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# Opportunities for Health Promotion Education in Child Care

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**ABSTRACT.** *Objectives.* Comprehensive health promotion education is not feasible through pediatric office visits alone. Opportunities may exist for enhanced health promotion in child care settings. The objectives of this study were to understand the attitudes toward, barriers to, and strategies for incorporating health promotion activities in child care settings as well as topics that are deemed most useful from the perspectives of parents, child care directors, and health consultants. We also sought to understand the health consultants' (health professionals serving as consultants to child care centers) current and desired roles in leading health promotion activities in child care settings.

*Methods.* We conducted simultaneous surveys of all licensed child care center directors and their health consultants in Boston. A total of 240 parents in 16 randomly selected centers were also surveyed.

*Results.* A total of 97 (65%) directors in the 150 child care centers identified responded. A total of 71% (56 of 79) of consultants and 58% (138 of 240) of parents responded. Parents (89%), child care directors (88%), and health consultants (80%) believe that health promotion activities through child care centers would improve the health knowledge and behaviors of preschool children. A total of 45% of parents reported already receiving useful health information from child care staff and materials distributed in child care. Most topic areas that were suggested to parents were considered useful, with the greatest utility in the areas of behavior/discipline, child development, and emergency management. No significant barriers were identified by health professionals. Lack of funds (63%) and lack of someone to provide information (59%) were the top barriers identified by directors. An educational session on health topics by health care professionals was believed to be the best strategy to improve health promotion education for families. Among the health consultants, 83% of nurses or nurse practitioners said that they would be able to provide health education in child care compared with 53% of physicians.

*Conclusion.* Parents, child care center directors, and health professionals believe that enhancing health promotion education in child care could improve child health. Collaboration between pediatricians and early care and education professionals has the potential to improve the breadth and effectiveness of health promotion education. Effective strategies are necessary to optimize access to health professionals by early educators, and effectively utilize the unique skills and preferences of physicians and nurses to promote health education in child care. *Pediatrics* 2005;116:e499–e505. URL: [www.pediatrics.org/cgi/doi/10.1542/peds.2005-0467](http://www.pediatrics.org/cgi/doi/10.1542/peds.2005-0467); *child care, child health services, health promotion, preventive services.*

ABBREVIATIONS. NP, nurse practitioner; ECELS, Early Childhood Education Linkage System; NTICCHC, National Training Institute for Child Care Health Consultants.

Critical health promotion goals exist for preschool children as outlined by Healthy People 2010, including injury prevention, prevention of infections, and prevention of hospitalizations.<sup>1</sup> Although the majority of pediatric office visits occur between birth and 5 years, much of this time is consumed by acute care and little is left for comprehensive health promotion and education.<sup>2</sup> Parents report that pediatric health care providers meet their child's physical needs but largely ignore their non-medical concerns.<sup>3,4</sup> In a national survey, >94% of parents reported  $\geq 1$  unmet need for parenting guidance, education, or screening by pediatric clinicians.<sup>5</sup> For ensuring high-quality medical care, health care delivery must integrate community resources to reinforce health-promoting behaviors.<sup>6,7</sup>

The proportion of children in out-of-home child care has doubled in the past 30 years as more parents return to work and school.<sup>8</sup> Approximately 75% (20.5 million) of the children who are younger than 5 years in the United States are in some form of child care for at least part of the day.<sup>8–10</sup> Child care centers have a captive audience of children, families, and providers, so this setting may be used to deliver the additional health promotion education.

In 1995, the Child Care Bureau, the Maternal and Child Health Bureau, and the American Academy of Pediatrics launched the Healthy Child Care America program with the goal to link health care professionals and the child care community to improve the health and safety of children who are in child care.<sup>11</sup> Subsequent studies described the importance of

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health professionals' collaboration with child care professionals to improve health.<sup>12-15</sup>

Small, targeted health interventions in child care centers have been reported to be useful by child care professionals and, in some cases, have been associated with improved health knowledge and healthful behavior.<sup>16-20</sup> Many states, including Massachusetts, have developed regulations that require child care centers to have a health professional serve as a health consultant. This study was initiated to understand the attitudes toward, barriers to, and strategies for incorporating health promotion activities in child care settings as well as topics that are deemed most useful from the perspectives of parents, child care directors, and health consultants. We also assessed the current and desired role of medical professionals who serve as health consultants.

