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VACCINES FOR CHILDREN

Barriers to Immunization

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Mr. Chairman and Members of the Committee:

It is a pleasure to be here to share with you the preliminary results of our ongoing work on the Vaccine For Children (VFC) program. As you requested, I will present information on barriers to immunization, including our assessment of available evidence regarding the role of vaccine cost as a barrier for parents in immunizing their children.

First, however, I would like to underscore the importance of vaccines and the critical role that they play in protecting children from potentially serious diseases. Vaccines are the most cost-effective health intervention known.

Section 13631 of the Omnibus Budget Reconciliation Act of 1993 created VFC as an entitlement program to provide free vaccine to children 18 and younger who are eligible for Medicaid, Native American or Alaskan natives, uninsured, or underinsured (that is, whose insurance does not cover childhood vaccinations). The administration had stipulated that an increase in the cost of vaccine was a major factor in low rates of vaccination and proposed VFC to purchase and distribute vaccine supplies "to make sure that children do not become sick or die from vaccine preventable diseases."[1] By providing free vaccines, VFC was intended to remove vaccine cost as a barrier to childhood immunization. VFC is a part of the Childhood Immunization Initiative (CII), the goal of which is to raise immunization rates for 2-year-old children to 90 percent for most antigens. By law, VFC is to provide the states with vaccines. The schedule established by the Public Health Service's Advisory Committee on Immunization Practices includes vaccines for measles, mumps, rubella, diphtheria, polio, tetanus, pertussis, hepatitis B, and hemophilus influenza. It is expected that the recently approved hepatitis A and varicella (chicken pox) vaccines will be added.

To assess barriers to immunization and the particular significance of vaccine cost as a barrier, we talked with CDC officials and reviewed pertinent literature and agency documents, including various types of information CDC cited to address vaccine cost as a cause of delayed immunization. In addition, we reviewed four major studies sponsored by CDC in the wake of recent measles epidemics to "diagnose" and identify reasons for low immunization rates among high-risk racial and ethnic minority inner-city preschoolers in Baltimore, Los Angeles, Philadelphia, and Rochester (New York). We reviewed CDC's four studies to assess the factors associated with underimmunization. Further, we convened an expert panel of the principal investigators of

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[1]Centers for Disease Control and Prevention, National Immunization Program, The Childhood Immunization Initiative (Atlanta: April 1994), p. 1.

these studies to help determine the extent to which the cost of vaccine for parents affects their children's vaccination status.

In our review of the available data and our discussions with the expert panel, we did not find sufficient evidence to conclude that vaccine cost has been a major barrier to children's immunization. The literature does identify many barriers, including parents' lack of awareness of their children's vaccination schedule, inadequate resources (for example, insufficient clinic staff, insufficient or inconvenient clinic hours, and inaccessible clinic locations), clinic policies that deter vaccination by requiring appointments or refusing to see walk-in patients, and various factors that cause providers to miss opportunities to immunize children at regular visits. We found that although a variety of socioeconomic and demographic variables are associated with undervaccination among inner-city children, these relationships appear to function not through cost but, rather, through other factors associated with poverty, such as family size and maternal education.

The findings from CDC's diagnostic studies indicate that most underimmunized children have access to free vaccine through Medicaid or public health clinics (that is, through private or public providers) and that they had visited their providers an average of six to eight times during a given year. During these visits, these children could have received their scheduled immunizations, but providers failed to vaccinate them. These occasions are commonly known as "missed opportunities." Specifically, a missed opportunity is defined as a health care visit during which a child eligible for vaccination on the day of the visit and with no valid contraindication for vaccination fails to receive the needed vaccine.

CDC's studies identified several factors that are associated with missed opportunities. These primarily include provider and clinic-related factors and policies, such as failure to use simultaneous vaccinations or accelerated immunization schedules for children who are behind schedule, lack of access to records of a child's immunization status, and lack of organizational support. The missed opportunities observed in the diagnostic studies occurred during both sick- and well-child care visits. In fact, incorrect beliefs regarding contraindications for immunization are a particularly important contributor to missed opportunities. For example, CDC's diagnostic study in Baltimore reported that missed opportunities occurred at approximately 25 to 30 percent of preventive visits but at more than 75 percent of sick-child visits and that a health care provider was more likely

not to vaccinate a child during a sick-child visit.[2] Table 1 shows immunization levels observed among children 24 months old in each of CDC's four diagnostic studies and potential levels that the investigators believed could be achieved by eliminating missed opportunities.

