

**Setting the Course: A Strategic Vision for Immunization Finance -- Part 1: Summary of the Chicago Workshop**  
Committee on the Immunization Finance Dissemination Workshops, Division of Health Care Services, Institute of Medicine

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# SETTING THE COURSE

## A STRATEGIC VISION FOR IMMUNIZATION FINANCE

### PART 1 SUMMARY OF THE CHICAGO WORKSHOP

Committee on the Immunization Finance Dissemination Workshops

Division of Health Care Services

INSTITUTE OF MEDICINE

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Support for this project was provided by the Centers for Disease Control and Prevention. The views presented in this report are those of the Institute of Medicine Committee on the Immunization Finance Dissemination Workshops and are not necessarily those of the funding agency.

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The serpent has been a symbol of long life, healing, and knowledge among almost all cultures and religions since the beginning of recorded history. The serpent adopted as a logotype by the Institute of Medicine is a relief carving from ancient Greece, now held by the Staatliche Museen in Berlin.

*“Knowing is not enough; we must apply.  
Willing is not enough; we must do.”*  
—Goethe



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This report has been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the National Research Council's Report Review Committee. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published report as sound as possible and to ensure that the report meets institutional standards for objectivity, evidence, and responsiveness to the study charge. The review comments and draft manuscript remain confidential to protect the integrity of the deliberative process. We wish to thank the following individuals for their review of this report:

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**ARNOLD L. WIDEN, M.D.**, Executive Director, The Institute of Medicine of Chicago

Although the reviewers listed above have provided many constructive comments and suggestions, they were not asked to endorse the conclusions or recommendations nor did they see the final draft of the report before its release. The review of this report was overseen by Neil Vanselow, M.D., Rio Verde, Arizona. Appointed by the National Research Council, he was responsible for making certain that an independent examination of this report was carried out in accordance with institutional procedures and that all review comments were carefully considered. Responsibility for the final content of this report rests entirely with the authoring committee and the institution.

## ACKNOWLEDGMENTS

The Institute of Medicine workshop on immunization finance was organized with the generous assistance of many individuals and organizations in Chicago and Detroit. We acknowledge in particular the logistical support and hospitality provided by the staff of the School of Public Health at the University of Illinois at Chicago, under the leadership of Dean Susan Scrimshaw. Lynn Denton from the Texas Department of Health and Richard Butler from the Texas Tech University Health Sciences Center also provided valuable assistance and support in preparing for the workshop. Additional guidance was provided by Whitney Addington, Metropolis 2020; Arnold Widen from the Institute of Medicine of Chicago; Steve Potsic and Faith Covisi from Region V, U.S. Department of Health and Human Services; Cheryl Byers, Ed Mihalek, and Julie Morita from the Chicago Department of Public Health; Iris Shannon of the University of Illinois at Chicago; and Rebecca Wurtz from the Chicago Board of Health. Staff from the National Immunization Program of the Centers for Disease Control and Prevention in Atlanta helped to identify immunization program directors and public health advisers in the states of Illinois and Michigan and also prepared data analyses to inform the workshop discussions.

The Center for the Advancement of Distance Education at the University of Illinois provided on-site technical support in audiocasting the June 15 workshop to a national audience. An archival copy of the speakers' remarks and slides can be found at the IOM website: [www.iom.edu/iom/iomhome.nsf/Pages/HCS+Immunization+Finance+Dissemination](http://www.iom.edu/iom/iomhome.nsf/Pages/HCS+Immunization+Finance+Dissemination).



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## Executive Summary

The federal and state partnership in supporting immunization programs that benefit the general population evolved over the last half of the 20<sup>th</sup> century from a simple cost-sharing arrangement for vaccine purchase for disadvantaged children to a more complicated mix of programs, health care coverage benefits, and public-private partnerships. The mix of financial arrangements that support immunization efforts was the subject of a study by the Institute of Medicine, resulting in the publication of the report *Calling the Shots* (Institute of Medicine, 2000).

The IOM report highlighted key concerns about the growing instability of the public health infrastructure that supports immunization programs throughout the United States. The report recommended that state and federal health agencies establish a new framework to guide their collaborative efforts, one that consists of six fundamental elements:

- Controlling and preventing infectious disease
- Assuring vaccine purchase
- Assuring service delivery
- Sustaining and improving coverage levels
- Conducting surveillance of immunization coverage and vaccine safety
- Establishing immunization finance policies and practices

In June 2001, a group of 50 health officials, public health experts, health care providers, health plan representatives, and community leaders

met at the University of Illinois in Chicago to explore the implications of the IOM findings and recommendations for the states of Illinois and Michigan. The one-day workshop was the first in a series of four meetings organized by IOM with support from the Centers for Disease Control and Prevention to foster informed discussions about future financing strategies for the public health infrastructure that supports immunization efforts.

This report of the Chicago workshop summarizes the findings of the IOM study and reviews the challenges that remain in establishing a reliable financial base for the U.S. immunization system. The report highlights strategies presented by workshop speakers and discussants for achieving immunization goals, including increases in state and federal public health budgets, the addition of quality improvement measures in health plans, performance-based contracting, public policy actions, and the creation of public-private partnerships.

The Chicago workshop participants emphasized the need for collaborative efforts that would encourage private health plans and providers to assume responsibility for achieving high coverage rates among children and adults within the communities that they serve. Collaborative strategies are needed to engage the health care, business, and government sectors in identifying opportunities to achieve public health immunization goals. New approaches that use information resources efficiently and reduce reliance upon public resources will be required to meet persistent and routine needs.

## Introduction

Immunization offers a highly effective means of preventing serious illness and deaths in children and adults. However, instabilities in the nation's immunization system, and in the public health infrastructure that supports it, are contributing to gaps in immunization services and increased risk for outbreaks of infectious disease. In 2000 the Institute of Medicine (IOM) published a report, *Calling the Shots: Immunization Finance Policies and Practices*, that points to several disturbing signs: growing financial burdens and operational complexities in immunization, shortcomings in public- and private-sector investments in vaccine purchases and immunization programs, and fluctuations in coverage plans within the public and private health care sectors that create uncertainties regarding vaccine purchase and coverage arrangements.

The IOM report was initially developed at the request of the U.S. Senate Committee on Appropriations to guide national decision making about health care investments. But the national immunization partnership consists of multiple and diverse relationships involving health officials in state and local governments, health care providers, employers, insurers and health plans, vaccine manufacturers, and others in the private sector. The Centers for Disease Control and Prevention (CDC) requested that IOM undertake a special effort to reach these various groups as part of the dissemination activities for *Calling the Shots*. This dissemination effort includes three regional workshops and a national meeting to review the findings and recommendations of the IOM report and to examine their implications for health care policy within local and state govern-

ments, the coverage of immunization benefits within private health plans, and the delivery and quality of health care services, especially within disadvantaged communities.

The IOM workshop discussions are designed to achieve the following goals:

- foster awareness of the conclusions and recommendations of *Calling the Shots*;
- strengthen interactions among public and private sector health officials to build consensus about immunization infrastructure initiatives, measurement approaches, and financing plans; and
- identify unresolved public health and health finance issues and concerns at the regional, state, and local levels that require further attention from public and private policymakers.

This report summarizes the discussions of the first dissemination workshop held in Chicago, Illinois, in June 2001. The workshop, held on the campus of the School of Public Health of the University of Illinois at Chicago, focused particular attention on concerns in the states of Illinois and Michigan and the cities of Chicago and Detroit. Participants included members and staff of the IOM planning committee, consultants and other contributors to *Calling the Shots*, state and local health officials from Illinois and Michigan, representatives of health plans and health care providers serving the Illinois and Michigan areas, faculty from the School of Public Health at the University of Illinois at Chicago, community leaders, and staff from CDC and other federal agencies. (See Appendixes for the workshop agenda, list of participants, and websites that pertain to the IOM report and the workshop discussions.)

## Background

In the United States, the purchase of vaccines and the delivery of immunization services depend on a complex mix of public and private funding and services. Although immunization coverage rates reached high levels during the past few decades, an outbreak of measles in 1989-1991 drew attention to the continuing health threat from vaccine-preventable diseases when immunization rates are low. Following the measles outbreak, the federal government substantially increased funds for immunization infrastructure grants to states through the Section 317 program administered by CDC. The Vaccines for Children (VFC) program was implemented in 1994 to fund the purchase of vaccine for qualifying children, primarily those enrolled in Medicaid or without health insurance. States also continued to receive federal funds through the Section 317 program for the purchase of vaccine, an arrangement that dates back to the early 1960s.

