

Influenza vaccination among the elderly in Italy

F. Pregliasco,¹ L. Sodano,² C. Mensi,¹ M.T. Selvaggi,³ B. Adamo,⁴ P. D'Argenio,⁵ F. Giussani,¹ A. Simonetti,⁴ M.R. Carosella,⁶ R. Simeone,⁷ C. Dentizi,³ C. Montanaro,⁸ & G. Ponzio⁸

This article surveys the attitudes and perceptions of a random sample of the elderly population in three regions of Italy on the use and efficacy of influenza vaccine. The data were collected by direct interviews using a standard questionnaire. The results show that vaccination coverage against influenza is inadequate (26–48.6%). The major reasons for nonvaccination were lack of faith in the vaccine and disbelief that influenza is a dangerous illness. These data emphasize the need for a systematic education programme targeted at the elderly and the provision of influenza vaccination, with the increased cooperation of general practitioners.

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In 1995, influenza ranked sixth among the 10 leading causes of death in the USA (1); an estimated 90% of deaths caused by pneumonia and influenza occur among persons aged ≥ 65 years (2). The only realistic possibility of preventing influenza is by vaccination. Inactivated vaccines have long been available and are recommended for individuals in risk groups (1–3), but the associated periodic vaccination campaigns are costly (4,5).

In the USA a population-based, random-digit, dialed telephone survey has been undertaken to estimate state-specific influenza vaccination levels for persons aged ≥ 65 years and to determine the predominant behaviours and practices related to the leading causes of death (6). During 1995 a total of 58.1% of respondents had reportedly received influenza vaccine during the preceding 12 months.

To date, only limited studies have been performed in Italy (8) to determine the true impact of vaccination and the level of knowledge about influenza in priority groups, thus enabling effective information campaigns to be implemented and to widen the use of vaccination.

The present study was carried out in April 1995 on individuals over 65 years of age who were resident

in Milan (Lombardy), Naples (Campania) and Molise. Its main aims were as follows:

- to estimate the degree of vaccination coverage;
- to ascertain the modalities and procedures of vaccination offers; and
- to evaluate the levels of awareness of influenza and the vaccine.

Materials and methods

Study sample

Milan

A list of residents who were registered at the General Registry Office, Commune of Milan, on 31 January 1995 and who were born before 1 January 1929 (253 816 individuals) was obtained from the Communal Information System of Milan (SICOM). A total of 300 names were chosen at random from the list, 150 of which were selected randomly for the investigation, while the remaining 150 names were kept in reserve. A total of 31 of these reserves were needed as replacements.

Molise

A total of 210 individuals (obtained by cluster sampling of 30 communes of Molise) born before 1 January 1992 were interviewed from a random selection of the 54 102 residents; 14 elderly residents (7 as reserves) were selected from each commune and 53 were replaced.

Naples

A systematic random sample of 110 residents born before 1 January 1929 was taken in each of the 10 districts of the commune (resident population 162 211). A total of 581 individuals were interviewed. Two districts were excluded owing to the paucity of

¹ Istituto di Virologia, Università degli Studi di Milano, Via Pascal 38, 20133 Milan, Italy. Requests for reprints should be sent to Dr Pregliasco at this address.

² ASL RM/F Civitavecchia, Rome, Italy.

³ Servizio Igiene Pubblica, AUSL 3 Centro Molise, Campobasso, Italy.

⁴ Servizio Epidemiologia e Prevenzione, ASL 1 Naples, Italy.

⁵ Servizio Epidemiologia et Prevenzione, ASL 1 Benevento, Italy.

⁶ Servizio Igiene Pubblica, AUSL 1 Alto Molise, Agnone, Italy.

⁷ Servizio Igiene Pubblica, AUSL 2 Pentria, Isernia, Italy.

⁸ Servizio Igiene Pubblica, AUSL 4, Basso Molise, Termoli, Italy.

respondents. The response rate for the other districts ranged from 59% to 89% with no replacements included.

Methods

The subjects selected were first contacted by letter and then by telephone to arrange an interview to be conducted at home or by telephone.

