



# A Report on Reaching Underserved Ethnic and Minority Populations to Improve Adolescent and Adult Immunization Rates



National  
Foundation for  
Infectious  
Diseases

RESEARCH PREVENTION EDUCATION



National Coalition for  
Adult Immunization

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# About the National Foundation for Infectious Diseases, the National Coalition for Adult Immunization, and Contributing Organizations

## **The National Foundation for Infectious Diseases**

The National Foundation for Infectious Diseases (NFID) is a non-profit tax-exempt 501(c)(3) organization founded in 1973 and dedicated to encouraging and sponsoring public and professional education about infectious diseases, supporting research and training in infectious diseases, and aiding in the prevention and treatment of infectious diseases.

NFID carries out its mission by educating the public; educating healthcare providers; supporting research and training in infectious diseases; building coalitions; and honoring scientific and public health achievements, legislative contributions, and philanthropy in infectious diseases.

## **The National Coalition for Adult Immunization**

The National Coalition for Adult Immunization (NCAI) was formed in 1988 and is a network of more than 130 organizations including professional and voluntary organizations, advocacy groups, vaccine manufacturers, government health agencies, and state and local coalitions.

The NCAI mission is to be a catalyst for organizations and individuals working with professionals, patients, and the public to achieve optimal immunization of adolescents and adults. NCAI accomplishes this by promoting vaccine research and development; influencing policy and practices; disseminating information; developing and implementing education programs; increasing awareness; and working to change beliefs, attitudes, and behaviors.

## **Contributing Organizations**

The following organizations, representing a variety of government as well as ethnic and multicultural groups, contributed to this report:

## **National Immunization Program of the Centers for Disease Control and Prevention**

The National Immunization Program (NIP) of the Centers for Disease Control and Prevention (CDC) provides leadership for planning, coordinating, and conducting disease prevention and immunization activities in the U.S.

## **Health Canada**

Health Canada is the Canadian federal department, which, in partnership with provincial and territorial governments, provides national leadership to develop health policy, enforce health regulations, promote disease prevention, and enhance healthy living for all Canadians.

## **National Medical Association**

The National Medical Association (NMA), a national non-profit professional and scientific organization, provides educational programs and opportunities for scholarly exchange, conducts outreach efforts to promote improved public health, and establishes national health policy agenda in support of African-American physicians and their patients.

## **National Council of La Raza**

The National Council of La Raza (NCLR) is dedicated to reducing the incidence, burden, and impact of health problems in Latinos. NCLR works to deliver and implement quality health interventions with the focus on improving access to and utilization of health promotion and disease prevention programs.

## **Asian Pacific Islander American Health Forum**

The Asian Pacific Islander American Health Forum (APIAHF) is a national advocacy organization dedicated to promoting policy, program, and research efforts to improve the health and well being of all Asian-American and Pacific-Islander communities in the U.S.

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# Introduction: Reaching Underserved Adolescent and Adult Populations

Ethnic and racial disparities in healthcare have increasingly become the focal point of studies and research in the United States (U.S.) and Canada. A comprehensive report issued by the Institute of Medicine in 2002, *Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care*, concluded that minority populations in the U.S. consistently suffer from disparities in healthcare. Adolescent and adult immunization is no exception.

The National Foundation for Infectious Diseases (NFID) convened a roundtable to discuss disparities in adolescent and adult immunization. While a great deal of progress has been made in closing immunization gaps, some racial and ethnic disparities still exist on all levels—national, state, urban, and local. Adult immunization gaps are particularly large in people aged 65 and older and in those with chronic diseases. In Canada, immunization disparities are apparent in adolescents and adults, particularly in aboriginal and immigrant groups, and religious groups that oppose or resist immunization.

Greater gaps are seen in adolescent and adult immunization coverage rates than in childhood rates. In addition, overall immunization rates vary substantially between the two. While racial and ethnic disparities are a concern, childhood vaccine coverage in general is high—about 90% of children in the U.S. and Canada have received their recommended vaccinations. In comparison, national coverage rates in the U.S. for most vaccines targeted to adults are under 70%.

Key factors to the success of childhood immunization in the U.S. include public resources allocated to purchase and administer vaccines for those who do not have access to insurance or who are financially in need, and an effective immunization infrastructure, including vaccination requirements for school entry. These elements do not exist to the same degree for adult immunizations. Although some Canadian provinces have conducted special outreach programs to increase adult immunization rates, coverage for recommended immunizations that are not publicly funded tends to be low.

As the U.S. and Canada take action to reduce racial and ethnic disparities in healthcare, it is important to eliminate immunization gaps to ensure all populations are protected against vaccine-preventable infectious diseases. The report that follows summarizes roundtable presentations and highlights the need for healthcare policymakers to understand and address resource and infrastructure issues for adolescent and adult immunization, with special attention to underserved racial and ethnic populations. It also calls on healthcare professionals to make adolescent and adult immunization a greater priority, take steps necessary to care effectively for diverse cultural populations, and work together to expand opportunities for delivering immunization, including offering vaccinations in non-traditional settings such as worksites, supermarkets, and schools.

## Specific Disparity Issues

There are major adolescent and adult immunization disparities in hepatitis B, influenza, and pneumococcal vaccination rates. In the U.S., white and African-American adolescents have significantly lower coverage rates for hepatitis B vaccine than Latinos. Among adults, hepatitis B immunization levels appear to be low among high-risk groups across all races and ethnicities. While influenza and pneumococcal disease immunization levels have improved during the past decade, large racial and ethnic gaps persist among people aged 65 and older. Disparities in influenza and pneumococcal vaccine rates also exist in high-risk groups aged 18 to 64 years. In Canada, aboriginal and immigrant populations appear to have lower vaccine coverage and higher incidences of pneumococcal disease, influenza, and hepatitis B than other populations.

There are multiple barriers to increasing adolescent and adult vaccination rates and reducing disparities in underserved populations, including:

- Lack of knowledge among consumers and healthcare providers about the need for, and benefits of, adolescent and adult immunizations
- Lack of awareness among healthcare professionals about immunization disparities
- Cultural and language differences between patients from racial and ethnic groups and their predominately white healthcare providers.
- A notion that all adults, even those who are underserved, bear ultimate responsibility for their own health. Thus, there is less special outreach for adults than for underserved children, despite the fact that tailored approaches such as bilingual publications can enhance understanding and acceptance.
- Limited access to preventive health services. Private and public medical insurance programs often do not pay for recommended vaccines for adolescents and adults. Likewise, they may pay healthcare providers little or nothing for vaccine administration.

The sections that follow present the predominant issues and barriers in more detail. They provide an overview of adolescent and adult immunization experience in the U.S. and Canada, review promising strategies for reducing disparities, and list roundtable recommendations for achieving full adolescent and adult immunization (see sidebar at right and page 27).

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## Recommendations for Achieving Full Adolescent and Adult Immunization

- Initiate and advocate for government-sponsored adolescent and adult immunization programs that provide infrastructure and support for vaccine purchase, vaccine administration, and educational programs.
- Develop a clear, harmonized immunization schedule and immunization standards that include all vaccines recommended for adolescents and adults.
- Encourage the expanded involvement of non-traditional vaccine providers who offer immunizations at convenient sites in the community.
- Bring government-funded immunization services to institutions serving high-risk or underserved populations.
- Initiate and advocate for state middle school entry immunization requirements for adolescents.
- Develop educational interventions to improve the knowledge, attitudes, and skills of healthcare providers.
- Create educational interventions to improve the knowledge, attitudes, and behaviors of consumers.
- Increase the use of interventions shown to be effective in increasing immunization rates such as provider reminders, patient reminder/recall, assessment and feedback, and standing orders.
- Advocate for state insurance commissions to require all medical insurance underwriters to provide coverage for recommended routine vaccinations for adolescents and adults.
- Conduct pilot projects to evaluate new approaches and use results to refine programs and strategies; disseminate results.

