Physician Beliefs and Practices Regarding the Use of Hepatitis A Vaccine

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ABSTRACT

Background: In 1999, the Centers for Disease Control and Prevention recommended routine vaccination of children against hepatitis A in states, counties, and communities with rates twice the national average or greater. Milwaukee is such a community.

Objectives: To assess physician knowledge, beliefs, and practices regarding hepatitis A disease and hepatitis A vaccine recommendations in Milwaukee.

Methods: A cross-sectional study of 291 Milwaukee pediatricians and family physicians using a self-administered questionnaire.

Results: The response rate was 46%. Of physicians responding, 88% were aware that hepatitis A vaccine was recommended for all children in Milwaukee >2 years of age; 61% believed hepatitis A was a significant health problem, with a significant difference between pediatricians and family physicians (74% versus 43%); and 65% stated they offered the vaccine “almost always” or “most of the time” to children between the ages of 2 and 19 years.

Conclusions: More physician education is needed regarding the public health impact of hepatitis A and the value of the vaccine.

INTRODUCTION

The hepatitis A vaccine has been recommended for routine administration to children in Milwaukee County since 1999. In 1999, the Centers for Disease Control and Prevention (CDC) recommended that children ≥2 years who live in states, counties, and communities where annual rates of hepatitis A virus were at least twice the 1987-1997 national average (≥20 cases/100,000) should be vaccinated against hepatitis A.1 The mean annual rate for Milwaukee County for 1987-1997 was 21.4, thus exceeding the threshold at which the hepatitis A vaccine was recommended. In 2001, the Vaccines for Children (VFC) program began to provide the hepatitis A vaccine for all eligible children in Milwaukee.

Hepatitis A vaccination coverage rates for children aged 24-35 months are substantially lower than overall rates for other recommended childhood vaccines.2 In 2003, national vaccination coverage levels for at least 1 dose of hepatitis A vaccine in areas where routine vaccination was recommended varied from 6.4% to 72.7% for children aged 24-35 months.

In May 2006, the Advisory Committee on Immunization Practices (ACIP) to the CDC expanded the recommendation regarding hepatitis A vaccine to include all children in the United States.3 It is also now recommended that all children receive the first dose of the 2 dose series between ages 1 and 2 years.

While studies have examined physician attitudes toward vaccines such as the pneumococcal conjugate vaccine, varicella vaccine, and hepatitis B vaccines, a review of the literature revealed that little is known about attitudes regarding the hepatitis A vaccine. It is known that physician beliefs about the importance of a vaccine strongly influence their acceptance of new vaccine recommendations.4 A survey of physicians in Nashville and Rochester by Schaffer et al revealed that the pneumococcal conjugate vaccine was perceived as very important and was widely accepted.5 Of the responding physicians, 82%—including 92% of pediatricians and 55% of family physicians—indicated they were providing the vaccine to their patients. In a Minnesota study that was conducted soon after the CDC, American Academy of Pediatrics, and American Academy of Family Physicians recommended universal varicella vaccination for children, only 42% of physicians reported routinely offer-
ing the vaccine. Physicians who believed natural disease was preferable to vaccination were less likely to immunize whereas those who perceived the vaccine to be “very important” were more likely to vaccinate.

The objective of our study, conducted in 2004, was to assess the knowledge of Milwaukee physicians regarding hepatitis A vaccine recommendations as well as their beliefs and vaccine administration practices.

METHODS

This was a cross-sectional study of practicing pediatricians and family physicians in the city of Milwaukee involving a self-administered questionnaire. The Institutional Review Board of the Children’s Hospital of Wisconsin approved the study.

Questionnaires were sent in September 2004 to 291 physicians from a database of all known Milwaukee pediatricians and family physicians. The database was compiled from several sources, including the Children’s Hospital of Wisconsin. All attempts were made to ensure completeness of this database. A repeat mailing was sent to non-responders. Physicians were assured that their responses would be confidential and that only aggregate results would be analyzed. Descriptive analysis, Chi-square test, and Fisher’s exact test were used to test for differences in responses for categorical variables; Wilcoxon test was used to test differences in continuous variables.

