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Unnecessary Child Care Exclusions in a State That Endorses National Exclusion Guidelines

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Abstract

OBJECTIVE—No study has evaluated the association between state endorsement of American Academy of Pediatrics (AAP) and American Public Health Association (APHA) national guidelines and unnecessary exclusion decisions. We sought to determine the rate of unnecessary exclusion decisions by child care directors in a state that endorses AAP/APHA guidelines and to identify factors that are associated with higher unnecessary exclusion decisions.

METHODS—A telephone survey was administered to directors in metropolitan Milwaukee, Wisconsin. Directors were randomly sampled from a list of 971 registered centers. Director, center, and neighborhood characteristics were obtained. Directors reported whether immediate exclusion was indicated for 5 vignettes that featured children with mild illness that do not require exclusion by AAP/APHA guidelines. Weighted data were summarized by using descriptive statistics. Regression analysis was used to identify factors that were associated with directors' exclusion decisions.

RESULTS—A total of 305 directors completed the survey. Overall, directors would unnecessarily exclude 57% of children. More than 62% had never heard of the AAP/APHA guidelines. Regression analysis showed fewer exclusions among more experienced compared with less experienced directors, among larger centers compared with smaller centers, and among centers that were located in areas with a higher percentage of female heads of household. Centers with ≤10% children on state-assisted tuition excluded more.

CONCLUSIONS—High rates of inappropriate exclusion persist despite state endorsement of AAP/APHA guidelines. Focused initial and ongoing training of directors regarding AAP/APHA guidelines may help to reduce high rates of unnecessary exclusions.

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Keywords

child care; exclusion; mild illness

In 2005, more than two-thirds of children in the United States who were aged ≤ 5 years required nonparental child care, a vast majority of whom received care in a child care center setting.^{1,2} Children who are excluded from child care place a significant economic burden on parents, businesses, and health care resources.^{3–7} Mild acute illness accounts for the majority of child care exclusions, many of which have been described as not medically indicated.^{5,8–12}

Previous studies have found high rates of unnecessary exclusion of children with mild illness, ranging from 33% to 100%.^{10,11,13–16} Partly to address this issue, national consensus guidelines for child care exclusion were published jointly by the American Academy of Pediatrics (AAP) and the American Public Health Association (APHA) in 1992 and updated in 2002^{17,18}; however, individual state endorsement of these recommendations has been variable.^{11,19,20} One study¹³ in a state that did not adopt national guidelines showed an average unnecessary exclusion rate of 59% (K.C., unpublished findings, 2006). Lack of strong endorsement of national guidelines at the state level has been suggested as a reason for the continued high rate of unnecessary exclusion of children with mild illness^{11,13,20}; however, we found no studies that analyzed the association between state endorsement of the national guidelines and unnecessary director exclusion decisions.

Wisconsin has endorsed the AAP/APHA guidelines for >10 years; Wisconsin routinely disseminates information on the basis of both the national consensus guidelines and the AAP's *Managing Infectious Diseases in Child Care and Schools* through postings on the state Web site or by mail.²¹ By using a similar study design and case vignettes as those used by Copeland et al¹³ in Maryland, we provide the first assessment of unnecessary exclusions in a state that endorses the guidelines. We hypothesized that unnecessary director exclusion decisions would be lower in a state that endorses guidelines.

METHODS

Study Design, Setting, and Population

The study was a cross-sectional telephone survey of licensed child care centers in the southeastern Wisconsin, 6-county Milwaukee metropolitan area (Kenosha, Milwaukee, Ozaukee, Racine, Washington, and Waukesha). Racial demographics in this 6-county area closely approximate national demographics.²² Child care centers were eligible when they met Wisconsin's definition as a licensed group child care center (≥ 9 children who are supervised and cared for <24 h/day).²³ Centers were excluded when they cared for only sick children or children who had special needs or chronic illness; they did not care for children who were younger than 5 years; they were closed during the study; they operated <3 h/day; they were unreachable by telephone; or the directors were non-English-speaking, had previously participated in the study, or were not responsible for the daily administrative operation of the child care centers. Our study was approved by the hospital's institutional review board. Given our estimation that child care center directors in Wisconsin would exclude less, we estimated that a sample size of ~ 300 directors would be needed to give us a 95% confidence level at $\pm 5\%$ (confidence width) around a predicted exclusion rate of 25%.

