



## New Jersey Behavioral Risk Factor Survey: Summary Report



### USE OF CLINICAL PREVENTIVE SERVICES IN NEW JERSEY (2): IMMUNIZATION AND HORMONE REPLACEMENT STATUS OF OLDER ADULTS.



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Adult immunization and prophylactic hormone therapy are two preventive clinical services with a potentially large impact on the health of older adults in New Jersey. The ongoing [New Jersey Behavioral Risk Factor Survey](#) provides an opportunity to estimate directly the extent to which community-dwelling senior citizens in New Jersey are currently being vaccinated against pneumococcal disease and influenza, and the extent to which women in New Jersey who have undergone natural or surgical menopause are currently using non-contraceptive estrogens.

NOTE: The New Jersey Behavioral Risk Factor Survey is part of the national Behavioral Risk Factor Surveillance System (BRFSS), an ongoing telephone survey of adults aged 18 years and over. This survey is designed to monitor modifiable risk factors for chronic diseases and other leading causes of morbidity and death. The survey is a cooperative effort between the national Centers for Disease Control and Prevention (CDC) and all states, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands. It has been in existence since 1984. The New Jersey Department of Health and Senior Services has been participating in the BRFSS since 1991, collecting approximately 125 interviews per month through 1995 and nearly double that number since 1996. Specific design features and limitations of the BRFSS have been discussed elsewhere.<sup>1</sup>

#### Vaccination Against Pneumococcal Disease and Influenza

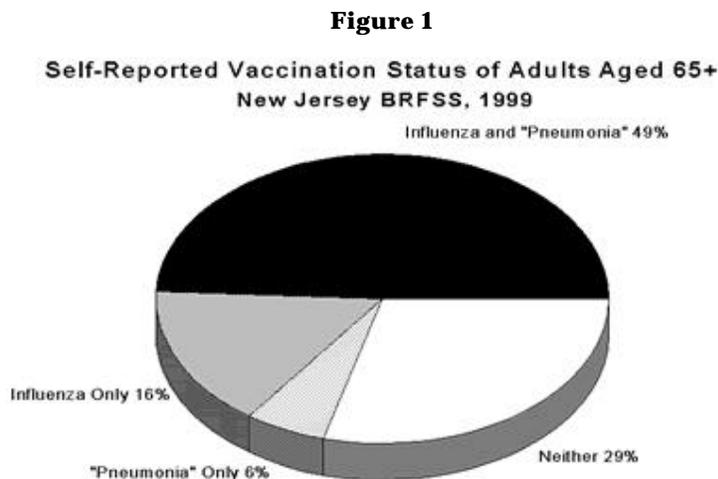
Infections due to *Streptococcus pneumoniae* and influenza viruses are a major cause of hospitalization and death in our society. Nationally, pneumococcal pneumonia alone has been estimated to cost up to eighteen billion dollars per year,<sup>2</sup> and up to 40,000 deaths per year have been attributed to pneumococcal disease. Medicare costs for influenza-related hospitalizations have been estimated to reach up to one billion dollars per year, while 20,000 to 40,000 deaths per year have been attributed to influenza. With the possible exception of inner-city populations, the burden of these diseases falls most heavily on the elderly. In New Jersey, about 2,500 deaths per year are directly attributed to pneumonia and influenza; nearly 90% of these deaths occur among persons aged 65 and over, and most (approximately three-fourths) of these deaths occur among persons aged 75 and over (Center for Health Statistics, unpublished data).

Current vaccines against *S. pneumoniae* may be less efficacious in elderly people than in healthy young adults. Nevertheless, because of the specific effectiveness of these vaccines against bacteremia and other invasive infections, it has been estimated that approximately half of all deaths from pneumococcal disease in the United States could be prevented by their use.<sup>3</sup> The urgency of focusing on preventive

measures for these diseases is heightened by the increasing incidence of drug-resistant infections. Moreover, both pneumococcal and influenza vaccination programs are likely to be cost-effective.<sup>2</sup> Among other measures, therefore, the United States Preventive Services Task Force (USPSTF) and other major authorities currently recommend an annual influenza vaccine for all persons aged 65 and over, and a one-time pneumococcal vaccination for all unvaccinated immunocompetent individuals in the same age group.