Despite the significant increases in federal support, many states found it difficult to expend their infrastructure awards during the one-year grant period. Large amounts of state grants were “carried over” to subsequent years. By 1996, the U.S. Congress cut back funding for Section 317 infrastructure grants, indicating that it was not certain that the states needed, or could manage, federal assistance in this area.

The 1990s also saw the addition of new, more expensive vaccines to the recommended schedule of immunizations. Health care reforms resulted in an increasing reliance on health care providers in the private sector for the delivery of immunization services, accompanied by funda-

mental changes in the larger health care delivery system resulting from the growth of managed care. In the wake of these changes, the roles of state and local public health departments became more ambiguous and more complex. The need for direct services diminished as private providers and health plans gradually acquired the capacity and resources to deliver primary care services—including immunizations—to disadvantaged groups. But a new public health role emerged, one that places greater emphasis on the need for data management and the development of community-level health indicators (IOM, 1996, 1997). This role requires multi-sector collaboration so that public agencies can assess coverage rates within small-area samples and respond to specific health care needs when the private sector is not able—or willing—to absorb the costs involved in sustaining high immunization coverage rates among hard-to-reach populations.

#### THE IOM STUDY

In 1998, Congress asked IOM to conduct a study of the Section 317 program and of broader questions regarding appropriate levels of effort to achieve national immunization goals. The study addressed six questions formulated by Congress and the Centers for Disease Control and Prevention. The study committee met during 1999-2000 to collect relevant information and to develop a framework to guide its deliberations.

Fact-finding for the study included several separate efforts. First, a research team directed by Gary Freed at the University of Michigan conducted a series of structured telephone interviews with immunization program officials in all 50 states regarding the effects of changes in federal policies and funding in the 1990s on the goals, priorities, and activities of state immunization programs (Freed et al., 2000). Second, IOM staff and consultants developed eight case studies of state immunization efforts, focusing on the states of Alabama, Maine, Michigan, New Jersey, North Carolina, Texas, Washington, and the counties of San Diego and Los Angeles in California (Fairbrother et al., 2000a).<sup>1</sup> Third, members of the IOM committee, staff, and consultants also conducted four site visits in Detroit, Newark, Houston, and Los Angeles to supplement the case study materials with discussions with local providers and immunization program representatives. Fourth, the committee organized an IOM workshop on issues related to “pockets of need” in Washington, D.C., in September 1999. Fifth, the committee commissioned background papers on

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<sup>1</sup>Each case study is available electronically via the website of the National Academy Press: [www.nap.edu/html/case\\_studies](http://www.nap.edu/html/case_studies).

topics of adult immunization, registries, measuring immunization coverage (Fairbrother et al., 2000b), and federal immunization policy (Johnson et al., 2000) to supplement material available in the research literature. Selected materials from the case study reports and commissioned papers were published in a supplemental issue of *The American Journal of Preventive Medicine* in October 2000.

### IOM FINDINGS AND RECOMMENDATIONS

The IOM report *Calling the Shots* recommends a renewal and strengthening of the federal-state partnership that is a fundamental element of the national immunization system. The report also recommends strategic investments in immunization efforts and closer collaboration between public and private health care systems to coordinate immunization roles and responsibilities in the wake of health care reforms.

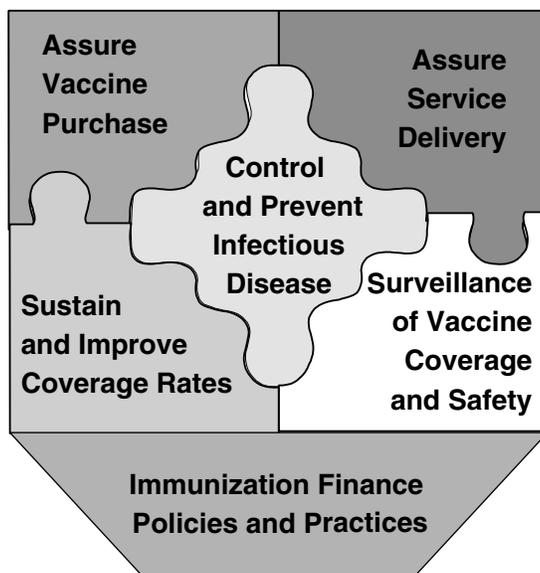
In opening remarks at the Chicago workshop, David Smith highlighted the key findings and recommendations from the IOM study.<sup>2</sup> The study committee identified six fundamental roles for the nation's immunization system:

1. Assure the purchase of recommended vaccines for the total population of U.S. children and adults, with particular emphasis on the protection of vulnerable groups.
2. Assure access to vaccines within the public sector when private health care services are not adequate to meet local needs.
3. Control and prevent infectious disease.
4. Conduct populationwide surveillance of immunization coverage levels, including the identification of significant disparities, gaps, and vaccine safety concerns.
5. Sustain and improve immunization coverage levels within child and adult populations, especially in vulnerable communities.
6. Use primary care and public health resources efficiently in achieving national immunization goals.

The IOM study committee used this framework to guide its finance recommendations. The report concluded that adequate, stable, and predictable funding was necessary for the development of effective state immunization programs and that the fluctuations in Section 317 infrastructure funding during the 1990s made it difficult for states to achieve

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<sup>2</sup>Several speakers in the workshop used visual aids in their presentations. These materials are available in electronic form at the workshop website: [www.iom.edu/iom/iomhome.nsf/Pages/HCS+Immunization+Finance+dissemination](http://www.iom.edu/iom/iomhome.nsf/Pages/HCS+Immunization+Finance+dissemination).



**FIGURE 1** Six roles of the national immunization system.

program goals. Furthermore, with only a one-year grant period, many state immunization programs could not invest in multi-year programs with consultants or contractors to support long-term strategic planning or data collection efforts.

The committee also concluded that immunization policy should be national in scope but flexible enough to accommodate important political, socioeconomic, and structural differences among states and communities. Furthermore, federal and state governments share responsibility for supporting vaccine purchase and the infrastructure essential for achieving and sustaining national immunization goals. Data reviewed for the study showed that some states appeared to provide little or no state funding for immunization while others invested substantially more than they received from federal sources. Finally, the private sector, through health plans and individual health care providers, has the capacity to do more to ensure the delivery of appropriate immunization services to its members and patients, but such efforts do not replace the need for a more diverse public health infrastructure capable of assuring that the immunization needs of the whole population are addressed.

The study recommendations addressed federal and state funding levels, grant mechanisms for immunization programs, and the need for better measurement of immunization coverage. The committee recommended an increase in both federal and state budgets for support of immunization programs, but concluded that annual budgets for vaccine purchase for children have been adequate (this finding was made prior to the addition of the pneumococcal conjugate vaccine to the general schedule for children). The committee also recommended an increase in both federal and state budgets for the purchase of adult vaccines to provide additional vaccine for high-risk adolescents and adults under age 65 who do not qualify for other federal assistance.

In addition to budgetary increases, Dr. Smith noted that the IOM report proposed new operational and reporting requirements for federal grants to improve administrative efficiency, linking them to the six fundamental roles of the national immunization system. The committee recommended that CDC should distribute Section 317 awards to states through a formula grant mechanism, with the formula reflecting essential minimum funding levels and state need, capacity, and performance. In addition, a state match requirement should be added and the federal grants should have a two-year budget cycle to give states greater flexibility to plan and implement multi-year efforts.

Finally, the IOM report recommended that federal and state agencies should develop a set of consistent and comparable measures for use in monitoring the immunization status of children and adults enrolled in private and public health plans as well as populations in defined geographic areas. For example, it would be valuable to harmonize the immunization measures of the Health Plan Employer Data and Information Set (HEDIS) and the National Immunization Survey (NIS).

Lance Rodewald and other representatives from the National Immunization Program of the Centers for Disease Control and Prevention described steps that have been taken to respond to the IOM recommendations (for further details, see [www.cdc.gov/nip/news/iom-rpt-6-00.htm](http://www.cdc.gov/nip/news/iom-rpt-6-00.htm)). CDC has revised the Section 317 grant guidance and program operations manual, giving states greater flexibility under the six broad immunization system roles outlined by the IOM study to tailor programs to local needs. In addition, discussions have begun to develop a funding formula and to improve the harmonization of HEDIS and the NIS.