# Overview of Racial and Ethnic Disparities in Vaccine Coverage in the United States

by Hussain Yusuf, MBBS, MPH, Immunization Services Division, National Immunization Program, CDC

Immunization rates among all adolescent and adult populations need improvement, particularly for hepatitis B, influenza, and pneumococcal disease vaccines. In addition, there are substantial racial and ethnic disparities for these and other vaccines. Effective, evidence-based strategies are available to increase adolescent and adult vaccine coverage for all populations.

## Impact of Selected Vaccine-Preventable Diseases Among Adults

Hepatitis B, influenza, and pneumococcal infections account for the majority of vaccine-preventable morbidity and mortality among adults. Hepatitis B is responsible for 4,000 to 5,000 deaths each year.<sup>1</sup> Influenza caused over 20,000 deaths in each of 11 outbreaks recorded since 1972. People aged 65 and older accounted for more than 90% of these deaths.<sup>2</sup> Pneumococcal disease causes 10,000 to 14,000 adult deaths each year, more than any other vaccine-preventable bacterial infection.<sup>3</sup>

### Hepatitis B

Coverage levels among adolescents for three doses of hepatitis B vaccine are 75% in Latinos, 68% in African Americans, and 65% in whites, substantially lower than rates for other vaccines recommended for adolescents.<sup>4</sup> Limited data are currently available on adult immunization for hepatitis B. However, preliminary review of the 2000 National Health Interview Study (NHIS) suggests that coverage rates for adults at high risk for hepatitis B infection, such as those who have had unprotected sex or who have received treatment for a sexually transmitted disease, are low among all racial and ethnic groups.

### Influenza

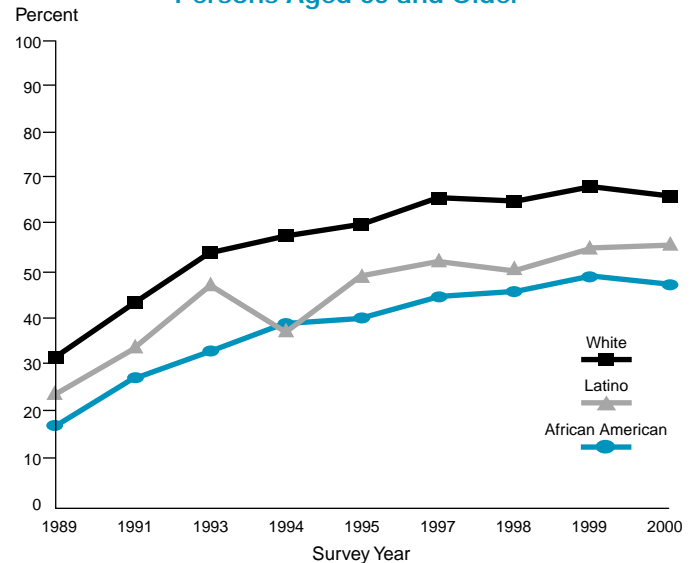
While adult immunization rates for influenza have improved over the past decade, substantial gaps remain between races and ethnicities at the national level among those aged 65 and older (**Figure 1**). Rates for whites and African Americans in this age group also vary by state, with some states, such as Georgia and Florida, having larger disparities than others.<sup>5,6</sup> These disparities cannot be explained solely by socioeconomic differences. For example, more whites in poverty received influenza vaccinations in 1995 than did African

Americans in poverty.<sup>7</sup> African-American Medicare beneficiaries were also less likely to receive a physician recommendation for a flu vaccine than white beneficiaries.<sup>8</sup>

In addition, 34% of non-institutionalized (not in hospitals or nursing homes), high-risk white Americans aged 18 to 64 received influenza vaccinations compared with 28% of African Americans and only 27% of Latinos (**Table 1**).<sup>4</sup> High-risk includes those with diabetes, cancer, and heart, lung, kidney, or liver disease.

Figure 1:

U.S. Influenza Vaccination Coverage Levels: Persons Aged 65 and Older



National Health Interview Survey, 2000<sup>4</sup>

Table 1:

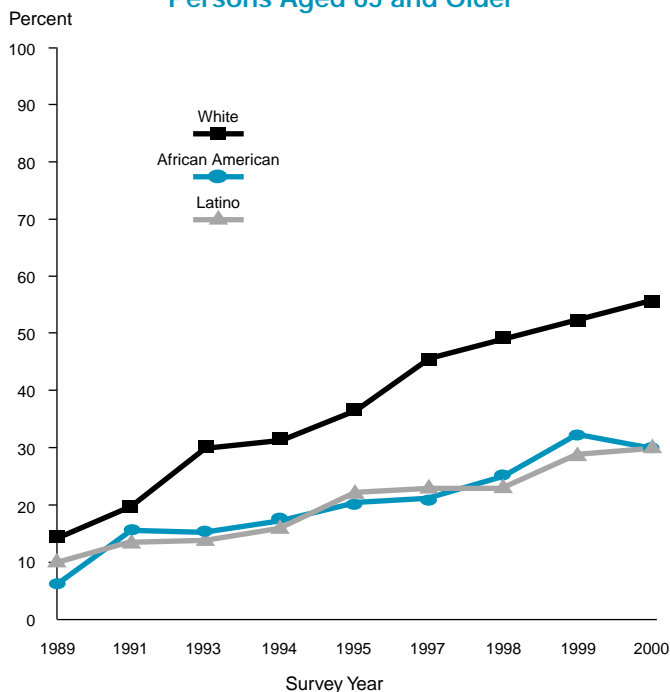
Influenza Vaccination in Previous 12 Months: Persons Aged 18-64

Racial/Ethnic Group	High Risk (%)	Not High Risk (%)
Non-Hispanic white	33.8	20.6
Non-Hispanic black	28.1	13.4
Hispanic or Latino	26.9	13.0
American Indian	*	19.9
Asian/Pacific Islanders	27.9	23.5
All groups	32.5	19.0

\*Numbers too small for meaningful analysis  
National Health Interview Survey, 2000<sup>4</sup>

Figure 2:

**U.S. Pneumococcal Vaccination Coverage Levels: Persons Aged 65 and Older**



National Health Interview Survey 1989-2000<sup>4</sup>

**Pneumococcal Disease**

Vaccination rates for pneumococcal disease have also improved among all racial and ethnic groups over the last decade (Figure 2). However, a substantial—and growing—national gap exists among persons aged 65 years and older between whites and those of other races. Nearly twice (57%) the percent of older white Americans received pneumococcal vaccinations in 2000 compared with African Americans (31%) and Latinos (30%).<sup>4</sup> While gaps are not evident in high-risk, non-institutionalized adults aged 18 to 64, coverage rates are very low with only 19% of whites, 17% of African Americans, and 12% of Latinos vaccinated (Table 2).<sup>4</sup>

**Strategies for Moving Forward**

A number of barriers impede vaccination of adults and adolescents. These range from lack of knowledge about and demand for the vaccine on the part of patients to provider barriers. Such barriers include lack of time, other more acute problems to handle in the course of a visit, difficulty in screening and systematically identifying patients for whom vaccine is recommended, lack of office systems to ensure systematic offering of vaccine, and concerns about inadequacy of physician reimbursement. The American College of Physicians has identified inadequate reimbursement of physicians by Medicare as a major barrier to raising immunization coverage among older adults (statement available at [www.acponline.org/hpp/vaccine\\_pol.htm](http://www.acponline.org/hpp/vaccine_pol.htm)). Other important barriers include lack of public funding for vaccine purchase and administration, and lack of public health infrastructure for reaching these age groups. For example, cost of vaccine is likely a barrier to immunization for uninsured populations and for those whose insurance does not cover the vaccination, such as for hepatitis B vaccine. A specific issue for adolescents is the paucity of physician visits in that age group, reducing the number of opportunities to be vaccinated. It is not known how many private medical insurance programs pay for routine adolescent and adult immunization.

