IV.1: SAFETY

IV.1.1: CHILD SAFETY

Since 1992 *Caring for our children* has served as a compendium of best practices based on research knowledge. In the intervening years, other organizations — as noted below — have conducted studies of child safety, both inside and outside of child care settings, and provided ongoing data on the safety of products designed for and used by children, as well as the injuries they have experienced. The *Americans With Disabilities Act* (ADA), which celebrated its tenth anniversary in 2000, has influenced what happens in child care settings and broadened the range of safety considerations that must be addressed there.

What Do the NHSPS Say?

The NHSPS include detailed standards for indoor and outdoor safety, especially in Chapter 5 —Facilities, Supplies, Equipment and Transportation (1992, FA1-323; 2002, 5.001-5.242). Chapter 7 (1992, CSN1-CSN92; 2002, 7.001-) provides information related to the care of special needs children (renamed in 2002 “Children Who are Eligible for Services Under IDEA”). In the revised edition, information about inclusion is also integrated throughout the standards. For example, standard 5.187 states that play equipment for children with disabilities conform to the requirements of the *Americans with Disabilities Act*. The accompanying comments direct readers to ADA guidelines, especially the US Access Board’s *Guide to ADA Accessibility Guidelines for Play Areas*.

What Does Head Start Say?

The Head Start Program Performance Standards (1996; 1999) provide for the safety of children in 45 CFR 1304 by preventing injury (§1304.22 (d)), and reducing hazards in facilities, materials and equipment (§1304.53 (a) and (b)). The guidance related to these sections provides detailed information on various aspects of program safety (1999).

Since 1972 the Head Start program has operated under a Congressional mandate to provide a minimum of ten percent of its enrollment opportunities to children with disabilities. In practice, Head Start exceeds this mandate. The passage of the Individuals With Disabilities Education Act (IDEA) and its amendments has caused a shift in the

nature of Head Start’s responsibilities for providing services to children relative to the responsibilities of state and local agencies. The Program Performance Standards state that, if appropriate, grantees or delegate agencies must develop “a disabilities service plan for meeting the needs of children with disabilities and their parents.” They must also assure that all components of the program are “appropriately involved in the integration of children with disabilities and their parents” and that resources are used efficiently (45 CFR1308.4(a)). Other requirements are designed to ensure that grantees and delegate agencies meet the needs of children with disabilities and their families and coordinate with other agencies, including agencies with responsibilities under IDEA (§1308, 1999). Disabilities services must be supported by staff or consultants with expertise in securing and individualizing services for children with disabilities (§1304.52 (d)(7)).

What Do the States Do? — the GAO’s Critical Areas

Although uniform national child care standards have not been enacted, federal law says that to receive funds from the Child Care and Development Block Grant (CCDBG), states must have requirements in the following areas to protect the health and safety of children:

- The prevention and control of infectious diseases;
- Building and physical premise safety; and
- Minimum health and safety training appropriate to the provider setting.

The law does not prescribe the specificity, stringency, or number of safety and health requirements, or the manner in which they should be enforced (GAO, 1998, 2000).

After considering safety and health standards for their 1998 report, GAO researchers identified four* critical areas for regulation:

- Playground equipment — specifically, pinch and crush points and surfaces;
- Hand washing;
- Sanitation — specifically, toys and indoor environmental surfaces; and
- Square footage — indoors and outdoors (pp. 7-8).

* Note: the authors indicate that, if time had permitted, they might have included other standards and request that their selection not be considered “a definitive list of the most critical standards” but as “illustrations of the types of critical standards in the health and safety area” (n. p. 7).

To get specific measures for these standards, they used the NHSPS (1992). In reviewing current state licensing requirements, they found that states most often paralleled NHSPS for indoor and outdoor square footage and that of the seven standards they examined, states, “on average,” followed approximately two:

In general, all states had standards in the safety and health areas GAO identified, but few had standards as specific as NHSPS. Emphasizing the importance of specificity in such standards, the report cites a comment from an expert that the specificity in NHSPS is “intentional and important” — “It reflects what is known from the research about preventing injury and also helps prevent ambiguity in the standard itself” (p. 12).

What Do the States Do? - the Consumer Product Safety Commission (CPSC) Study

A study of safety hazards in licensed child care settings carried out by the staff of the U.S. Consumer Product Safety Commission (CPSC) in 1998 revealed that two-thirds of the settings exhibited at least one of the safety hazards targeted in the study (CPSC, 1999). In fact, in a review of state licensing requirements, they discovered that most of the hazards considered in the study were not addressed. For example, many states did not require centers to use cribs that met federal and voluntary standards, and no state had a requirement addressing recalled nursery equipment.