## METHODS

We conducted surveys of directors of all 160 licensed Boston child care centers and their associated health consultants and parents in a subset of 16 randomly selected centers. We developed separate surveys for each of the respondent types with overlapping items to allow comparison among groups. The list of the 160 licensed Boston child care centers (not including home-based providers) was obtained from the Massachusetts Department of Public Health. All licensed child care centers in Massachusetts are required to have a health consultant, who can be a physician, nurse practitioner (NP), nurse, or physician's assistant. Contact information for these consultants was obtained from the child care centers.

We mailed all Boston child care center directors and health consultants surveys with a cover letter, self-addressed stamped envelopes, and a small thank you token (a ballpoint pen engraved with study title) in April 2003. Six weeks later, nonresponders received reminder telephone calls and a second mailing. Sixteen child care centers each were randomly selected to distribute 15 parent surveys, along with cover letters and a thank you gift (children's book). Directors were asked to distribute 5 surveys to parents of children in the infant room, 5 to parents of children in the toddler room, and 5 to parents of preschoolers. Centers without an infant room were asked to distribute 7 surveys in the toddler room and 8 in the preschool room. Directors were asked to select the first 5 names on their roster for each age group room; however, we could not monitor compliance with our request. Follow-up telephone calls were made to the centers from which fewer than 15 parent responses were received. Directors were asked to encourage parents to mail back the surveys, but individual tracking of parent respondents was not possible.

Primary domains of survey items included (1) current sources of health information (parent survey), (2) useful health education topics for families (parent, director, and consultant surveys), (3) barriers to providing health education (consultant and director surveys), (4) usefulness of various methods for health education through child care (parent, director, and consultant surveys), and (5) current and desired roles of health consultants in leading health education in child care settings (consultant survey). Survey items were derived through consultation with experts in child care research as well as with child care directors, parents, and health professionals. Pretesting of the surveys was done with subsets of all 3 respondent groups. The Early Childhood Education Linkage System (ECELS) child care provider and health consultant surveys were also used to develop topic areas and specific questions. The survey length ranged from 4 pages (parent survey) to 8 pages (director survey). Most questions in all surveys were multiple choice or on a 4-point Likert scale with room for additional comments at the end (surveys available on request). The responses for current sources of information, useful health topics, barriers, and strategies were dichotomized and treated as categorical variables for analysis.

Descriptive statistics were used to calculate percentages for all key variables. Differences among parents, directors, and consultants in their responses concerning useful health education topics

and their preferred methods for health education were evaluated using the  $\chi^2$  test for a  $2 \times 3$  table. Responses of physicians and nurse consultants (categorical) were compared using Fisher's exact test. Nurses and NPs were analyzed together after preliminary analyses showed substantial concordance in their responses. A threshold of  $P < .05$  was chosen for statistical significance. The institutional review board of Children's Hospital Boston approved this study.

## RESULTS

### Demographics

A total of 138 (58%) parent surveys were returned, with response rates varying from 27% to 100% among centers. Of the responding caregivers, 83% were mothers (Table 1). A total of 37% were younger than 30 years. The sample was racially and ethnically diverse, including black (45%), white (34%), and Hispanic (17%) respondents. The majority of parents (70%) had at least some college education, and 58% reported household income of \$35 000 or less.

Of the 160 Boston child care centers, 3 were early intervention sites (excluded) and 7 surveys were returned as wrong address, leaving a total of 150 eligible centers. Directors of 97 (65%) child care centers returned completed surveys. Approximately half (48%) of the centers offered infant care, two thirds (68%) offered toddler care, and 90% offered preschool (Table 1). The racial composition of the centers reported by the directors included black (36%), white (32%), Hispanic (20%), Asian (7%), and other (5%). Most centers were nonprofit (78%) and not accredited by the National Association for the Education of Young Children (64%). Because the National Association for the Education of Young Children is by far the largest accrediting organization in the United States, other types of accreditation were not queried. Most (96%) directors were female, and directors had held that position for an average of 7.3 years.