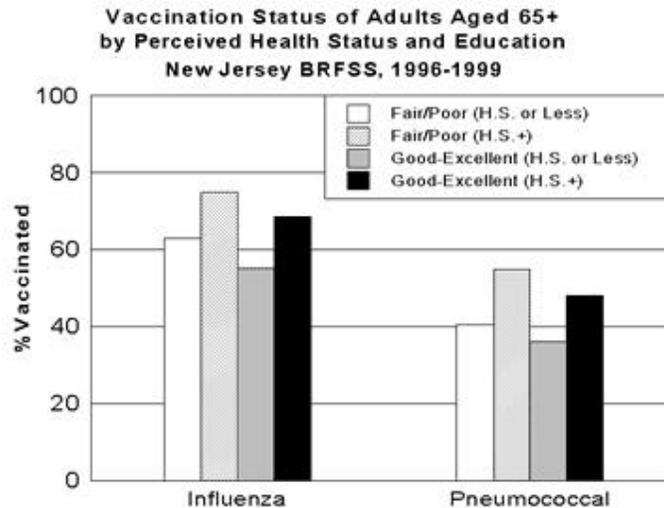
Since 1995, each respondent in the New Jersey BRFSS has been asked about receipt of a "flu shot" within the past year, and a "pneumonia vaccination" at any time. (These questions have been revised to make reference to the medically proper term "pneumococcal vaccine" starting in 2001.) Validation studies suggest that there might be a moderate level of over-reporting using this approach, particularly for pneumococcal vaccination.

As of 1999, an estimated two-thirds (61-70%\*) of New Jersey adults aged 65 and over believed they had received an influenza vaccination within the past year, while slightly over half (50-60%) of adults aged 65 and over believed they had ever received a "pneumonia vaccination". Approximately 90% of those ever receiving a "pneumonia vaccination" also received an influenza vaccination within the past year (Figure 1).



The estimated prevalence of pneumococcal vaccination among older adults in New Jersey has risen significantly since 1997, according to the BRFSS. By contrast, the overall prevalence of vaccination against influenza appears to have remained relatively constant during this same period (Figure 2). Since most persons with a history of "pneumonia vaccination" have also reportedly received an influenza vaccination in the previous year, this suggests that much of the present increase in pneumococcal vaccination is occurring among individuals who were already being regularly vaccinated against influenza.

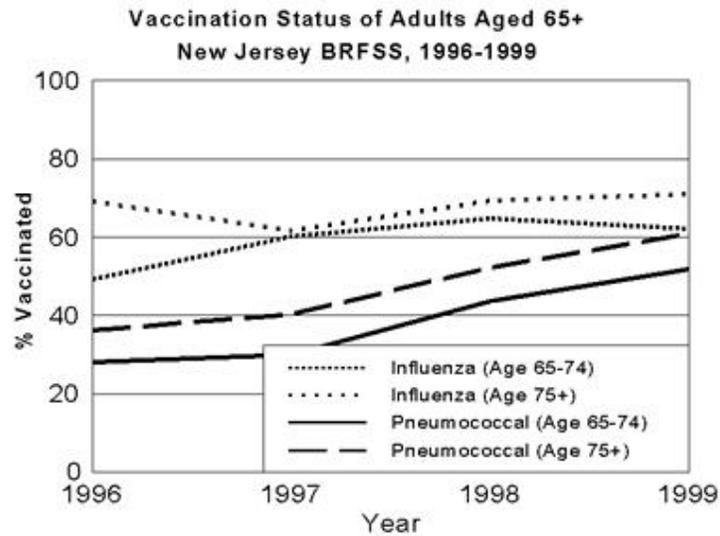
**Figure 2**



Starting in 1998, respondents in the New Jersey BRFSS who hadn't been vaccinated were asked why they hadn't. Among those New Jersey adults aged 65 and over who had never received a "pneumonia vaccination", an estimated 49-59% (including about 38-55% of adults aged 75 and over) didn't think they needed one. Another 28% (23%-33%) had either never heard of it or believed their provider had not recommended it, although most in this group (59-77%) also reportedly received a "flu shot" within the previous year. Among those older adults who had received neither an influenza vaccination nor a pneumococcal vaccination, about 43% (36-50%) didn't think they needed either vaccination. Only about 18% (13-25%) of the unvaccinated group had reportedly either never heard of the "pneumonia vaccination" or not had it recommended to them by a health care provider.