In carrying out their study, CPSC staff visited 220 licensed child care settings randomly selected throughout the country, including Government Services Administration (GSA)-managed centers, non-profit centers, in-home settings, and for-profit centers. They gathered data for later analysis using a prepared checklist.

The following chart shows the results for the eight product areas included in the CPSC study:

Table 5 — The CPSC Study: Percentage of Child Care Settings with Safety Hazards

Product Area	Overall	GSA Centers	Non-Profit Centers	In Home Settings	For Profit Centers
Unsafe Cribs	8%	10%	15%	8%	0%
Soft Bedding Present	19%	42%	21%	8%	14%
Playground Safety - Unsafe Surfacing	24%	5%	18%	46%	17%
Playground Safety - Poor Maintenance	27%	11%	24%	33%	31%
Safety Gates Not Used	13%	6%	8%	21%	13%
Blind Cord Loops Present	26%	22%	31%	26%	20%
Drawstrings on Children's Outerwear	38%	30%	45%	26%	47%
Recalled Products in Use	5%	4%	5%	6%	4%

CPSC staff provided comments in relation to each product area:

- Cribs (8% had unsafe cribs) — more babies die in incidents involving cribs than with any other piece of nursery equipment (40 to 50 each year, at least nine in child care settings between 1990 and 1998). Problems include: slats that are too far apart, mattresses that are too small, cribs that are not sturdy, and catch points that entangle children’s clothing.
- Soft Bedding (19% had cribs with soft bedding) — soft bedding is a suffocation hazard that may be involved in deaths attributed to Sudden Death Syndrome (SIDS).
- Playground Surfacing (24% did not have safe surfaces)
- Playground Maintenance (27% did not have well-maintained surfaces) — playground related injuries account for more visits to emergency rooms than any other child-care-related injury. Most injuries result from falls from equipment and most often involve the head and/or face and arm and/or hand (37% each).
- Child Safety Gates (13% did not use gates where necessary) — safety gates prevent a wide range of injuries. In 1997, over 100,000 children under five years of age were taken to emergency rooms with stair-related injuries that gates might have prevented.
- Window Blind Cords (26% had loops on window blind cords) — about one child a month strangles on a window blind cord (at least two children died from being entangled in blind cords in child care settings between 1990 and 1998).

- Clothing With Drawstrings (38% had children wearing clothing with drawstrings at the neck) — drawstrings can catch on objects and strangle a child (drawstrings caused at least one death in a child care setting between 1990 and 1998).
- Recalled Products (5% had products that had been recalled by CPSC) — CPSC provides notices of recalled products and recommends that they be posted or distributed in child care settings (at least three children died in incidents involving a recalled portable crib/playpen between 1990 and 1998). CPSC-recalled products found at child care settings included toys, cribs and bean bag furniture.

In each of these cases CPSC either has its own voluntary safety standards or works to enforce other standards, including federal regulations on crib safety. For example, consumer information about specific products is available through the Juvenile Products Manufacturers Association (JPMA). JPMA standards are developed in cooperation with staff from CPSC, industry members and consumer groups, and written by the American Society for Testing and Materials (ASTM). They relate to high-chairs, walkers, cribs and other products for young children. Information about these products is also available in JPMA’s complimentary brochure, *Safe and sound for baby* (JPMA, 2001). Such publications are important since CPSC suggests that lack of information is a main reason why these hazards can be found in many child care settings (even when providers are well-meaning), and why they have not been adequately addressed in state licensing requirements.

What Do the States Do? - What Does the Research Say?

Two of the CPSC study categories relate to equipment for sleeping and one category, related to the presence of soft bedding, directly addresses a potential cause of Sudden Infant Death Syndrome (SIDS). Issues related to SIDS in licensed settings — involving both equipment and sleep position — have been the focus of a series of studies which confirm that regulation can play a positive role in promoting infant safety. In their report in *Pediatrics*, Examination of state regulations regarding infants and sleep in licensed child care centers and family child care settings, Moon, Biliter & Croskell (2001) present findings from their national survey of regulations and conclude that “adoption of new

regulations can aid in education of child care providers and, thus, improve the safety for infants in child care.” This report follows earlier articles in *Pediatrics*, including Infant sleep position policies in licensed child care centers after back to sleep campaign (Moon & Biliter, 2000) and Infant sleep position in licensed child care centers (Gershon & Moon, 1997).

