School Professionals’ Perceptions About the Impact of Chronic Illness in the Classroom

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Background: Children with chronic health conditions spend most of their day in the school system. The complexity of illness management and disease sequela can alter their school experience. However, little is known about what educators are concerned about if these children are in their classroom.

Objective: To assess educators’ perceptions of the impact of having children with different chronic health conditions in the classroom.

Methods: Teachers and other school professionals in 23 elementary schools were surveyed about the impact of having a child with each of 6 chronic health conditions—AIDS, asthma, congenital heart disease, diabetes mellitus, epilepsy, and leukemia—in the classroom. They responded to 13 statements about the potential academic impact on the child, impact on peers, personal risk or liability, and additional time or attention demands for the teacher. Total scores were determined for the degree of perceived impact for each issue and chronic health condition and the proportion of teachers with negative perceptions for different issues.

Results: The mean total scores (2.4 of 5) showed overall a positive perception by school professionals about children with chronic conditions in the classroom. Acquired immunodeficiency syndrome and epilepsy were perceived to have the most impact and asthma the least impact. The 2 educator issues (time or extra attention and personal risk or liability) were of the most concern to educators. Fifty-three percent were concerned about an emergency occurring with the child in the classroom and 27% were concerned about legal liability. Educator concerns of the risk of classroom emergencies or death were disproportionate to the clinical risk of the conditions especially for epilepsy and congenital heart disease.

Conclusions: Overall school professionals have positive attitudes about children with chronic health conditions in the classroom, but concerns about specific diseases and issues exist. If parents provide most of the disease information, some of the educators’ concerns voiced in this study may not be addressed. Health care professionals can help by providing educators with appropriate information about the risk and functional impact of childhood chronic health conditions.


Improved survival and new treatment and new treatment regimens conducted in the ambulatory setting have led to more community-based care of children with complex chronic health conditions. With the recent emphasis on mainstreaming, these children are likely to attend neighborhood schools. Schools face challenges incorporating children with different illnesses into the classroom. The school nurse plays an important role with these conditions in education and illness management. However, little attention has been paid to educators and their perception of having children with chronic health conditions in their classrooms.

Most children spend nearly half their waking hours with their teacher and school personnel. Yet most educators have had little training about the needs of children with medical conditions in the classroom. Teacher expectations for the child may be based on personal biases or other experiences. For example, both teachers and the general public have been shown in the past to have negative biases about children with epilepsy and AIDS. Some of the issues raised by classroom teachers in previous qualitative studies include fear of how to respond in a medical emergency, the impact of illness or its treatment on academic performance, as well as the extra demands for the teacher’s time or attention. Fewer teachers were concerned about behavioral issues and the impact on other children in the class. These issues have not been explored recently, and few studies ex-

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TABLE 1. School Professional Responses for Individual Questions in Each Category, Overall and by Chronic Health Condition*