Fifty-six (71%) of 79 eligible child care consultants returned surveys. Some health professionals consulted to >1 center. Fifteen surveys were returned as wrong address, and 9 individuals replied that they no longer served as a health consultant.

The majority of health consultants were pediatricians (43%), followed by nurses (29%) and NPs (18%). The consultants' primary place of work was reported as a medical office/clinic (29%), a community health center (29%), a hospital (21%), or a school or early childhood facility (18%). The majority of consultants had children currently in child care (59%) and had been practicing on average for 21.2 years.

### Sources of Health Information for Parents

Parents most commonly reported their child's doctor as a source of health information (70%; Table 2). Family members, media sources, and other parents also were important sources of information (ranging from 63% to 53% of parents receiving useful information sometimes or often). Approximately 45% of parents reported receiving health information or materials from child care center staff.

**TABLE 1.** Baseline Characteristics of Parents, Child Care Directors, and Health Consultants

Characteristic	
Parents ( <i>N</i> = 138)	
Relationship to child	
Mother, <i>n</i> (%)	112 (83)
Father, <i>n</i> (%)	14 (10)
Other, <i>n</i> (%)	9 (7)
Age, y	
<20, <i>n</i> (%)	8 (6)
21–30, <i>n</i> (%)	43 (31)
31–40, <i>n</i> (%)	56 (41)
>40, <i>n</i> (%)	30 (23)
Race/ethnicity	
White, <i>n</i> (%)	46 (34)
Black, <i>n</i> (%)	61 (45)
Hispanic, <i>n</i> (%)	23 (17)
Other, <i>n</i> (%)	6 (4)
Education	
Eighth grade or less/some high school, <i>n</i> (%)	7 (5)
High school grad/GED, <i>n</i> (%)	28 (21)
Vocational/technical school, <i>n</i> (%)	6 (4)
Some college, <i>n</i> (%)	48 (35)
College graduate, <i>n</i> (%)	27 (20)
Postgraduate, <i>n</i> (%)	21 (15)
Household income	
<\$15 000, <i>n</i> (%)	21 (16)
\$15 000–\$35 000, <i>n</i> (%)	56 (42)
\$36 000–\$55 000, <i>n</i> (%)	15 (12)
\$56 000–\$75 000, <i>n</i> (%)	9 (7)
≥\$76 000, <i>n</i> (%)	30 (23)
People living in household (including children)	
≤2, <i>n</i> (%)	27 (20)
3, <i>n</i> (%)	47 (34)
4, <i>n</i> (%)	33 (24)
≥5, <i>n</i> (%)	30 (22)
Adults working outside the home	
1, <i>n</i> (%)	74 (54)
2, <i>n</i> (%)	52 (38)
≥3, <i>n</i> (%)	10 (8)
Ages of children attending child care	
0–12 mo, <i>n</i> (%)	10 (7)
1–2 y, <i>n</i> (%)	19 (14)
2–3 y, <i>n</i> (%)	37 (27)
3–4 y, <i>n</i> (%)	46 (34)
4–6 y, <i>n</i> (%)	45 (34)
Child care director ( <i>N</i> = 97)	
Programs offered	
Infant (0–15 mo), <i>n</i> (%)	47 (48)
Toddler (16 mo–2 y 9 mo), <i>n</i> (%)	66 (68)
Preschool (2 y 10 mo–5 y 11 mo), <i>n</i> (%)	87 (90)
Kindergarten, <i>n</i> (%)	33 (34)
Before- and after-school care, <i>n</i> (%)	24 (25)
Type of center	
Nonprofit, <i>n</i> (%)	72 (78)
For-profit, <i>n</i> (%)	20 (22)
Racial breakdown of centers	
Caucasian/white (non-Hispanic), (%)	32
Black/African American, (%)	36
Hispanic, (%)	20
Asian/Pacific Islander, (%)	7
Other (specify), (%)	5
Accredited by the National Association for the Education of Young Children	
Yes, <i>n</i> (%)	33 (36)
No, <i>n</i> (%)	60 (64)
Gender	
Male, <i>n</i> (%)	4 (4)
Female, <i>n</i> (%)	93 (96)
Age, y	
20–30, <i>n</i> (%)	10 (11)
31–40, <i>n</i> (%)	22 (23)
41–50, <i>n</i> (%)	25 (27)
>50, <i>n</i> (%)	37 (39)
Years as director of program	7.3
Years as early childhood professional	17.5

