PNEUMOCOCCAL IMMUNIZATIONS AT FLU CLINICS: THE IMPACT OF COMMUNITY-WIDE OUTREACH

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ABSTRACT: This study examined the effectiveness of a community-wide outreach campaign to promote the use of pneumococcal vaccine at public flu immunization clinics, and assessed whether this intervention was more effective than simply making pneumococcal vaccination available at such clinics. In 1997, a community-wide outreach campaign promoting pneumococcal and influenza immunizations was launched in a 17 zip code area of Dutchess County, NY. The campaign was aimed at 7,961 Medicare beneficiaries urging them to obtain pneumococcal immunization from local flu clinics. Medicare reimbursement data were used to assess the countywide pneumococcal vaccination rate, and to analyze differences between rates for beneficiaries in the target area and elsewhere in the county. Between 1996 and 1997 there was a 94% increase in pneumococcal vaccination billed to Medicare beneficiaries in Dutchess County. The 1997 annual rate of pneumococcal immunization in the target area reached 16.3% versus 12.2% elsewhere in the county (p < 0.001), with an increase over the previous year of 8.7% and 5.6%, respectively. Nearly all of the increase is accounted for by pneumococcal vaccination delivered at flu clinics. It is possible to significantly increase the use of pneumococcal immunization by linking its delivery to community-based flu clinics and by developing local outreach strategies. The out-


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reach campaign has a significant additive effect over simply making PPV available at flu shot clinics. Additional community-wide outreach can further improve pneumococcal immunization utilization rates.

KEY WORDS: pneumococcal immunization; influenza immunization; community networks; preventive medicine.

INTRODUCTION

It is a national health objective for 2010 to increase influenza and pneumococcal vaccination levels to greater than 90% among persons at high risk for complications, including those aged 65 years and older.1 Pneumonia and influenza rank fifth among the leading causes of death in the United States for persons age 65 and older.2 In each of ten U.S. epidemics between 1972 and 1991, influenza caused an estimated 20,000 excess deaths.3 An estimated 20,000 to 40,000 deaths occur annually from influenza and its complications4—and 80 to 90 percent of those deaths occur over age 64.5 Pneumococcal infections are the most common cause of bacterial pneumonia requiring hospitalization, and cause an estimated 40,000 deaths annually in the United States.6 Many of these deaths are preventable through immunizations. Flu vaccination reduces hospitalization for pneumonia and influenza (and for all acute and chronic respiratory conditions), and lowers death rates by 39 to 54 percent (p < 0.001).7 Pneumococcal vaccine has been shown to be 56 to 81 percent effective against invasive pneumococcal disease.8,9,10,11 The pneumonia polysaccharide vaccine (PPV) is recommended once for all individuals age 65 and older. It is also recommended for other adults at high-risk for pneumococcal disease, including persons with heart and lung disease, and diabetes. During 1997, national data indicate that among persons age 65 years and older, 65.5% reported receiving influenza vaccine during the preceding year, and 45.4% reported ever receiving pneumococcal vaccine.12 This disparity between delivery rates creates an opportunity for improvement by linking delivery of pneumococcal vaccines to the provision of flu shots. Influenza and pneumococcal vaccinations are frequently offered together at community-based flu clinics. How can the popularity of flu clinics be maximally exploited to boost the current low rates of pneumococcal immunization?

We report on the impact of an adult immunization social marketing campaign on the use of pneumococcal immunizations by Medicare recipients age ≥65 in Dutchess County, NY. Social marketing is the application of commercial marketing techniques for individual and societal bene-
fit, rather than financial gain. The activities of social marketing are designed to induce voluntary behavior change through persuasion, and the techniques that are used are based on research related to the needs, wants, and perceived barriers of beneficiaries.13

The specific goal of this analysis was to determine the effectiveness of a community-based outreach campaign to boost the use of pneumococcal vaccination at community-based flu shot clinics and physicians’ offices, as compared to simply making pneumonia vaccinations available with influenza immunization at such clinics. A 17 zip code area in eastern Dutchess County was targeted for an intensive social marketing intervention, and compared to simple pneumococcal vaccine availability in the 15 zip code area of the remainder of the county.