Table 1: Percentage of Actual and Potential Vaccination Coverage Among 24-Month-Old Children by Individual Vaccine Doses and Site, 1991-92[a]

City	Vaccine[b]/dose	Actual	Potential	Difference
Baltimore	DTP/DT/3	85%	93%	8%
	DTP/DT/4	58	74	16
	Polio/3	65	81	16
	MMR/1	80	89	9
Los Angeles	DTP/DT/3	54	62	8
	DTP/DT/4	26	34	8
	Polio/3	34	50	16
	MMR/1	39	48	9
Philadelphia	DTP/DT/3	82	85	3
	DTP/DT/4	57	67	10
	Polio/3	68	79	11
	MMR/1	87	94	7
Rochester	DTP/DT/3	94	99	5
	DTP/DT/4	75	96	21
	Polio/3	80	95	15
	MMR/1	90	96	6

[a]Assumes all missed opportunities to vaccinate had been eliminated.

[b]DTP/DT = diphtheria and tetanus toxoids and pertussis vaccine/diphtheria and tetanus toxoids. MMR = measles-mumps-rubella vaccine.

Source: Morbidity and Mortality Weekly Report, 43:39 (October 7, 1994), 711.

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[2]Baltimore investigators found that diagnoses commonly recorded at sick-child visits in which an opportunity to immunize was missed without valid contraindication included gastroenteritis, otitis media, skin infection, and upper respiratory infection.

The diagnostic studies' findings regarding missed opportunities were consistent across the four studies, even though they used different methodologies. The studies concurred that 2-year-olds missed opportunities very frequently during visits to health care providers: 82 percent of children studied in Rochester missed one or more opportunities, 75 percent in Baltimore, 69 percent in Los Angeles, and 64 percent in Philadelphia. Assuming baseline coverage of 60 percent, these research projects found that eliminating all missed opportunities would alone account for a third to a half of the increase needed to reach the 90-percent goal for 1996. However, as table 1 shows, eliminating missed opportunities alone would not raise immunization rates to the targeted 90-percent levels in all cases.

The results of CDC's four diagnostic studies indicate that while no single factor or category of factors accounts for undervaccination, access to health care among underimmunized children is not generally a problem. The diagnostic studies suggest that achieving and sustaining a high coverage level will require a variety of interventions aimed at changing the practices of providers that result in missed opportunities. Specifically, the findings do not provide sufficient evidence to conclude that providing free vaccines through VFC will boost coverage for most underimmunized children, for whom vaccines are already free.

In addition to the four CDC studies, we examined other studies and information cited by CDC as addressing the role of vaccine cost in delayed immunization. CDC identified six types of evidence to support the notion that vaccine cost is a barrier:

1. increases in vaccine cost over the past decade;[3]

2. surveys of health care providers inquiring about the frequency with which they had referred patients to public health providers for immunization, their reasons for doing so, and their opinions regarding a universal vaccine purchase program;

3. reports from health departments of increased referrals from private providers;

4. surveys of parents visiting public health clinics regarding their reasons for using the clinics;

5. policy studies addressing the relationship between health insurance coverage, health care utilization, and immunization; and

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[3]See our July 21, 1993, correspondence to the Honorable John Dingell and July 27, 1993, correspondence to the Honorable Dale Bumpers, noting problems in linking price changes to low coverage.

6. comparisons of immunization rates between states with and without universal vaccine distribution programs.

Unlike the diagnostic studies, which examined populations at high risk of underimmunization to assess the relationship between immunization status and a variety of potential barriers, the additional research cited by CDC tended toward a more narrow investigation of particular factors, such as providers' referral patterns. We found that, for the purpose of assessing the role of vaccine cost in underimmunization, this research suffers from several conceptual and methodological problems, such as failure to distinguish vaccine costs from other fees associated with immunization, inability to determine that the factors actually measured (such as provider referrals to public health clinics) were valid indicators of eventual failure to receive immunization, and reliance on opinion data collected in surveys rather than through analysis of the immunization status of representative samples of children. For example, CDC officials acknowledged that providers' fees in the private sector would be about $40 per office visit and about $15 per dose, representing potentially about 60 percent of the total cost of full immunization, but much of the evidence they cited failed to distinguish between the cost of vaccine, which is addressed by VFC, and these fees, which are not. Comparisons of immunization rates between states operating universal distribution programs and other states do not permit accounting for the various other factors that may affect rates in these states.[4]

To summarize, the studies we examined and the other sources of information available to us lacked sufficient evidence to conclude that the major factor addressed by VFC, vaccine cost, has been a significant barrier to immunization. It appears that efforts to address a variety of other barriers may be equally or more important in improving immunization levels. We have discussed our findings and conclusions with responsible CDC officials. They are in general agreement with our finding that there is not sufficient evidence to conclude that vaccine cost is among the most significant barriers to immunization.

Mr. Chairman, this concludes my remarks. I would be happy to answer any questions that you or members of the Committee may have.

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[4]U.S. General Accounting Office, Childhood Immunization: Opportunities to Improve Immunization Rates at Lower Cost, GAO/HRD-93-41 (Washington, D.C.: March 1993).

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