Other factors besides age which appear to be independently associated with vaccination status among older adults, according to the New Jersey BRFSS, include education, marital status, and frequency of routine checkups. Overall, based on combined data from 1996-1999, age-adjusted immunization rates are about 20-30% higher among those who have had more than 12 years of education compared with those who have had 12 years or fewer, independent of self-perceived health status (Figure 3) and other factors. Immunization rates are also about 15-20% higher among married individuals than among unmarried individuals, independent of age, education, and other factors. Also, immunization rates are about two and a half times higher among older people who have had a routine medical checkup in the past year, compared with those who have not. (For further discussion of the frequency of routine medical checkups among adults in New Jersey, see New Jersey Behavioral Risk Factor Surveillance System Summary Report, Volume 3, Number 2: [Routine Health Exams Among New Jersey Adults: 1991-1997](#)).

**Figure 3**



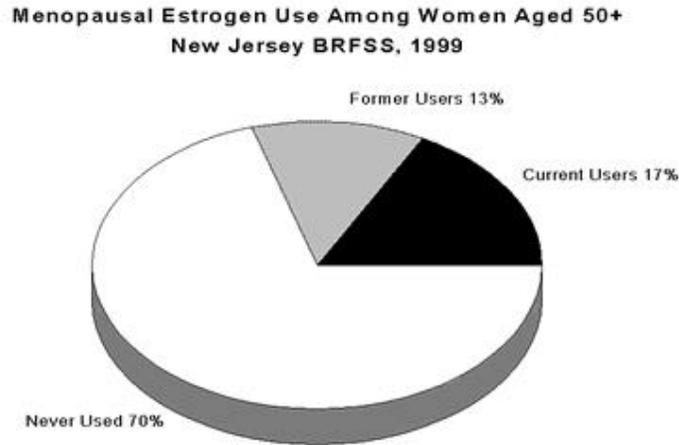
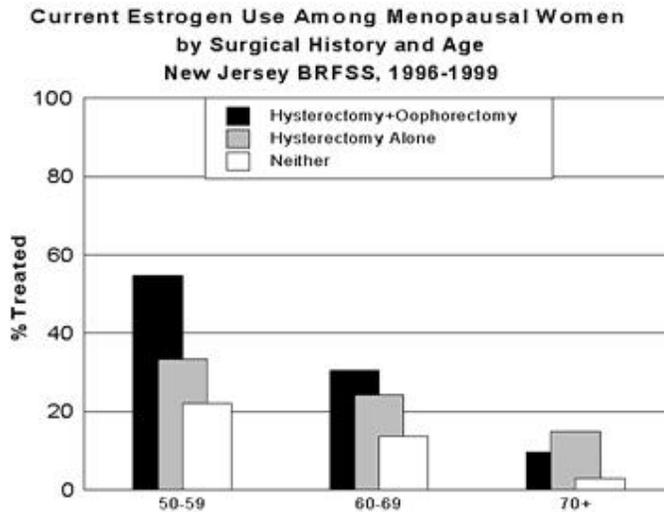
### Estrogen Therapy Among Postmenopausal Women

Long-term estrogen replacement in postmenopausal women has a number of potential health benefits, including protection against heart disease, osteoporosis, and possibly other chronic conditions, as well as improved quality of life in general. At the same time, the long-term use of unopposed exogenous estrogens increases the risk of endometrial cancer, and long-term use of estrogen supplements with or without progestin appears to cause a significant increase in the risk of breast cancer. The USPSTF and other major authorities currently recommend that all peri- and postmenopausal women should consider the prophylactic use of exogenous estrogens in consultation with their health care provider based on individual risk profiles, but make no other general recommendations for their usage.