Survey Instrument

We adapted 5 vignettes used by the Copeland et al¹³ for telephone use (Table 1). Vignettes were simplified to make them more clearly “nonexcludable,” and none of the children in the

vignettes required immediate exclusion according to the AAP/APHA.¹⁸ For example, axillary temperatures not specifically related to the fever vignette were lowered to <98°F to avoid exclusions on the basis of “low grade” fevers. Directors were asked whether immediate exclusion of the child was indicated for each of the case vignettes (yes/no). The 15- to 20-minute telephone survey also contained items about director and center demographics and open-ended questions about child care illnesses from a second, previously used child care survey.¹⁵ The primary outcome was the number of unnecessary exclusions by each director. Variables of interest included the following:

1. director characteristics: education, experience, race, previous medical training, and self-reported AAP/APHA guideline familiarity (“very familiar”: have read it and know its contents; “familiar”: have read parts and know where to find it; “somewhat familiar”: have seen it and know where to find it; “a little familiar”: have heard of it; and “not at all”: never have heard of it);
2. center characteristics: urban or suburban; size; access to a health care consultant; and proportions of children who attend full-time, are younger than 1 year, or are receiving state assistance; and
3. neighborhood characteristics: head of household gender, poverty, unemployment, and high school graduation rates on the basis of census tract data.

Survey Administration

Center directors were identified by using a list of 971 licensed child care centers in the 6-county Milwaukee metropolitan area provided by Community Coordinated Child Care of Wisconsin. A representative sample was recruited by random sampling, stratified by location (Milwaukee county versus the surrounding 5 counties) and size (small centers with ≥ 9 children and ≤ 42 children versus large centers with > 42 children).¹³ Within each stratum, the lists were ordered by using a random-number generator. Directors who agreed to participate were either interviewed at that time or scheduled for a later telephone interview. The interviews occurred during a 4-month period (May–August 2008) and were concluded when a sample size of 300 directors was reached. Two authors (Dr Hashikawa and Mr Nimmer) administered the telephone questionnaires. A maximum of 6 telephone calls were made at different times during the day, and disconnected or incorrect numbers were explored for alternatives. Telephone questionnaires were completed with center directors, and answers were recorded on a scannable form or recorded verbatim when open-ended.

Survey Analysis

Two study investigators (Dr Hashikawa and Mr Nimmer) independently verified scanned information against the original surveys. Census tract information was abstracted by using child care center zip codes from US census data to obtain child care center neighborhood characteristics. SAS 9.1 (SAS Institute Inc, Cary, NC) was used for statistical analysis. Director exclusion decisions, the primary outcome based on the 5 case vignettes, ranged from 0 to 5 exclusions: 0 indicated that the director excluded no children unnecessarily, and 5 indicated that the director excluded all children. Directors’ rates of unnecessary exclusions (ranging from 0 to 5) were initially used in an ordinal logistic model, but given the sample size and distribution of answers, it did not give a satisfactory model; therefore, the director’s responses were collapsed into 3 separate, ordinal categories: “low” (director excluded 0–1 cases), “moderate” (director excluded 2–3 cases), and “high” (director excluded 4–5 cases) and used as the main outcome in an ordinal logistic model that showed satisfactory fit.

A nonproportional sample was used to ensure adequate representation of centers on the basis of location and size. Data were weighted to reflect the nonproportional sampling, reflecting

the proportion of centers in the sample relative to the number in the sampling frame (comprehensive list of 971 licensed centers). The weight was proportional to the inverse of the number of centers sampled in a group divided by the actual number of centers in that group. The constant of proportionality was the inverse of the sum of weights.