Table 2:

**Pneumococcal Vaccine Receipt (Ever): Persons Aged 18-64**

Racial/Ethnic Group	High Risk (%)	Not High Risk (%)
Non-Hispanic white	19.4	5.8
Non-Hispanic black	17.1	6.3
Hispanic or Latino	11.8	3.9
American Indian	*	6.9
Asian/Pacific Islanders	*	5.4
All groups	18.2	5.6

\*Numbers too small for meaningful analysis  
National Health Interview Survey, 2000<sup>4</sup>

Research has shown that several strategies can be effective in raising immunization rates for adolescents and adults. Many of these are included in the Task Force on Community Preventive Services report on strategies to improve vaccination of children, adolescents, and adults.<sup>9</sup> These strategies include:

- Instituting state immunization requirements for middle school entry. These, along with school-based vaccination programs, have been shown to be effective in boosting adolescent immunization rates.<sup>10,11</sup>
- Using reminder and recall interventions, in which providers send reminders to patients when vaccinations are due and recall notices when they are overdue. Research has found that reminders and recall notices increase immunization rates among adults as well as children.<sup>12</sup>
- Increasing provider education about adolescent and adult immunization needs (as part of multi-component interventions) to avoid missed opportunities for vaccination.
- Increasing patient education about vaccines. Some adults do not know what vaccinations they need and/or do not appreciate the benefits and safety of receiving them.<sup>9</sup> Approximately 40% to 50% of those at high risk or who died from influenza and pneumonia had seen a healthcare provider within the last year but failed to receive an influenza vaccine.<sup>1</sup>
- Reducing out-of-pocket costs for adult immunization.
- Expanding access to vaccinations in healthcare settings, such as healthcare facilities having special flu shot clinics and drop-in times.
- Issuing standing orders for vaccines. In a nursing home setting, for example, standing orders in each patient's chart to provide immunizations at recommended intervals have been shown to be effective in increasing coverage.
- Assessing provider performance on adolescent and adult immunization and giving providers feedback.
- Providing federal support for state vaccine purchase and delivery infrastructure for uninsured and high-risk adults (e.g., those who have a chronic heart or lung disease) under age 65.

Studies that include populations of mixed racial and ethnic groups indicate that for the most part, these interventions increase immunization rates among all racial and ethnic groups. However, since these studies did not look at the impact of the strategies specifically among minority racial and ethnic groups, these strategies may need to be modified to be most appropriate to these populations.

## Related Current Activities of the National Immunization Program

The National Immunization Program (NIP) of the CDC oversees U.S. immunization efforts. This program is taking a variety of steps toward reducing racial and ethnic immunization disparities. These include:

- The Racial and Ethnic Adult Disparities in Immunization Initiative (READII). The Department of Health and Human Services (DHHS) has made the elimination of racial and ethnic disparities in influenza and pneumococcal vaccination coverage for people 65 years of age and older a top priority. With support from DHHS and the Centers for Medicare and Medicaid Services, the CDC is working with five demonstration sites on a two-year project to improve influenza and pneumococcal vaccination rates in African-American and Hispanic communities. The demonstration sites will organize coalitions of public health professionals and medical providers (e.g., large health plans, insurers, minority health professional organizations, churches, local community groups, and civic leaders). These coalitions will develop a community-based plan that will identify African-American and Hispanic individuals aged 65 and older who need influenza and pneumococcal vaccinations, and offer these immunization services to them.
- Creating partnerships with organizations that represent ethnic/minority groups, such as the National Medical Association (NMA) and the Congress of National Black Churches, to increase education and outreach, and to raise immunization coverage.
- Studying gaps in immunization services for African-American adults through cooperative agreements with academic institutions and the Association of Teachers of Preventive Medicine.

- Assessing the effectiveness of a pilot project to promote vaccine delivery to African-American women enrolled in Medicare in conjunction with other services, such as mammograms.
- Conducting media campaigns about vaccine issues that are targeted to the needs and preferences of intended racial and ethnic audiences based on focus group research.
- Identifying factors associated with influenza and pneumococcal vaccination among elderly African Americans compared with other race groups through focus groups and a survey. The results will be used to identify effective strategies to increase vaccination rates among elderly African Americans.

# Immunization Disparity Issues and Public Health Implications in Canada

by Arlene King, MD, MHSc, FRCPC, Chief, Immunization and Respiratory Diseases, Centre for Infectious Disease Prevention and Control, Population and Public Health Branch, Health Canada

In Canada, disparities in adult immunization coverage have been found among aboriginal populations, immigrants and refugees, and populations in which outbreaks of vaccine-preventable diseases have occurred. Immunization rates have been hard to measure in other groups such as illicit drug users and those with sexual risk factors, but public health officials believe their coverage is probably sub-optimal. Canada is now developing a National Immunization Strategy to address these and other needs, which is scheduled for completion by June 2003.

## Immunization Issues for Canada's Special Populations

Four special populations present challenges for Canada's immunization programs:

- Aboriginal populations. This term encompasses North American Indians, Metis, and Inuits, who make up 2.8% of the Canadian population.<sup>14</sup> Many of these individuals live in the rural, isolated "far north" of Canada, where health services are limited. Others have moved to inner-city areas, where low socioeconomic status and lack of access to government-funded aboriginal health services hinder immunization. Other barriers include cultural and language differences and the difficulty in tracking the immunization status of people in these groups, who move frequently, including back and forth across the U.S. border.
- Immigrants and refugees. About 210,000 immigrants move to Canada each year. Thousands of refugees also enter Canada each year; in 2000, this number totaled 37,800.<sup>14</sup> Most are between the ages of 25 and 44 and their access to immunization is limited by low socioeconomic status and cultural and language differences.

- Groups in which outbreaks of vaccine-preventable diseases have occurred. These include:
  - Religious groups that oppose or resist immunization. These groups have experienced recent measles outbreaks in Alberta and British Columbia and a hepatitis A outbreak in Québec. These groups tend to be poorly vaccinated and their members have contracted infections while traveling abroad.
  - Inner-city populations that are difficult to reach and in whom there are higher rates of certain vaccine-preventable diseases.
  - Men who have sex with men, who have experienced outbreaks of hepatitis A and meningococcal disease in urban centers around the country.
- Hard-to-measure groups thought to be underimmunized. Although few data are available, public health officials believe that healthcare workers and people with chronic diseases, a history of illicit drug use, and sexual risk factors have inadequate immunizations based on their rates of some vaccine-preventable illnesses.

## Canadian Immunization Experience

In Canada, the National Advisory Committee on Immunization (NACI) offers scientific advice to Canada's federal health department, Health Canada, on optimal use of licensed vaccines. While Health Canada develops national goals, Canada's thirteen provincial and territorial (P/T) health departments develop policies and implement vaccine programs, which differ in scope, goals, and targeted populations.