METHODS

Infrastructure Building

The study was undertaken by SPARC (Sickness Prevention Achieved through Regional Collaboration), a community-based disease prevention program, and IPRO (New York State’s Peer Review Organization). SPARC’s mission is to improve the health of the region’s residents by increasing their use of selected clinical preventive services. Since 1995, SPARC has developed a community-based infrastructure to help boost the utilization of prevention services, including adult immunizations, cancer screening, and cardiovascular checkups. This infrastructure was represented through a Steering Committee that includes the county department of health, medical care providers, public health organizations, consumers, the county chapter of the American Association of Retired Persons, and a representative from a local church. In early 1997, SPARC began exploring with these partners the possibility of promoting the combined availability of pneumococcal and influenza immunizations at community-based flu shot clinics. As part of its efforts to increase the community-wide capacity to deliver pneumococcal immunizations, this group undertook several activities: the Committee gathered and distributed to all county adult immunization providers current protocols for the delivery of pneumococcal immunization; estimated vaccine supply requirements to immunize the local population; clarified issues related to re-vaccination; drafted appropriate standing orders; and created an information link between mass immunizers and private practitioners in order to inform them of the pneumococcal immunization status of their patients. The Steering Committee also developed several strategies for community outreach.
Outreach and Social Marketing

Steering Committee meetings were held at monthly intervals to develop a broad-based social marketing campaign. Research for this initiative involved an evaluation of adult immunization activities in other communities, and an assessment of the effectiveness of SPARC’s previous flu shot campaigns. The Steering Committee also reviewed the results of focus groups of elders residing in the region convened to explore issues related to the provision of disease prevention services. The results of this research suggested that using credible local endorsements was an important element in motivating elders to utilize preventive care.

The group therefore committed itself to developing strategies that stressed messages by locally well-known health care leaders and elders. The group drafted a letter for distribution to Medicare beneficiaries within the 17-zip code area of eastern Dutchess County. The county health commissioner and a well-known physician in eastern Dutchess County signed the letter. The letter urged elders to obtain an annual flu shot and a pneumonia vaccination if they had not already received one. A list of local organizations endorsing the initiative was placed on the sidebar of the letter. The group decided that since most elders are familiar with influenza immunizations, the letter would highlight the availability of flu shots in the community setting, also noting that these immunizations were available through medical practitioners. A brochure was included about the benefits of flu shots information, with a list of all local flu clinic dates and their locations, and a local telephone number to call with questions. An insert was also included to provide information about pneumococcal immunizations. The letter, brochure, and insert were mailed to 7,961 Medicare beneficiaries in the 17 zip codes using an address database provided by IPRO.

Other outreach methods were also employed. A call-in radio show was organized in early October featuring two local physicians and a SPARC staff member. This 30-minute presentation included information about pneumococcal infections and the pneumococcal immunization. Paid advertisements were placed on two local radio channels. In addition, public service announcements about adult immunizations were also run on these stations. The local access cable channel ran an advertisement for the pneumococcal immunizations. Health editors of local papers were sent press kits detailing the campaign and the need for pneumococcal immunization in older adults. Press kits were developed for collaborators who provided immunizations. This document allowed providers to tailor the article to their agency or practice. Advertisements were placed in local papers. The dates and locations of upcoming clinics were listed two weeks
in advance. All collaborating agencies were identified in the advertise-
ment. The telephone number of the local health department was used in
this ad as a local place for people to call with questions.

Tracking Outcomes

Results for pneumococcal and influenza immunizations are based
on HCFA Medicare claims data as of March 31, 1998, by which time all
but a small percentage of claims for 1997 services were received and pro-
cessed. Influenza immunizations were counted if they were given from
September through December, while pneumococcal immunizations were
counted from anytime in the year (although over 80% of doses are given
at the same time as for influenza). Medicare Part B enrollees were in-
cluded in the analysis for pneumococcal immunization if they were age 65
or older as of July 1, 1997. Data were not available if individuals were
enrolled in a Medicare HMO anytime during the year of measurement.
Enrollees for the influenza analysis had to be 65 as of November 1, 1997,
and not enrolled in a Medicare HMO during October. Both groups had
to be registered as Dutchess county residents and to be alive as of the end
of the year. Pneumococcal immunization rates are calculated both in terms
of annual coverage (coverage among all those without a prior billed immu-
nization) and as cumulative coverage (any bill since 1991 among those
eligible for PPV).

