Use of Public Immunization Services After Initiation of a Universal Vaccine Purchase Program

Sarah J. Clark, MPH; Gary L. Freed, MD, MPH

**Objective:** To explore the reasons why North Carolina families continue to use public immunization services 2 years after implementation of a universal vaccine purchase program, a state program intended to eliminate financial barriers to immunization in private physicians' offices.

**Methods:** In-person interviews were conducted in 11 local public health departments in North Carolina.

**Participants:** Consecutive sample of 64 adults accompanying children aged 2 years or younger presenting for immunization services.

**Main Outcome Measures:** (1) Reasons for seeking immunization at the health department and (2) history of immunization from private physicians.

**Results:** Two thirds of children obtained immunizations at the health department because of cost, including two thirds of children enrolled in Medicaid. Only 33% of children received well-child care from a private physician; for more than half of this group, the parents cited cost as the reason for using the health department, even though their physician was participating in the state universal purchase program. Of the 8 parents who told their child’s private physician that they could not afford immunizations, none was told that the vaccine administration fee would be waived.

**Conclusions:** Even though North Carolina’s universal vaccine purchase program had been in effect for more than 2 years, a substantial number of children still received care from a private physician but used the health department for immunizations because of cost. These results indicate a need to explore additional strategies to preserve children’s “medical homes.”


**Editor’s Note:** The follow-up question to this study is why pediatricians would not tell parents that vaccine fees are waived. *Catherine D. DeAngelis, MD*

An often-cited barrier to age-appropriate childhood immunization is the referral of children from private providers to public clinics for vaccines.1,2 This practice impairs providers’ ability to determine immunization status. Furthermore, keeping children in their “medical home” has been demonstrated in previous research to improve children’s continuity of care and to increase their likelihood of receiving other preventive services (eg, vision and hearing screening and developmental assessment).3 Children referred to public sites are usually poor and without insurance coverage for immunizations.4,6

The private-sector cost of vaccines for the primary immunization series has increased 10-fold over the past decade.7 Various strategies, including the federal Vaccines For Children Program and state universal vaccine purchase programs, have been initiated to improve access to immunizations in private physician offices by reducing immunization charges to patients. In a universal vaccine purchase program, the state supplies participating physicians with free vaccine for all children regardless of income or insurance status. Private physicians may charge patients a set administration fee but may not charge for the vaccine serum. Universal purchase has existed for many years in the New England states, and more recently in less-populated western states. Generally, universal purchase states have lower percentages of children receiving immunization at public sites than states with no universal purchase.8

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SUBJECTS AND METHODS

One interviewer was trained to conduct in-person, oral interviews. Questions and possible response categories were provided on the interview form to ensure standardized questioning and response coding. Questions included family demographics (eg, age of child, race, insurance status, and number of siblings), nature of health department use (eg, well-child visit, sick care, and immunizations only), reasons for seeking immunizations at the health department (with multiple responses allowed), whether the child has a private physician, history of immunization from private physicians, and awareness of the state universal vaccine purchase program.

Consent to conduct interviews was obtained from 11 health departments in central North Carolina, representing a mixture of rural and urban counties. The interviewer arranged to spend 1 day at each site; clinic staff directed the interviewer to all children aged 2 years and younger who presented for immunization services. The interviewer then spoke with the adult accompanying each eligible child to explain the study and to obtain consent for participation, which was granted in all cases. Interviews took 3 to 7 minutes to complete and were conducted in a quiet area of the waiting room before immunization of the child. This protocol was approved by the Committee for the Protection of Human Subjects at the University of North Carolina at Chapel Hill.

public clinics and higher immunization rates than non-universal purchase states.8

In 1994, the state of North Carolina implemented a universal vaccine purchase program. At the time of this study, the maximum allowable administration fee charged to patients was $13.71 for 1 immunization and $27.42 for 2 or more. The tenets of the program, however, mandate that if a family indicates that it cannot pay the administration fee, the fee must be waived. Also, administration fees for children enrolled in Medicaid are reimbursed by the Medicaid program; they are not charged to the patient. In theory, therefore, North Carolina children who receive preventive care from private providers should have fewer financial barriers to receiving their immunizations in that setting. It is unclear how that theory unfolds in practice.

According to estimates by the Immunization Section of North Carolina’s Department of Environment, Health, and Natural Resources, the proportion of children’s immunizations administered in the public sector has decreased from approximately 50% before implementation of the universal vaccine purchase program to 30% after implementation (Barbara Sterritt, MSN, Chief of Immunization Section, oral communication, September 20, 1996). Anecdotal evidence suggests that this figure still includes children who receive care from private physicians but obtain immunizations at public clinics. To learn more about why North Carolina families continue to use public immunization services despite the presence of universal purchase, we conducted in-person interviews with parents of patients at 11 county health departments in North Carolina during the summer of 1996.