Most P/T immunization programs are publicly funded, with vaccine and administration costs being covered by the government. Canadians can receive these vaccines free at public health clinics or through their private physician. For example, most jurisdictions offer publicly funded influenza vaccine to all high-risk persons aged 6 months to 64 years and to all those 65 and older. Others pay out of pocket to be immunized or they rely on private insurance reimbursement. In general, vaccines that are publicly funded are better utilized than those that are not.

Canada's approach generally targets groups by age range instead of risk because the size of age groups is known. However, special outreach programs have successfully addressed particular populations at risk, such as a British Columbia influenza and pneumococcal immunization program targeting underserved adults living in a section of Vancouver.<sup>15</sup>

National coverage rates for adolescent and adult vaccines are available for some vaccines, but this information is not further delineated by special population. However, where data are available, disparities exist.

- **Hepatitis B.** National immunization rates average 90% to 95% among adolescents, who receive publicly funded vaccines at school, and rates of hepatitis B disease are low in the 15 to 29 year age group.<sup>16</sup> Disease rates appear to be higher among aboriginal and some immigrant populations.
- **Influenza.** In 2000-2001, national coverage rates were 63% for persons aged 65 and older, 38% for people with chronic diseases aged 18 to 64, and 55% for healthcare workers.<sup>16,17</sup> No data are available on other special populations.
- **Meningococcal disease.** No national data are available on adolescent or adult coverage rates for meningococcal immunization in special populations. However, the provinces of Québec and Alberta recently conducted special immunization campaigns for those under age 20 during a time when meningococcal outbreaks had occurred and public fear of the disease was high. Between 80% and 85% of the target group was vaccinated.<sup>18</sup>
- **Pneumococcal disease.** Nationally, 42% of seniors and 15% of those aged 18 to 64 years with chronic diseases received pneumococcal vaccinations in 2001.<sup>17</sup> The rate of pneumococcal disease is about three times as high for Aboriginals (adults and children) as for the general population, and the fatality rate is about 9% compared with a national fatality rate of 2%.<sup>19</sup> One complicating factor is that the pneumococcal conjugate vaccine includes about 90% of pneumococcal serotypes causing disease in southern Canada, but only 70% of pneumococcal serotypes causing disease in northern Canada, where most residents are aboriginal.<sup>19</sup>

## National Immunization Strategy

Canada has begun an initiative designed to improve equity in access to immunization for all Canadians. Public health officials from Health Canada, provinces, and territories are collaborating with non-governmental and professional organizations, academia, and industry to develop a National Immunization Strategy (NIS). Key components of the proposed NIS include national goals and objectives, collaborative immunization program planning, vaccine safety, immunization registries, and vaccine procurement. Supportive activities include disease surveillance, research, communication and promotion, and professional education.

The initiative recognizes that improving vaccine coverage among those special populations detailed above will require special approaches and outreach. Planners will review models that have been successful in reaching these groups in the provinces and territories and in the U.S. One recognized element of an effective approach is providing public funding for high priority vaccines, which in turn allows the public health system to administer immunizations directly through its clinics and other outlets. When public health units have been directly involved in delivering vaccines, use has increased dramatically.

# The Role of Healthcare Providers in Addressing and Reducing Adult Immunization Disparities

by Louis Sullivan, MD, President, Morehouse School of Medicine

Barriers relating to healthcare providers contribute to many healthcare gaps, including sub-optimal adult immunization rates and racial and ethnic immunization disparities. Improving immunization coverage and reducing racial and ethnic disparities will require committing resources to address fundamental health profession issues, such as the need for greater provider diversity.

## Provider Barriers that Affect Adolescent and Adult Immunization

Studies document many instances of missed opportunities to vaccinate adults during contacts with health professionals and patients frequently report physicians did not recommend vaccinations.<sup>8,20,21</sup> Two provider-related barriers to full immunization help explain these trends, which contribute to lower than desirable coverage among all populations. These are:

- Physician knowledge, attitudes, and practices regarding immunization. Medical school training does not include comprehensive immunization curriculum, and some health professionals do not view adolescent and adult vaccine-preventable diseases as important public health concerns.<sup>22</sup> In addition, some hold misconceptions about vaccine risks.<sup>1</sup> In recent surveys, physicians have indicated that they are aware of and accept adult immunization recommendations. However, many continue not to provide vaccines regularly, explaining the omission as simply oversight.<sup>23,24</sup>
- Complex adult immunization recommendations. Unlike childhood recommendations, which are age-based, adult recommendations are risk group-based, making patient identification and selection more difficult. In addition, the time intervals for some adult immunizations hinder revaccination efforts.<sup>22</sup>

Additional provider-related factors contribute to racial and ethnic disparities in adolescent and adult immunization rates.

- Healthcare providers are less likely to practice where minorities live. This is true even in black neighborhoods that have income and education levels similar to those in white neighborhoods. Minority providers are more likely than white providers to practice in underserved areas.<sup>25</sup> Further, minorities continue to be underrepresented in the healthcare professions.<sup>26</sup> These trends reduce access by racial and ethnic populations to immunization services.
- Cost control efforts and movement toward managed care. These may pose even greater barriers to minorities than to whites. For example, increased efforts by states to enroll Medicaid patients in managed care systems may disrupt traditional community-based care and move patients away from providers who may be more familiar with a given population's culture and values.<sup>27</sup> Low payment rates limit the supply of physicians and other healthcare providers to low-income groups and create an even greater time pressure on patient-healthcare provider encounters.<sup>28</sup> Public and private managed care and other medical insurance programs usually do not provide coverage for routinely recommended adolescent and adult immunizations.
- Provider bias, clinical uncertainty, and beliefs and stereotypes regarding minority patients may impede effective care.<sup>29</sup> In one study, physicians rated black patients as less intelligent, less well-educated, more likely to abuse drugs and alcohol, and more likely to fail to comply with medical advice even after income and education were taken into account.<sup>30</sup> Unconscious bias can occur even among people who do not condone racism and believe they are not prejudiced.<sup>31</sup> In a study in New York City, physicians with mostly African-American or Latino patients were less likely to recommend influenza and pneumococcal vaccinations than those with mostly white patients.<sup>32</sup>

- Language barriers. Nearly 14 million Americans are not proficient in English, and language barriers pose problems where health systems lack the resources, knowledge, or institutional priority to provide interpretation services.<sup>33,34</sup> Cultural differences also limit communication. When physicians and patients cannot exchange information, they cannot share health decision-making.<sup>35</sup> A study in a managed care organization found that African Americans were less likely to say their physicians had included them in decision-making.<sup>36</sup>

## Strategies for Moving Forward

The provider-related barriers described above reflect important concerns in the healthcare system in general. Reducing the barriers to improved immunization coverage requires a commitment and resources for enhancing the overall provider landscape.

For example, few trained interpreters are available to help providers communicate with patients who speak other languages, and the lack of reimbursement for such services impedes their use. Devoting additional resources to increasing interpretation services could solve this problem. Increased resource allocation could also provide adequate provider reimbursement, increasing time spent with each patient. Additional resources could also fund efforts to increase the number of minority healthcare professionals.

Resources are also needed to create a culture within the medical professions that values immunization. Improving medical education about immunization is one strategy that could promote this concept. Key needs include orienting more medical students toward a primary care career, and focusing on adolescent and adult immunization in all relevant health professional development, including medical school curricula, continuing medical education, faculty development, and board certification. Specifically, curricula need to include information on effective strategies for maximizing immunization coverage in diverse populations. Another strategy that may help is to offer financial incentives for improved provider immunization practices.