**TABLE 1.** Continued

Characteristic	
Child care health consultant ( <i>N</i> = 56)	
Profession	
Nurse, <i>n</i> (%)	16 (29)
NP, <i>n</i> (%)	10 (18)
Pediatrician, <i>n</i> (%)	24 (43)
Family physician/general practitioner, <i>n</i> (%)	2 (3)
Other, <i>n</i> (%)	4 (7)
Primary place of work	
Medical office or clinic, <i>n</i> (%)	16 (29)
Hospital, <i>n</i> (%)	12 (21)
Community health center, <i>n</i> (%)	16 (29)
School or early childhood facility, <i>n</i> (%)	10 (18)
Other, <i>n</i> (%)	2 (3)
Gender	
Female, <i>n</i> (%)	36 (64)
Male, <i>n</i> (%)	20 (36)
Do you have children?	
Yes, in child care, <i>n</i> (%)	31 (59)
Yes, not in child care, <i>n</i> (%)	16 (30)
No	6 (11)
Average years after obtaining health professional degree	21.2

**TABLE 2.** Sources of Health Information for Parents

Sources	Sometimes/ Often, %
Child's doctor	70
Family members	63
Media (television, radio, newspapers, magazines, etc)	62
Books on health topics	52
Other parents	53
Staff in child care center	44
Materials distributed in child care center	45
Internet	38

**Health Education Attitudes and Useful Health Topics**

Parents (89%), child care directors (88%), and health consultants (80%) all believed that health education in child care centers could improve the health knowledge and behaviors of preschool children and their families. The largest number of parents believed that receiving information on behavior/discipline through their child care center would be extremely (56%) or moderately (34%) useful (Fig 1). Other topics that were thought to be useful by a majority, in descending order, included managing emergency situations, developmental issues, nutrition, safety/accident prevention, and hearing/vision/language problems. In total, of the 19 topics included in the survey, 17 of them were rated moderately or extremely useful by at least 50% of parents.

There was relative concordance in the percentage of directors, parents, and consultants who considered the following topics useful: nutrition, physical activity, safety/accident prevention, appropriate antibiotic use, immunizations, gaining access to community resources, and maternal depression (data available on request). Significant discordance (*P* < .05) existed in the percentage of directors, parents, and consultants who rated the usefulness of 6 topic areas (Fig 2). These areas included developmental issues, behavior/discipline, emergency manage-