RESULTS

Consent for participation was obtained for all 64 eligible children (100%). Interviews were conducted with 60 mothers (94%), 3 fathers (5%), and 1 grandmother (1%). Children’s ages ranged from 2 to 24 months (mean age, 10.6 months). Most children were uninsured or enrolled in Medicaid at the time of the interview. Health insurance and racial characteristics for the sample are presented in Table 1.

For 39 children (61%), the health department visit was for immunizations only; 16 children (25%) were also scheduled to receive a well-child examination, 8 children (13%) were obtaining services from the Special Supplemental Program for Women, Infants, and Children (known as WIC), and 1 child was scheduled for follow-up from an emergency department visit. Excluding the 9 children aged 2 to 3 months who were presenting for their first series of immunizations, the vast majority of children (91%) had received immunizations at the health department on previous occasions.

Cost was the most common reason given for seeking immunizations at the health department, cited by 42 respondents (66%). Nineteen respondents (30%) cited cost as the only reason for using the health department, while 23 others (36%) cited cost and at least 1 other reason. Families with no insurance coverage for immunizations—either uninsured or privately insured with no immunization benefits—were most likely to cite cost as the reason for seeking immunizations at the health department (Table 1). However, two thirds of the parents of children enrolled in Medicaid cited cost. Parents of Hispanic children were most likely to cite cost as their reason for using the health department.

Several other reasons were given for seeking immunizations at the health department. Thirteen respondents (20%) said that the child got all health care at the health department; 13 (20%) reported that the health department had more convenient hours and location; and 10 (16%) stated they had to bring the child there for other

Table 1. Characteristics of Children Seeking Health Department Immunizations

<table>
<thead>
<tr>
<th>Health insurance coverage</th>
<th>Overall, No. (%)</th>
<th>Citing Cost as Reason for Using Health Department, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No insurance</td>
<td>25 (39)</td>
<td>28 (67)</td>
</tr>
<tr>
<td>Medicaid</td>
<td>24 (38)</td>
<td>28 (67)</td>
</tr>
<tr>
<td>Private, some coverage for immunization</td>
<td>4 (6)</td>
<td>21 (50)</td>
</tr>
<tr>
<td>Private, no coverage for immunization</td>
<td>4 (6)</td>
<td>32 (75)</td>
</tr>
<tr>
<td>Private, immunization coverage unknown</td>
<td>7 (11)</td>
<td>30 (71)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Race of child</th>
<th>Overall, No. (%)</th>
<th>Citing Cost as Reason for Using Health Department, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>28 (44)</td>
<td>29 (68)</td>
</tr>
<tr>
<td>Black</td>
<td>25 (39)</td>
<td>25 (60)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>9 (14)</td>
<td>33 (78)</td>
</tr>
<tr>
<td>Other</td>
<td>2 (3)</td>
<td>21 (50)</td>
</tr>
</tbody>
</table>
services (usually WIC). Additional reasons were given by 23 (36%) of those interviewed, including 2 parents who said they did not want their children to associate the pain of shots with the private physician, 1 who could not get an appointment with a physician, and several who had gone to the health department themselves as children and/or had taken older children to the health department for immunizations.

Only 21 respondents (33%) said that their child had a private physician for regular well-child care; all of the physicians named by respondents were participating in the state universal vaccine purchase program at the time of the interview. Of the respondents whose child had a private primary care physician, 15 (71%) reported being given the choice of getting immunizations at the physician’s office, and 5 (24%) had received at least 1 immunization there. For 12 (57%) of the 21 children who had a private primary care physician, cost was the main reason for seeking immunizations at the health department. Eight respondents (38%) reported telling the child’s regular physician that they could not afford immunizations; none was offered reduced-price or free immunizations. Only 1 parent was aware of the state’s universal vaccine purchase program, and that parent knew that the child’s physician participated in the program.

Characteristics of children enrolled in Medicaid, stratified by race, are presented in Table 2. Not 1 black or Hispanic child enrolled in Medicaid had a private primary care provider, compared with 43% of white Medicaid-enrolled children. Black children enrolled in Medicaid were more likely than the other 2 groups to receive a well-child care examination in conjunction with immunizations on the day of the interview. Parents of Hispanic children enrolled in Medicaid were most likely to cite cost as the reason for seeking immunizations at the health department.

<table>
<thead>
<tr>
<th>Characteristics of Medicaid-Enrolled Children, by Race</th>
<th>White, No. (%)</th>
<th>Black, No. (%)</th>
<th>Hispanic, No. (%)</th>
<th>Total, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has private primary care physician</td>
<td>3 (43)</td>
<td>0</td>
<td>0</td>
<td>3 (13)</td>
</tr>
<tr>
<td>Services sought at health department</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunizations only</td>
<td>4 (57)</td>
<td>5 (45)</td>
<td>3 (50)</td>
<td>12 (50)</td>
</tr>
<tr>
<td>Check-up plus immunizations</td>
<td>1 (14)</td>
<td>5 (45)</td>
<td>2 (33)</td>
<td>8 (33)</td>
</tr>
<tr>
<td>WIC* plus immunizations</td>
<td>2 (29)</td>
<td>1 (9)</td>
<td>1 (17)</td>
<td>4 (17)</td>
</tr>
<tr>
<td>Cited cost as reason for health department immunization</td>
<td>4 (57)</td>
<td>7 (64)</td>
<td>5 (83)</td>
<td>16 (67)</td>
</tr>
</tbody>
</table>

*WIC indicates Special Supplemental Program for Women, Infants, and Children.