Provider organizations can play an important role in advocating for such changes and the resources needed to achieve them. Demonstrating the economic benefits of adult immunization to government and healthcare policy makers is the key to securing their support. In addition, medical organizations can create sample curricula that focus on adult immunization and cultural issues, institutionalizing both topics into the provider knowledge base. Morehouse School of Medicine partners with racial and ethnic community organizations to get community input on its programs and give medical students the opportunity to interact with diverse cultures as part of their training.

# Non-Provider Barriers to Immunization Among African Americans

by Rudolph E. Jackson, MD, Professor of Pediatrics and Associate Director, Office of International Health Programs, Morehouse School of Medicine; National Medical Association Liaison, Advisory Committee on Immunization Practices

African Americans represent 12.3% of the U.S. population and 8% of Americans aged 65 and older.<sup>37</sup> Socioeconomic, educational-attitudinal, and health facility barriers contribute to low immunization rates among African-American adolescents and adults and to gaps in coverage compared to other racial and ethnic groups. Key concerns include increasing pneumococcal and influenza vaccinations among persons aged 65 and older and non-institutionalized persons aged 18 to 64 years with diabetes, heart or lung disease, and other chronic conditions.

## Socioeconomic Barriers

African Americans have lower annual income, less education, and are more likely to be uninsured than whites.<sup>2,38</sup> These factors are associated with reduced access to quality healthcare, and associated disparities often lessen when these factors are controlled. However, the majority of studies find that a large number of healthcare disparities remain even after adjustment for socioeconomic differences and other access-related factors.<sup>34,39</sup> Since socioeconomic factors alone do not explain disparities, the Institute of Medicine (IOM) recommends approaching racial and ethnic disparities as a complex, multi-system problem grounded in historic and contemporary inequalities.<sup>34</sup>

## Educational and Attitudinal Barriers

Lack of knowledge and negative attitudes keep many African Americans from seeking adult immunizations. Key issues include the following:<sup>2</sup>

- Lack of awareness that adult vaccines are available and necessary.
- Lack of specific knowledge about the immunizations that are needed and how often to get them.
- Doubts that vaccines are effective in preventing illness.

- Misconceptions about immunizations, particularly the myth that influenza vaccine can cause the flu.
- Dislike and fear of needles.
- Lack of priority given to preventive health.
- Distrust of healthcare providers.

In a survey of Medicare beneficiaries, fewer African Americans reported receiving vaccinations than whites, but both groups gave similar reasons for not being immunized.<sup>8</sup> These included not knowing they needed a vaccination, not believing they were at risk for a vaccine-preventable illness, fear of side effects, forgetting about immunization, and the physician recommending against it. The latter reason is particularly troublesome and warrants study to determine why physicians would discourage immunization.

Minority patients perceive higher levels of racial discrimination in the healthcare system than whites, and may convey mistrust, refuse treatment, or simply not comply with provider recommendations.<sup>34</sup> While negative reactions are understandable given real and perceived mistreatment in many venues based on race, patient and professional attitudes may negatively reinforce each other and providers may respond by becoming less engaged in the patient's care.<sup>40</sup>

## Health Facilities Barriers

Studies have shown that African Americans rate all aspects of their healthcare more negatively than whites.<sup>41</sup> This is not surprising given the lack of healthcare facilities and providers who understand and respond to African-American cultural needs and preferences.<sup>1</sup> Although having a regular source of medical care can improve health outcomes, African Americans are less likely to establish a regular source of medical care than whites.<sup>35,42</sup> In addition, many African Americans do not visit individual providers for check-ups or preventive care. Instead, they visit hospital emergency rooms when acute problems arise.<sup>43</sup> As a result, they do not get information or advice about immunizations.

## Strategies for Moving Forward

Reducing these barriers will require both patient and health-professional education to improve understanding of immunization needs and benefits and to increase the cultural sensitivity of the immunization information and services African Americans receive. In addition, it will be important to increase access and demand for immunization by:

- Offering vaccines at medical and non-medical sites, such as grocery and department stores as well as expanding access in clinical settings not previously used, such as emergency rooms, inpatient units, and subspecialty clinics.
- Reducing the cost of vaccines and considering government support for providing key adult vaccines free through primary care physicians or providing insurance coverage, as with Medicare Part B.
- Continuing to explore the relationship between poverty, educational level, and vaccine coverage.
- Involving clergy members, whose advice and recommendations are important to African Americans, in immunization promotion.
- Conducting vaccine research to develop improved methods for delivering vaccines. The need for injections causes many adults to avoid immunizations.
- Improving surveillance, specifically with regard to immigrants about whose immunization status little is currently known.
- Marketing vaccination to African Americans as a safe, beneficial preventive health practice through the National Medical Association (NMA) or government education programs.

The NMA has adopted several strategies designed to increase adult immunization levels among African Americans. These include fostering the concept that adult immunization is an integral part of standard primary care; encouraging members to communicate with patients about the need for immunizations; and educating members and communities about the issue, such as by producing and distributing a consensus document on adult immunization.<sup>1</sup>

# Vaccinating Latino Adolescents and Adults

by Henry Pacheco, MD, Project Director, Center for Health Promotion, National Council of La Raza

Latinos make up 12.5% of the U.S. population and 5% of those aged 65 and older.<sup>37</sup> A diverse group, most U.S. Latinos are of Mexican, Puerto Rican, and Cuban descent; others have come from Central and South America. Most live in Texas, California, New York, and Florida, which is an advantage in planning immunization strategies for reaching this population. However, Latino populations have been growing in many other parts of the country that are not prepared to address their needs. Although Latinos now represent a significant proportion of the U.S. population, they are still perceived as a small percentage and their special needs are often not considered in health planning.

Key concerns are increasing influenza vaccinations among all adults aged 50 and older (annual flu shots are now recommended for this age group) and increasing pneumococcal vaccinations among persons aged 65 and older and non-institutionalized persons aged 18 to 64 years with diabetes, heart or lung disease, and other chronic conditions.

## Immunization Barriers for Latinos

Limited access to healthcare is a major impediment to improving Latino immunization rates. Concerns include the following:

- No usual source of care. More than one in four Latinos aged 18 to 64 have no usual source of medical care, and Latinos are the most likely of all ethnic groups to be in this situation.<sup>44</sup>
- Lack of health insurance. Latinos have the highest rates of uninsurance of any ethnic population. Overall, one in four who are U.S. citizens have no health insurance; this rate increases to one in two among Latinos aged 18 to 29.<sup>44</sup> The uninsured include many people who work for service and construction companies, businesses that traditionally do not provide health insurance for workers.
- Language and cultural barriers. Many Latinos are reluctant to visit health facilities where they know they cannot effectively communicate. Culturally, healthy Latinos often avoid healthcare settings; as a result they are poor channels for delivering prevention messages.

Socioeconomic factors also reduce access to immunization services for Latinos, who have the lowest educational attainment levels of any U.S. ethnic group and the highest percentage living at or near the poverty level.<sup>44</sup> Lack of education compromises learning and making informed decisions about immunization. It also results in a very low percentage of Latinos in the healthcare professions, particularly nursing, reducing the opportunity for patients to see providers from their own ethnic group.<sup>26</sup> Finally, low-paid workers may be unable to afford costly immunizations given their other expenses.

## Strategies for Moving Forward

The National Council of La Raza recently convened focus groups of community-based immunization providers along the U.S.-Mexican border. These groups suggested the following strategies for increasing community awareness about and demand for immunizations, increasing access to vaccines, and reducing health system barriers.

