Improving Delivery of Influenza and Pneumococcal Polysaccharide Vaccination Levels Among Patients Served by African American Physicians

Final Report 2006
The National Medical Association (NMA), a 501(c)(3) organization, is the largest and oldest national organization, representing 30,000 African American physicians and health professionals in the United States, Puerto Rico, and the Caribbean and the millions of patients they serve. While throughout its history the NMA (established in 1895) has focused primarily on health issues related to African Americans and medically underserved populations, its principles, goals, initiatives and philosophy encompass all sectors of the population. In accordance with its purpose, the National Medical Association has upheld its priority of developing strategies to facilitate improvements in health care for African Americans through policy initiatives, special programming, training and research opportunities, and collaborative partnerships. The NMA’s focus on the elimination of health disparities reflects its mission and continued historical commitment to improve health outcomes for people of color through its ongoing health policy, research, and programmatic thrusts to achieve parity in health care.

Spurred by reports of health care disparities, the NMA launched a study to assess the effectiveness of a multi-component intervention program for improving influenza and pneumococcal polysaccharide vaccination levels among high-risk African-American adults 60 years of age and older. This project was conducted in response to documented disparities in influenza and pneumococcal polysaccharide vaccination levels for minority groups in general and African-American adults in particular.

Providers of care targeted for inclusion in the study were family medicine and internal medicine physicians. The goal was to increase the rates of influenza and pneumococcal immunization in the at-risk population. Study outcomes were evaluated with regard to the sustainability of the proposed intervention and its broad applicability.
The study outcomes included...

- Increased provider awareness of the importance of influenza and pneumococcal vaccination among the study population

- Improved rates of influenza and pneumococcal polysaccharide vaccination among the study population

The documents produced for the study included the following items:

1. Written protocol for conducting intervention and subsequent evaluation.

2. Compendium of materials to be used in intervention, including the Provider Toolkit.

3. Data reporting influenza and pneumococcal vaccination coverage, both pre- and post-intervention, allowing the two levels of coverage to be adequately compared.

4. Final report that describes the process from data collection to recommendations for sustaining and replicating the intervention.

5. Draft manuscript describing the project and its outcomes, suitable for submission to a peer-reviewed journal for publication.
Immunization *statistics* and influenza associated *death rates*

Pneumonia and influenza combined are the fifth leading cause of death among persons aged 65 years and older (National Center for Health Statistics, 1998). According to the Association of State and Territorial Health Officials, “immunization rates for high-risk adults are especially low, particularly for Hepatitis B, tetanus, influenza, and the bacteria that causes pneumonia” (ASTHO Report, July/August, 2000).

Recent estimates suggest that the burden of vaccine-preventable diseases among adults numbers from 47,000 to 48,000, based on 36,000 influenza-associated deaths (Thompson et al., JAMA 2003: 289). In addition, CDC reports 6,000 to 7,000 invasive pneumococcal disease deaths and 5,000 deaths from chronic liver disease resulting from past hepatitis B infections.

In the Centers for Disease Control and Prevention Morbidity Mortality Weekly Report (CDC, MMWR, 2003 www.cdc.gov/mmwr/preview/mmwrhtml/mm5241a3.htm), data from the 1995 Behavioral Risk Factor Surveillance System (BRFSS) found that among those aged 65 or older, 39.3% of blacks had received influenza vaccine, compared to 50% of Hispanics and 60.1% of whites. Within the same age grouping, 19.7% among blacks had received pneumococcal vaccines, compared to 24.2% of Hispanics and 37.4% of whites. Such findings strongly suggest that more proactive and aggressive approaches are needed to immunize adults, especially those considered high risk, against influenza and pneumococcal disease.
In June 1999, the National Medical Association convened the Adult Immunization Consensus Panel during its annual National Colloquium on African American Health. The panel was convened in response to the disproportionately low immunization levels among African-American adults compared to those of whites and other ethnic minorities.