What Do the States Do? — More About Playground Safety

Playground safety, identified as inadequate in approximately one quarter of the child care sites in the CPSC Staff Study of Safety Hazards in Child Care Settings, is considered a major cause of injuries to children. In 1997, alone, approximately 31,000 children, four years old and younger, were treated in emergency rooms in the US for injuries in child care or school settings. Eight thousand of these injuries resulted from playground falls. When the age-limit is raised to six years, CPSC estimates that playground-related injuries account for about 90,000 visits to emergency rooms each year — more than for any other child care-related injury (CPSC, Staff Study). In another SafetyAlerts bulletin (May 16, 2000) CPSC reports that each year about 200,000 children are treated in hospital emergency rooms for playground-equipment related injuries, including 148,000 injuries in public settings. About 15 children die each year as a result of playground equipment-related incidents. Most injuries result from falls to the ground or from one piece of equipment to another. Most deaths are due to strangulation, although some also result from falls. In fact, information published by the Packard Foundation (2000) indicates that injuries are the leading cause of death among children between one and 19 years of age.

Using data from the National Hospital Ambulatory Medical Care Survey, researchers in Cincinnati, Ohio, carried out a study of injury visits to emergency departments throughout the United States from 1992 to 1997 for children less than 20 years of age who had been injured during playground falls (Phelan et al, 2001). The study surveyed injuries at three locations: the school, home and public parks or recreation areas. “Daycare” was included in its “school” category and findings from the study point, once again, to the role that regulation might play in increasing child safety and enhancing child care quality. The importance of that role is highlighted by the fact that — according to its

authors — it is the first national survey to identify the school as the primary location of playground injuries. This fact grows in significance when they add that other researchers have shown playground falls to be a leading mechanism of injury in daycare centers. Current regulatory activity does not appear to be adequate. Results of the study include the finding that the rate and severity of playground injuries did not significantly decline over the period of the study. Furthermore, a higher proportion of playground injuries were assessed as “moderate-to-severe” compared to injuries due to motor vehicles, bicycles, or all falls. The severity of playground injuries is attributable to characteristics of playground equipment and ground surfacing, including the height of the equipment and the nature of the surface, two characteristics that can be regulated.

To address the need for safer playground environments, the National Program for Playground Safety (NPPS) was established in 1995. Based at the University of Northern Iowa, the program developed a National Action Plan for the Prevention of Playground Injuries and identified four goals for playground safety:

- S — Provide proper supervision of children on playgrounds
- A — Design age-appropriate playgrounds
- F — Provide proper surfacing under and around playgrounds
- E — Properly maintain playgrounds and equipment (NPPS).

For purposes of the plan, playgrounds are “designated areas located at public use sites such as schools, community parks and child care centers where stationary and manipulative play equipment is located to facilitate a child’s physical, emotional, social, and intellectual development” (National Action Plan). Using this definition, and focusing on their four goals, NPPS carried out a two-year-long study, *How safe are America’s playgrounds: A national profile of childcare, school and park playgrounds*. Identified as “the first comprehensive, random study of its kind,” it revealed that a majority of America’s playgrounds at schools, parks and child care centers are “unfit for children and, on average, barely receive a passing grade” (Report Cards). In results released in 1999 and 2000, the United States as a whole received a C, and individual states did not fare much better. No state received an A.

What Do Unintentional Injuries Cost?

According to the Children's Safety Network (CSN), whose resource centers are funded by the Maternal and Children's Health Bureau and the Department of Health and Human Services, research literature indicates that an estimated 10 to 20 percent of all injuries to children and adolescents occur in and around school (CSN, 1997). Although the data presented in their resource guide, *Injuries in the school environment* (April 1997, 2nd ed), only relates to children between the ages of five and 18, it reflects incidents similar in type to those experienced by younger children. Almost one-half (49%) of the injuries occurred in recreational areas, as opposed to a building, and falls were the most frequent (43%) cause of injury, including falls from playground equipment. Many required hospitalization or surgery.

Recommended preventive strategies include:

- Environmental changes to improve physical surroundings;
- Policies and regulations that are enforced;
- Modification of behavior; and
- Student instruction in how to play safely (including increased supervision).

These preventive measures provide guidance to licensing agencies charged with the responsibility of drafting safety regulations.

Also of interest to regulators and legislators is the fact that, assuming a conservative average cost of \$1000 per day, the cost of hospitalization related to the 1,558 cases involved in the study was over \$5 million. Furthermore, many injuries were not treated immediately or appropriately, which undoubtedly added to hospital costs. In addition, CSN notes that most of the literature focuses on the "underreporting" of school injuries, not on prevention, and states that patterns and causes are often "poorly understood" while the injuries themselves are not tracked. CSN includes sample injury report forms to help schools keep more effective records.