## Challenges Facing the Immunization System

**D**espite improvements in immunization coverage during the 1990s, national immunization rates for 2 year olds and older adults have not yet reached the public health objective of 90 percent coverage. Although state-level rates in Illinois and Michigan are generally equivalent to the U.S. national average, substantial variation in coverage rates occurs between states as well as within each state. The nation's immunization system faces serious challenges that could undermine the progress that has been made and hinder the effort still needed to achieve targeted levels of immunization coverage. Some of these demands include sustaining current rates of coverage with the addition of new and more expensive vaccines to the immunization schedule, an increase in the number of people to serve as a result of recommendations for adolescent and adult vaccination, and changes in the health care delivery system in general and immunization services in particular that can affect the availability and affordability of vaccines in the private sector.

The workshop discussions covered several broad national concerns about the immunization system as well as issues of specific concern at the state level in Illinois and Michigan and at the local level in Chicago and Detroit. The six roles of the immunization system identified in *Calling the Shots* are used as a framework for reviewing these discussions.

### CONTROLLING AND PREVENTING INFECTIOUS DISEASE

The central purpose of the immunization system is to reduce or eliminate illness and death from vaccine-preventable diseases. In their remarks,

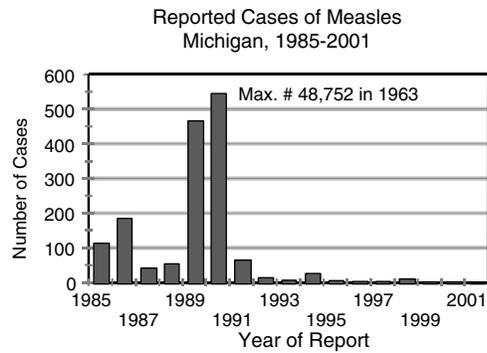
Samuel Katz provided an overview of the tremendous impact of vaccines on the infectious disease burden in the United States (Table 1), while Gillian Stoltman drew attention to state-level effects in Michigan (Figure 2). The reduced burden of illness represents significant improvements in both mortality rates and the quality of life in each community, as well as cost savings for local and state health agencies, since public hospitals no longer need to care for patients affected by vaccine-preventable disease. Workshop participants noted that achieving high levels of immunization coverage not only offers immediate protection of vaccinated individuals but also conveys long-term benefits by reducing the reservoir of disease and hence the number of future cases in the general population.

The nation is fortunate that the renewed attention to early childhood immunization following the 1989–1991 measles outbreak has helped achieve historically high levels of vaccine-preventable childhood diseases. Despite best efforts, however, the nation as a whole and most individual states did not reach the national health goals of 90 percent coverage rates for recommended childhood vaccines by the year 2000 (Table 2). Workshop participants emphasized, however, that as long as infectious disease reservoirs remain, children who have not been adequately vaccinated are still at risk. They also commented that lack of familiarity with the seriousness of vaccine-preventable diseases and the increasing prominence of concerns about the safety of some vaccines may contribute to delays in vaccination. As reported in *Calling the Shots*, about 300 children die each

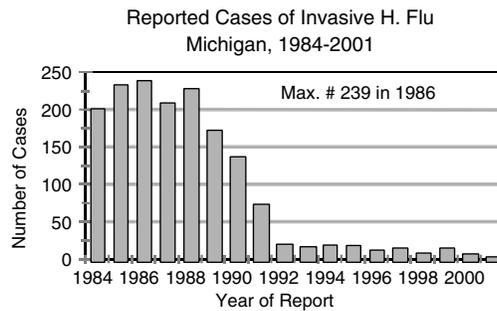
**TABLE 1** Comparison of 20<sup>th</sup>-Century Maximum (Year) and Current Morbidity of Vaccine-Preventable Diseases

Disease	Maximum Cases (Year)	2000 Provisional	% Decrease
Smallpox	48,164 (est.)	0	100.00
Diphtheria	206,939 (1921)	1	100.00
Measles	894,134 (1941)	86	99.98
Mumps	152,209 (1968)	338	99.80
Pertussis	265,269 (1934)	7,867	95.50
Polio (paralytic)	21,269 (1952)	0	100.00
Rubella	57,686 (1969)	176	99.60
Congenital rubella syndrome	20,000 (1964-65)	9	98.90
Tetanus	1,560 (1923)	35	97.30
Haemophilus influenzae Type B and unknown (< 5 years)	20,000 (est.)	167	99.20

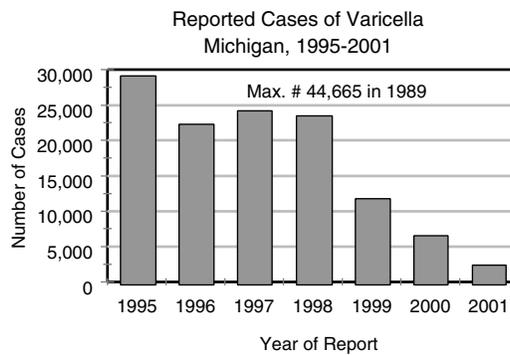
SOURCE: CDC (2001a).



Intensive immunization efforts after 1989-91 resurgence



Four conjugate vaccines available in U.S., 1990



Licensed in U.S., 1995

**FIGURE 2** Impact of immunization on disease in Michigan.  
SOURCE: Gillian Stoltman, Michigan Department of Community Health. IOM workshop presentation. 2001.

**TABLE 2** Estimated Vaccination Rates for Selected Vaccines and Vaccine Combinations, 2000

	Healthy People 2010 Goal %	United States %	Illinois %	Chicago %	Michigan %	Detroit %
<i>Children ages 19-35 months 4:3:1:3 series*</i>	≥ 90	78	75	65	75	59
<i>Adults ages 65 and older</i>						
<i>Influenza**</i>	≥ 90	67	68	—	70	—
<i>Pneumococcal pneumonia**</i>	≥ 90	54	47	—	58	—

\*Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any measles-containing vaccine, and three or more doses of Hib vaccine.

SOURCES:

\*CDC (2000c); National Immunization Survey ([www.cdc.gov/nip/coverage/default.htm](http://www.cdc.gov/nip/coverage/default.htm)).

\*\*CDC (2001b); Behavioral Risk Factor Surveillance System (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5025a2.htm>).

year from these potentially preventable diseases or their complications. And the burden of mortality and morbidity in the adult population is significantly greater, as will be discussed later.

Participants indicated that immunization coverage rates for children in urban areas such as Chicago and Detroit tend to be lower than state averages—and lower still in some disadvantaged neighborhoods in those cities. A disturbing decline in immunization rates is evident in both Chicago and Detroit (see Table 3). In Chicago, coverage was at 74 percent in 1996 but dropped to 59 percent in 2000. In Detroit, reported coverage levels peaked at 70 percent in 1998 but dropped to 59 percent in 1999 before increasing to 62 percent in 2000. More extensive international travel was cited as posing known risks of importing disease that can spread among unprotected children in such communities. Children in families of undocumented immigrants may be at special risk and pose an added risk to the community if they are underimmunized and their families are apprehensive about using health care services.

William Schaffner from Vanderbilt University contrasted the relative success in preventing disease in children with adults' continued high rates of illness and death related to vaccine-preventable diseases, including influenza, pneumococcal disease, and hepatitis B. He estimated that

**TABLE 3** Estimated Vaccination Coverage for the 4:3:1:3\* Series Among Children Ages 19-35 Months, 1996-2000

	1996 %	1997 %	1998 %	1999 %	2000 %
United States	78	76	79	78	76
Illinois	75	74	78	77	75
Chicago	74	68	64	71	65
Michigan	74	75	78	74	75
Detroit	63	65	70	66	59

\*Four or more doses of DTP, three or more doses of poliovirus vaccine, one or more doses of any measles-containing vaccine, and three or more doses of Hib vaccine.

SOURCES: CDC (1997, 1998, 2000a, b, c); National Immunization Survey ([www.cdc.gov/nip/coverage/default.htm](http://www.cdc.gov/nip/coverage/default.htm)).

about 30,000 deaths per year might be preventable with full immunization among adults. Rates of immunization for influenza and pneumococcal disease among the elderly and younger adults with chronic illnesses and other high-risk conditions are persistently low, maintaining a large vulnerable population that contributes to the spread of disease. The IOM report *Calling the Shots* drew particular attention to the difficulties in providing routine access to vaccines for disadvantaged members in this "younger" adult population with chronic health disorders, who are not eligible for Medicare and who are often treated by specialists who are not familiar with immunization recommendations rather than primary care physicians.