## Increasing Awareness and Demand

In the past, Latinos often saw people paralyzed by polio or disfigured from smallpox. Today, diseases like these are largely invisible, and fear no longer motivates people to get immunized. As a result, special efforts such as the following are needed to increase demand for vaccine services:

- Develop community-wide, culturally appropriate education offered in both Spanish and English. Many older Latinos may not speak or read English and in fact may not be able to read in Spanish. But bilingual publications can help children, who are more likely to speak and read English and Spanish, to communicate information to parents and grandparents. Since Latinos are generally close-knit families who often live in multi-generation households, targeting children can be an effective way of reaching non-reading relatives.
- Focus messages on the seriousness of vaccine-preventable diseases and complications, including risks to the unborn and time lost from work, issues that resound with this population.

- Provide immunization information and services through community-based organizations such as Latino groups, churches, and in family settings. If an organization holds a talk in a hospital, many Latinos will stay away because of the reluctance of healthy people in this culture even to step inside a hospital.
- Correct misconceptions about vaccines. While Latinos are aware of the need for childhood immunizations and are comfortable with injections, myths and incorrect news stories have sometimes stopped adolescents and adults from being immunized.
- Allay immigration fears. Explain that going to healthcare facilities to receive immunizations does not put people at risk from the Immigration and Naturalization Service.
- Educate children and adolescents in schools about vaccines for them and for adults. Since close multi-generational families are common among Latinos, children can help educate parents and grandparents about vaccines.
- Provide information in settings and channels that reach Latinos, including drug stores, workplaces with large numbers of Latino employees, food markets, churches, fairs, drug and mental health treatment centers, youth detention centers, Medicaid/Medicare/Social Security notices, and Latino media.
- Recruit Latinos with community respect to promote immunization. Latino physicians are held in high esteem, for example.
- Reach out to groups at high-risk for vaccine-preventable illnesses, such as intravenous drug users and people with diabetes, heart disease, HIV, and alcoholism.

### **Increasing Access to Vaccines**

Many Latinos do not drive and may live in areas where public transportation is limited. To reach Latinos, it will be important to seek them out where they already are, using strategies such as these:

- Expand health department and community health clinic hours to reflect the long hours many Latinos work, and advertise clinic immunization services and schedules.

- Bring vaccines to non-healthcare sites, including state Medicaid centers, the workplace, soccer clubs, community centers, schools attended by Latino adolescents, and Latino homes. These sites can improve immunization rates among recent immigrants, an important but difficult-to-reach audience, who tend to be young adults.
- Offer vaccines in new medical settings, such as emergency rooms and obstetrics and gynecology offices.
- Seek out hard-to-reach populations, such as migrant workers, who are difficult to vaccinate on a repeat basis because of their mobile lifestyle, and undocumented residents.
- Reduce the out-of-pocket costs for vaccines.

### **Reducing Health System Barriers**

At a gathering of Latinos in Dallas, people with diabetes noted that their physicians had never told them that they were at greater risk of complications if they developed influenza and had not recommended getting a flu vaccine. Improving physician attention to people with special risks is one way to reduce the large gaps seen in Latino high-risk groups compared with whites. The following approaches can overcome other health system barriers.

- Educate health professionals about Latino immunization issues, including coverage disparities compared with other racial and ethnic groups; barriers to immunization; and cultural perspectives, such as health beliefs about immunization, immigration status, level of acculturation, language issues, and social conditions.
- Increase the number of Latino healthcare professionals and health policy-makers.
- Send bilingual reminders to patients when their vaccinations are due.
- Use chart reviews and audits to assess physician immunization performance.

# Challenges in Immunization of Adolescents and Adults in Asian-American Populations

by Edward A. Chow, MD, Medical Director, Chinese Community Health Plan; Past Board Member, Asian Pacific Islander American Health Forum

Asian Americans represent 3.6% of the U.S. population.<sup>37</sup> Many ethnic subpopulations speaking nearly 95 different languages make up this heterogeneous group (Table 3). While adult and adolescent immunization rates are comparable with those of whites in the aggregate, significant disparities exist for certain subpopulations, such as recent immigrants and those at lower socioeconomic levels. Particular adult immunization concerns include increasing the rate of influenza vaccinations (especially among high-risk adults) and pneumococcal vaccinations (reducing the 12% gap compared with rates for whites) (Table 4).<sup>26</sup> The Chinese Community Health Plan in San Francisco also recommends hepatitis B vaccinations for Asian-American adults and adolescents, because hepatitis B is not an uncommon problem in immigrants arriving from Southeast Asia and China.

Table 3:

## Asian-American Population

Group	Number	Percent of U.S. Asian Population
Chinese	2,432,585	23.5
Filipino	1,850,314	18
Asian Indian	1,678,765	16.5
Vietnamese	1,122,528	11
Korean	1,076,872	10.5
Japanese	796,700	8
Other Asian*	1,285,234	12.5

\*Other Asian alone or two or more Asian categories  
U.S. Census Bureau, Census 2000<sup>37</sup>

## Cultural Issues

A strong family bond is fundamental to Asian cultures, and many health decisions are made on a family basis. Healthcare providers for Asian populations often find that many relatives become involved in a family member's health issues. While adults make sacrifices for children in the family, they often place less priority on taking care of their own health needs, especially when money is scarce. As a result, increasing adult immunization rates is more challenging than promoting childhood vaccinations. Although immunization is a Western medical concept, this is not a barrier for most Asian Americans, who do not view the two systems as competitive. They are likely to seek services from folk healers, spiritual healers, and Western physicians but tend to view health issues from the perspective of Eastern medicine, which looks to balance yin and yang (hot and cold) within the body. Prevention is neither a familiar concept nor a health priority in traditional Asian culture.

Table 4:

## Vaccination Rates, 1998

Vaccination	Asian/Pacific Islanders (%)	White (%)
Influenza	67	65
High Risk Subgroup*	31	27
Pneumococcal	36	48
High Risk Subgroup*	NA	13

\*Eg, confined in skilled nursing facilities, nursing homes  
NA = not available  
U.S. Department of Health and Human Services, Healthy People 2010<sup>26</sup>

## Immunization Barriers

The most challenging adolescent and adult Asian populations to reach with immunization services are recent immigrants who are not well-assimilated into American culture, speak only their native language, have low income and education levels, and do not have health insurance.<sup>45</sup> The cost of immunization is a particular barrier for those living in poverty, who see other needs as more important. For adolescents, lack of health education, information about immunization, and convenient access to vaccinations are also barriers. In addition, many Asian subgroups such as

Vietnamese and Cambodians are underrepresented in healthcare professions,<sup>26</sup> making a cultural “match” with their providers unlikely. Overall, the heterogeneity of the Asian population is itself a barrier.

## Strategies for Moving Forward

Strategies needed to address Asian-American immunization concerns include the following:

- Increased financing is fundamental to increasing immunization rates among underserved Asian-American populations. For example, school-based immunization programs could reach underimmunized Asian-American adolescents. However, regions may not offer school health services because resources have not been allocated for them.
- Sponsor outreach programs targeted to populations in greatest need and at greatest risk. Use educational media and languages that appeal to the cultural values and preferences of the target communities. Bilingual publications are important, because some older Asians cannot read at all, and children who can bring them the messages usually can only read English.
- Educate providers as well as patients in immunization campaigns. For example, in the San Francisco-based Chinese Community Health Plan, a hepatitis B campaign provided guidelines for hepatitis B screening and follow-up to local physicians.
- Offer vaccines in convenient sites for the target population, such as community fairs, hospitals (where vaccines could be administered to acute care patients instead of patients being sent elsewhere to be immunized), long-term care facilities, churches, community vaccination clinics, and schools. The managed care program at the Chinese Hospital, San Francisco, was able to increase influenza immunizations by 1000 doses a year by offering several community immunization clinics. It was more convenient for patients, and physicians also welcomed the chance to refer patients for immunizations rather than having to give them.
- Include public health clinics as immunization sites, because these may be more credible for some Asian-American populations than sites such as churches.
- Focus on school-based programs to reach adolescents, including health education about immunization; administering vaccines at school; and mandating vaccination requirements for high school and college.
- Consider creating vaccine requirements for driver licensing. With almost universal adolescent interest in obtaining a driver's license, this could be a good incentive to keep vaccinations up-to-date.

