Clinical Research and Methods

Racial and Ethnic Disparities in Immunizations: Recommendations for Clinicians

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There continue to be significant racial and ethnic disparities in rates of childhood and adult immunizations in the United States. The causes are multifactorial, including inequities in education, income, and socioeconomic status; structural and systemic barriers in the health care delivery system; and beliefs, preferences, and practice patterns of the recipients and providers of care. Elimination of these disparities is a targeted priority in Healthy People 2010. The individual clinician can contribute to the narrowing of this gap by being informed of and using available national and regional resources, implementing national standards for culturally and linguistically appropriate health care services, and using every clinical encounter to assure that vaccination is offered and provided. Specific action steps are suggested.

(Fam Med 2003;35(9):655-60.)

Based on the latest US Census (2000), it is estimated that by 2005 almost one third (31.9%) of the US population will be a member of one of the four major racial or ethnic minority groups: African American, Hispanic, Native American, or Asian/Pacific Islander.[1] In many communities, the majority of the population are members of groups traditionally classified as "minority."

Recognizing that inequities in health care and health outcomes among these groups continue to exist in the United States, Healthy People 2010[2] set as one of its goals the elimination of health disparities and defined immunization rates as one of the leading health indicators of whether the goal has been met.[3] Health care disparities are "differences in the quality of health care that are not due to access-related factors or clinical needs, preferences, and appropriateness of intervention."[4] Since immunizations are universally recommended, variations in rates of immunizations among racial/ethnic minorities serve as a clinically important indicator of the extent to which health care disparities exist in our society.

Health care disparities have been associated with various demographic characteristics, including gender, race and ethnicity, income and education, sexual orientation, geographic location, and disabilities,[5-8] but disparities cannot be explained by these factors alone. Rather, they are thought to be the result of complex interactions among biological factors, social or physical environment, health behaviors and practices, and policies and interventions. In 2002, the Institute of Medicine released a report, "Unequal Treatment: Confronting Racial and Ethnic Disparities in Health Care,"[4] which summarized much of the literature demonstrating that minorities receive substandard care for a number of health conditions and have poorer health outcomes. Examples of poor health outcomes include the infant death rate for African Americans and Native Americans, which is about double that of whites. Further, Hispanics in the United States have higher rates of tuberculosis, hypertension, and are twice as likely to die from diabetes as non-Hispanic Caucasians.[5]

In the Department of Health and Human Services Race and Health Initiative established in 1998, immunization rates are only one of the six major focus areas.[9] Racial and ethnic gaps in preventive strategies such as immunization are of particular concern in primary care. The purpose of this paper is to describe racial and ethnic disparities in the United States related to immunizations, to discuss possible reasons for these disparities, and to recommend actions that could be taken by clinicians to reduce these disparities.

Extent of Racial/Ethnic Gaps in Immunization Rates

Rates in Children

Immunization rates from the National Immunization Survey[10,11] for all children ages 19–35 months were stable or declined slightly in 2000, compared with 1999,

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and for all immunizations, non-Hispanic whites had the highest rates, followed by Hispanics, and then African Americans. Income accounted for a proportion of the lower rates since children in households with incomes below the poverty line had lower immunization rates than children living in families with incomes above the poverty line, regardless of race or ethnicity, but a racial/ethnic gap still existed among those both below and above the poverty line. For example, 2000 rates of receiving the combined immunization series for children above the poverty line were 72%, 74%, and 80% for African Americans, Hispanics, and whites, respectively. This gap was present for all seven immunizations studied.[12]

One example of disparities in immunizations is pertussis immunization. During 2000, there were 17 reported deaths from pertussis in the United States. All occurred among infants born in the United States, and 41% of the deceased infants were Hispanic. From 1990–1999, a disproportionately large number of infants dying of pertussis were Hispanic (35%).[13] Even more broadly, among 709 randomly selected 2-year old children in 18 private practices in Maryland, race and ethnicity were the only two demographic variables consistently associated with the status of all four immunizations studied; African American and Hispanic children were significantly less likely (about one third to half the odds for each immunization) to be immunized when compared with whites.[14]

Rates in Adults

Table 1 summarizes studies of immunization rates among African Americans, Hispanics, and whites. Gaps among other racial and ethnic groups (eg, Native Americans and Asian Americans) also exist, but data regarding these groups are fewer. Gornick and colleagues,[15] using census and Medicare data for 26.3 million beneficiaries, found lower influenza immunization rates among African Americans than whites, even after controlling for income. Similarly, in the 31,000-subject Community Tracking Survey (1996–1997), African American patients had significantly lower rates of influenza immunization than did whites (relative risk [RR]=.73, 95% confidence interval [CI]=.58–.87), as did Spanish-speaking Hispanics (RR=.30, 95% CI=.15–.52).[16] The difference persisted even after adjustment for a number of potentially confounding factors.