### ASSURING VACCINE PURCHASE

Immunization programs are possible because of the availability of highly effective vaccines. The Vaccines for Children program distributes federally purchased vaccines directly to health care providers for use in immunizing children who depend on Medicaid for their health care services or who are uninsured or qualify under additional categories of eligibility. In addition, states receive annual federal grants through the Section 317 program to support the purchase of vaccines, primarily for children. Dr. Stoltman observed, for example, that the state of Michigan relies on different federal funding streams for 73 percent of the total cost of vaccines that are distributed by local health departments, and the bulk of this

public purchase (57 percent) is supported by the funds they received from the CDC. Most states also use their own funds to purchase additional vaccine, but the size and sources of this investment vary. For example, Michigan uses part of its tobacco tax revenues to support vaccine purchases, accounting for 17 percent of its total state purchase.

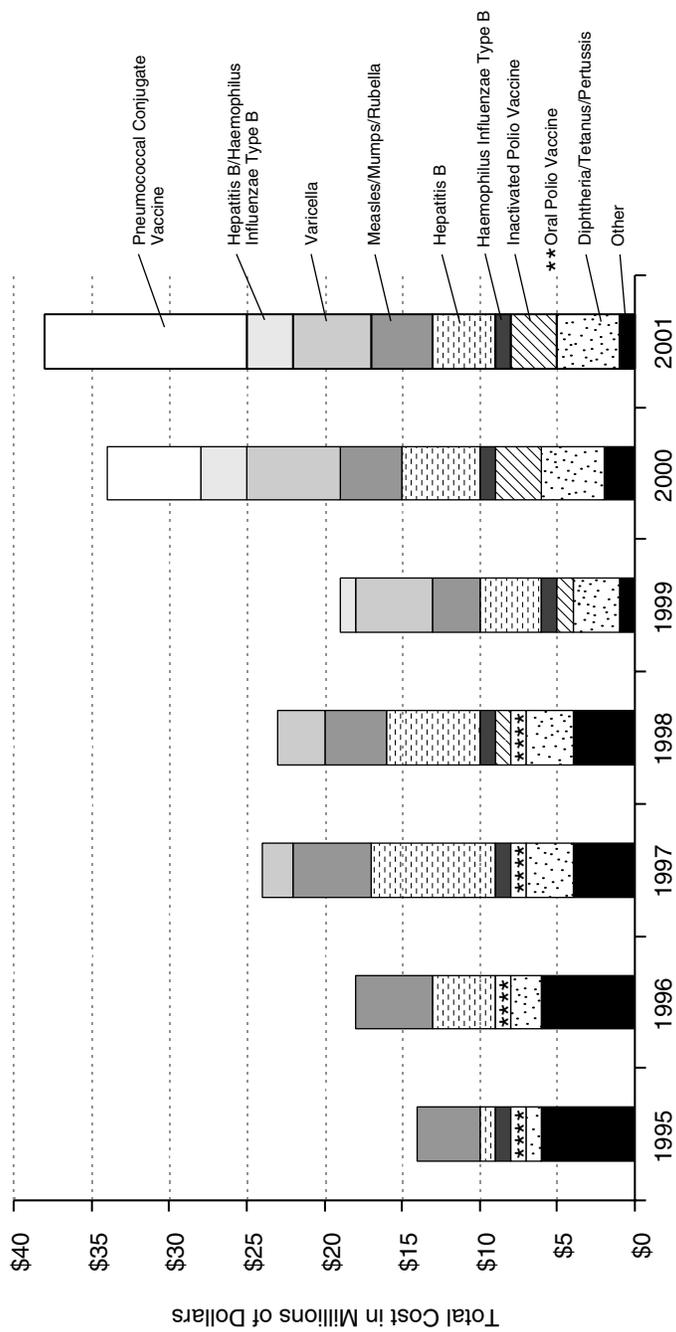
Gary Freed from the University of Michigan presented data that describe the range of state practices with respect to vaccine purchase and immunization program support. Some “universal purchase” states have adopted policies to ensure that all children in the state who do not have private health plan coverage have access to vaccines. But workshop participants expressed concern about the increasing cost of purchasing adequate supplies of vaccine. These costs are causing some states to reconsider their commitment to universal purchase policies.

### Vaccine Costs

In *Calling the Shots*, the IOM recognized an immediate need for additional federal and state funding to support the purchase of vaccines for uninsured and underinsured adolescents and adults. CDC representatives at the workshop noted that although states have had the option to use Section 317 funds to purchase adult vaccines, few have done so. The need for these vaccines is expanding as immunization recommendations are extended beyond the elderly to younger age groups.

Although past federal and state funding for purchase of pediatric vaccines was judged adequate by the IOM, the addition to the recommended immunization schedule of new, more expensive vaccines makes reassessment of those funding levels necessary. In particular, the high cost of the new pneumococcal conjugate vaccine was noted. With the addition of this and other new vaccines, as well as additional doses of older vaccines, to the recommended immunization schedule, workshop speakers noted that the per-child cost, at federal contract prices, of all vaccines for preschool immunization is approaching \$400. The cost is even higher for vaccines purchased at manufacturers’ catalogue prices. The budgetary impact is particularly severe in universal purchase states.

Workshop participants affirmed the importance of the IOM recommendation for regular evaluation of vaccine purchase budgets. Gillian Stoltman from the Michigan Department of Community Health presented trend data that illustrated the recent impact of the cost of the new pneumococcal conjugate vaccine, which was added to the recommended immunization schedule in 2000 (after the IOM committee concluded its deliberations; see Figure 3). At a federal contract price of \$45.99 per dose in 2001 (see [www.cdc.gov/nip/vfc/cdc\\_vaccine\\_price\\_list.htm](http://www.cdc.gov/nip/vfc/cdc_vaccine_price_list.htm)), pneumococcal conjugate vaccine is more expensive than any other recommended vaccine. The total



**FIGURE 3** Vaccine costs in Michigan, 1995-2001.  
 SOURCE: Gillian Stoltman, Michigan Department of Community Health. IOM workshop presentation, 2001.

cost of a full four-dose series exceeds the combined cost of all other vaccines that children should receive by age 2.

Workshop participants also pointed to the financial burdens caused by delays between the official recommendation for use of a vaccine and the establishment of a federal contract for purchase of the vaccine at a reduced price. For example, an official recommendation by the Advisory Committee on Immunization Practices (ACIP) creates an immediate obligation to provide the vaccine to children eligible for some public-sector programs, such as VFC. Among the privately insured, requests for newly recommended vaccines may grow before coverage is added to their own health plan benefits. If private providers hesitate to offer a vaccine for which they must charge full price, parents may also be reluctant to pay full price. As a result, significant delays may occur in the administration of recommended vaccines. And greater numbers of children may be referred to health departments to obtain these new vaccines at low or no cost, thus adding to the demand for publicly purchased vaccine.

Finally, some private health care providers are reluctant to participate in the VFC program, even though they provide primary care to eligible children. The paperwork requirements associated with the VFC purchase plan have discouraged some providers from offering the vaccines to disadvantaged children as part of their primary care in a "medical home." These providers continue to send children to the local public clinic, creating a steady demand for immunization services in a public health setting.

### **Vaccine Production**

Because vaccines represent only a small segment of the pharmaceutical market and most vaccines are produced by only four major firms, the vaccine supply is vulnerable to manufacturing problems and to market economics. Production problems created temporary shortages of diphtheria, tetanus, and acellular pertussis (DTaP) vaccine and delayed the delivery of influenza vaccine in 2000. The supply of tetanus vaccine, which is produced by a single manufacturer, has also been disrupted. A dysfunctional purchasing system was cited at the workshop as adding to the problems in obtaining adequate and timely supplies of influenza vaccine, especially when manufacturers decide to discontinue a product on short notice. And despite concerns about the high prices of new vaccines, the realities of the vaccine marketplace were acknowledged: manufacturers must receive sufficient economic benefit from vaccines to be willing to continue producing them. Workshop participants suggested that the federal government needs to assume a stronger role in assuring the production of vaccines for the general population as well as continuing its tradi-

tional role of providing a safety net in supplying vaccines for disadvantaged groups.

### **ASSURING SERVICE DELIVERY**

Ensuring the adequacy of the vaccine supply is essential for achieving immunization goals, but the presence of sufficient stocks of vaccine does not ensure that they will be delivered or distributed equitably within the health care system. The workshop discussions highlighted two concerns related to the delivery of immunization services. One of these concerns was the effect of limitations in coverage (both exclusions and temporary delays in benefits for new vaccines) for immunization services under private health insurance plans. The other concern was related to the availability of immunization services for children with publicly funded health insurance. Participants also commented on the added burden that immunization services can impose on health departments and other public-sector programs.