<table>
<thead>
<tr>
<th>Statement</th>
<th>All†</th>
<th>AIDS</th>
<th>Asthma</th>
<th>CHD</th>
<th>Diabetes Mellitus</th>
<th>Epilepsy</th>
<th>Leukemia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic impact</strong></td>
<td>37.3</td>
<td>64.7</td>
<td>14.1</td>
<td>34.2</td>
<td>17.7</td>
<td>41.3</td>
<td>51.2</td>
</tr>
<tr>
<td>Compared to the average student, a child with this medical condition will have more difficulty in school and face more barriers to achievement</td>
<td>4.7</td>
<td>4.2</td>
<td>1.0</td>
<td>3.9</td>
<td>1.3</td>
<td>8.6</td>
<td>9.4</td>
</tr>
<tr>
<td>A child with this condition is more likely to learn at a slower rate</td>
<td>10.9</td>
<td>14.2</td>
<td>6.0</td>
<td>3.2</td>
<td>3.2</td>
<td>30.1</td>
<td>8.7</td>
</tr>
<tr>
<td><strong>Peer impact</strong></td>
<td>4.1</td>
<td>21.5</td>
<td>0</td>
<td>0</td>
<td>0.3</td>
<td>2.9</td>
<td>0</td>
</tr>
<tr>
<td>I believe other students in the classroom would be distracted by the presence of a child with this condition</td>
<td>1.6</td>
<td>2.6</td>
<td>0.5</td>
<td>0.8</td>
<td>0.3</td>
<td>5.2</td>
<td>0</td>
</tr>
<tr>
<td>I believe a child with this condition would place the safety of other students at risk</td>
<td>1.9</td>
<td>20.1</td>
<td>14.8</td>
<td>12.8</td>
<td>19.5</td>
<td>29.7</td>
<td>22.3</td>
</tr>
<tr>
<td>I believe a student with this condition would be disruptive to the classroom learning environment</td>
<td>70.3</td>
<td>76.0</td>
<td>52.7</td>
<td>68.2</td>
<td>73.9</td>
<td>77.1</td>
<td>73.9</td>
</tr>
<tr>
<td><strong>Special attention or extra time</strong></td>
<td>51.1</td>
<td>57.3</td>
<td>38.0</td>
<td>48.2</td>
<td>51.8</td>
<td>64.8</td>
<td>46.4</td>
</tr>
<tr>
<td>I believe a child with this condition would require more of my time or attention than the other students in the class</td>
<td>8.0</td>
<td>1.8</td>
<td>0</td>
<td>0.8</td>
<td>0.3</td>
<td>0.8</td>
<td>1.3</td>
</tr>
<tr>
<td>A child with this condition requires more contact with the child's parents</td>
<td>53.7</td>
<td>45.3</td>
<td>56.1</td>
<td>57.0</td>
<td>56.6</td>
<td>69.8</td>
<td>37.5</td>
</tr>
<tr>
<td>A child with this condition would require additional training of the school staff</td>
<td>17.1</td>
<td>28.9</td>
<td>10.6</td>
<td>16.8</td>
<td>12.4</td>
<td>21.5</td>
<td>12.5</td>
</tr>
<tr>
<td>I believe that a child with this condition should be in a special learning classroom</td>
<td>19.9</td>
<td>20.1</td>
<td>14.8</td>
<td>12.8</td>
<td>19.5</td>
<td>29.7</td>
<td>22.3</td>
</tr>
<tr>
<td><strong>Personal risk or liability</strong></td>
<td>27.2</td>
<td>31.7</td>
<td>24.2</td>
<td>26.6</td>
<td>28.2</td>
<td>29.2</td>
<td>23.3</td>
</tr>
<tr>
<td>I would be concerned that a student with this condition would create a situation requiring emergency medical care</td>
<td>10.1</td>
<td>7.6</td>
<td>4.7</td>
<td>25.0</td>
<td>5.7</td>
<td>10.4</td>
<td>7.0</td>
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<td>5.2</td>
<td>0</td>
</tr>
</tbody>
</table>

Abbreviation: CHD, congenital heart disease.
*Data are given as the percentage of school professionals agreeing or strongly agreeing with the proposed statement.
†Values are the average percentage for all chronic health conditions.

Methods

Subjects

All 23 elementary schools in the 6 surrounding Vermont and New Hampshire communities served by the Dartmouth-Hitchcock Medical Center, Lebanon, NH, were recruited and agreed to participate. The grades in these schools ranged from kindergarten to fifth or sixth grade. Surveys were administered to school personnel directly involved in student education (referred to hereafter as “educators”) by either the principal or one of the investigators on 1 day within a given school. The 5% of staff absent during the survey day were excluded from the study. Informed consent was obtained by describing the study to the participants prior to questionnaire administration. Because all surveys were anonymous, a signed consent was waived per our institutional review board.