Other studies, including the 1996 Medicare Current Beneficiary Survey,[17,18] the 1999 Behavioral Risk Factor Surveillance System,[19] and others[20] reported essentially the same results. African Americans and Hispanics, however, were significantly less likely to report receiving influenza and pneumococcal immunizations than whites, and these differences were not explained by variations in a variety of socioeconomic and demographic factors: age, gender, education, length of time since last physical examination, self-reported health status, or presence of diabetes.[2]

Gaps in immunizations also exist for hepatitis B vaccine. Half of the 1.25 million people in the United States with chronic hepatitis B infection are Asian/Pacific Islanders, even though they represent only 4.5% of the population. Hepatitis B vaccination would prevent a majority of these cases. While hepatitis B vaccination rates are nearly 90% in 2-year old Asian/Pacific Islander children, the rate drops to about 20% by high school age.[21]

A single study examined the delivery of 11 immunization services to 4,313 outpatients of 138 family physicians and reported no significant racial differences once patients had been seen in a primary care practice.[22] Nevertheless, the national data are quite consistent about the fact that a significant gap exists in immunization rates among US children and adults who are African American or Hispanic rather than white.

Reasons for Disparities in Immunization Rates

Racial/ethnic disparities are deeply engrained in our society and have been present for decades. It is clear that there is no single cause and no single solution.[23] Potential explanations can be categorized as structural problems that relate to the systems of care and process problems associated with the characteristics of the provider and the patient and interactions between them.

Structural Barriers

Several structural barriers to adequate immunization have been identified. The major barriers include language; lack of health insurance; socioeconomic status, education, and income; and access issues such as childcare, work demands, transportation, or geographic distance from providers. An example of the linguistic barrier is that Spanish-speaking Hispanics in the United States have lower immunization rates than do English-speaking Hispanics.[16,24,25]

Another barrier is lack of health insurance. While providing insurance coverage for all is not, in itself, sufficient to assure that racial and ethnic disparities in immunization rates are improved, it is certainly necessary to make immunizations affordable. Nevertheless, some portion of the disparities in immunization rates can be explained by the insurance disparities—the uninsured represent 19.7%, 33.6%, and 11.3% of the African American, Hispanic, and white populations, respectively.[15,26-28]

Access to care is also involved. African American and Hispanic children are substantially less likely than white children to have a usual source of medical care[25] and make fewer visits to physicians.[29] Fifty poor mothers who participated in focus groups to identify why children do not get immunized cited access problems such as lack of flexible scheduling, long waits in clin-

Table 1

Studies Of US Immunization Rates for African Americans, Hispanics, and Non-Hispanic Whites

Citation, Year	*Database*	*Immunization Type/Population*	*RATES* *African American*	*Hispanic*	*White*
MMWR, 2001[12]	National Immunization Survey, 1994–2000	Combined series*/children 19–35 months	71%	73%	79%
		Hepatitis B/children 19–35 months	89%	88%	91%
		Varicella/ children 19–35 months	21%	22%	28%
Gornick, 1996[15]	Medicare Current Beneficiary Survey	Influenza/Medicare beneficiaries 65+years	31.3%	—	51.5%
Fiscella, 2002[16]	Community Tracking Survey	Influenza/adults >55 years	27.3%	English speaking: 32.3% Spanish speaking: 11.0%	37.6%
Schneider, 2001[17] and Murray, 2000[18]	Medicare Current Beneficiary Survey	Influenza/Medicare beneficiaries, 1998	46.1%	56%	67.7%
MMWR, 2001[17]	Behavioral Risk Factor Surveillance System, 1999	Influenza/>30,000 adults 65 years or older	48.1%	36.4%	58.6%
		Pneumococcal/adults 65 years or older	34.6%	69.0%	56.8%
Marin, 2002[19]	1996 Medical Expenditure Panel Survey	Influenza/adults 65 years or older	47.3%	61.7%	68.0%

MMWR—*Morbidity and Mortality Weekly Report*

ics, lack of transportation, and inability to miss work.[30] Members of racial and ethnic minority groups are more likely to live in lower access areas; some of the gap in immunization status is likely to result from lack of access to care. Disparities in immunization rates are not fully explained by the aforementioned structural factors, however, because disparities persist even when these factors are comparable or accounted for across racial and ethnic groups.[17,20,31-33]

Process Barriers

Process barriers relate to individual and personal characteristics of the patients and providers of care and to their interactions with each other.