During the consensus process, nationally recognized experts examined the following:

- The disparity rates for vaccination
- Risk factors for under vaccination
- Disease conditions and complications
- Barriers to immunizations
- Missed opportunities for vaccination
- Intervention strategies, including the establishment of institutional and physician best practices

As a result of the Adult Immunization Consensus Panel, the following were recommended for improving Influenza and Pneumococcal immunization rates:

**INFLUENZA:** NMA recommends that the following groups be immunized annually for the prevention of influenza:

- Persons aged 50 and older
- Residents of long term adult care facilities
- Persons with chronic heart disease
- Pregnant women who will be beyond 14 weeks gestation during the influenza season
- Persons with other significant diseases:
  - Diabetes mellitus
  - Hemoglobinopathies (e.g. sickle cell disease)
- Immunosuppressed (e.g. HIV/AIDS, leukemia, lymphoma, Hodgkins disease, multiple myeloma, generalized malignancy, those receiving immunosuppressive chemotherapy, organ or bone marrow transplant recipients, treatment with long term steroids)
- Chronic renal failure or nephrotic syndrome
- Individuals who represent a transmission risk to at-risk groups:
  - Health care personnel
  - Employees of chronic care facilities
  - Home health providers
  - Household members
  - College students
  - Teachers
  - Travelers, depending on the time of year and destinations
  - Homeless
INVASIVE PNEUMOCOCCAL DISEASE:
NMA recommends the following groups be immunized, for the prevention of invasive pneumococcal disease:

- Persons aged 65 and older
- Persons with chronic pulmonary disease (excluding asthma)
- Persons with other significant diseases:
  - Alcoholism
  - Cerebrospinal fluid leaks
  - Chronic liver disease
  - Diabetes mellitus
  - Functional of anatomic aslenia (e.g. sickle cell disease or splenectomy)
  - Those in special environments or social settings (e.g. Alaskan Natives, American Indians)
  - Immunosuppressed (e.g. HIV/AIDS, leukemia, lymphoma, Hodgkins disease, multiple myeloma, generalized malignancy, those receiving immunosuppressive chemotherapy, organ or bone marrow transplant recipients, treatment with long term steroids)
  - Chronic renal failure or nephrotic syndrome
- Individuals who represent a transmission risk to at-risk groups:
  - Health care personnel
  - Employees of chronic care facilities
  - Household members

The following provider-based interventions can be used to increase pneumococcal vaccination levels to the same standard or higher as those that have been achieved for the influenza vaccination by facilitating delivery of pneumococcal vaccination when patients visit their health care provider for an annual influenza vaccination:

- Instituting a client reminder/recall system
- Instituting a provider reminder/recall system
- Monitoring, assessing provider performance and providing feedback to providers
- Establishing standing orders for non-physician providers to deliver vaccines
- Developing mechanisms to reduce out-of-pocket expenses
- Developing multi-component interventions that include provider and patient education
- Incorporating alternative settings for delivering vaccines to reduce administrative and access barriers.

The applicability of our intervention among African-American physicians is likely to rest on a few basic considerations:

- Does the intervention work?
- Can the providers afford it long term?
- How much local, regional, and federal support will providers receive as they attempt to implement the intervention?
- How can a significant proportion of providers become engaged in the process of making changes in their office practice in order to improve their vaccination performance?
What were the objectives of the study?

For the purpose of our study, we focused on the following objectives:

• Increasing practice-based influenza and pneumococcal polysaccharide vaccination rates within the intervention group.

• Determining what a sustainable intervention should consist of and how it can be applied among other practicing physicians who serve African-American patients.
A number of factors have been associated with low vaccine utilization rates within minority populations, including decreased access to care; lack of health insurance coverage for well-care and immunizations; low motivation of primary care providers to recommend immunizations to minorities; socio-demographic factors such as lower education, poverty, and language barriers; limited knowledge about vaccine-preventable illnesses; and missed opportunities to immunize (NMA National Colloquium on African American Health—Adult Immunizations, 1999; Singleton JA, et al., 1997; CDC, 1996; Metersky ML, 1998; George, AM, 1999; Gemson DH, 1988; National Coalition for Adult Immunization, 1998).

Based on the available literature, the data is insufficient to determine what interventions would be most effective and which factors would determine their success. However, the data appear to favor multiple interventions, even though successful single interventions exist.

The strategy for this study involves the use of a “Provider Tool Kit” (see appendix 1), a form of provider education intended to stimulate the use of multi-component interventions.