RESULTS

Fifty-eight questionnaires were excluded because the physician had either retired, did not provide medical care for children, or could not be contacted. An additional 4 questionnaires were excluded because they were completed by nurse practitioners, rather than our target group of physicians. After these exclusions, the overall response rate was 46%, with a rate of 68% for pediatricians and 27% for family physicians. Of the 104 completed questionnaires, 58% were from pediatricians, and 42% from family physicians.

Questionnaire results are listed in Table 1. Of physicians who responded, 88% were aware that hepatitis A vaccine was recommended for all children >2 years of age in Milwaukee; 61% believed hepatitis A was a significant health problem, with a significant difference between pediatricians and family physician responses; and 65% stated they offered the vaccine “almost always” or “most of the time” to children between the ages of 2 and 19 years.

The median percent of eligible patients estimated to have received the hepatitis A vaccine was 50% for all physicians. The median reported rate of vaccine refusal was only 5%; the most common reasons reported were fear of side-effects (53%), vaccine felt to be unnecessary (46%), vaccine cost (35%), that it was not required for school/daycare (12%), and that there were too many vaccinations (8%).

The most common reason offered by physicians who did not immunize with hepatitis A vaccine was that there are too many vaccines (23%). Other reasons included poor insurance reimbursement (10%), the vaccine was not felt to be necessary (10%), cost (4%), and “other” reasons (12%). None of the physicians felt it was unsafe or that the risks outweighed the benefits.

Seventy-three percent of physicians used a computerized vaccine tracking system, 63% used the Wisconsin Immunization Registry (WIR), and 10% their own system. Fifty-eight percent of physicians participated in the VFC program, with pediatricians more likely to use the program than family physicians.

DISCUSSION

In May 2006, the CDC expanded the recommendation
regarding hepatitis A vaccine to include all children in the United States. Although this questionnaire was conducted prior to these recommendations, our findings on physician attitudes and beliefs are important in improving acceptance of the hepatitis A vaccine.

Although most physicians were aware of the 1999 recommendations, 39% of physicians in our study did not believe that hepatitis A is a significant health problem. One possible explanation for this may be that the disease in children, unlike adults, is generally asymptomatic, resulting in physicians underestimating the impact of the disease at a community level.7-8 Hepatitis A is acquired primarily by feco-oral transmission, a common mode of disease transmission in infants and young children. Physicians may be more likely to accept the new ACIP recommendations if they understand the public health impact of the disease.

Hospitalization rates for those infected with hepatitis A range from 11%-22%.1 Estimates of the annual direct and indirect costs of hepatitis A in the United States have ranged from $300 million to $488.8 million in 1997 dollars.9 Prior to the vaccine, an estimated 100 persons in the United States died as a result of acute liver failure attributed to hepatitis A. Hepatitis A continues to be one of the most frequently reported vaccine-preventable diseases. In Wisconsin, in 1998-2005, the annual number of cases of hepatitis A has been as high as 193 statewide and as high as 69 in Milwaukee County (Table 2). It is important to note the true infection rate of hepatitis A has been estimated to be greater than 10 times the reported rate.10 The Wisconsin Department of Health and Family Services’ Hepatitis Strategic Plan includes among its objectives reducing the number of cases of hepatitis A associated with daycare, increasing the proportion of children 24-36 months who have received the vaccine, and reducing the annual number of reported hepatitis A infections in Wisconsin by 50% of 1999-2001 baseline rates by 2010.11

Vaccination of children against hepatitis A has been highly effective in reducing the incidence of hepatitis A in populations with high disease rates.12 A program of universal immunization of Israeli toddlers against hepatitis A resulted in >95% reduction in annual incidence of the disease.13 Despite a decrease in hepatitis A disease rates in the United States since introduction of the vaccine, vaccination rates for children are lower than overall rates for other vaccines recommended for children.14,15