Taking a longer view, the Packard Foundation points to the staggering lifetime costs of unintentional childhood injuries. In the Executive Summary of the Spring/Summer 2000

issue of *The Future of Children*, the authors point out that, in 1996, unintentional childhood injuries cost society \$66 billion in present and future productivity losses due to premature death or long-term disability, \$14 billion in lifetime medical spending, and \$1 billion in other resource costs (Packard, 2000). Without adjustments for the injuries that may not have been reported, these amounts argue strongly for the implementation of preventive measures. Like the findings of the High/Scope Perry Preschool Study which quantified the social and personal value of early childhood interventions (Schweinhart et al., 1993),* these calculations should help to focus parents, caregivers and legislators alike on the value of ensuring health and safety through child care licensing.

Recommendations for Prevention

Like others, the authors of the Packard summary note that most injury deaths (and, it is assumed, most injuries) can be prevented. They point to three key approaches to prevention: education, environment and product changes, and legislation or regulation. They are very clear about the value of legislation and regulation:

Legislation and regulation are among the most powerful tools to reduce childhood injuries, and most enforcement and product design changes require legal action. Many existing laws, however, are not fully enforced or have loopholes that limit their effectiveness, and some effective laws have not been adopted in every state. (n.p.)

Among their examples are car seat laws and regulations for flame-retardant sleepwear. Car seat laws prevent about 71% of automobile crash-related deaths to infants and young children, but, in most states, do not require appropriate protection for children between the ages of about four and eight years old. Even though existing regulations requiring flame-retardant children's sleepwear have substantially reduced clothing burns, current efforts to relax that standard may lead to a reappearance of such burns (Packard, 2000).

* Researchers estimated that this intervention brought a return to society of \$8.74 for every dollar spent and that, after 27 years, program costs of \$12,356 had been offset by savings of \$108,002, for a net benefit to society of \$95,646 for each child who participated in the study [1992 US\$, discounted at 3%].

The Packard Foundation is not the only group to see regulation as a valuable preventive activity. A study from the National Bureau of Economic Research, cited earlier, found that the effects of maternal employment with respect to unintentional injuries to children can be mediated by child care regulations, especially the regulation of caregiver qualifications. It also found that enforcement behavior, specifically the frequency of regulatory inspections, is also likely to affect accident rates (Currie and Hotz, 2001).

The Americans with Disabilities Act (ADA) — Safety and Accessibility

While all children are at risk for unintentional injury, children with special needs are especially vulnerable. Such children require certain accommodations to make child care facilities and services safely accessible to them. For example, playground surfaces must be soft enough to limit injury from falls, but firm and stable enough for wheelchair maneuvering (Access Board, 2000).

Accordingly, on October 18, 2000, the Access Board published accessibility guidelines for newly built or altered play areas under the *Americans with Disabilities Act (ADA)*. (The Access Board, an independent Federal agency responsible for promoting accessibility for individuals with disabilities.) These guidelines apply to play areas at schools, parks and child care facilities (except those based in the operator's home, which are exempt), and other facilities subject to the *ADA*. Currently, the guidelines are not mandatory, but set a minimum baseline for enforceable *ADA* standards maintained by the Department of Justice (DOJ). They will become mandatory after the DOJ incorporates them into its *ADA* standards. Meanwhile, the guidelines are available and may be used as a reference when issues arise related to access to playgrounds and play equipment.

The guidelines were developed through a public notice and comment process. Child care centers had an opportunity to comment in the development phase, and current child care center licensing requirements were consulted during the development of the guidelines. Clearly, it will be important for licensing agencies to consult the guidelines before developing new licensing requirements for child care centers.

It may also be useful to consider the language of the guidelines to ensure consistency between *ADA* and state licensing requirements. For example, the guidelines refer to *play areas*. In a review of licensing requirements, the Access Board reports that it found that they “address *play space* and do not necessarily require *playground* equipment” [emphasis added] (Guidelines-Economic Assessment). The guidelines define key terms:

- Play area — a portion of a site containing play components designed and constructed for children;
- Play component — a manufactured or natural element intended to generate specific opportunities for play, socialization or learning, including
 - **Ground level play components** — approached and exited at ground level, and
 - **Elevated play components** — approached above or below grade and are part of composite structures that provide a variety of play activities;
- Ramps and Transfer Systems — methods of providing access to elevated play components;
- Use Zone — the ground level area beneath and immediately adjacent to a play structure or equipment that is designated for unrestricted circulation around the equipment and on whose surface it is predicted that a user would land when falling from or exiting the equipment; and
- Soft contained play structures — a play structure made up of one or more components where the user enters a fully enclosed play environment that uses pliable materials and requires an accessible route for entry.