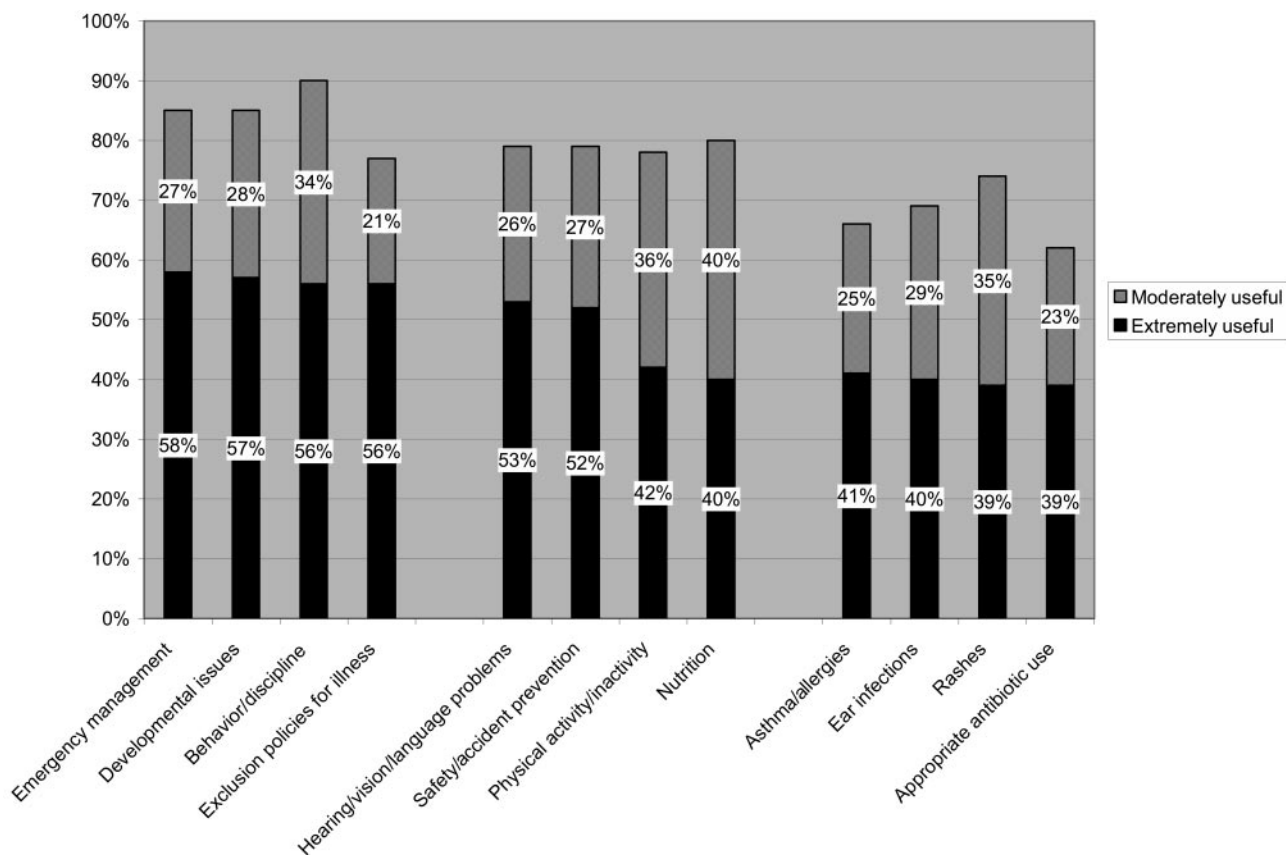


Fig 1. Parents' ratings of top useful health topics on which to receive information through the child care center.

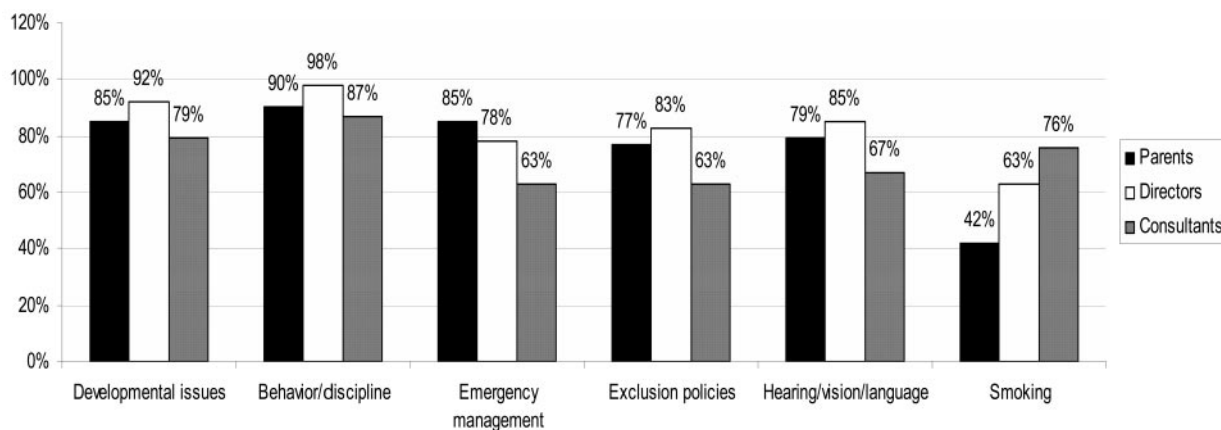


Fig 2. Comparison of the percentage of parents, directors, and health consultants who rated the topics extremely/moderately useful for education for families through the child care center. These 6 topics showed statistically significant discordance among the 3 groups with  $P \leq .05$ .