Patient Factors. At least three patient factors affect ethnic and racial disparities in immunization rates: patient preferences, distrust of "the system," and lack of knowledge.[34] For example, certain racial or ethnic groups may be more likely to call on religious or lay healers or to seek informal help through social networks rather than seeking care from physicians. Further, members of racial/ethnic minority groups often express a preference for providers from their own background, and such providers may not be available.[35] Only 9% of physicians and 12.3% of nurses are members of a racial or ethnic minority group.[4]

Distrust of the medical system may be difficult to differentiate from patient preferences, but persons from racial/ethnic minorities express less satisfaction with physician providers.[36] In one large survey, African American patients were four times more likely than whites to report that discrimination is common in physicians' offices.[37] Similarly, almost twice as many African Americans and Hispanics than whites have reported that racism is a major problem in health care.[38]

While some studies have shown that lack of knowledge about appropriate timing of immunizations and misperceptions about the safety of immunization are important barriers,[30,39] others report no effect of knowledge, health beliefs, or attitudes among parents on immunization status of their children.[40-42]

Provider factors. The Institute of Medicine Report[4] suggests three possible provider characteristics that might result in disparities in health care: (1) bias, (2) greater clinical uncertainty among providers about how to interact with minorities, and (3) the provider's beliefs or stereotypes regarding the behavior or health of minorities. The presence of stereotyping and bias in health care has been well documented, even when controlling for socioeconomic factors, and much of this bias is actually unconscious, ie, providers do not think that they are biased.[43-46] This bias, whether real or perceived, is likely a reason why members of minority groups[47] prefer providers from their own racial/ethnic background.[35,47,48]

Recommendations for the Clinician

Educational and Attitudinal Recommendations: Use available resources and implement national standards for culturally and linguistically appropriate health care services.

While some factors that lead to disparities in immunizations are outside the control of the individual practitioner, there are excellent resources available to assist the clinician in reducing the gap. One step is to become familiar with and use the extensive resources available for patient and staff education in providing culturally and linguistically competent care. Simultaneously, steps can be taken to assure that every clinical encounter with the patient includes encouraging and providing immunizations.

Updated evidence-based guidelines for quality standards for immunization have recently been published by the Infectious Diseases Society of America.[49] While these should serve as a guide for all clinicians, they make no special mention of the disparities in immunization status. For the individual clinician, the first step to narrowing the disparities gap in immunizations is to recognize the nature and extent of the problem. Two recent publications from the National Foundation for Infectious Diseases (NFID) summarize challenges, barriers, opportunities, and innovations for reducing disparities in pediatric immunization rates,[50(p.23)] as well as adolescent and adult immunizations[50(p.31)] among ethnic and minority populations. Both of these publications are available on the NFID Web site (www.nfid.org/publications/). There are a number of national initiatives and resources to respond to known disparities in health care, but individual clinicians are poorly informed about them. Some of these sites, for example, provide specific educational materials for Spanish speaking patients (www.cdc.gov/nip/publications/niiw/2002/2002.htm#Spanish and www.partnersforimmunization.org/spanish.html).