# Non-Traditional Settings for Immunization

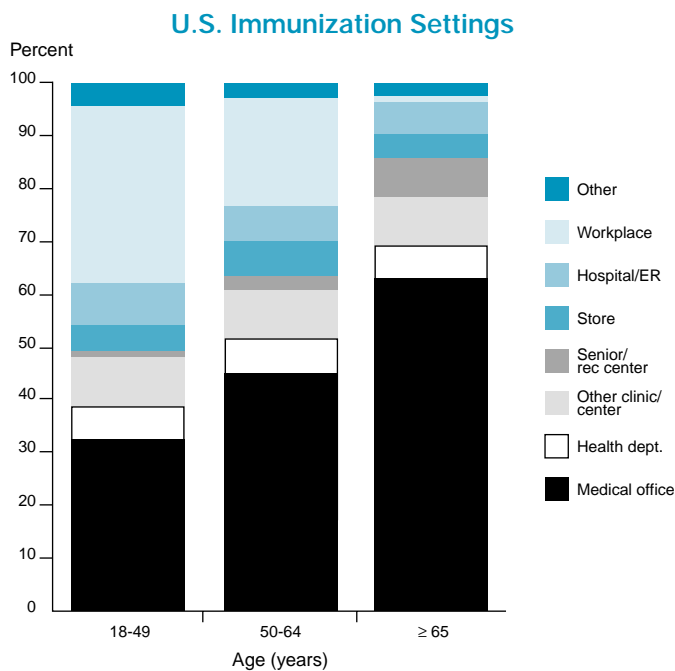
by Kristin L. Nichol, MD, MPH, MBA, Professor of Medicine, University of Minnesota; Chief of Medicine, Veterans Affairs Medical Center, Minneapolis, Minnesota

In recent years, the use of non-traditional immunization sites, such as retail stores and workplace clinics, has become more common in the U.S. Because these sites may charge less for vaccinations than healthcare facilities and offer services at convenient times and locations, growing numbers of people are taking advantage of this option. Expanded use of this approach, which has proven safe and effective, has great potential for helping increase vaccination rates and for reducing immunization disparities nationwide. The potential also exists to create new community collaborations between traditional and non-traditional vaccine providers.

## Experience with Non-Traditional Immunization Settings

In 1999, more than half of persons in the younger age groups in the U.S. received their influenza vaccines at sites other than their doctors' offices, while about 65% of those 65 and older were vaccinated at their physicians' offices (Figure 3).<sup>6</sup> Another study found that seeking immunization in non-traditional sites was more

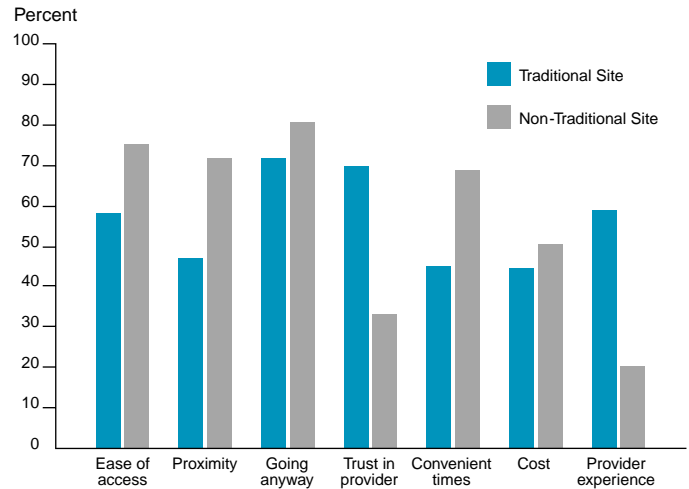
Figure 3:



Behavioral Risk Factor Surveillance Survey, 1999<sup>6</sup>

Figure 4:

## Factors Influencing Vaccine Recipients' Choice of Provider



Grabenstein et al<sup>46</sup>

common among high-risk individuals (those with heart or lung disease or diabetes) under age 65 than among the elderly.<sup>46</sup> People also tended to go back to the same provider for their influenza vaccine each year.<sup>46</sup> Not surprisingly, convenience and lower cost of vaccination were important to those vaccinated in non-traditional settings. However, those vaccinated in traditional settings said the experience and credibility of providers were the most important factors in influencing their choice of vaccination site (Figure 4).<sup>46</sup> Stratification of immunization-setting preference by ethnic and racial subgroups is currently unavailable, but ongoing analysis of data from the 1999 Behavioral Risk Factor Surveillance Survey should provide this information in the future.

## Physician Perceptions

Some groups have raised concern that primary care providers might view non-traditional immunization sites as competition for their patients or have other negative responses. In an Iowa physician survey, 66% said their patients are sometimes immunized at another site.<sup>47</sup> While 90% supported using community health department sites and 67% endorse school nurses providing vaccinations in school, only 25% were comfortable with pharmacy involvement. Some expressed concern that they were losing opportunities for preventive health interventions.

Physicians also said it was important that they be notified when their patients have off-site immunizations, and some have received such notices. However, some reported that updating charts with this information required resources they did not have. About 95% said they might consider collaborating with off-site providers, with most favoring nurse practitioners and school or public health nurses, but only 50% said they would work with pharmacists.<sup>47</sup>

While patients and physicians may potentially welcome non-traditional sites, recent delays in vaccine availability have created some local competition for supplies and confusion among consumers. Education about the competence of non-traditional providers will be important in helping the medical community accept them and in continuing to raise consumer awareness and demand for immunizations.

## Safety

The National Vaccine Advisory Committee has developed quality standards for delivering vaccines in non-traditional settings, including standards for vaccine storage and handling, patient education, immunization history and contraindications to vaccine use, vaccine administration, and follow-up with physicians. To date, no problems with non-traditional provider adherence to these standards have been reported in the literature.

Reliance on patient self-report for immunization history suggests the potential for inadvertent revaccination, which could result in local reaction to the vaccine. However, local symptoms after pneumococcal vaccination have been found to be similar, regardless of whether the vaccine was administered in traditional or non-traditional immunization settings, even among those who were not sure whether they had been previously vaccinated.<sup>48,49</sup>

## Case Study: The Minnesota Visiting Nurses Association (MVNA) Vaccination Program

The MVNA vaccination program is a good example of a successful approach to providing vaccines in non-traditional settings. MVNA, a nonprofit provider of nursing services, has been able to keep costs low by working with retailers who benefit from increased

customer traffic; employers, who pay for vaccinations to reduce employee sick time; and HMOs, which give vouchers to high-risk patients for free vaccination at MVNA sites and contain their own costs by reducing serious complications from influenza and pneumonia in these populations.