A literature review, consultations with selected health providers, and information extracted from focus groups sessions helped confirm the approaches used in this study.

Results from a focus group of practicing providers helped to shape the design of the intervention strategy. *The Guide to Community Preventive Services*, (www.thecommunityguide.org/vaccine/) another helpful resource, recommended interventions to improve vaccination coverage based on extensive and rigorous review of the effectiveness of various intervention strategies. Effective strategies used by focus group participants from four of the six scheduled groups included:

- Reminders prior to flu season from multiple office staff (i.e., physician, nurse, and receptionist)
- Posted information in office waiting rooms (i.e., flyers, posters)
- Standing orders
- Magazines and newspaper articles that highlight the flu season
- Provider assessment and feedback
- Drop-in vaccination hours/expanded office hours
- Checking vaccination records every visit
- Reminder calls to patients
- Reminder mailers
- Patient education/health promotion videos

Further, the focus groups suggested that the following intervention strategies could improve influenza and pneumococcal vaccination rates:

- Greater access to vaccines
- Development of electronic information systems (such as registries and Web-based technology to track vaccinations)
- Better record keeping by local governments
- Public advertising campaigns
- More information from the NMA
- Development of a national patient vaccine card program
The NMA recommendations to increase immunization rates.

In addition to the recommendations from the focus groups, the NMA Office of Health Policy, Research, and Professional Medical Affairs suggested using the following strategies to increase adult African-American immunization patterns.

1. Establish linkages between the four Black medical schools (Howard University College of Medicine, Morehouse School of Medicine, Charles R. Drew University School of Medicine and Science, and Meharry Medical College) and local providers to conduct health promotion outreach and information dissemination activities.

2. Enlist the health clinics or units at the 117 historically black colleges and universities (HBCUs) to disseminate adult immunization literature and conduct community-based health informational health fairs.

3. Build partnerships with health care entities such as local and state health departments and CMS peer review organizations in order to promote delivery of vaccinations or other preventive services to adults.

4. Solicit the involvement of local NMA societies in conjunction with specialty organizations such as the American Academy of Family Physicians (AAFP) and the American College of Physicians (ACP).
Methodology

The **four phases** of the study design.

The study process was organized according to the following four phases.

**Phase I.** Intervention Design

**Phase II.** Physician Practice Recruitment and Baseline Evaluation

**Phase III.** Intervention and Post-Intervention Evaluation

**Phase IV.** Final Reports

The specific tasks supporting each phase are described in the following pages.
Phase I: Intervention Design

The study population consisted of two groups of 10 physicians each. One group was the control group; the other, the intervention group. Physicians were recruited from the National Medical Association’s Family Practice and Internal Medicine Section.

Inclusion/Exclusion Criteria. Physicians included in the study had a practice that was at least 50% African American, with at least 15% of patients above age 60. The study relied on the physician to confirm the necessary demographics. The practices’ policies and procedures regarding vaccine delivery for influenza and pneumonia were assessed for both the intervention and the control groups (see Appendix 2). Only African-American patients who were at least 60 years of age and were receiving care from their respective providers for at least a year were recruited. For the purposes of this study, the practices’ immunization rates for influenza and pneumonia were drawn from the African-American patients who are at least 60 years old.

The basic intervention strategy consisted of the following:

The intervention group received a Provider Tool Kit (PTK), as well as materials that enhanced patient awareness of the importance of immunization. The control group (the group that already administers flu vaccines as a matter of practice) were simply asked to report the number of vaccinations done in their practice during the intervention period. After the PTKs were mailed, two follow-up phone calls were made to determine that they were received and whether the practice had any questions or concerns regarding their contents. We also kept track of the practices’ protocols and strategies for improving immunization rates.

As indicated earlier, the PTK included culturally relevant materials designed to help educate physicians about high-risk populations who should be targeted for influenza and pneumococcal vaccinations. The PTK also contained recommended immunization schedules and a miniature immunization record card. Tools such as standing orders, monthly reminder notices to physicians and patients, flagging high-risk patients’ charts, and health education videos/CD-ROMs, were vital components of this intervention (see Appendix 1).