ment, exclusion policies, hearing/vision/language, and smoking. Directors generally rated topics as more useful than other respondent groups. Consultants more commonly rated smoking as an important topic for intervention than either parents or directors.

#### Barriers to Providing Health Education

For child care directors, lack of funds was reported to be the most significant barrier to providing health education in child care (63% reported moderately/extremely significant) followed by lack of someone to provide information (59%) and lack of time (53%;

Table 3). Lower on the list were lack of interest among families (37%), space (23%), and difficulty with English comprehension (20%). Health consultants reported fewer barriers to health promotion in child care, with only 36% rating insufficient time as an extremely/moderately significant barrier. The need for clarification of the role and the perception that child care providers did not need help were reported as barriers by 28%. Finally, the need for more training, financial compensation, and support from their primary workplace were reported as barriers by <15% of health consultants.

**TABLE 3.** Barriers/Challenges to Providing Health Education in Child Care

	Moderately/Extremely Significant, %*
Child care directors	
Lack of funds	63
Lack of someone to provide information	59
Lack of interest among families	37
Lack of time	53
Lack of space	23
Difficulty with English comprehension	20
Health consultants	
Insufficient time to do this work effectively	36
Need clarifications/expectations of role	28
Child care providers do not seem to need my help	28
Lack of child care funds to make recommended changes	14
Need more training for role	13
Lack of financial compensation	12
Inadequate support from primary workplace	10

\* In descending order of significance.

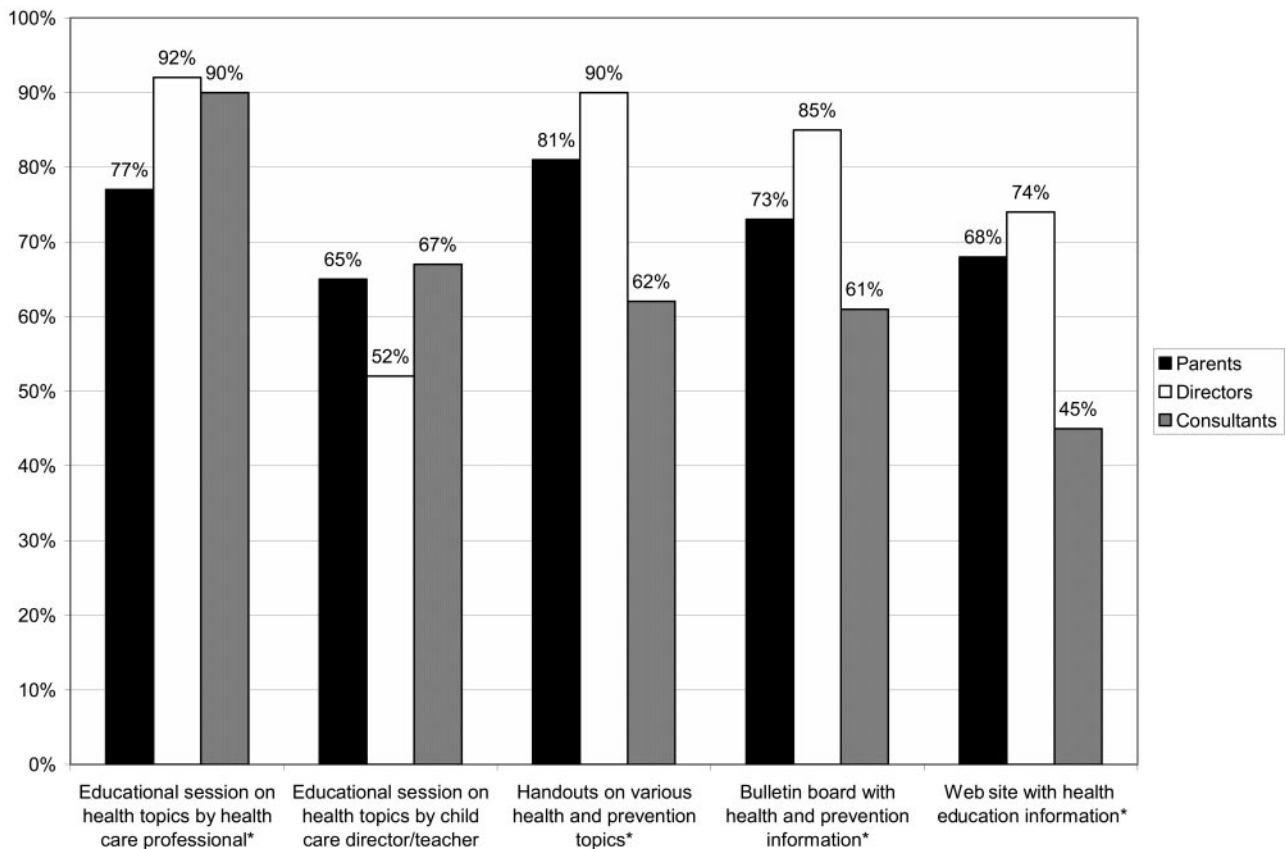
**Strategies for Health Education in Child Care**