Improved immunization rates have been demonstrated with implementation of school and daycare entry immunization mandates, as in the case of the varicella vaccine.16 Perhaps states should consider mandating vaccination for school or more importantly for daycare entry, since daycares are a known transmission source.17

Some physicians reported the cost of the vaccine was a deterrent for parents and that insurance companies would not pay for the vaccine. In the city of Milwaukee, the vaccine is provided through the VFC program for children who are eligible. Only 58% of responding physicians participated in the VFC program; however, our study did not address reasons for the low participation rate. Studies of inner-city physician offices showed that participation in the VFC program is associated with higher immunization rates.18 We are unaware of vaccine reimbursement by private insurance companies, but universal recommendation for the vaccine may be helpful in increasing reimbursement.

As has been noted with other vaccines such as influenza, physician recommendation might be the most important deciding factor regarding whether or not parents will accept the hepatitis A vaccine for their children.19 In our study, only 61% of physicians felt that hepatitis A was a significant health problem. However it is possible that if this study had been conducted after the new recommendations for universal hepatitis A vaccination, the results might be different. To improve hepatitis A vaccination coverage among young children and to continue the trend of decreasing hepatitis A incidence in the United States it is important to educate physicians about the public health burden of hepatitis A infection and the benefits of vaccination.

**LIMITATIONS**

The immunization rates are physician-reported rates, which are approximations. Actual rates were not determined. At this time, reports on vaccination rates are not available at a local level through the Wisconsin Immunization Registry. Reasons for parent refusal of

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**Table 2.** Hepatitis A Virus Cases, 1998-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Wisconsin Cases (Rate/100,000)</th>
<th>Milwaukee County Cases (Rate/100,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>180 (3.4)</td>
<td>30 (3.1)</td>
</tr>
<tr>
<td>1999</td>
<td>123 (2.3)</td>
<td>69 (7.2)</td>
</tr>
<tr>
<td>2000</td>
<td>104 (2)</td>
<td>31 (3.2)</td>
</tr>
<tr>
<td>2001</td>
<td>90 (1.7)</td>
<td>19 (2.0)</td>
</tr>
<tr>
<td>2002</td>
<td>193 (3.6)</td>
<td>18 (1.9)</td>
</tr>
<tr>
<td>2003</td>
<td>45 (0.8)</td>
<td>6 (0.6)</td>
</tr>
<tr>
<td>2004</td>
<td>123 (2.3)</td>
<td>21 (2.2)</td>
</tr>
<tr>
<td>2005</td>
<td>47 (0.9)</td>
<td>7 (0.7)</td>
</tr>
</tbody>
</table>

Data obtained from Wisconsin Department of Health and Human Services.
the vaccine and vaccine administration practices are also by physician self-report.

Our response rate was 46%, despite a repeat mailing. It is possible there may be a non-response bias. It is difficult to make comparisons between pediatricians and family physicians because of lower family physician response rates.

CONCLUSION

The new ACIP recommendation for universal vaccination of all eligible children is likely to be effective in decreasing the incidence of hepatitis A in the United States, provided physicians accept the recommendation. Our results suggest that physicians need to be educated on the public health importance of hepatitis A. Emphasis needs to be placed on the fact that although children usually have asymptomatic or minimal symptoms due to the disease, immunizing children against hepatitis A is extremely important in protecting the general population against the disease.

Better utilization of the VFC program by physicians can decrease barriers related to cost of the vaccine. With new recommendations for universal vaccination, private insurance companies might be more likely to cover vaccine costs. Public education campaigns and mandating of the vaccine for school or daycare entry might also be effective in improving vaccination rates.

Acknowledgments: We wish to acknowledge the Medical College of Wisconsin, Department of Pediatrics, section of Quantitative Health Sciences for their assistance with questionnaire development, data management, and analyses. Thanks also to Dr John Meurer for allowing us access to his physician database.

Funding/Support: This study was funded by division funds from the Division of General Pediatrics, Medical College of Wisconsin.

Financial Disclosures: None declared.

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