The results of these interviews, conducted 2.5 years after implementation of North Carolina’s universal vaccine purchase program, help to explain why 30% of children in the state continue to receive immunizations at public clinics. There are, and likely will continue to be, families who choose the health department because of convenience, family precedent, or lack of access to any private health care. Such families—constituting one third of those interviewed for this study—serve to emphasize the potential importance of continued funding for health department services.

However, the finding that 66% of parents—nearly half of whom named a private primary care physician for their child—cited cost as a reason for taking their child to the health department for immunizations indicates that the universal purchase program is not reaching its potential in keeping children in the private setting for immunizations. For many families, the allowable administration fee of $27.42 is a considerable sum. Of the parents in this study who reported telling their child’s primary care physician that they could not afford immunizations, none was given the option of having that fee waived, as is specified in the program’s contract with participating physicians. This aspect of the program’s design was intended to avoid the fragmentation of immunizations from other well-child services, yet 61% of the children in this study were at the health department to receive immunizations only.

One problem with the fee-waiving clause of the universal vaccine purchase program may be that parents generally do not know that the program exists, much less that the administration fees can be waived. Only 1 parent in these interviews knew about the program. This lack of parental awareness is consistent with the fact that the program was never directly publicized to parents but instead was administered through and publicized to providers only. On the other hand, widespread publicity regarding the fee-waiving clause likely would create an increased demand for free vaccines, potentially causing physicians to withdraw their participation or to risk decreased revenue from administration fees. Already, 1 North Carolina physician has discontinued participation in the universal vaccine purchase program for this reason (Jean Popiak, MSPH, Immunization Section, oral communication, August 5, 1997). Potential modification of the program involves ensuring that needy families have immunization fees waived without any adverse effects on physician participation in the program.

This study uncovered an interesting situation regarding the 24 children enrolled in Medicaid who were receiving immunizations at the health department. Two thirds reported receiving immunizations at the health department because the cost was prohibitive in the private sector, even though Medicaid covers all charges for immunizations and well-child visits at no out-of-pocket cost to patients. This reinforces the findings of a previous study demonstrating that many parents of Medicaid-enrolled

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children are unaware that immunizations are covered by the program at no charge.9

Only 3 (13%) of the Medicaid children had a regular physician for well-child care, likely reflecting families’ difficulty in finding a private provider who accepts Medicaid for any services. The problem of physician access for Medicaid patients is highlighted in a previous study of North Carolina physicians in which 40% of respondents reported referring Medicaid patients to the health department for immunizations, primarily because of excessive paperwork and low reimbursement.3 Other research has demonstrated substantial variation in providers’ willingness to accept Medicaid patients for any services.10 Certainly, the universal vaccine purchase program was not designed to address this issue, but any evaluation of the program must take into account the access problems encountered by Medicaid patients.

There are several limitations that mitigate the study’s ability to draw definitive conclusions. First, the sample size (N = 64) was limited to the number of children presenting to the 11 study clinics on the assigned interview days; time constraints precluded additional interview days. Second, there were no data collected prior to the implementation of the universal vaccine purchase program to allow a before-and-after comparison of parent-reported reasons for health department use. As such, there exists the possibility that these findings are not generalizable to the experiences of children in other states.

North Carolina’s universal vaccine purchase program is an ambitious effort to eliminate financial barriers to immunization in the private sector. This study of families who continue to seek public-sector immunization services identifies 2 basic groups of patients. The first group comprises families who prefer to use health department services because of convenience, family precedent, and/or perceived quality of service, unrelated to barriers in the private setting. The second group, families who travel from a private office to the public health department for immunizations because of cost, is a primary target of the universal vaccine purchase program. It appears that additional steps are needed to allow these children to receive all well-child care, including immunizations, in their private medical home. Potential strategies include educating Medicaid patients about their coverage for well-child care and contact of individual private physicians by public health outreach staff to explore reasons for health department referrals.

In summary, our findings indicate that continued provision of immunization services at local health departments is needed, even after the implementation of a statewide universal vaccine program. The need for public immunization services is particularly important in states, such as North Carolina, that have a tradition of providing direct clinical services through public clinics. However, the proportion of children relying on the public sector for immunizations could be reduced further if additional steps are taken to encourage the preservation of the medical home.

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REFERENCES