RESULTS

In Dutchess County 2,954 pneumococcal immunizations were
billed in 1997 to eligible Medicare beneficiaries without prior pneumococ-
cal coverage. This was an increase of 94% over the number billed in 1996.
The additional PPV immunizations caused the countywide cumulative
(1991–1997) billed coverage rate to increase from 18.6% to 28.0%, com-
pared to a statewide increase from 18.5% to only 22.7%. In terms of an-
nual coverage among eligible older adults with no previously billed PPV
immunization, 13.2% were covered in Dutchess County in 1997 compared
to only 6.7% in New York State (p < 0.001). This also compares with 6.8%
PPV coverage in Dutchess County in 1996 (Table 1). Local health depart-
ment immunizations for Dutchess residents increased from zero in 1996
to 1,282 in 1997 and account for nearly all of the increase.

Comparing the target versus the non-target areas of Dutchess
County, the 1997 annual rate of pneumococcal immunization reached
16.3% in the target area versus 12.2% in the non-target area (p < 0.001).
TABLE 1

Pneumococcal Immunizations (Medicare Claims Data)

<table>
<thead>
<tr>
<th></th>
<th>Target Area</th>
<th>Non-Target Area</th>
<th>Dutchess County</th>
<th>Rest of NY State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%  (N)</td>
<td>%  (N)</td>
<td>%  (N)</td>
<td>%  (N)</td>
</tr>
<tr>
<td>Annual Coverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>16.3  5,111</td>
<td>12.2  17,342</td>
<td>13.2  22,453</td>
<td>6.7  1,429,669</td>
</tr>
<tr>
<td>1996</td>
<td>7.6   5,541</td>
<td>6.6  18,492</td>
<td>6.8  24,033</td>
<td>5.8  1,541,108</td>
</tr>
<tr>
<td>1995</td>
<td>5.5   6,544</td>
<td>4.3  21,331</td>
<td>4.9  27,875</td>
<td>4.7  1,910,021</td>
</tr>
<tr>
<td>Cumulative</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>32.2  6,310</td>
<td>26.7  20,771</td>
<td>28.0  27,081</td>
<td>22.7  1,725,218</td>
</tr>
<tr>
<td>1996</td>
<td>20.4  6,432</td>
<td>18.1  21,089</td>
<td>18.6  27,521</td>
<td>18.5  1,781,062</td>
</tr>
<tr>
<td>1995</td>
<td>15   1,004</td>
<td>13  2,772</td>
<td>14  3,776</td>
<td>15  278,699</td>
</tr>
</tbody>
</table>

N = Eligible Medicare beneficiaries.

Cumulative PPV billings increased by 11.8% in the target area (from 20.4% to 32.2%) versus 8.6% in the non-target area (from 18.1% to 26.7%). Annual billed PPV immunizations in the target area increased by 8.7% (from 7.6% to 16.3%), and in the non-target area by 5.6% (from 6.6% to 12.2%). (See Table 1.) These increases in the annual and cumulative PPV coverage for Dutchess County are greater than increases in the secular trend, 1995–7, as evidences by comparisons with comparable for New York State (see Figures 1 and 2).

Influenza coverage figures for Dutchess County and New York State are provided for comparison purposes (Table 2). Influenza figures for 1995 are used for comparison instead of 1996, because the local health department was late submitting bills for 1996. In contrast to the situation for PPV, although billed influenza coverage did increase, it did so equally in the target, non-target, and New York State areas. Sub-analysis by provider shows that there was a shift in the target area toward receiving influenza immunization from the local health department clinics (31% of all shots in 1997 vs. 27% in 1995), while in the non-target area of the County, the trend was away from using this source (19% of all shots in 1997 vs. 27% in 1995) (Table 3).
DISCUSSION

These findings suggest that it is possible to significantly increase the use of pneumococcal immunizations by linking their delivery to community-based flu clinics and by developing a broad-based outreach campaign to market the benefits and availability of adult immunizations. This initiative was associated with a near doubling of the pneumococcal immunization rate in the county, compared both to the previous two years and to the rest of New York. The data suggests that the mailing and promotional work in the target area had an additive effect of more than three percentage points.