#### **Private Health Insurance Coverage**

For both children and adults, the use and availability of immunization services are influenced by the scope of insurance benefits for those services. Almost all older adults (>65 years) are eligible for Medicare and its coverage for virtually all recommended vaccines, including influenza, pneumococcal, and hepatitis B. However, they may still rely on a mix of Medicare and private insurance benefits for coverage of other vaccination services, such as routine tetanus-diphtheria toxoid vaccine (Td). The coverage of immunization services for preschool children under private insurance plans is good but may offer only partial coverage of costs or require payment of plan deductibles before covering immunizations. For older children, adolescents, and adults under age 65, private health insurance benefits for immunization services vary in scope and are often more limited than those for the youngest children. For example, one major automobile manufacturer reportedly offers a health insurance plan that covers immunization only up to age 5. And John Wilhelm from the Chicago Department of Health noted that even health plans offered by state or local governments may not include full coverage of immunization services.

Coverage of immunization services depends, in part, on choices made by benefits managers for employers and others (such as labor unions) who are involved in the decision-making process involving purchases of private health insurance. Workshop participants pointed to the importance of educating purchasers and consumers about the value and recommended use of immunizations for people of all ages. In addition, more

aggressive efforts to inform benefits managers about new vaccines for preschool children might help speed decisions to offer coverage for those vaccines.

A related concern is delays in coverage of new vaccines by health plans. One workshop speaker commented that even though the health benefits of the new pneumococcal conjugate vaccine for children had been evident for several months before the formal ACIP recommendation for its use, several health plans in Michigan still required several months following the ACIP action to resolve coverage questions.

Market factors also influence decisions about health insurance benefits packages. In a tight labor market, generous health insurance benefits may be used to attract and retain workers, but in other circumstances, benefits may be restricted and reduced to control costs. In an example cited at the workshop, a major labor union reportedly decided to exclude coverage for Hib vaccine to discourage selection of the most expensive health plan. Although some groups advocate requiring coverage of all costs for all recommended immunizations, some workshop participants expressed concern over this approach. Because most private health insurance is offered on a voluntary basis, often by employers, mandating coverage for immunizations or other medical services might discourage some employers from offering health insurance benefits or raise health plan costs to levels that employees felt they could not afford.

#### **Availability of Immunization Services Under Public Health Insurance Programs**

Immunization benefits differ between public insurance programs (Medicaid, State Child Health Insurance Program (SCHIP), and Vaccines for Children) and private plans both for the preschool population and older adolescents (ages 18-21), which fragments their access to vaccines. Yet even when child and adolescent populations have coverage for all recommended vaccines, workshop participants pointed to problems in obtaining immunization services. Some children lack easy access to participating health care providers. For example, although CDC reported that more than 40,000 health care providers are participating in VFC (Rodewald presentation), children living in rural areas can still have difficulty finding participating providers. For underinsured children (i.e., those with health insurance but without coverage for recommended immunizations), the challenge is finding federally qualified health centers or rural health clinics, their only VFC-authorized sources of immunization services.

The amount of turnover in Medicaid enrollment populations also challenges efforts to provide immunization services from a single or small

group of providers and health plans that have access to the child's health records. Rachel Block from the Center for Medicaid and State Operations within the Health Care Financing Administration presented data illustrating the range of variation in Medicaid enrollment figures among states. At the end of 6 months, many states have less than 50 percent of their 2-year-old population continuously enrolled in Medicaid plans (Table 4). This change in enrollment figures affects health care providers as well, many of whom may see an infant or child only once or twice before the family's eligibility for Medicaid assistance changes because of income dynamics or eligibility criteria.

Children in urban areas also may have problems obtaining the immunization services for which they are eligible because of confusion and instability in Medicaid managed care services. Workshop participants from Michigan and Detroit, for example, reported that confusion on the part of parents and Medicaid providers about coverage and eligibility for Medicaid and VFC services results in referrals of some children to public clinics for immunizations covered by VFC. Paul Giblin from the Children's Hospital in Detroit presented disturbing findings from a Detroit immunization study that examined factors that might be contributing to the city's

**TABLE 4** Percentage of 2 Year Olds in Medicaid and Managed Care Plans Who Were Continuously Enrolled in the Same Plan at 6 and 12 Months Prior to Their Second Birthdays

States	Year	6 Months	6 Months with One-Month Break	12 Months	12 Months with One-Month Break
A	2000 (CY)	45%	51%	30%	33%
B	1999 (CY)	79%		56%	
C	99-00 (SY)	10%	30%	5%	15%
D	1999 (CY)	40%	71%	16%	21%
E	2000 (CY)	87%	89%	87%	88%
F	2000 (CY)	59%	73%	49%	62%
G	2000 (CY)	47%	55%	32%	39%
H	2000 (CY)	46%	55%	37%	47%
I	1999 (CY)	25%	31%	13%	18%
Average (weighted)		48%	62%	34%	45%

CY=calendar year

SY=state year

SOURCE: G. Fairbrother, unpublished data collected for CDC. 2001.

declining immunization rates. In the east side of Detroit, 10 primary care clinics closed during the 5-year project period, requiring families to locate new sources of care. In addition, between July 1999 and April 2001, the number of health plans offering Medicaid managed care services in Wayne County (which includes Detroit) dropped from 16 to 9 and the number of enrollees served by those plans dropped by almost 35,000. In reviews of immunization records in nine clinics, the project found that as many as 30 percent of the children who had been seen at one time could not be accounted for at the time of the review. All of these findings point to a lack of continuity of care for many children, which can interfere with the timeliness of immunizations and with the completeness and accuracy of immunization records.

Adults between the ages of 21 and 65 who do not have private insurance are eligible for Medicaid (and thus for any immunizations covered under the state plan) only if they are parents of a dependent child on Medicaid or have a disability that qualifies them for supplemental income assistance when they become eligible for Medicaid.

#### **Burden on Public-Sector Programs**

The experience in Michigan and Detroit illustrates the continuing demand for immunization services from health department clinics, as either a primary or safety net source for such services. Although this evidence of the public's trust in these clinics was welcome, health department clinics generally have limited resources and lack infrastructure for coordinating their services with other immunization providers or for seeking reimbursement from health plans for services covered under Medicaid capitation rates or VFC. The assessment of immunization status, in particular, can be time consuming and burdensome, requiring technical training and routine access to high-risk groups as well as provider records in a variety of health care settings. When other public programs are asked to establish links to immunization services, they expect compensation for the personnel time involved in making such assessments. For example, conducting immunization assessments through the Women, Infants, and Children (WIC) nutrition program has been an effective way to improve immunization rates in some communities. But without additional funding to support the required staff time and training, immunization assessments can divert limited WIC resources from the program's primary tasks.

#### **SUSTAINING AND IMPROVING COVERAGE LEVELS**

The workshop discussions related to sustaining and improving immunization coverage levels emphasized that most states have not achieved

the national target of 90 percent coverage for 2 year olds and for older adults (see Table 2). Participants expressed concern that state and city averages mask “pockets of need,” where coverage rates are substantially and persistently low. In addition, the challenges in improving immunization coverage for adults were contrasted with those related to children’s immunization.

### **Pockets of Need**

Many cities have neighborhoods that may be at increased risk for underimmunization and for outbreaks of vaccine-preventable diseases because of chronic poverty and other markers of lower socioeconomic status, which are often associated with lower immunization rates for children. A CDC study in June 2000 in the Englewood District of Chicago, a neighborhood in which 42 percent of households had an income of less than \$10,000, found that measles vaccination rates were somewhat lower there than for Chicago as a whole (Rosenthal et al., 2001). Factors associated with higher levels of coverage included parents being able to provide the child’s immunization record during the study interview, starting a child’s immunizations on time, and obtaining immunization services from a public-sector provider. Only 18 percent of parents reported any barriers to obtaining immunization services, and they frequently cited long waiting times as a common barrier.

Julie Morita from the Chicago Department of Health described the department’s response to the Englewood study, highlighting efforts to inform the community and local health care providers about the study results. These discussions focused on identifying both short- and long-term steps intended to improve immunization coverage. The availability of specific data about gaps in neighborhood coverage rates was cited as a key factor in engaging both health care providers and the community in these efforts. The short-term actions included locating children in need of immunizations, following up with reminder notices and household visits, and offering additional immunization services in the neighborhood.