All data and analyses were weighted to account for the nonproportional random sampling resulting from differences in successful contact rates. Child care center, director, and neighborhood characteristics were analyzed by using χ^2 analyses for categorical comparisons and Mann-Whitney for continuous variables. Univariate analyses were performed on the basis of center location (Milwaukee city [urban] versus non-Milwaukee city [suburban]). A full model without a stepwise approach was considered, but the fit was bad; therefore, stepwise, ordinal logistic regression was performed for the categorized number of exclusions, with predictor variables $>.1$ level of significance excluded except for center size, which was kept in the model because it was a primary predictor of interest. Other predictor variables investigated were director characteristics (AAP/APHA guideline knowledge, education, experience, race, previous medical training), center characteristics (size, presence of health care consultant, percentage of children full-time, percentage of children younger than 1 year, percentage of children receiving state funding), and neighborhood characteristics (percentage of female heads of household, percentage in poverty, percentage unemployed, percentage not graduating high school). Because child care center neighborhood characteristics were highly associated with centers within Milwaukee city, we elected to enter neighborhood characteristics instead of location (urban versus suburban) into the regression model. Interaction terms were evaluated in the model; no interaction terms were significant and therefore are not reported. In particular, the interaction of director knowledge of guidelines with other variables was considered. All variables that achieved a .05 level of significance were kept in our final model. The score test for the proportional odds assumption was checked for our logistic regression model.²⁴

RESULTS

Recruitment and Baseline Characteristics

Of the 971 child care centers, 367 were ineligible (Fig 1). Of the remaining 604 directors, 482 agreed to participate; telephone interviews were concluded when we reached our sample size of 305 directors. In the final sample, 97% of directors were female, and 33% of child care centers were urban.

Unadjusted univariate analysis showed that centers within Milwaukee city were larger and had more minority children and more children on state-assisted tuition than those outside Milwaukee city. There were no differences when evaluating the percentage of fulltime children, children who were younger than 1 year, and centers with access to health care consultants. Directors in Milwaukee city were more likely to be black, had more experience, had more previous medical training, and were more familiar with AAP/APHA guidelines. Comparison of child care center neighborhood characteristics showed higher poverty, higher unemployment, and a higher percentage of female heads of household in Milwaukee city (all $P < .001$). Directors with more experience reported higher rates of familiarity with AAP guidelines (54% vs 26%; $P < .001$).

Factors Associated With Unnecessary Exclusions

Child care directors on average unnecessarily excluded 57% of children with mild illness in scenarios that do not require exclusion by AAP/APHA guidelines. Thirty percent of directors were in the “high” exclusion group (4 or 5 exclusions), 58% in the “moderate”

exclusion group (2 or 3 exclusions), and 12% in the “low” exclusion group (0 or 1 exclusions). In 4 of 5 vignettes, directors unnecessarily excluded >50% of children (Fig 2).

Results of the stepwise ordinal logistic regression are shown in Table 2. The number of unnecessary exclusions decreased when the center was large (odds ratio: 0.71 [95% confidence interval: 0.52– 0.98]) and when the director had more experience (odds ratio: 0.60 [95% confidence interval: 0.43– 0.84]). Centers that were located in areas with a greater percentage of female heads of households were less likely to have children excluded, whereas centers with ≤10% of children on state assistance were associated with increased unnecessary exclusions.

In our model, self-reported knowledge of AAP/APHA guidelines was not associated with decreased exclusion rates. Although twice as many experienced directors believed that they were familiar with AAP/APHA guidelines, nearly half of all experienced directors reported that they were unfamiliar with AAP/APHA guidelines. Our subanalysis showed that there was a trend toward fewer exclusions among directors who were “very familiar” with the AAP/APHA guidelines; however, only 3% of directors were “very familiar” with the guidelines, leaving us underpowered for this analysis. Our results also did not show fewer exclusion decisions for centers with access to child health consultants; however, only 5% of all directors with access to health care consultants reported using consultants to obtain information about exclusion decisions.