Information was recorded on a standard questionnaire similar to the one used in 1994 for an investigation in southern Italy (8). The questionnaire consisted of two parts. In the first part, questions were related to the subject's characteristics, the modalities and procedures of offers of influenza vaccination, and the subject's opinions on this approach. The second part concerned the subject's state of health and his/her degree of self-sufficiency. The latter was then evaluated using a scale of activities of daily living (9).

Epi Info 6.0 software (10) was used for data management and statistical analysis with Fleiss' quadratic method being used to calculate 95% confidence intervals (95% CI).

Results

A total of 941 persons were interviewed, including 84 to replace subjects who refused to respond or who had relocated. The sociodemographic charac-

teristics of the sample are shown in Table 1. Overall vaccination was as follows:

- Milan ($n = 150$): 26% (95% CI, 19.3–33.9);
- Naples ($n = 581$): 32% (95% CI, 28.8–36.5); and
- Molise ($n = 210$): 48.6% (95% CI; 41.6–55.5).

No statistically significant differences were observed in the sociodemographic characteristics.

Table 1 also shows the vaccination coverage according to the state of health of the interviewees. No statistically significant difference was observed between subjects with chronic illness and those who described themselves as healthy, or between completely self-sufficient subjects and those who needed daily help or who were very old.

The modalities of and procedures for influenza vaccination are shown in Table 2. About half the vaccinated subjects had paid for their vaccination despite the free vaccination offered to the elderly by the state health service. Information provided in the mass media prompted a small proportion of individuals to seek vaccination. Most of those who were vaccinated subjects had been also vaccinated the previous year. Inoculation in the buttocks was still very widespread (ca. 50% of the vaccinated group).

The reasons provided by the study subjects for the low uptake of influenza vaccine are shown in Table 3. The most frequent reason given was lack of information on the vaccine with regard to both its efficacy and safety.

Table 1. Influenza vaccination coverage and sociodemographic characteristics of the study subjects

	Milan ($n = 150$)		Naples ($n = 581$)		Molise ($n = 120$)	
	No. interviewed	% vaccinated	No. interviewed	% vaccinated	No. interviewed	% vaccinated
Sex						
Female	99	28.3 (19.9–38.4) ^a	303	30.7 (25.6–36.3)	126	49 (40–58)
Male	51	21.6 (11.8–35.7)	277	34.7 (29.1–40.6)	84	49 (39–59)
Age group (years)						
66–74	80	20 (12.2–30.7)	370	29.2 (24.6–34.1)	114	44 (33–55)
75–84	53	30.2 (18.7–44.5)	165	38.2 (30.8–46.1)	69	58 (46–70)
≥85	17	41.2 (19.9–66.5)	46	39.1 (25.4–54.6)	27	48 (30–66)
State of health						
At least 1 vaccine-requiring disease	68	27.9 (18.1–40.3)	227	39.1 (35.1–43.1)	71	52 (43–61)
No chronic vaccine-requiring disease	82	24.4 (15.9–35.3)	123	21.1 (18.9–24.8)	111	40 (30–49)
Use of drugs						
None	54	20.4 (11.1–33.9)	150	25.9 (22.3–29.6)	62	27 (15–40)
At least one drug	96	29.2 (20.6–39.5)	210	36.1 (32.3–40.2)	148	58 (49–67)
Mobility						
Good	126	25.4 (18.3–34.1)	386	28.2 (23.8–33.1)	135	48 (40–56)
Moderate	14	28.6 (9.6–58)	120	40 (31.3–49.4)	34	45 (28–62)
Poor	10	30 (8.1–64.6)	51	45.1 (31.4–59.5)	37	56 (36–75)
Not detected	0	0	24	37.5 (19.5–59.3)	4	1.9 (0.6–5.1)

^a Figures in parentheses are the 95% confidence intervals.