Longer-term activities are directed toward the community and toward providers. The community efforts, which are being led by the Englewood District Health Council, include promoting on-time vaccination for all children and establishing a program to track immunizations for babies born at a local hospital. The health department’s provider-based interventions include a reminder-recall system and home visits to children who do not respond to those notices. The health department will also ensure that providers have vaccine for VFC-eligible children. In addition, providers will receive feedback from health department assessments of the immunization status of children in their practices and guidance on strate-

gies to improve immunization coverage. A follow-up survey, planned for 2002, will assess the effectiveness of these interventions.

### **Adult Immunization**

In contrast to the multiple programs designed to improve pediatric immunization rates, relatively few systematic efforts exist to address low adult immunization levels. In addition to the limited use of Section 317 funds to purchase vaccine for adults and the limited insurance coverage for adult immunization (noted above), the workshop discussions pointed to other factors that contribute to undesirably low rates of adult immunization. For example, adults often receive care from a variety of specialists (e.g., cardiologists, obstetricians-gynecologists) who may not attend to primary care concerns and who are generally less familiar with immunization issues and vaccine recommendations than are pediatricians and others who care for children. Some providers may lack adequate information about the seriousness of vaccine-preventable diseases in adults and the efficacy of the vaccines. The education of physicians and others who care for adults about the value of immunization is important because appropriate advice from health care providers improves immunization rates. Also highlighted was the growing contribution to adult immunization of services offered at nontraditional sites, such as pharmacies, supermarkets, and workplaces.

### **CONDUCTING SURVEILLANCE OF IMMUNIZATION COVERAGE AND VACCINE SAFETY**

Many of the workshop presentations emphasized the importance of surveillance programs as an important part of efforts to improve immunization rates, but such programs require adequate resources for implementation and ongoing support. The Englewood study in Chicago, for example, demonstrated the value of having highly specific local data to identify problems and to stimulate a response. The city now needs ways to identify other neighborhoods with low immunization rates. The CDC survey conducted in the Englewood District is too expensive and labor intensive for routine use, so clinic assessments or reviews of immunization histories in school records or selected private practices may be more practical approaches unless training local interviewers can be demonstrated as a feasible alternative.

Immunization registries have the potential to provide local data without requiring special surveys, but they require extensive collaboration between public and private health care sectors to implement and sustain the exchange of immunization data within a designated community. If

registries are up-to-date, they can help maintain accurate immunization records for children who receive care from multiple sources. But the workshop discussions made it clear that while the registries in Michigan and Illinois are progressing, they are not yet complete enough to be used for surveillance. Some children are not included and many providers, especially those in the private sector, are not submitting reports. Workshop participants noted that even when health plans agree to provide data, they may not have the tools to monitor or enforce submission of reports by individual providers. Michigan's experience has also shown that the cost of operating a registry remains high beyond the start-up period.

### IMMUNIZATION FINANCE POLICIES AND PRACTICES

Some of the concerns related to immunization finance—increasing vaccine costs and insurance benefits, for example—have already been reviewed. In addition, workshop participants expressed concern about the stability of state funding for immunization programs. Term limits are increasing the influx of new state legislators and legislative staff who may be unfamiliar with the potential seriousness of vaccine-preventable diseases and the complexities of health care finance. The importance of maintaining an effective immunization infrastructure and adequate supplies of vaccine can easily be overlooked when immunization rates are high and disease prevalence is low. There is also concern that growing attention to claims of potential risks from vaccine use may weaken legislative support for immunization programs.

Various financial disincentives were also noted. For individual providers, such disincentives result from the paperwork and delays in reimbursement as well as inadequate reimbursement for vaccine and vaccine administration. Financial disincentives can also arise from the administrative burden of programs such as VFC, which requires separate record-keeping for VFC and non-VFC vaccine supplies and services. Similarly, if Medicaid capitation rates are judged too low, some private health plans may choose not to bid on or continue Medicaid contracts, potentially limiting and disrupting the availability of immunization services for Medicaid enrollees.

## Strategies for Achieving Immunization Goals

**M**any of the workshop presentations focused on problems for immunization programs nationally and at the state and local levels. Concerns about the inadequacy of existing efforts received extensive attention. However, participants also described efforts to address some of these problems and highlighted four strategic approaches:

- quality improvement measures within health plans,
- performance-based contracting for Medicaid managed care services,
- public policy actions, and
- public-private partnerships.

### QUALITY IMPROVEMENT MEASURES IN HEALTH PLANS

Better information systems and practice tools help physicians ensure that patients receive appropriate preventive services, including immunizations. Achieving high levels of immunization coverage has emerged as a key measure of quality in assessing the performance of both health care plans and providers. As part of a collaborative quality improvement initiative for its HMO plan, Blue Cross Blue Shield of Illinois (BCBSIL) began working in the mid-1990s with participating physician groups on two immunization efforts: (1) to improve influenza immunization rates for asthmatic and diabetic adults and for all adults age 65 and over and (2) to improve immunization rates for 2 year olds as measured in HEDIS surveys. Through its own analysis, BCBSIL determined that both adult

patients and parents relied on physicians for guidance on immunizations and that the physicians wanted assistance in monitoring the immunization needs of their patients.

Carol Wilhoit from BCBSIL described how the health plan assumed responsibility for providing detailed instructions or “flowsheets” to guide care for specific patient populations, for collecting and analyzing data on immunization coverage, and for reporting the results of those analyses to the physician groups. Data for 2000 show that the use of flowsheets was associated with higher immunization rates for both children and adults. (However, even with the flowsheets, only 32 percent of adults with diabetes received an influenza vaccination.)

### PERFORMANCE-BASED CONTRACTING

Performance-based contracting provides an opportunity to use legal and economic tools to promote achievement of higher immunization coverage rates and other public health goals. In principle, both the public sector and the private sector (through health plans offered by employers) could use this approach. The experience of Michigan’s Medicaid managed care contracts was discussed in the workshop as one example of management by performance. These contracts require participating plans to provide all ACIP-recommended vaccines, to use vaccine available through VFC, to provide immunization in conjunction with Medicaid’s provisions for well-child care, to participate in the state’s immunization registry, and to reimburse health departments for immunizations provided to a health plan’s enrollees. In addition, the contracts include financial penalties for noncompliance.

But it was acknowledged that such contracts are not without problems, many of which are related to the challenges discussed by others at the workshop. For example, a health plan may incur a substantial financial liability for coverage of all ACIP-recommended vaccines if the cost of a new vaccine has not been factored into capitation rates and the vaccine is not yet available through a federal contract or VFC. Health plans may not receive enough information from individual providers, or may not have suitable information systems, to be able to monitor whether children are receiving immunizations at appropriate times. Similarly, state health departments may lack the infrastructure to seek reimbursements from health plans for immunization services to enrollees or to monitor health plan performance in order to apply sanctions or rewards. And the costs of monitoring need to be considered against the benefits that such services are designed to achieve.

However, some health plans have already demonstrated the feasibility of using performance-based strategies to improve immunization cov-

erage rates. For example, BCBSIL established a quality improvement fund that provided payments to providers on the basis of performance-based criteria. For the first three years of each project, the performance criteria were based on submission of the data and documentation needed to assess immunization rates. These data were not otherwise available, and the quality improvement payments provided an incentive for physician groups to improve the quality of their immunization records. With the establishment of data submission practices, the performance criteria for quality improvement payments changed and are now based on the immunization rates achieved by the participating physician groups. Preliminary results suggest that immunization rates have increased under the new payment criteria.

### **PUBLIC POLICY ACTIONS**

In addition to financial support and regulatory roles, public policy actions can stimulate immunization performance through the creation of universal “checkpoints.” It is widely recognized, for example, that school entry requirements have ensured that nearly all children are completely immunized by the time they reach age 5 or 6. The addition of MMR and hepatitis B vaccination to school requirements for adolescents in some states appears to be the principal factor driving up coverage rates for those vaccines. BCBSIL found that while its quality improvement program was achieving modest improvements in adult and preschool immunization rates, the immunization rates for adolescents rose from 17.5 percent in 1998 to 59.6 percent in 2000 without any intervention by the health plan. The lack of comparable checkpoints was cited as one factor contributing to the persistence of low immunization rates among adults. Workshop participants suggested exploring opportunities to use public policy tools of this sort to improve immunization rates for adults (e.g., immunization requirements for nursing home residents).

Other opportunities to use public policy tools may also exist. For example, states or the federal government could mandate that Medicaid or VCF providers participate in state immunization registries. But such requirements must be considered carefully to ensure that they do not impose unreasonable burdens on providers and do not have the adverse effect of reducing the number of providers willing to participate in Medicaid or VCF.