Table 2

DHHS National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health Care

- Ensure that patients receive from all staff members effective, understandable, and respectful care that is provided in a manner compatible with their cultural health beliefs and practices and preferred language.
- Implement strategies to recruit, retain, and promote at all levels of the organization a diverse staff and leadership that are representative of the demographic characteristics of the service area.
- Ensure that staff at all levels and across all disciplines receive ongoing education and training in culturally and linguistically appropriate service delivery.
- Provide language assistance services, including bilingual staff and interpreter services, at no cost to each patient with limited English proficiency at all points of contact, in a timely manner during all hours of operation.
- Provide to patients in their preferred language both verbal offers and written notices informing them of their right to receive language assistance services.
- Assure the competence of language assistance provided to limited English-proficient patients by interpreters and bilingual staff. Family and friends should not be used to provide interpretation services.
- Make available easily understood patient-related materials and signage in commonly encountered languages.
- Develop, implement, and promote a written strategic plan that outlines clear goals, policies, operational plans, and management accountability/oversight mechanisms to provide culturally and linguistically appropriate services.
- Conduct initial and ongoing organizational self-assessments of CLAS-related activities and integrate cultural and linguistic competence-related measures into internal audits, performance improvement programs, patient satisfaction assessments, and outcomes-based evaluations.
- Ensure that data on the individual patient's race, ethnicity, and spoken and written language are collected in health records, integrated into the organization's management information systems, and periodically updated.
- Maintain a current demographic, cultural, and epidemiological profile of the community as well as a needs assessment to accurately plan for and implement services that respond to the cultural and linguistic characteristics of the service area.
- Develop participatory, collaborative partnerships with communities and utilize a variety of formal and informal mechanisms to facilitate community and patient/consumer involvement in designing and implementing CLAS-related activities.
- Ensure that conflict and grievance resolution processes are culturally and linguistically sensitive and capable of identifying, preventing, and resolving cross-cultural conflicts or complaints by patients.
- Regularly make available to the public information about progress and successful innovations in implementing the CLAS Standards.

DHHS—Department of Health and Human Services

Studies consistently demonstrate the importance of cultural competence and appropriateness in any effective clinician-patient interaction. The US Department of Health and Human Services (DHHS) has defined 14 standards[51] (available at www.omhrc.gov/clas/indexfinal.htm) for delivering culturally and linguistically appropriate health services (Table 2), as well as an extensive "Practical Guide" and downloadable materials for implementing the standards (www.omhrc.gov/clas/guideintro.htm). One of the priorities in the DHHS action plan to eliminate racial and ethnic disparities is to improve interactions and interventions in minority communities,[9,52] and the need for culturally competent public health interventions has also been identified in improving vaccination coverage for foreign-born children.[53]

Organizational Recommendations: Use every clinical encounter to provide immunizations.

Even when health status and other factors are adjusted, African Americans have been shown to make significantly fewer physician office visits than whites,[51] perhaps in part because of the demonstrated preference to have a provider of the same racial/ethnic and cultural background—there simply are not enough clinicians from racial and ethnic minority groups. Further, the patient's lack of awareness or simply not being offered the vaccine has been associated with lower immunization rates in several studies.[55-57] In one study, in fact, missed opportunities for immunization of inner-city children occurred in more than one third of outpatient visits, including more than 20% of preventive care visits.[58] Administering all vaccines for which an infant is eligible at each health visit and adopting recommended changes in immunization schedules were shown in a survey of 112 office-based pediatric practices to be significant predictors of higher immunization rates.[59] It has been demonstrated that the goal of narrowing the immunization gap can be accomplished in public clinics as readily as in the private health care sector.[60] Standing orders with clear protocols for appropriate child and adult immunizations should be implemented in every office, clinic, and acute or chronic care setting, regardless of whether the patient visit is for preventive services or illness.

Mieczkowski and Wilson[28] made five recommendations related to the practice setting to improve adult pneumococcal vaccination: waiting room education using materials written at an appropriate literacy level, standing orders, offering immunizations in emergency departments and during hospitalizations, audit and feedback, and a multifaceted system to incorporate patient and provider education, reminders, and standing orders. Conversely, NFID[50] lists four reasons why physicians do not achieve high vaccination coverage: referring patients out of the practice for immunizations, missing opportunities to provide immunizations, failing to provide simultaneous administration of vaccines, and neglecting to use reminder/recall systems. The NIFD report also suggests that providing immunizations in nontraditional settings (ie, outside the clinic or physician's office) may be helpful to reach underserved populations.[50] Such actions as implementing standing orders not only in outpatient settings but also in emergency departments, long-term care facilities, and hospitals; providing alternative sites and times for provision of preventive services; and including in practice audits criteria related to cultural and linguistic competence are organizational changes that are likely to improve immunization rates, particularly among disparate groups. If these organizational recommendations were followed, they would almost certainly help reduce the racial/ethnic disparities in immunization status.

Summary

There continue to be racial and ethnic disparities in rates of childhood and adult immunizations in the United States. The causes are multifactorial, including inequities in education, income, and socioeconomic status; structural and systemic barriers in the health care delivery system; and beliefs, preferences, and practice patterns of the recipients and providers of care. Elimination of these disparities is a targeted priority in Healthy People 2010. The individual clinician can contribute to the narrowing of this gap by being informed of and using available national and regional resources, implementing national standards for culturally and linguistically appropriate health care services,[54] and using every clinical encounter to assure that vaccination is offered and provided.

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