The survey measure was developed from teacher concerns in the published literature and issues that the Dartmouth-Hitchcock Medical Center clinical nurse coordinators heard repeatedly from schools. For each of 6 different chronic health conditions—AIDS, asthma, congenital heart disease (CHD), diabetes mellitus, epilepsy, and leukemia—13 statements of a potential problem in having that child in the classroom were developed. For each of these, respondents ranked the issue on a 5-point Likert scale. These responses ranged from low (1, strongly disagree with the statement) to high impact (5, strongly agree with the statement). The questions explored the educators’ perceptions in the following areas: the academic impact on the child, impact on peers, additional time or attention demands on the respondent, and personal threat or liability for the respondent. The specific questions are listed in Table 1. In addition, the survey asked if the educator perceived adequate sources of health care information and support with the statement, “I feel that health care providers of a child with this condition would provide me with sufficient information regarding the condition and how to best care for this child.” The educators were also queried about which conditions they have had either personal or professional contact with.
DATA ANALYSIS

Scores were first summated as total scores for school professionals' overall perception of impact as well as scores for each disease and area of impact. Overall impact was determined by the average of the sum of all questions across all 6 chronic health conditions. As appropriate, these data were analyzed by parametric (paired t tests) and nonparametric (Wilcoxon signed rank tests) methods. Owing to multiple comparisons within the data set, only P values less than .01 were considered statistically significant. To better understand the proportion of educators who had major concerns within the different areas of impact, the percentage of educators who agreed or strongly agreed with each statement describing a potential problem was calculated. This allowed us to provide information about which specific issues for each chronic health condition were most salient. Odds ratios were calculated and a logistic regression model was then used to determine if school or educator variables (age, sex, years of experience teaching, and profession) predicted teachers who had concerns (ie, those who agreed or those who strongly agreed with a given statement).

RESULTS

The survey was completed by 384 school professionals in 23 schools. Of the respondents, 241 were classroom teachers, 54 were special education teachers, 10 were school nurses, 69 were principals or administrators, and 10 had other staff positions. Eighty-three percent of the respondents were female. Reflecting the aging of the population of school professionals, only 11% were aged 30 years or younger, 19% were aged 31 to 40 years, 46% were aged 41 to 50 years, and 24% were older than 50 years. Sixty-eight percent had more than 10 years' teaching experience. Forty percent worked with multiple grades and the others were evenly distributed from kindergarten through sixth grades. Twenty percent had previous contact with an individual with AIDS, 87% with asthma, 41% with CHD, 69% with diabetes mellitus, 55% with epilepsy, and 35% with leukemia. This question did not determine if the contact was in school or in their personal life.

The mean total score across all conditions was 2.4 (1 [low impact] and 5 [high impact]) showing that overall school professionals perceived chronic health conditions to have only a modest impact in the classroom. Responses were not significantly different by specific professions (Table 2). The mean overall scores of classroom teachers and special education teachers were compared for each disease and no statistically significant differences were noted. Small numbers in some categories limited further analysis of other school professionals.

However, there was some important variation by disease (Figure 1). In disease-by-disease comparisons both AIDS and epilepsy were seen as having more impact overall than any of the other chronic health conditions (all P values < .01). Overall perceptions of impact in the classroom were not statistically significantly different between AIDS (2.4) and epilepsy (2.3) or between leukemia (2.1) and diabetes mellitus (2.1). These diseasespecific perceptions did not vary when examined in the following classifications: classroom teachers vs other school professionals, classroom teachers vs special education teachers, or sex and years of teaching experience (data not shown). Those who had previous contact with an individual with a specific chronic medical condition responded differently only for AIDS. School professionals who had personal or professional contact with someone with AIDS perceived AIDS to have less classroom impact than those with no exposure to AIDS in their personal or social life (2.2 vs 2.4, P < .01). Differences for other diseases for educators with previous exposure and those without ranged from 0.01 to 0.08 with P values of .20 to .90.