Standing orders are a mechanism by which non-physician personnel can prescribe or deliver vaccinations to client populations by protocol, without direct physician involvement at the time of the interaction. We drafted a Standing Order policy statement and sent one to each practice, in states where standing orders are not prohibited. The individual practices accepted or rejected the offer. Those that accepted received supplemental information, and we provided whatever support needed for implementation.
Phase II: Recruitment and Baseline Evaluation

Five hundred questionnaires were administered to African-American internists and family physicians at the NMA's National Convention in August 2002. The questionnaire included an invitation to an information session (see Appendix 6), where interested parties were briefed about the project. The physicians targeted had active clinical practices located in each of the NMA’s six regions.

The main focus of the questionnaire was to determine whether the doctors saw African-American patients at least 60 years of age and whether they administered flu or pneumococcal vaccines in their practices.

A pre- and post-intervention design was established for the project. Evaluation of office immunization rates, both pre-intervention and post-intervention, were accomplished by chart abstraction of African-American patients at least 60 years old. The chart abstraction focused on patients who were active patients for at least one year or two influenza seasons.

### NMA GEOGRAPHIC REGIONS

<table>
<thead>
<tr>
<th>Region</th>
<th>States</th>
</tr>
</thead>
<tbody>
<tr>
<td>II.</td>
<td>Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia.</td>
</tr>
<tr>
<td>III.</td>
<td>Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee.</td>
</tr>
<tr>
<td>IV.</td>
<td>Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin.</td>
</tr>
<tr>
<td>V.</td>
<td>Arkansas, Iowa, Kansas, Louisiana, Missouri, Nebraska, New Mexico, Oklahoma, Texas.</td>
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Phase III: Intervention and Post-Intervention Evaluation

The intervention phase occurred from October 2003 through February 2004. The intervention group was asked to sign an agreement to participate in all aspects of the intervention activities. Similarly, the control group was requested to sign an agreement indicating their consent to take part in relevant parts of the study, from October 2002 through February 2003. They also were informed that they would receive a modest financial incentive, paid at the end of the intervention period, in February 2003.

Data was collected through a chart review process. The protocol for this process was adapted from a document already developed by the CDC for chart review. Only one or two data collectors were needed per practice. In some cases, it was practical to enlist office staff; in others, outsiders, such as medical students were needed. Data was maintained in electronic databases and was transmitted to CDC along with a detailed descriptive report.

The principal investigator noted that while the surveys were not intended to be part of an intervention strategy, they produced an incidental outcome among the control group. For example, there was a slight increase in immunization patterns as a result of the survey, because the survey heightened awareness or may have unintentionally served as a reminder notice to physician respondents.

Our process and outcome analyses were of a fairly rudimentary nature, dominated by mostly descriptive statistics.

The key independent variable was immunization rates. The dependent variables included the tools in the PTK. However, our small sample size placed a severe limitation on the validity of the results. Our argument for sustainability of the intervention was based on perceived effectiveness. As explained earlier, cost was also a factor—if the cost of the intervention was deemed too high by providers, they were much less likely to use it. For each variable studied, we presented pre- and post-intervention data in an appropriately clear and illustrative format. Data elements and collection instruments are included as attachments.

We recognized the problems inherent in evaluating our own intervention; interviewer bias the most problematic. Whereas efficiency is an important consideration, effectiveness was a more urgent factor in our evaluation.
Phase IV: Final Report and Draft Manuscript

A detailed narrative report incorporated all data analyses from the pre- and post-intervention project activities. Study findings with respect to how the study was conducted, the effectiveness of the strategies used, observed changes in practice-based immunization coverage, challenges, and successful outcomes was included in the report. In addition, proposed strategies for sustaining such medical-practice interventions to improve rates of influenza and pneumococcal vaccinations was addressed.

A manuscript was prepared, based on the study findings, that met the criteria of scholarly peer-reviewed scientific journal submissions.

The following appendices contain additional information regarding the study process and were modified as necessary.
The conclusion of the report

Since 1975, the Association has participated in a wide variety of externally funded projects. Our programs, funded by federal, state, and local governments, private foundations, pharmaceutical companies, and private corporations, range from topics such as AIDS, bioterrorism, clinical trials, and cultural competence to health literacy, kidney disease, and lupus. In addition, the NMA works with several research institutes at the National Institutes of Health, including the National Cancer Institute, the National Eye Institute, the National Institute on Deafness and Other Communication Disorders, and the National Heart, Lung and Blood Institute.