### **PUBLIC-PRIVATE PARTNERSHIPS**

Many of the workshop participants indicated that public-private partnerships are an important strategy for improving immunization rates for

children and adults. Some of the examples that were discussed took the form of relatively formal activities, but other, less-formal types of partnerships were also considered.

The response to the study of the Englewood District in Chicago illustrated the recent emergence of a neighborhood partnership in response to concerns about low immunization rates. With data from the CDC study, the city health department was able to begin working with health care providers, parents, community agencies, and the local health council. Many of the longer-term activities are now sustained under the leadership of the health council.

The measles outbreak of the early 1990s also stimulated the development of Chicago-area partnerships that have evolved into the broadly based Chicago Area Immunization Campaign and Chicago Partnership for Public Health. These citywide activities convene collaborators from government, health plans, professional organizations, local businesses, community organizations, and philanthropic groups. Partnership efforts provide an opportunity to educate the broad range of participants about immunization concerns and about how they can respond to those concerns. Business leaders, for example, can learn how their health insurance benefits packages affect the costs of immunization for their employees. And philanthropic groups can identify opportunities to support community education or quality improvement programs by health care providers' professional organizations. The health department also continues to work directly with providers to conduct immunization assessments in their practices, but officials noted that they have only three staff members for a population of 1,200 VFC providers.

The Partners Project is a national partnership that seeks to develop science-based approaches to improve the delivery of preventive services, including adult immunization. A project team based in southeast Michigan has participants from the region's major health plans, major automobile manufacturers and the United Auto Workers (purchasers of health plan services), the state and local health departments, and a local provider organization. For this project, factors that contributed to the success of the work of the partnership included a clear alignment of goals, the involvement of leadership from the partner organizations, skilled assistance to resolve conflicts, achievable short- and long-term outcomes, persistence and patience, confidentiality, and trust.

The workshop discussions also pointed to the importance of building new partnerships within the health care community. Professional societies have a role to play in keeping their members informed about immunization issues and in establishing expectations for appropriate standards of practice. Professional schools have a responsibility to provide up-to-date training for new clinicians and also have the opportunity to bring immu-

nization expertise and other resources to the communities in which they operate. Professional schools and professional societies can also help reach out to new partners in immunization, such as pharmacists and medical specialists.

## Final Observations

Immunization programs, like so many preventive health services, face the dilemma of being least noticeable when they are most successful: children and adults are not ill and do not require treatment because they have received appropriate immunizations. Achieving and sustaining that success requires a continuing investment of resources. Not making that investment and allowing immunization rates to decline creates the potential for serious disease outbreaks. But support for a continuing immunization effort can weaken if the need does not seem urgent and competing health care priorities claim more attention. *Calling the Shots* provides analysis and recommendations that can be used to inform legislators and other public officials about the key roles of the nation's immunization system and the level of public funding that must be maintained to ensure that the system operates effectively.

The workshop highlighted several challenges facing immunization efforts. The recent introduction of a new and substantially more costly pediatric vaccine has altered some elements of the economic analysis in *Calling the Shots*. Growing concerns are emerging over the burden of vaccine costs among families, health care providers and health plans, and state and local health departments. Vaccine safety issues are receiving more attention and require greater effort to dispel rumors and to calibrate potential risks. Children and adults in low-income families continue to have lower immunization rates than the more affluent and often face an unstable health care services environment because of turnover among providers and health plans. Immunization registries promise access to

detailed data needed to stimulate and guide improvement efforts, but they are proving costly to operate and are not yet complete enough for many planned applications. Increasing public health resources in the wake of health care reform remains a challenging task.

There were also encouraging signs. With appropriate data and information tools, health care plans and individual providers are able to improve immunization rates among their pediatric and adult patients. The health care system is finding that new partners, such as pharmacists, can help meet adult immunization needs. Communities and health departments are ready to respond when pockets of need are identified. New strategies and partnerships are emerging to combine resources within the public and private sectors in ways that are flexible enough to address each community's needs.

Workshop participants were optimistic that even if society's continuing and significant problems such as poverty, inequity, and instability in the health care system could not be resolved, opportunities could be found to act on immunization needs. They noted that while federal assistance needs to be reliable and adequate to support local efforts, states and metropolitan areas also have important roles to play in strengthening the national immunization partnership. Creative approaches will be necessary to address persistent needs, to assure access to services while reducing reliance upon public resources, and to design new approaches that can use information resources efficiently. Strategies that persuade private health plans and providers to assume responsibility for achieving high coverage rates within the communities that they serve will be especially important in reaching national immunization goals for both children and adults.

## References

- CDC. 1997. National, state, and urban area vaccination coverage levels among children aged 19–35 months—United States, 1996. *MMWR* 46(29):657–664.
- CDC. 1998. National, state, and urban area vaccination coverage levels among children aged 19–35 months—United States, 1997. *MMWR* 47(26):547–554.
- CDC. 2000a. National, state, and urban area vaccination coverage levels among children aged 19–35 months—United States, 1998. *MMWR* 49(SS-9):1–26.
- CDC. 2000b. National, state and urban area vaccination coverage levels among children aged 19–35 months—United States, 1999. *MMWR* 49(21):585–589.
- CDC. 2000c. National, state, and urban area vaccination coverage levels among children aged 19–35 months—United States, 2000. *MMWR* 50(30):637–643.
- CDC. 2001a. Maximum year morbidity rates are drawn from Orenstein, WA, Hinman AR, and Rodewald LE. 1999. Public Health Considerations—United States. In *Vaccines*, 3<sup>rd</sup> ed., SA Plotkin and WA Orenstein (eds.) Philadelphia: W.B. Saunders. Current year rates (2000 provisional) provided by private communication, National Immunization Program.
- CDC. 2001b. Influenza and pneumococcal vaccination levels among persons aged  $\geq 65$  years—United States, 1999. *MMWR* 50(25):532–537.
- Fairbrother, G, H Kuttner, W Miller, R Hogan, H McPhillips, KA Johnson, and ER Alexander. 2000a. Findings from case studies of state and local immunization programs. *American Journal of Preventive Medicine* 19(3S):54–77.
- Fairbrother, G, GL Freed, and JW Thompson. 2000b. Measuring immunization coverage. *American Journal of Preventive Medicine* 19(3S):78–88.
- Freed, GL, SJ Clark, and AE Cowan. 2000. State-level perspectives on immunization policies, practices, and program financing in the 1990s. *American Journal of Preventive Medicine* 19(3S):32–44.
- Institute of Medicine. 1996. *Healthy Communities: New Partnerships for the Future of Public Health*. MA Stoto, C Abel, and A Dievler, eds. Washington, DC: National Academy Press.

REFERENCES

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- Institute of Medicine. 1997. *Improving Health in the Community: A Role for Performance Monitoring*. LA Bailey, JS Durch, and MA Stoto, eds. Washington, DC: National Academy Press.
- Institute of Medicine. 2000. *Calling the Shots: Immunization Finance Policies and Practices*. Washington, DC: National Academy Press.
- Johnson, KA, A Sardell, and B Richards. 2000. Federal immunization policy and funding: A history of responding to crises. *American Journal of Preventive Medicine* 19(3S):99–112.
- Rosenthal, J, D Raymond, J Morita, P Diaz, M McCauley, F David, and L Rodewald. 2001. African American children are at risk of a measles outbreak: The Englewood District in Chicago, 2000. Unpublished paper. National Immunization Program, Centers for Disease Control and Prevention.