The majority (81%) of parents believed that handouts would be a moderately or extremely useful way to receive health information through child care centers (Fig 3). This was followed by educational sessions on health topics by health care professionals (77%). Both directors and health consultants believed that educational sessions on health topics by health care professionals would be the most useful intervention (92% and 90%, respectively). A much smaller percentage of all 3 groups (65% of parents, 52% of

directors, and 67% of consultants) believed that educational sessions on health topics by child care directors or teachers would be useful. Areas of discordance among parents, directors, and health consultants are also presented in Fig 3.

**Health Consultant’s Role**

Physicians (46%) and nurses/NPs (47%) agreed that health education for families through child care centers would be useful in improving healthy behaviors. Physicians and nurses/NPs differed in their



**Fig 3.** Comparison of the percentage of parents, directors, and health consultants who rated health education interventions through the child care center as extremely/moderately useful. \*Statistically significant discordance among parents, directors, and health consultants with  $P \leq .05$ .

**TABLE 4.** Differences Between Physicians (46%) and Nurses/NPs (47%)

Questions	Physicians, %	Nurses/NPs, %	<i>P</i> *
1. Has being a health consultant been rewarding for you?	33	66	.01
2. Are you compensated for your services?	0	30	.01
3. Ever visited the child care center?	68	93	.01
4. Do you believe that health education to families would be useful in improving healthy behaviors?	76	70	.5
5. Will you be able to provide families with health education?	53	83	.01

\* Fischer's exact test.

experience of health consultation (Table 4). Two thirds of nurses/NPs found consulting rewarding compared with one third of physicians ( $P \leq .01$ ). A total of 93% of nurses/NPs had visited the child care center for which they consulted compared with 68% of physicians ( $P \leq .01$ ). Also, 30% of nurses/NPs were compensated for their consultant services, whereas no physicians were compensated ( $P \leq .01$ ). Finally, 83% of nurses/NPs were interested and willing to provide health education to families compared with only 53% of physicians ( $P \leq .01$ ).

### DISCUSSION

Respondents from all groups believed that health promotion through child care centers would improve the health behaviors of preschool children and their families. Almost half of the parents reported already receiving some useful health information from child care staff and from materials distributed in child care. Surprising, no significant barriers were identified by health professionals, whereas lack of funds and lack of someone to provide information were the top barriers identified by directors. All groups believed that direct involvement of health care professionals in child care settings would be the most effective health promotion strategy.