Many other issues relating to compliance with *ADA* requirements are addressed in the document, *Commonly asked questions about child care centers and the Americans with Disabilities Act*, published by the Disability Rights Section of the Civil Rights Division of the US Department of Justice. Child care issues are also described in their more recent publication, *Enforcing the ADA: Looking back on a decade of progress* (DOJ, 2000). These documents raise issues relating to the administration of medication, diapering, allergies, HIV/AIDS and other topics that states must consider when developing new child care regulations.

IV.1.2: ADULT CRIMINAL/ABUSE BACKGROUND CHECKS

Another means of protecting the safety of children in child care settings is to ensure, as far as is possible, that they will not be harmed by the adults who are present.

Increasingly, background checks are being carried out to determine the history of staff, home providers and members of their families, and any other adults who might come into contact with the children in child care settings. At the same time, steps are being taken to ensure that individuals with unsatisfactory backgrounds are not permitted to work in those settings.

What Do the NHSPS Say?

The revised NHSPS strengthens earlier recommendations related to background checks in a new standard:

Every state should have a statute which mandates the licensing agency or other authority to obtain a criminal records check and a child abuse registry check on every prospective child care staff person, volunteer, or on a family child care provider's family member who is over 10 years of age and who comes in contact with children.

The new standard also recommends that such checks be carried out at public expense and that no staff should be unsupervised with the children until a satisfactory report has been returned. Volunteers should not be unsupervised with the children at any time (2002, 9.003). For additional references, see other standards ((1992, ST32-ST34; 2002, 1.008) and (1992, REC 3; 2002 9.004) and (1992, REC 5 and REC 7; 2002, 9.006)).

The revised NHSPS also call for child abuse training for caregivers (1.032) and provide additional information about abuse and neglect in Appendix K: Clues to Child Abuse and Neglect and Appendix L: Risk Factors for Abuse and/or Neglect.

What Does Head Start Say?

Before hiring an employee, a Head Start grantee or delegate agency is required to conduct a State or national criminal record check. If that is not feasible, an employee must not be considered permanent until such a check has been completed. Further, all current and prospective employees, prior to employment, must sign a declaration that

provides information about their background as specified in the Head Start legislation. That information includes information about pending and prior criminal arrests and charges related to child sexual abuse, convictions related to other forms of child abuse and neglect, and convictions of violent felonies (45 CFR 1301.31 (b) and (c)).

The Head Start Performance Standards require grantees and delegate agencies to provide staff training in the identification and reporting of child abuse and neglect (45 CFR 1304.52(k)(3)(i)). Appendix A to §1301.31 includes information on the identification and reporting of child abuse and neglect.

What Do the States Do?

The Center for Career Development in Early Care and Education at Wheelock College reports a trend toward increasingly stringent rules relating to background checks. Most frequently, states are reporting that they are conducting checks on more staff, or on members of a family child care provider's household. Another emerging trend is the checking of juvenile records of household members.

To determine how states were complying with the regulatory requirement for CCDBG funds, the GAO conducted a study of state requirements and enforcement practices. The resulting report, *Child care: State efforts to enforce safety and health requirements* (2000), indicates that, according to both experts and the literature, the following activities are “most commonly” considered to be critical:

- Background checks;
- Monitoring visits;
- Sanctions;
- Training for licensing staff; and
- Caseload size.

Although these activities largely relate to licensors and the licensing process, the requirement for background checks applies to applicants and license holders when licenses are issued or renewed, and to staff of licensed programs. Table 6 presents the

results of a 1999 GAO survey which found that while most states conduct state criminal history and child abuse checks, fewer conduct FBI checks across provider types.

Table 6 — The GAO Survey of States Requiring Criminal Background Checks

Centers	State Criminal Background Checks	State Child Abuse Registry Checks	FBI Checks
Center Director	40	32	16
Teaching Staff	39	29	15
Other Nonteaching Staff	36	25	12

GAO also compared the 1999 results with data from a similar survey conducted in 1992. The number of states that reported conducting state criminal background checks, FBI checks or both had increased by 27 percent, on average, across provider types. In the same period, the number of states that reported conducting child abuse registry checks increased by six and 11 percent for family child care providers and group homes, respectively, but remained constant for child care centers.