The vaccine delivery program provided the National Medical Association with an opportunity to conduct physician practice office-based research. Many challenges affected the program’s deliverables and outcomes. Most notable were significant changes in personnel within the Centers for Disease Control and Prevention. These changes impacted program continuity and CDC institutional knowledge; time was spent reacquainting new program staff with the project’s objectives and deliverables.

During the program’s implementation phase, a nationwide flu vaccine shortage limited the collection of data on participating-physician coverage. Several revisions to the study protocol also impacted NMA recruitment efforts. The lag time between enrollment of physicians and recruitment proved to be problematic. Participating physicians also faced shortages of office personnel able to assist with the pre and post intervention data. Program evaluation indicated that these physicians were able to commit time only for intervention activities.

Despite programmatic barriers, the program experienced some success. NMA program staff were trained by Dr. Sonja Hutchins on Adult CASA, which allowed for assessment of physician records. NMA staff had previous experience in this area based upon our work with childhood CASA. This training allowed us to successfully build a database of pediatricians who deliver vaccines to minority children. As a result of this program NMA Pedsnet was born. NMA Pedsnet serves as the practice-based research arm of the Association and currently participates in pediatric office-based research and collaborates with the American Academy of Pediatrics and the Medical University of South Carolina.

NMA physicians remain committed to closing the gap of racial and ethnic disparities in immunization. The NMA appreciates the opportunity the Centers for Disease Control and Prevention have afforded us to make an impact on the delivery of influenza and pneumococcal vaccines to African American patients.
Provider Tool Kit

The Tool Kit included the following tools:

- Adult Immunization Resource List
- Proposed Adult Immunization Schedule
- Summary of Adolescent/Adult Immunization Recommendations
- Evaluation Form
- National Vaccine Injury Compensation Program [FAQ]
- Draft Vaccine Products
- Suggested Readings
- A Physician's Guide to Pneumococcal Facts (Fact Sheet)
- A Physician's Guide to Pneumococcal Facts (Booklet)
- A Physician's Guide to Influenza (Fact Sheet)
- A Physician's Guide to Influenza (Booklet)
- A Physician's Guide to HIV/AIDS
- A Physician's Guide to Hepatitis A & B
- A Physician's Guide to Tetanus
- Traveler's Guide to Immunizations
- Protect Yourself against Influenza and Pneumonia (Poster)
- Adult Vaccine Screening Questionnaire
- Prevention and Control of Influenza-ACIP Recommendations
- Post-It Notes as provider reminders of vaccination due dates
- “Immunization Works” – CD Rom
- “Tools of the Trade” – CD Rom
- Vaccine Information Statements (VIS)
- Standing orders information
- Vaccine Awareness Forms (used to determine how well patients understood the VASs and the videos)
Appendix III

Improving Influenza and Pneumococcal Polysaccharide Vaccination Levels Among Patients Served by African American Physicians
Checklist for Providers:
Vaccine Delivery Policies and Procedures for Participating Physicians

Do you routinely administer vaccines? ____________________________________________
___________________________________________________________________________
___________________________________________________________________________

Do you have trouble getting an adequate supply of influenza vaccine? _____________
___________________________________________________________________________
___________________________________________________________________________

Do you have any reminder/recall mechanisms? _________________________________
___________________________________________________________________________
___________________________________________________________________________

What time of year do you start vaccinating for influenza? ________________________
___________________________________________________________________________
___________________________________________________________________________

When do you stop vaccinating for influenza? ________________________________
___________________________________________________________________________
___________________________________________________________________________

Do you have a special influenza vaccine session? ____________________________
___________________________________________________________________________
___________________________________________________________________________
Survey of Influenza Vaccination Practices (supplement to JNMA)

The Survey of Influenza Vaccination Practices established baseline and comparison data on immunization patterns in the practice prior to and after intervention; measured compliance instituting standing orders within practice; determined vaccines administered by non-physician clinical staff; and measured immunization levels within each practice.

This was developed to determine how many patients were eligible for vaccines, how many accepted/refuse, and reasons for non-acceptance.