Since 1996, all women in the New Jersey BRFSS have been asked about past and current use of "female hormones or estrogen replacement therapy" other than birth control pills, in addition to questions about menopausal status (for women aged 35 and over), history of hysterectomy and/or oophorectomy, and counseling about "the benefits and risks of using estrogen replacement therapy for the prevention of osteoporosis". (Note: Due to an administrative error, data concerning estrogen use, menopausal status, oophorectomy, and counseling were not collected for women over age 44 in 1997.) Validation studies suggest that self-reported use of estrogen therapy by women of varying ages and other characteristics is fairly accurate.

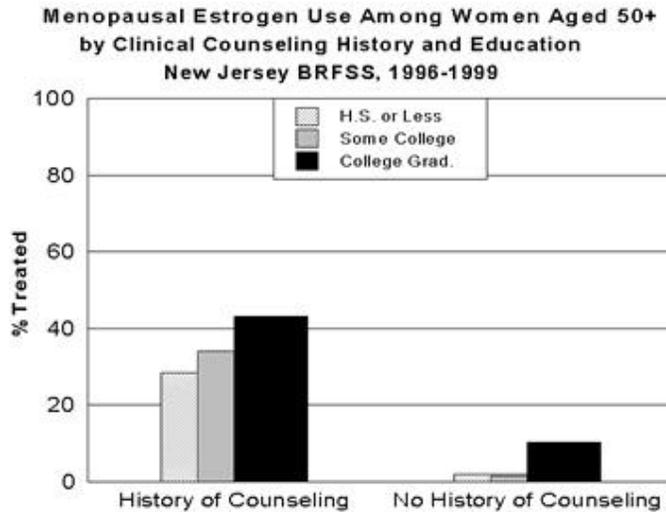
Approximately 30% of postmenopausal women in New Jersey aged 50 and over have used noncontraceptive estrogens at some time in their lives, and about half of these women are current users, according to the latest available data from the New Jersey BRFSS (Figure 4). This distribution has not changed appreciably since 1996 (data not shown). Current usage varies substantially, however, depending on age as well as history of gynecological surgery (Figure 5). Overall, the estimated prevalence of current estrogen use among menopausal women aged 50-59 in New Jersey is about 30% (24-34%), while among older women it is only about 12%. However, the prevalence of estrogen use is about 48% (39-57%) among women aged 50-59 having a history of hysterectomy with or without bilateral oophorectomy, compared with a prevalence of about 22% (17-28%) among menopausal women in the same age group who have not had surgery. Similarly, among older women with a history of hysterectomy, the prevalence of estrogen use is about 19% (15-23%), while among older women who have not had surgery, it is only about 8%.

**Figure 4**

**Figure 5**

Menopausal hormone therapy is known to be strongly associated with exposure to clinical counseling about the use of exogenous estrogens. In New Jersey, the overall prevalence of estrogen use among menopausal women aged 50 and over who have been counseled about "the benefits and risks of using estrogen replacement therapy for the prevention of osteoporosis" is estimated to be about 35% (31-39%). The effect of such clinical counseling on estrogen use appears to be significantly affected by education level, however (Figure 6). In particular, the age-adjusted prevalence of estrogen therapy according to the New Jersey BRFSS is about 50% higher among women with a college degree compared to women who have had twelve or fewer years of formal education, given that there is a history of clinical counseling.

**Figure 6**



Other characteristics besides age, education level, surgical history, and clinical counseling which appear to be independently associated with current estrogen use among menopausal women aged 50 and over in New Jersey include lack of obesity and health insurance status. Age-adjusted use of estrogen therapy is estimated to be about twice as high among normal weight as compared with obese women (classified according to body mass index), according to the New Jersey BRFSS, and about five times as high among insured women (under age 65) as compared with uninsured women in this age range. (For further discussion of the prevalence of overweight among adults in New Jersey, see New Jersey Behavioral Risk Factor Surveillance System Summary Report, Volume 1, Number 1: [Health Status of New Jersey Adults: 1991-1994](#)).

\*Prevalence estimates given as ranges in this report represent approximate 95% confidence intervals for the underlying population-based statistics, taking into account the random error introduced by sampling. These confidence intervals were derived from variance estimates generated by the statistical software package SUDAAN, used for surveys such as the BRFSS which incorporate complex sampling designs. Where a 95% confidence interval is not presented, the "margin of sampling error" (computed as the standard error of the prevalence estimate multiplied by 1.96) is less than 3%.

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