DISCUSSION

Our results, the first from a study that examined child care center exclusions in a state that endorses AAP/APHA guidelines, showed continued high rates of unnecessary director exclusion decisions. Contrary to our hypothesis, our average director-reported unnecessary exclusion rate of 57% for children with mild illness in a state that actively endorses child care guidelines was essentially equivalent to the 59% inappropriate exclusion rate found by Copeland et al^{13,20} in a state that had not endorsed AAP/APHA guidelines. With almost one-third of the directors in the “high” unnecessary exclusion group, our study shows that a significant disconnect remains between state endorsement of national guidelines and child care director-reported exclusion decisions. We were also able to discover characteristics that were associated with exclusion practices at the director, center, and neighborhood levels.

Directors with greater child care experience make fewer unnecessary exclusion decisions than directors with less experience. Experienced directors are potentially more comfortable keeping children with mild illness in child care compared with their colleagues with less experience. Previous studies suggested that child care directors are overly conservative with respect to exclusion of ill children; this may be particularly true for directors with less experience.¹¹ Our study did not find director education level to be associated with exclusion practices. One study found that directors without college degrees were more likely to use incorrect temperature thresholds for defining fever¹⁵; however, in our cohort, the overwhelming majority (86%) of directors had college experience; therefore, there may not have been sufficient variability in our sample to reach statistical significance. Our study suggests that inexperienced directors (<10 years of experience) would be a potential focus for future interventions because inexperienced directors seem to make more inappropriate exclusion decisions and are more likely to report being unfamiliar with AAP/APHA guidelines.

Center size is associated with exclusion practices. Previous studies have clearly shown that the risk for illnesses increases in large child care settings^{25–28}; however, our study is the first to show that children who attend larger child care centers are excluded less for the same

symptoms of mild illness. One reason for this difference may be that larger centers are more likely to have greater availability of resources, such as separate sick or isolation rooms and extra child care staff available to care for and monitor children with mild illness as compared with smaller child care centers and therefore may be less likely to send children home²⁹; however, our study defined large center size on the basis of number of children and did not use actual child care building size, number of classrooms, children per classroom, or availability of sick or isolation rooms.

Directors of centers with a smaller percentage of their children on state-assisted tuition had higher inappropriate exclusion rates compared with centers with a larger percentage of children on state-assisted tuition. One reason for this may be that in Wisconsin, some children who are on state assistance are authorized to attend child care on an attendance-based fee. In contrast to enrollment-based fees, the center does not receive payment if the child is absent for any reason, including illness. (J. Bates, Department of Children and Families, Bureau of Childhood Education [jim.bates@wisconsin.gov], written communication, July 31, 2009). Directors of centers with a higher proportion of children on attendance-based state subsidies may be less inclined to exclude children for mild illness. In addition, a higher percentage of children on state-assisted tuition may reflect the neighborhood's lower socioeconomic status. These neighborhoods also seem to be in federally designated Health Professional Shortage Areas, with a severe shortage of primary care physicians.³⁰ Directors may take into account the lack of health care access when making exclusion decisions.

Centers that were located in areas with a higher proportion of female heads of household had fewer exclusions. These areas also have fewer child care options and resources because percentage of female heads of household is a marker for the single mother or grandmother who is the sole income provider. These female heads of household are often faced with the decision of either staying home without pay or scrambling to find alternative child care.³¹ Directors of centers in these areas may be less inclined to exclude children because single parents are less able to find alternative child care or lack sick leave to care for their child.

Wisconsin does not provide directors with any formal education of child care health guidelines. Despite some barriers, previous studies have shown that active training of child care providers improves quality of child care and knowledge and compliance with child care health-related measures.^{32–34} Given the complete lack of any formal training regarding exclusion guidelines, we believe that the state could offer initial and ongoing state-accredited training classes.

Another potential intervention is the use of telemedicine as reported by McConnochie et al.³⁵ Urban child care centers that use telemedicine reported a 63% decrease in absence from child care as a result of illness, and >90% of parents reported being able to stay at work. Additional studies need to be performed to assess large-scale feasibility of child care telemedicine.