Table 2. Modalities and procedures for influenza vaccination of the study subjects

	% vaccinated in Milan (<i>n</i> = 39)	% vaccinated in Naples (<i>n</i> = 189)	% vaccinated in Molise (<i>n</i> = 103)
Type of procedure			
Free of charge	43.6 (28.2–60.2) ^a	59.7 (52.1–66.8)	68 (58–77)
Fee-paying	56.4 (39.8–71.8)	40.3 (33.2–47.8)	32 (23–42)
Place of vaccination			
Home	59 (42.2–74)	61 (54–68)	70 (60–80)
Health service vaccination centre	35.9 (21.7–52.8)	25.4 (19.3–32.5)	14 (9–23)
Recommended by			
Family doctor's office	5.1 (0.9–18.6)	11 (7–17)	16 (9–24)
Family doctor	56.4 (39.8–71.8)	56.9 (49.3–64.1)	66 (56–75)
No one "I already knew about it"	25.6 (13.6–42.4)	23.2 (17.4–30.2)	14 (8–22)
Relatives and friends	10.3 (3.3–25.2)	9.9 (6.1–15.5)	17 (11–26)
Mass media	7.7 (2–22)	8.8 (5.3–14.2)	3 (0.7–8.8)
Previous influenza vaccinations			
Vaccinations also in the previous year	97.4 (84.9–99.9)	Not detected	82 (72–88)
Not in the previous year	2.6 (0.1–15.1)	Not detected	18.4 (12–28)
Site of injection:			
Buttock	48.7 (32.7–65)	53 (45.5–60.4)	68 (58–77)
Upper arm	51.3 (35–67.3)	47.5 (40–55)	32 (23–42)

^a Figures in parentheses are 95% confidence intervals.

In addition the responses obtained from the study subjects in Milan show that the probability of being vaccinated was significantly greater among individuals who considered the vaccine to be efficacious and safe (Table 4). On the other hand, there was no significant difference in vaccination coverage between those who believed that influenza was a dangerous, contagious disease and those who did not.

Discussion

Vaccination coverage in the study (26–48.6%) was unsatisfactory, compared with a preferable coverage

of close to 100%, particularly in the risk groups. In Molise the coverage was higher than in the two other study sites, probably owing to the close patient/physician relationship in its small communities. The low coverage that we found is accentuated by the more acceptable rates observed in the USA (11–15) (coverage, >58%), especially considering that coverage was no greater in subjects of more advanced age and/or with diseases for which vaccination is particularly advisable.

In this study the involvement of the state health services was poor. In many instances vaccination was often performed in the buttocks although this site is no longer recommended and is recognized to be

Table 3. Reasons given by the study subjects for the low uptake of influenza vaccine^a

	% in Milan (<i>n</i> = 111)	% in Naples (<i>n</i> = 392)	% in Molise (<i>n</i> = 107)
No information on the existence, efficacy and safety of the vaccine and/or on the contagiousness and danger of influenza	51.6 (42.4–60.9) ^b	67 (62.0–71.5)	54.8 (46–63.3)
Lack of motivation and laziness	8.5 (4.4–15.4)	13.7 (10.6–17.6)	34.1 (26.3–42.8)
Problems in attending vaccination clinic or false contraindications	23.7 (16.6–32.6)	13.2 (10.1–17.1)	7.4 (3.8–13.6)
Other	16.1 (10.2–24.3)	6.1 (4.0–9.1)	3.7 (1.4–8.9)

^a Exceeds 100% since more than one reason was given by some individuals.

^b Figures in parentheses are 95% confidence intervals.

Table 4. Opinions given by elderly subjects resident in Milan on influenza, by vaccination status

Opinion	% positive among the non-vaccinated	% positive among the vaccinated	Odds ratio
Influenza is not a dangerous disease	36	43.6	0.73 (0.33–1.63) ^a
Vaccine causes many adverse reactions	20	3	9.39 ^b (1.27–193.73)
Vaccinated subjects develop influenza	71	36	4.41 ^b (1.91–10.29)
Vaccinated subjects develop influenza complications	41	10	6.19 ^b (1.92–22.12)
Influenza is not very contagious	48	36	1.63 (0.72–3.71)

^a Figures in parentheses are 95% confidence intervals.

^b $P < 0.05$.

less efficacious (16). Awareness of the danger of influenza was widespread but the study subjects showed little confidence in the protection offered by the vaccine and were fearful of possible side-effects. Overall, it appears that action is required: first to increase the involvement of family doctors, who are the main source of information on the appropriateness of vaccination; and second, to disseminate accurate information on the efficacy and safety of the vaccine through the mass media, targeting the many elderly people who are still not vaccinated against influenza.