The delivery of pneumococcal immunizations by the Dutchess
County Health Department was the most successful aspect of the project increasing annual coverage by seven percentage points over historical and statewide rates. There was no detectable impact of the campaign on total influenza immunizations, although the campaign did appear to shift recipients from other sources of immunization to the local health department clinics. Since pneumococcal vaccine was consistently offered at these clinics, this may have helped to increase the total impact of the project on pneumococcal immunization rates.

Analysis of changes in the place of immunization—physician offices and health department clinics—suggests that two shifts occurred: a greater reliance on the health department for adult immunizations in the target area, and an increase use of physician practices in the rest of Dutchess.
TABLE 2

Influenza Immunizations (Medicare Claims Data)

<table>
<thead>
<tr>
<th></th>
<th>Target Area</th>
<th>Non-Target Area</th>
<th>Dutchess County</th>
<th>New York State</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>(N)</td>
<td>%</td>
<td>(N)</td>
</tr>
<tr>
<td>Annual Coverage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>48</td>
<td>6,472</td>
<td>46</td>
<td>21,298</td>
</tr>
<tr>
<td>1995</td>
<td>44</td>
<td>6,772</td>
<td>41</td>
<td>22,496</td>
</tr>
</tbody>
</table>

N = Eligible Medicare beneficiaries.

County. In the target area, it is likely that despite messages in the marketing encouraging elders to obtain immunizations in either physician offices or community clinics, the accompanying mass immunizer schedule led to a greater use of the clinics. In the rest of County, which was not targeted with mailings, beneficiaries may simply have gravitated to their usual source of care, medical physician offices.

Community-based flu clinics are increasingly used as sites to deliver both influenza and pneumococcal vaccine. Of twenty-one New York Local Health Departments that offered only influenza vaccine in public clinics in 1997, twelve expanded their programs to include PPV in 1998. A clarification in the protocol for pneumococcal re-vaccine has facilitated the deliv-

TABLE 3

Influenza Immunization Providers (Medicare Claims Data)

<table>
<thead>
<tr>
<th></th>
<th>Target Area</th>
<th>Rest of Dutchess</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health Department</td>
<td>Other Providers</td>
</tr>
<tr>
<td>Influenza</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immunizations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>31% (964)</td>
<td>69% (2,142)</td>
</tr>
<tr>
<td>1995</td>
<td>27% (792)</td>
<td>73% (2,174)</td>
</tr>
</tbody>
</table>
ery of immunizations in this setting by recommending that at-risk persons who are unsure of their previous pneumococcal immunization status receive a vaccination without specific written endorsement from a physician.\textsuperscript{14} The outreach materials designed for this initiative were simple to develop and, with the partnership of local providers and a state peer review organization, are adaptable to most local settings.

The successful collaboration between SPARC and the Dutchess County health department offers a model to other local health departments that want to augment partnerships with community health care providers. Four components of the collaboration were essential to the success of the partnership: the neutrality/objectivity of the convening organization SPARC, the existent infrastructure for public clinics, the eagerness of the local health department to incorporate pneumococcal into its adult immunization program, and the facilitation provided by SPARC, which effectively addressed preexisting revaccination and physician order barriers to pneumococcal vaccination. SPARC provided a strong ability to build and convene a coalition of local community agencies and leaders while reducing barriers for the project. The organization also offered expertise and leadership for raising the notion of improving specific clinical preventive services in the community. The social marketing approach, for example, is not always familiar to county health departments. With the support, collaboration, and technical assistance of IPRO, SPARC was able to collect, analyze and interpret much of the county health department data. The Dutchess County health department had the name recognition and staff resources to implement the targeted clinical services that ultimately made the partnership succeed. Together, these organizations built upon the existing local public health infrastructure, enhancing a commitment to increasing clinical preventive services utilization, and galvanizing efforts to build a healthier community. This specific collaboration also created a foundation for future public health initiatives that require broad community participation.

During the last ten years social marketing has been embraced by public health precisely because of its ambitions to positively effect health-related behaviors. It may be, moreover, that the existence of a responsible community-wide infrastructure, such as SPARC, is a critical ingredient in catalyzing and supporting such initiatives.\textsuperscript{15} This paper provides an example of how the collaborative activities of providers of disease prevention services, and other community-based stakeholders, can together significantly increase the use of pneumococcal immunizations in a short period of time.
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