The program offers influenza and pneumococcal vaccines in non-traditional settings such as grocery stores, pharmacies, senior centers, and work sites. In the past six years, the agency has administered nearly 700,000 doses of flu vaccine. In the 2001-2002 season, nearly half of recipients were under age 65, at no special risk, and they paid cash for their vaccines. Another 23% were aged 65 and older, and Medicare covered their vaccination costs.<sup>50</sup>

The Minnesota Coalition for Adult Immunization worked with MVNA to evaluate the safety and effectiveness of immunizing the public in non-traditional sites.<sup>50</sup> Key results included the following:

- MVNA was able to adhere to the state of Minnesota's plan for staggered delivery of flu vaccines, in priority order, by risk group during the 2001-2002 season's vaccine shortage. For example, the Minnesota plan gave priority to high-risk groups in October, and 56% of adults coming into the clinics were in a high-priority category.
- Vaccination was very safe in all MVNA settings.
- Patient satisfaction with MVNA sites was high.

The Coalition is now exploring the potential for creating partnerships between non-traditional vaccine providers and private practitioners, who would encourage their patients at appropriate times to receive immunizations from a specific outside vendor. In the MVNA model, this approach would not entail any upfront cost to providers, since MVNA takes cash directly from patients or bills their insurer.

# The NFID Houston School-Based Adolescent Hepatitis B Immunization Initiative

*by Amy B. Middleman, MD, MPH, MEd, Consultant and Data Analyst, NFID Houston School-Based Adolescent Hepatitis B Immunization Initiative; Adolescent Medicine Section, Department of Pediatrics, Baylor College of Medicine*

A study of a hepatitis B education and immunization program in Houston, Texas middle schools showed that underserved adolescents could be successfully vaccinated through school-based programs. The study identified factors associated with and barriers to program participation and receiving a complete vaccine series. A separate survey of fourth graders' parents of diverse socioeconomic status (SES) found additional potential barriers to this approach.

## Background

The Houston middle school study was initiated to improve immunization rates among the underserved in Texas, a border state with a large unimmunized population. During the three school years from 1998 through 2001, participating schools in two Houston area school districts offered school-based hepatitis B immunization for 5th or 6th grade students. Participating schools had a high percentage of students from lower socioeconomic levels (as measured by percentages of children receiving free lunch and percentages of "at risk" youth based on school system profiles). The program provided all immunization doses free at school with parental consent. Educational activities included orientation for participating school nurses, a video for students shown in schools, and speaking engagements at parent organizations. One environmental influence was a state school entrance requirement for hepatitis B vaccination by age 12, which took effect in year three of the program.

Sponsored by the NFID, the project received financial and/or indirect support from Episcopal Health Charities (year 1 and year 2), Houston Endowment (year 3), GlaxoSmithKline, the Texas Department of Health and Human Services, the city of Houston Department of Health and Human Services, Saint Luke's Episcopal Hospital, and other organizational or individual volunteers.

Over the three-year study, participants (those who received at least one vaccination from the program) included 52% females, 65% Latinos, 30% blacks, and 4% whites; 34%-38% had Medicaid or private insurance. Factors associated with participation in the program were having Medicaid or private insurance and being female.<sup>51,52</sup>

## Middle School Program Results

Each year the majority of participants received all three doses in the hepatitis B series, and the percentage of those receiving the full series increased each year. Some students received all doses at school, while others had one or two outside of the program. Over three years, the program immunized about 14,000 students. Factors associated with completing the series included race and ethnicity (Latinos 81%, whites 77%, and blacks 69%); Medicaid or private insurance among whites; and being female among Latinos and blacks. Researchers concluded that, since access was equal, cultural differences independent of socioeconomic might affect immunization decisions.<sup>51,52</sup> More study of these factors is warranted.

## Barriers to Participation

The primary barrier to participation was the state requirement that parents sign a consent form for each immunization. Forgotten consent forms and the repeated need for teachers and nurses to collect forms impeded sign-up and scheduling.<sup>51,52</sup>

In a separate survey regarding hepatitis B immunization consent and site preferences conducted among fourth graders' parents of diverse socioeconomic status, 27% of parents said they preferred to sign consent for each dose, and almost half wanted to sign all three forms and be present for all immunizations.<sup>53</sup> These preferences remained consistent across all ethnicities and incomes. Addressing parental preferences in a way that does not hinder immunization completion will be an important issue for school-based programs to resolve.

Most parents in both high and low SES groups preferred the school clinic for immunization; however, 36% of parents in the higher income group preferred receiving the vaccination series from a private doctor versus 28% in the lower SES group. Latinos were more likely to prefer the school site.<sup>53</sup>

The survey of parents identified another potential barrier: lack of parental knowledge about hepatitis B and the vaccine. For example, large percentages of parents did not know that hepatitis B is transmitted by unprotected sex (60%), IV drug use (55%), or exposure to infected blood (39%). Almost one in 10 thought you could get the disease from the vaccine.<sup>53</sup>

Although the school requirement for hepatitis B vaccine took effect during the final year of the immunization campaign, the program noticed no difference in the number of children needing immunization. Possible explanations are that no change occurred because it was a new regulation that parents and schools were not familiar with or that the requirement was not well-enforced. Enforcement is an important aspect of improving immunization rates through school requirements.

# Conclusion

After discussing the issues related to adolescent and adult immunization among the ethnically diverse populations in the U.S. and Canada, the panelists proposed a number of approaches for achieving full immunization among all populations. In addition to supporting the recommendations of individual presenters, the panel agreed on broad strategic principles and actions to address immunization disparities comprehensively. These recommendations include:

- Initiate and advocate for government-sponsored adolescent and adult immunization programs that provide infrastructure and support for vaccine purchase, vaccine administration, and educational programs.
- Develop a clear, harmonized immunization schedule and immunization standards that include all vaccines recommended for adolescents and adults.
  - Where possible, use age-based, universal recommendations rather than risk-based categories. Identifying risk status is more difficult than determining age for providers trying to follow guidelines.
  - Make the standards as simple as possible to facilitate use.
  - Distribute these standards widely to providers to create a standard of practice and provide practical guidance.
- Encourage the expanded involvement of non-traditional vaccine providers who offer immunizations at convenient sites in the community.
- Bring government-funded immunization services to institutions housing or serving high-risk or underserved populations. These include:
  - Sexually transmitted disease clinics
  - Prisons
  - Nursing homes and hospitals, where standing orders and prompts might be written
- Initiate and advocate for state middle school entry immunization requirements for adolescents.
- Develop educational interventions to improve the knowledge, attitudes, and skills of healthcare providers.
  - Increase provider understanding of and response to the needs, preferences, and cultural issues of underserved adolescent and adult populations.
  - Encourage writers and publishers of medical school textbooks on internal medicine topics to address immunization issues comprehensively.
  - Include outreach to healthcare providers who treat high-risk adolescents and adults they can play an important role in informing their patients about vaccination needs. Also involve obstetricians and gynecologists, who often serve as primary care providers for women.
- Create educational interventions to improve the knowledge, attitudes, and behaviors of consumers.
  - Target campaigns and materials to underserved audiences to maximize their effectiveness. Make sure products and messages reflect the needs, preferences, and cultural sensitivities of the audience.
  - Create developmentally appropriate materials for adolescents.
- Increase the use of interventions shown to be effective in increasing immunization rates, such as provider reminders, patient reminder/recall, assessment and feedback, and standing orders.
  - Offer immunization record cards for adults to fill out and keep for reference.
- Advocate for state insurance commissions to require all medical insurance underwriters to provide coverage for recommended routine vaccinations for adolescents and adults.
- Conduct pilot projects to evaluate new approaches and use the results to refine programs and strategies; disseminate results to promote wider use of effective programs.
- Require all medical insurance programs, both public and private, to pay for recommended immunizations for adolescents and adults and to remunerate healthcare providers sufficiently for vaccine services.



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