IV. 2: HEALTH AND NUTRITION

Both *Who cares for America's children* (1990) and *Caring for our children* (1992 and 2002) emphasize the importance of child health as a support to child development. In 1990, Hayes et al. concluded, after a review of more than 200 studies of children's physical health and safety, that findings led to conclusions that were significant for policy and practice. With respect to health, their report focused on six key diseases:

- Respiratory tract infections — including the common cold (Children in child care settings have more episodes up to the age of three, then have fewer infections than children who are at home. Such infections are usually minor but may be a factor in the development of more frequent ear infections, and increasing the likelihood of potential problems arising from them.)
- Diarrheal Disease — some but not all studies showed that children in child care were at an increased risk for diarrheal disease than children at home (The best-established risk factor is the presence of children who are not toilet trained. The risk is also higher when caregivers both diaper children and prepare food. The risk can be diminished by limiting group size, separating age groups, strictly adhering to hand washing practices, and excluding children suspected of having bacterial diarrhea.)
- Meningitis
- Human Immunodeficiency Virus (HIV)
- Viral Hepatitis
- Cytomegalovirus (*Who Cares*, pp. 109-112).

Since 1992, the NHSPS have been established as a recognized authority on child health and nutrition in relation to children in child care settings. The 2002 edition of *Caring for our children* is consistent with the American Academy of Pediatrics' *Red book 2000*, a compendium of information on the control of infectious diseases in children. Overall, the content of this second edition is not significantly different from the original publication, although standards have been added in relation to six diseases:

- S. Pneumoniae (6.004);
- Parvovirus B19 or fifth disease (6.016);
- Hepatitis C virus (6.032);

- Scabies (6.037);
- Head Lice (6.038); and
- Ringworm (6.039).

In addition, there are standards related to the attendance of children with tuberculosis (6.015) and record keeping when there is an incidence of diarrhea (6.026). Appendix B of the new edition of *Caring for our children* includes an expanded number of infectious diseases or organisms that pose an occupational hazard to staff in child care settings. The new edition also speaks to the need for health consultants in child care settings (1.040) and recommends an expansion of child abuse training (1.032) and staff training in the risks related to the handling of bodily fluids (1.033). In that regard, the 2002 edition distinguishes between “universal precautions” and the broader “standard precautions.” Like universal precautions, standard precautions involve barriers, but they also include the cleaning and sanitizing of surfaces to prevent the spread of infection (see 1992, HP 35, 37, 38 and 65; 2002 3.026 and glossary). More information is provided in Appendix J: Cleaning Up Bodily Fluids.

Both editions of *Caring for our children* include performance standards for nutrition and food service (1992, NU1-NU8; 2002, 4.001-4.070). The revised edition also includes standards related to the development of a food allergy special care plan (4.010), the feeding of human milk (4.015) and food and water supply in case of disaster (4.058).

The Bright Futures Project

Bright Futures is a national health promotion and disease prevention initiative launched in 1990 with the support of the Maternal and Child Health Bureau, Health Resources and Services Administration, and the Medicaid Bureau, Health Care Financing Administration. Bright Futures is dedicated to developing educational materials for health and education professionals and families, and to implementing the Bright Futures content, philosophy, and materials through technical assistance, training, and outreach. Materials created by the project include:

- *Bright Futures: Guidelines for health supervision of infants, children, and adolescents* (M. Green, ed.) (1994, rev 2002) includes guidelines that are currently being used nationwide by physicians, nurses, dentists, teachers, nutritionists, mental health professionals, child advocacy groups, and policymakers.
- *Bright Futures in practice: Oral health* (P. Casamassimo, D.D.S., M.S., ed.) (1996) is the first volume in the Bright Futures in Practice series. This guide addresses the oral health needs of children ages 0-21 by presenting specific guidelines on current oral health promotion and disease prevention and other preventive strategies and tools. It is designed for health and education professionals in many fields, including dental professionals, physicians, nurses, educators, and child care providers. The information can also be adapted for use with families.
- *Bright Futures in practice: Nutrition* (M. Story, K. Holt, and D. Sofka, eds.) (2000) emphasizes health promotion, disease prevention, and early recognition of nutrition concerns in infants, children, and adolescents. The guide provides developmentally appropriate nutrition supervision guidelines for infancy through adolescence. Additional resources, including a user's guide, have been developed to facilitate the use of *Bright Futures in Practice: Nutrition* and to customize its information toward specific audiences.
- *Bright Futures in practice: Physical activity* (K. Patrick, M.D., M.S., and B. Spear, PhD, R.D.) (2001) provides guidelines for physical activity for children from infancy through adolescence. It presents current information on screening, assessment and counseling to promote physical activity.
- *Bright Futures in practice: Mental health* (M. Jellinek, B. Patel, and M. Froehle) (2002) considers the mental health of children in a developmental context. Under the leadership of chair Michael Jellinek, M.D., a multidisciplinary panel of experts assembled information on early recognition and intervention for specific mental health problems and mental disorders for health professionals and families.