Variations in crude influenza vaccination rates suggest that the following regional-specific factors exist: variations in the practice patterns, education, and income level of doctors; prevalence of specific risk factors in target groups; and different attitudes of patients towards certain aspects of medical care (7, 13, 17–19).

An important limitation of this study is that data on vaccination status were self-reported and were not validated. Thus, the vaccination levels may not be precise. However, the predictive value of self-reported influenza vaccination was found to be 91% when vaccination status was validated by a review of subjects' medical records (20).

Strategies to improve delivery of influenza vaccine to all persons at risk are shown below.

- Assessment of the factors accounting for the differential regional-specific vaccination rates, particularly practice patterns of physicians and attitudes of patients.
- Collaboration between public and private organizations to improve awareness about the need for this vaccine.
- Changes in clinical practice to improve vaccine delivery.
- Expansion of vaccination services by working with private, medical, and community groups to limit cost and improve accessibility to vaccination centres.
- Encouragement of local health departments to increase funding and implement influenza vaccination programmes.

Administration of influenza vaccines to inpatients is one strategy for increasing vaccination coverage (2). For example, clinical staff could obtain vaccination histories from all inpatients and recommendations for vaccinations could be incorporated into discharge files or implemented during prolonged hospitalizations (21). An important feature of hospital-based vaccination programmes is that they permit the targeting of vaccines to persons within the health-care system who may be at increased risk of serious influenza. High coverage levels can be attained in well-organized hospital-based influenza vaccination programmes (22).

Low levels of vaccination coverage, regardless of patient background, may reflect physicians' and patients' beliefs that influenza vaccine is not effective, fears about adverse reactions, and concerns about reimbursement of fees.

In the triennial Italian national plan for health (1998–2000) the goal for influenza vaccination coverage is 75% of all risk groups, including the healthy population over 65 years of age. There are no financial barriers for the risk groups because the vaccination is paid for by the state. One problem with widespread vaccination activities is that the injections are administered in only a few district offices, which are difficult for elderly people to reach. The organization of vaccination campaigns is referred to the regions. Some regions have encouraged family doctors to administer vaccine directly at a patients' home or at the surgery.

To assess the effectiveness of vaccination programmes and assist in targeting efforts to improve them and vaccination levels, timely reporting and collection of surveillance data on vaccination coverage and disease are needed. Thus, since 1996, sentinel surveillance has been carried out in Milan. This enables general practitioners' data from clinical consultations to be linked with those from virological sampling and this will soon be expanded to cover the whole country. ■

Résumé

Vaccination contre la grippe : connaissances, attitudes et comportements

Cette étude porte sur les attitudes et les connaissances d'un échantillon aléatoire de personnes âgées de trois régions d'Italie concernant l'utilité et l'efficacité du vaccin antigrippal. Les données ont été recueillies par interrogatoire direct à l'aide d'un questionnaire standard. Les résultats montrent que la couverture vaccinale contre la grippe des personnes âgées en Italie (48,6%). Si les

personnes âgées ne se faisaient pas vacciner, c'est parce qu'elles doutaient de l'utilité du vaccin et ne considéraient pas la grippe comme une maladie dangereuse. Ces données soulignent la nécessité d'un programme éducatif systématique incitant les personnes âgées à se faire vacciner contre la grippe et d'une plus large coopération des médecins généralistes.

Resumen

Vacunación contra la gripe: conocimientos, actitudes y comportamiento de las

El presente estudio analiza las actitudes y percepciones respecto de la utilización y eficacia de la vacuna antigripal en una muestra aleatoria de la población de edad de tres regiones de Italia. Los datos se recogieron mediante entrevistas directas con un cuestionario estándar. Los resultados muestran que la cobertura de vacunación de las personas de edad en Italia (48,6%). Si las

personas mayores no se hacían vacunar, es por la falta de confianza en la vacuna y la percepción de que la gripe no es una enfermedad peligrosa. Estos datos resaltan la necesidad de establecer un programa de educación sistemática orientado a las personas de edad y de administrar la vacunación contra la gripe con una mayor cooperación de los médicos generales.

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