School professionals' Likert scores also differed for the 4 aspects of classroom impact resulting from having children with chronic health conditions in the classroom. Figure 2 shows that they were the least concerned about children's academic limitations and adverse impact on their peers. Instead, chronic health conditions were perceived to have the greatest impact on the teacher, both in extra time or attention required and in feeling personal liability or risk from medical issues. Because of the differences in acute medical events, contagion, and cognitive aspects of these conditions, it is important to further explore school professionals' responses for individual diseases. Are areas of impact or specific issues of more concern for educators who must deal with a specific health condition? Table 1 details the proportion of teachers who had a concern for a specific issue for each condition and the proportion of teachers
with the concern averaged for all chronic health conditions. Within the category of academic impact, more than one third of the educators thought that children with these conditions overall would have school difficulties and barriers to achievement, with AIDS, epilepsy, and leukemia seen as being the most problematic. Few educators perceived their students’ learning abilities as an issue.

Peer impact was not an issue of concern for most conditions except for AIDS and epilepsy. The average peer impact Likert scale scores were similar for AIDS (1.90) and epilepsy (1.85) and significantly higher for each of these diseases than any of the other chronic health conditions (all P values <.01). Data in Table 1 helps us understand what are the specific peer issues of importance with these 2 conditions. Fourteen percent of the educators thought a child with AIDS and 30% of the educators thought a child with epilepsy would distract the other children. Almost 1 of 5 educators thought a child with AIDS would put other children at risk.

Educators’ concerns about the extra time or attention required of them varied by disease. Children with epilepsy had higher “special attention” impact scores than other chronic health conditions (mean Likert scale scores, 2.8 for epilepsy vs 2.3–2.6 for other chronic health conditions; all P values <.01) while asthma had significantly lower special attention scores than other chronic health conditions (P<.01). The specific teacher aspects involved in special attention are detailed in Table 1. Seventy percent of the school professionals thought children with these chronic health conditions required more contact with parents, and almost half thought additional school staff training would be required. However, only 20% thought these chronic health conditions would require more of the teacher’s time and they did not think children with 1 of these 6 chronic health conditions merited a learning placement out of the classroom.

The statements included in the personal risk or liability category describe educator concerns relating to an adverse event happening for a child with any of the 6 chronic medical conditions while under their supervi-

Figure 2. School professional perceived effect of children with chronic conditions for specific classroom issues. Between disease comparisons, all P values were less than .01 by Wilcoxon signed rank test. In the Likert scale 1 indicates the least impact; 5, the greatest impact.

Our study findings show that overall educators viewed having children with chronic medical conditions in their classroom positively with modest impact. The aspects of relatively more concern for teachers and other school professionals are not the academic issues or the impact on peers but the extra burdens and feeling personally at risk or uncomfortable having a child with a chronic health condition in their classrooms. In these schools, as well as most schools in Vermont and New Hampshire, mainstreaming of children with chronic health conditions and disabilities has become routine. School personnel have often taken on additional workloads to accommodate these children. These are issues that have had little open discussion within educational or medical settings as children have been mainstreamed. Teachers say that they commonly receive most of their condition-specific information from parents. They voiced their concerns about the additional time and attention required to care for a child with a chronic health condition or the feared risk and liability. These issues may not be easily discussed with parents who are advocates for the child. Although overall more than half of the teachers felt additional training was needed, few opportunities exist to provide information and to correct misconceptions. Most teachers and other school personnel neither receive training about childhood chronic health conditions during their education nor do they have the opportunity for postgraduate training or other in-service training later. Health care professionals who care for children with these chronic health conditions can help by providing realistic information about illness complica-
The beliefs of teachers and other school professionals are important in determining the experience of children with chronic health conditions. There is little information about their concerns about having children with different chronic health conditions in the classroom. Our study findings show that these educators are concerned about issues that are seldom discussed, such as the extra time or attention required to administer to the child’s special needs, emergencies, and their own personal risk and liability. Educators may have unrealistic concerns about the potential classroom impact of different chronic health conditions and may benefit from educational instruction from primary health care professionals.