These publications reflect current research and are designed for professionals and others with responsibilities related to young children. The project also provides training materials and supports the adaptation of information to meet the needs of individuals and

families. Bright Futures publications and information about the project are available at the Bright Futures web site (www.brightfutures.org).

What Does NAEYC Say?

NAEYC says that a safe and healthy environment is essential for good quality child care.

The requirements for NAEYC accreditation include:

- Compliance with all legal requirements for health and safety, including building codes, sanitation, water quality and fire prevention, and licensing requirements;
- Adults in the setting are healthy in all respects, and applicants and new staff are carefully screened before working with children;
- Current written health records are maintained for all children, including records of immunizations as recommended by the American Academy of Pediatrics;
- The program has a written policy on the care of sick children that is in accordance with local licensing and public health regulations as well as ADA requirements;
- Provision has been made for the safe arrival and departure of all children;
- If transportation is provided, vehicles are safe, drivers are appropriately licensed and trained, and children are appropriately restrained and supervised;
- Children are under adult supervision at all times;
- Staff are aware of the children's health at all times, and individual medical problems and accidents are recorded and reported;
- All suspected incidents of abuse and neglect are reported to appropriate local authorities;
- At least one staff member is present who has certification in all areas of emergency pediatric emergency first aid;
- There is a comprehensive plan for dealing with medical emergencies;
- Children are dressed appropriately for outdoor activities and extra clothing is available, if required;
- The facility is cleaned and disinfected on a regular basis, as appropriate (for example, the diaper change table should be disinfected after each diaper change, mouthed toys should be disinfected daily);

- Staff and volunteers wash their hands on arrival and frequently during the day, including before and after specified tasks (such as preparing food or eating), and are familiar with universal precautions;
- The building and all equipment are in a safe, clean condition and in good repair;
- Individual cots and bedding are washed at least once a week (or more often, if required) and bedding is used by only one child;
- The sides of cribs are locked while occupied;
- There should be sufficient space between cribs and cots to allow for safe evacuation;
- Young infants should be placed on their backs for sleeping;
- Toilets, drinking water and hand washing facilities should be safely and easily accessible to children;
- All rooms should be well-lighted and ventilated, and carpets and building materials (including paints) should be safe for children;
- All pieces of playground equipment should be safe and surrounded by a resilient surface, consistent with the guidelines of the CPSC and ASTM;
- All chemicals and potentially dangerous products (including medications) are stored in original, labeled containers out of reach of children;
- Medication is only administered when written permission has been given by a parent/guardian, and is consistently administered by a designated staff member;
- All adults are aware of evacuation routes and practice evacuation monthly with the children according to written emergency procedures posted in conspicuous places; and
- All adults are aware of emergency procedures for severe storms and fires (pp. 53-62).

NAEYC has also published *Preparing for illness: A joint responsibility for parents and caregivers* (1993) which provides background information on health issues for both regulatory agencies and centers.

With respect to Nutrition and Food Service, NAEYC recommends:

- Meals and snacks are planned to meet USDA Child and Adult Care Food Program Recommendations;

- Menu information is provided to families and feeding times and food consumption is reported to families of infants and toddlers;
- Mealtimes promote good nutrition habits and are culturally appropriate, pleasant social and learning experiences for children — at least one adult sits with the children and infant bottles are not propped;
- If the program does not provide food, it ensures that families have information about well-balanced meals and that food brought from home is properly stored;
- If the program prepares food, the program verifies that it is in compliance with legal requirements for nutrition and food service; and
- If food is provided from an external source, the program ensures that it is transported in sanitary containers at appropriate temperatures.

What Do the NHSPS Say?

The NHSPS as presented in *Caring for our children* (1992 and 2002) and summarized in *Stepping stones* (1997), provide benchmark standards in health and safety for both regulators and caregivers. Although all of the standards relate to health and safety, certain chapters in *Caring for our children* focus on typical health and safety issues: Chapter 3 — Program: Health Promotion and Health Protection in Child Care (1992, HP1-HP153; 2002, 3.001-3.089); Chapter 4 — Nutrition and Food Service (1992, NU1-NU108; 2002, 4.001-4.070); and Chapter 6 — Infectious Diseases (1992, ID1-ID63; 2002, 6.001-6.039).

What Does Head Start Say?