Our study has several potential limitations. The study used English-speaking child care center directors and may not be representative of Spanish-speaking directors or family-based child care. With regard to the population, our sample mirrors national demographics but may not be representative of Wisconsin; however, with almost 50% of child care centers in Wisconsin located in the areas that we surveyed, we do not believe that the percentages would change significantly. In addition, our results were obtained from vignettes and may not reflect actual exclusion practices.³⁶ Although directors could have excluded children because they could not participate comfortably in normal activities or be cared for without jeopardizing the health or safety of other children, none of our scenarios described any

children who could not participate in normal activities, and all had symptoms of mild illness. Directors may have also felt the need to vary their responses, thus excluding unnecessarily. In addition, we did not determine whether directors made unsafe inclusion decisions. Directors may have answered vignettes differently depending on the interviewer (physician versus research assistant); however, a comparison of interviews conducted by the physician and the nonphysician showed no patterns of increased or decreased exclusion rates. Data regarding time of initial center licensing were unavailable; therefore, we cannot determine whether more recently licensed centers (<10 years) are more familiar with guidelines.

CONCLUSIONS

Endorsement of AAP/APHA guidelines at the state level was not associated with fewer unnecessary exclusions when compared with rates from a state that did not actively endorse AAP/APHA guidelines. The overall high rates of unnecessary exclusion decisions suggest that all directors, especially inexperienced directors, may need initial and ongoing training regarding AAP/APHA guidelines to reduce the high rates of unnecessary exclusion. Active translation of these AAP/APHA guidelines by using interactive or didactic methods may be needed to increase their use.

WHAT'S KNOWN ON THIS SUBJECT

Previous studies have found high rates of unnecessary exclusion of children with mild illness in states that do not endorse national consensus guidelines for child care exclusion published by the AAP and the APHA.

WHAT THIS STUDY ADDS

Our study is the first to examine child care director exclusion decisions in a state that actively endorses AAP/APHA child care exclusion guidelines and to identify director, child care center, and neighborhood characteristics that are associated with unnecessary exclusion decisions.

ABBREVIATIONS

AAP	American Academy of Pediatrics
APHA	American Public Health Association

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FIGURE 1.
Flow diagram of child care center director study enrollment.

FIGURE 2.
Percent of children unnecessarily excluded when director responses compared with AAP/
APHA guidelines.

TABLE 1

Summary of Case Vignettes

Vignette	Abbreviated Wording	AAP Guideline Answer
Cold/URI	3-y-old, clear runny nose for 5 d, dry cough for 3 d, temp (97°F axillary), able to participate in usual activities	Do NOT exclude
Conjunctivitis	4-y-old, red eyes, clear drainage, temp (97.5°F axillary)	Do NOT exclude
Gastroenteritis	2-y-old, toilet trained, vomited what she ate once and had 2 loose, watery stools contained in toilet, temp (97.8°F axillary)	Do NOT exclude
Fever	3-y-old, felt warm, fever (101°F axillary), no other symptoms, acting his usual perky self	Do NOT exclude
Tinea capitis	4-y-old, circular rash on scalp, hair not growing well at site of rash, temp (97.6°F axillary), usual playful self	Do NOT exclude immediately

Vignettes were adapted for our study with the following modifications: (1) all axillary temperatures not specifically related to the fever vignette were lowered to <98°F to avoid exclusions on the basis of “low grade” fevers; (2) diarrhea and vomiting vignette was changed to represent a toilet-trained child instead of a diapered child to reflect changes in 2002 AAP guidelines; (3) only 1 version of each vignette was given. URI indicates upper respiratory infection.

TABLE 2**Factors Associated With Unnecessary Exclusion**

Variables^a	Adjusted OR (95% CI)^b
Center size (large vs small)	0.71 (0.52–0.98)
Director experience (≥10 vs 0–10 y)	0.60 (0.43–0.84)
% female head of household (every 10% increase)	0.90 (0.83–0.98)
Centers with children on state assistance (≤10% vs >10%)	1.71 (1.19–2.47)

OR indicates odds ratio; CI, confidence interval.

^aResults of stepwise, ordinal logistic regression model. Only variables that were statistically significant (<.05) in the full model are listed.

^bAdjusted for size, AAP guideline knowledge, director (education, experience, race, previous medical training), health care consultant, percentage of children full-time, children younger than 1 year, percentage in poverty, percentage unemployed, percentage not graduating high school.