Considerable progress has been made in reducing the public stigma of AIDS in recent years. Our results show that AIDS is perceived as similar to other chronic health conditions and less of an overall personal threat to educators than both epilepsy and CHD. However, educators especially had concerns about children with epilepsy, responding with higher scores in every category. These children were also seen to need the most special attention from teachers. These perceptions may not reflect the situation for most children with epilepsy. While a few students have marked neurological impairment with epilepsy, most are capable. These school professionals’ attitudes about epilepsy are very similar to those documented in the 1970s.4 While children have benefited from marked improvement in the effectiveness of newer medications, the perceptions of educators about children with epilepsy seem to have changed little.

Asthma and diabetes mellitus, common diseases that affect the daily life of students and can cause life-threatening acute events in school, were consistently perceived as having less impact on the child, their peers, and the teacher than the other chronic health conditions. Although positive attitudes about this population are welcome, when only half the educators are concerned that emergency medical care could be required for asthma and diabetes mellitus, it may indicate ignorance of status asthmaticus or hypoglycemic episodes.

Few studies have been published about educators’ views of children with chronic health conditions. This preliminary study has certain limitations. It also occurs in only one region of the country. We did not have enough school nurses enrolled in our study to examine their attitudes separately. This study was unable to identify specific predictors of educator concerns. It also did not investigate ways that educators believed a child with a chronic health condition in their class might have a positive impact in the classroom and enrich the experiences of themselves and their students. This study presents comparisons between perceptions of different chronic health conditions but was unable to determine the perceived impact of chronic health conditions relative to other social factors. The school professionals’ concerns occurred in a setting near a medical center where school nurses exist in each school and specialty nurse clinicians are available for these conditions to provide support to school staff. We expect teacher concerns may be even greater in settings with less support. Unfortunately, our survey did not allow us to explore in more depth teacher attitudes about personal risk and liability and special attention required as well as ways children with chronic health conditions might have a positive classroom impact. We recommend that future studies investigate these issues in a wider variety of school and community settings and explore in more depth school nurse and teacher concerns. It will also be helpful to further investigate the role of the school nurse with these issues and to determine how the school nurse's attitudes influence the perceptions of educators.

As school consultants, physicians and specialty nurse clinicians have an important role in addressing misperceptions regarding chronic health conditions. School nurses with appropriate training are also a resource who could help classroom educators have a realistic understanding of the educational impact and medical risks of children who have these chronic health conditions. New approaches are being developed for health care professionals to partner with parents and school professionals to meet the needs of students with chronic health conditions, their parents, and school personnel.5 On an individual patient level, health care professionals need to clarify any misunderstanding about the risk of adverse events for each child and to provide clear and appropriate emergency plans for acute events for both school nurses and teachers.
We thank Cally Gwon, MD, and Scott Schluter, MD, for their activities in survey development and data acquisition.

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REFERENCES


Announcement

Request for Information on the topic: Acute Encephalopathy Cases in US Children Associated With Influenza Virus Infection

Since the mid 1990s, several hundreds of cases of acute encephalopathy have been reported in Japanese children with influenza. These cases have been characterized by fever and rapid onset of encephalopathy, resulting in a high frequency of neurological sequelae and mortality. Most of the children have had laboratory-confirmed evidence of influenza virus infection.

To determine if a similar pattern of influenza-associated encephalopathy cases is occurring in the United States, the Centers for Disease Control and Prevention (CDC) is requesting information from health care providers on any case meeting the following criteria:

- <18 years old
- Altered mental status, or personality change, lasting >24 hours, occurring within 5 days of the onset of an acute febrile respiratory illness
- Laboratory or rapid diagnostic test evidence of acute influenza virus infection
- Diagnosed in the United States

Please report any suspected cases to either Dr Tim Uyeki (404: 639-0277; tmu0@cdc.gov) or Dr Niranjan Bhat (404: 639-2893; nb9@cdc.gov) at CDC.