## **Appendixes**



## **Appendix A**

### **Workshop Agenda**

Institute of Medicine  
Committee on the Immunization Finance Dissemination Workshops

Financing the U.S. Immunization System:  
The Need for a Strategic Vision

**FINAL AGENDA**  
**JUNE 15, 2001**

**Auditorium**  
**School of Public Health and Psychiatric Building**  
**University of Illinois at Chicago**  
**Chicago, Illinois**

**8:00 AM      Registration**

**8:30 AM      Welcome and Introductory Remarks**

- *David R. Smith, president, Health Sciences Center, Texas Tech University*
- *Susan Scrimshaw, dean, University of Illinois School of Public Health*
- *Rosemary Chalk, senior program officer, Institute of Medicine*

**8:45 AM Immunization Finance in the 21<sup>st</sup> Century**

*(David R. Smith, moderator)*

- **The Impact of Immunizations in the 21<sup>st</sup> Century**  
*Samuel Katz, professor emeritus, Department of Pediatrics, Duke University*
- **Financing the National Immunization System: Recommendations from the Institute of Medicine**  
*David R. Smith, Health Sciences Center, Texas Tech University*
- **Allocating Federal Funds to States and Cities: The Role of the National Immunization Program**  
*Lance Rodewald, director, Immunization Services Division, Centers for Disease Control and Prevention*
- **The National Medicaid Childhood Immunization Improvement Initiative**  
*Rachel Block, director, Finance Systems and Quality Group, Center for Medicaid and State Operations, Health Care Financing Administration*
- **State Finance Strategies in the 1990s: Immunization Policies, Practices, and Program Financing**  
*Gary Freed, professor, Department of Pediatrics, University of Michigan*
- *Discussion*

**10:15 AM Break**

**10:30 AM State and Local Roles in the National Immunization System**

*(Garth Splinter, moderator)*

- **State Immunization Finance Strategies in Michigan and Illinois**  
*John Lumpkin, director, Illinois Department of Public Health*  
*Gillian Stoltman, director, Division of Communicable Disease and Immunization, Michigan Department of Community Health*

- The Persistence of Pockets of Need in Metropolitan Areas—The Englewood Neighborhood in Chicago  
*Jorge Rosenthal, epidemiologist, National Immunization Program, Centers for Disease Control and Prevention*  
*Julie Morita, medical director, Department of Public Health, Chicago*
- A Tale of Two Cities: The Status of Immunization Infrastructure in Chicago and Detroit  
*John Wilhelm, commissioner, Chicago Department of Public Health*  
*Melinda Dixon, medical director, Detroit Health Department*
- A Congressional Perspective  
*Representative Danny Davis (D, 7<sup>th</sup> district, Illinois)*
- *Discussion*

Noon LUNCH

1:30 PM **Integrating Immunizations in Private Health Care Services**

*(William Kissick, moderator)*

- Improving Immunization Coverage Rates for Adults—Can We Do Better?  
*William Schaffner, professor, Department of Preventive Medicine, Vanderbilt University*
- Achieving Public Health Goals Within Health Plan Services—Examples of Collaboration in Financing, Data Collection, and Quality Measures  
*Jim Bridges, medical director, Blue Cross/Blue Shield of Southeast Michigan*  
*Carol Wilhoit, medical director for quality improvement, Blue Cross/Blue Shield of Illinois*
- *Discussion*

- 2:30 PM Roundtable 1: Unresolved Problems and Significant Challenges**  
*(Susan Scimshaw, moderator)*
- Ed Mihalek, Chicago Department of Health*  
*Victor Gonzalez, UniCare Health Plans and Chicago Board of Health*  
*Paul Giblin, Children's Hospital, Detroit*  
*Howard Weinblatt, Integrated Health Associates, Ann Arbor*
- *Discussion*
- 3:30 PM Roundtable 2: Next Steps and Future Strategies**  
*(David R. Smith, moderator)*
- Whitney Addington, The Urban Health Institute of Chicago*  
*Garth Splinter, University Hospital Trust, Oklahoma City*  
*Robyn Gabel, Illinois Maternal and Child Health Coalition*
- *Discussion*
- 4:30 PM Closing Remarks and Adjourn**

## **Appendix B**

### **List of Workshop Participants**

Whitney Addington  
Metropolis 2020

Barbara Alexander  
Health Service Management and Quality Improvement-Indiana Region

Scott Allen  
Illinois State Chapter  
American Academy of Pediatrics

Adriana Alvarez  
American Academy of Pediatrics

Achal Bhatt  
National Immunization Program  
Centers for Disease Control and Prevention

Jack Blane  
Rotary International

Rachel Block  
Health Care Financing Administration

James Bridges  
Blue Cross/Blue Shield of Southeast Michigan

Deborah Harper Brown  
College of Pharmacy  
University of Illinois at Chicago

Richard Butler  
Texas Tech University Health Sciences Center

Cheryl Byers  
Chicago Department of Public Health

Rosemary Chalk  
Institute of Medicine

Faith Covici  
Region V Office  
U.S. Department of Health and Human Services

Congressman Danny Davis  
Representative (D), 7th District, Illinois

Jean Cilik Davis  
American Academy of Pediatrics

Mike Davitt  
Wyeth Lederle Vaccines

Lynn Denton  
Texas Health Department

Melinda Dixon  
Detroit Health Department

Jane Durch  
IOM Consultant

Victoria Stagg Elliott  
American Medical News

Gary Freed  
Department of Pediatrics  
University of Michigan Medical Center

Robyn Gabel  
Illinois Maternal and Child Health Coalition

Richard Galati  
Illinois Department of Public Health

Joy Getzenberg  
Chicago Department of Public Health

Paul Giblin  
Children's Hospital  
Detroit, Michigan

Julie Gleason-Comstock  
Southeastern Michigan Childhood Immunization Registry

Victor M. Gonzalez  
UniCare Health Plan

Melissa Howell  
Michigan State Medical Society

Alison Johnson  
National Immunization Program  
Centers for Disease Control and Prevention

Samuel L. Katz  
Department of Pediatrics  
Duke University Medical Center

William Kissick  
George Seckel Pepper Professor of Public Health  
The Leonard Davis Institute  
The Wharton School

Glen Koops  
National Immunization Program  
Centers for Disease Control and Prevention

Daniel Lafferty  
Southeastern Michigan Health Association

John Lumpkin  
Illinois Department of Public Health

David McLaury  
Michigan Department of Community Health

Edward Mihalek  
Immunization Program Westside Center for Disease Control  
Chicago Department of Health

Julie Morita  
Chicago Health Department

Kathleen LaSpina Morse  
Harmony Health Plan

Cynthia Noa  
Illinois Department of Public Health

Jennifer Otten  
Institute of Medicine

Ryan Palugod  
Institute of Medicine

Steven Potsic  
Regional Health Administrator—Region V  
U.S. Department of Health and Human Services

Jamila Rashid  
National Immunization Program  
Centers for Disease Control and Prevention

Lourdes Reyes  
Harmony Health Plan

Lance Rodewald  
National Immunization Program  
Centers for Disease Control and Prevention

Mark Rosenberg  
Illinois Chapter of the American Academy of Pediatrics

Jorge Rosenthal  
National Immunization Program  
Centers for Disease Control and Prevention

Ronald L. Ruecker  
Illinois State Medical Society

William Schaffner  
Department of Preventive Medicine  
Vanderbilt University School of Medicine

Adam L. Scheffler  
Policy Researcher/Consultant

Karen Scott  
Cook County Department of Public Health

Robin P. Scott  
Chicago Department of Health

Susan Scrimshaw  
School of Public Health  
University of Illinois at Chicago

Iris Shannon  
Community Renewal Society

David R. Smith  
Texas Tech University Health Sciences Center

Nicole Smith  
National Immunization Program  
Centers for Disease Control and Prevention

Garth Splinter  
University Hospital Trust  
Oklahoma City, Oklahoma

Jerry Stermer  
Voices for Illinois Children

Gillian A. Stoltman  
Michigan Department of Community Health

Prentiss Taylor  
AMERIGROUP Illinois

Ian Van Dintner  
American Academy of Pediatrics

Dennis L. Vickers  
American Academy of Pediatrics

Howard Weinblatt  
Integrated Health Associates  
Ann Arbor, Michigan

Arnold Widen  
The Institute of Medicine of Chicago

John Wilhelm  
Chicago Department of Public Health

Carol Wilhoit  
Blue Cross/Blue Shield of Illinois

Rebecca Wurtz  
Chicago Board of Health

## Appendix C

### Website Referrals

The IOM workshop presentations and discussion were audiocast through a collaborative agreement between the IOM and the University of Illinois School of Public Health. Further information regarding the audiocast and the IOM report is available from these websites:

*[www.iom.edu/iom/iomhome.nsf/Pages/HCS+Immunization+Finance+dissemination](http://www.iom.edu/iom/iomhome.nsf/Pages/HCS+Immunization+Finance+dissemination)*

*[www.nap.edu/catalog/9836.html](http://www.nap.edu/catalog/9836.html)*

*[www.nationalacademies.org/includes/shots.htm](http://www.nationalacademies.org/includes/shots.htm)*

*[http://stills.nap.edu/html/case\\_studies](http://stills.nap.edu/html/case_studies)*

*[www.cdc.gov/nip/news/iom-rpt-6-00.htm](http://www.cdc.gov/nip/news/iom-rpt-6-00.htm)*