In 45 CFR 1304, Subpart B, the Head Start Program Performance Standards (1996; 1999) consider Early Childhood Development and Health Services, including child physical and mental health (§1304.22), and nutrition (§1304.22). Parent involvement in health and nutrition is considered elsewhere (§1304.40(f)). Programs must be supported by staff, or consultants, with expertise in health and nutrition (§1304.52(d)(2) - (4)).

V: CONCLUSIONS

The research findings are clear. For every dimension examined in this report, higher standards translate into better, safer outcomes for children. This report has, of course, not considered all possible variables. In addition to issues in traditional areas, such as transportation, it has not addressed newer concerns relating to factors like the need for sunscreen, the use of computers, or the problems associated with latex. Further, since today's studies will lead to tomorrow's recommendations, other, quite different, contributors to safer, higher quality child care settings may also be missing.

Given the difficulty of capturing all variables, it is especially important to ensure that the key predictors of high quality care are clearly understood and incorporated into the regulatory process. Following a recent analysis of licensing requirements in four states (Gallagher et al., 1999), researchers at the University of North Carolina concluded that states are “a long way” from matching child care regulations with what is known as quality care. To shorten that distance they urge states to eliminate the lowest standards, and replace them with requirements that reflect what is known about quality. Current research findings suggest that such a process means, above all, that revised regulations must incorporate what has been learned about the “iron triangle” of variables. In particular, it means, requiring higher staff qualifications and lower ratios and establishing group sizes. It also means using health resources and paying attention to safety research and revelations of the staggering costs of unintentional childhood injuries.

Beyond incorporating research findings into regulations, however, state agencies and others must communicate those findings, and their significance, to others — parents, providers, legislators and policy makers and the public. Further, those findings must be communicated in terms that can be understood by all. For some years, the High/Scope Perry Preschool Study has been providing data on the dramatic savings that can result from early intervention programs. Recent estimates of the costs of unintentional childhood injuries translate the need for safe child care environments into dollars and cents values that are familiar to everyone.

Whatever the language or area of discourse, however, the ultimate goal of better outcomes for children and society depends on taking action — including regulatory action — based on what is known about the dimensions of quality that prevent harm and create safe environments that support the physical, social, emotional and cognitive development of children. As a result of such action, the gap between what exists and what is known should close, and higher quality care should be within reach of all.

APPENDIX A: A NOTE ON THE REVISED NHSPS

Consolidation and Comparisons

The NHSPS are published by the American Public Health Association and the American Academy of Pediatrics in *Caring for our children: National Health and Safety Performance Standards: Guidelines for Out-of-Home Child Care Programs*. The standards, which first appeared in 1992, have been revised for a second edition of *Caring for our children (2002)*. Although there are similarities between the two editions, many standards from the original publication have been consolidated in the second edition, reducing the total number from 981 to 707. In the consolidation process, wording changed in almost all of the standards and related rationales and comments.

The second edition, along with a list of the major additions and changes, is available electronically through the website of the National Resource Center for Health and Safety in Child Care (NRCHSCC), <http://nrc.uchsc.edu>. Both the hard copy and electronic versions include conversion tables to facilitate comparisons between the two editions. Appendix CC provides a table for moving from the first to the second edition while Appendix DD is useful for transfers from the second to the first edition.

As the conversion charts show, the numbering system has been changed in the second edition to clearly differentiate between the two versions of the standards. Letter codes in the first edition have been replaced by a numbering system (for example, ST1 has become 1.001). The conversion charts also make it easy to see which standards have been combined (for example, 1.008 replaces ST32, ST33 and ST34), added (for example, 1.013 – NEW) or deleted (for example, ST55 – DELETED).

Background Research

Following the publication of the second edition, the Office of the Assistant Secretary to Planning and Evaluation (ASPE) released a research brief by Richard Fiene (2002), *13 Indicators to quality child care: Research update*. ASPE and the Bureau of Maternal and Child Health in the U.S. Department of Health and Human Services commissioned this research brief through an interagency agreement. This brief was developed from a

comprehensive literature search conducted by the NRCHSCC to review and provide an analysis of research literature that focused on 13 key licensing indicators of quality in child care: child abuse reporting and clearances, 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.

Fiene also includes background information on the two licensing measurement tools – licensing weighting and indicator systems – used to select indicators that are both key predictors of positive outcomes for children while in child care, and statistical indicators of overall compliance with child care regulation. The brief is specifically designed to help regulators determine “which standards are the keys to protecting children. Although its release date is 2002, the document was prepared before the second edition of *Caring for our children*.” It includes useful research summaries as well as a number of references to the research literature up to the mid- to late-1990s.

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