In Massachusetts, all licensed child care programs are required to have a health consultant; however, the role of this individual in assisting with health promotion is not stressed. In our study, we noted that the role of the health consultant in practice varies tremendously from being merely a required name on a document to being a regular presence in the child care center. In fact, it was sometimes difficult to obtain the names, addresses, and telephone numbers of health consultants from child care center directors. Almost 25% of the names that were given to us were outdated or incorrect; it seems that many centers are not using their health consultant as a resource at all. Similarly, in Connecticut, some child care directors did not understand their nurse consultant's abilities and so were not using them fully,<sup>21</sup> whereas others valued their consultant highly as an effective means of promoting children's health and development in child care.<sup>14</sup>

To improve the quality of child care health consultation, the Massachusetts Department of Public Health initiated training sessions for child care health consultants. The training materials and curricula were based on information from the National Training Institute for Child Care Health Consultants (NTICCHC) at The University of North Carolina at Chapel Hill.<sup>22</sup> The purpose of the NTICCHC is to

support the health and safety of young children in child care settings through the development of a national child care health consultant training program. The training sessions also help the consultant better understand his or her role in the child care center. In San Francisco, focus groups are conducted to define health consultants' roles and responsibilities.<sup>12</sup> However, the training sessions are voluntary and have been attended by a small minority of health consultants.

Because very few consultants are compensated for their activities, it may be difficult to promote quality in the services that they provide. Studies to examine whether such compensation would be cost-effective are necessary. Recently, a study of parents reported a 48% reduction in emergency department visits and a 37.5% reduction in clinic visits after 6 months of health training sessions and written materials in Head Start.<sup>23</sup> If interventions through child care can decrease emergency department visits and office visits, then they may prove to be cost-effective from a societal perspective.

The limitations of this study are inherent in its design. Respondents may have given socially desirable answers after seeing the content of the survey. Our response rates were in the range expected, but we cannot assess the generalizability of these results to nonresponders. In addition, 24 health consultant surveys were undeliverable because the names and information given were incorrect. Also, because our surveys were conducted in child care centers in Boston, Massachusetts, the results may not reflect views of parents, health consultants, and child care professionals that might be found in other areas of the country.

The idea of integrating community venues in efforts to improve child health is not new and has been endorsed by the American Academy of Pediatrics and others. Schools are used as health access sites for students to receive both preventive and acute care.<sup>24-26</sup> Health promotion education beginning in preschool may be particularly helpful in developing healthy behaviors in families. The health of children who receive child care, as well as that of siblings, parents, and caregivers, may be affected.<sup>27</sup> The International Conference on Child Day-Care concluded that current knowledge offers tools for both risk reduction and health promotion in child care and that this requires collaboration among disciplines and sectors of society.<sup>27</sup>

Existing programs such as Healthy Child Care America, a program developed by the Maternal and Child Health Bureau and the American Academy of

Pediatrics, seek to improve health in child care through linkages between health consultants and child care centers.<sup>28</sup> Unpublished studies from NTICCHC show that child care health consultants have positive effects on health policies and practices and on children's health status and access to health care (J. Kotch, MD, MPH, personal communication, April 2005). Three states currently have model programs, including, in Pennsylvania, the ECELS.<sup>29</sup> The ECELS program is reaching most child care providers in the state and having an impact on policies for health habits such as sleep position.<sup>17</sup> Others have also intervened successfully to reduce prone sleeping in child care centers.<sup>18</sup>

Our results suggest that child care centers have great potential as effective venues for health promotion education. Clearly, our partners in the early education and child care community believe strongly that improved health education is necessary and feasible. This study also documents high-priority content areas and potentially effective intervention strategies. Because the most highly rated strategy involves the participation of health professionals, pediatricians, nurses, and other health care providers in public and private sectors should consider becoming actively involved as child care health consultants and in the development of child care health promotion programs. Mechanisms and resources to provide compensation for such activities should be examined. Nurses and NPs seem particularly willing to take on the responsibility of the role of health consultant, given the greater involvement in center activities seen in our sample. As increasing numbers of preschool children are being cared for in out-of-home settings, there is growing interest by pediatricians and policy makers to improve the quality of these programs. In addition to providing safe, educationally appropriate settings for care, health promotion education in child care settings has the potential to advance substantially the health of young children and their families.

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