

Prevalence rate and reasons for refusals of influenza vaccine in the elderly

Laurence Canova^a, Myriam Birchmeier^a, Valérie D'Acremont^a, Gilbert Abetel^b, Bernard Favrat^a, Pierre Landry^b, Maxime Mancini^b, François Verdon^b, Alain Pécoud^a, Blaise Genton^a

^a Medical Outpatient Clinic, University of Lausanne, Switzerland

^b Private practices in Orbe and Neuchâtel, Switzerland

Summary

More knowledge on the reasons for refusal of the influenza vaccine in elderly patients is essential to target groups for additional information, and hence improve coverage rate. The objective of the present study was to describe precisely the true motives for refusal. All patients aged over 64 who attended the Medical Outpatient Clinic, University of Lausanne, or their private practitioner's office during the 1999 and 2000 vaccination periods were included. Each patient was informed on influenza and its complications, as well as on the need for vaccination, its efficacy and adverse events. The vaccination was then proposed. In case of refusal, the reasons were investigated with an open question. Out of 1398 patients, 148 (12%) refused the

vaccination. The main reasons for refusal were the perception of being in good health (16%), of not being susceptible to influenza (15%), of not having had the influenza vaccine in the past (15%), of having had a bad experience either personally or a relative (15%), and the uselessness of the vaccine (10%). Seventeen percent gave miscellaneous reasons and 12% no reason at all for refusal. Little epidemiological knowledge and resistance to change appear to be the major obstacles for wide acceptance of the vaccine by the elderly.

Key words: vaccine; refusal; motives; prevalence; influenza

Introduction

The need for preventing influenza and its complications through vaccination in patients aged over 65 years has been clearly demonstrated [1–5]. Numerous studies showed however that vaccination coverage of the target population remains low, whatever the strategies of implementation [6–11]. We achieved a considerable improvement of our coverage rate through the intervention of a medical personnel proposing the vaccine prior to the medical consultation; the rate of refusals fell down to 9% in the over 65 age group. The strategy and results are detailed in another paper [12].

In most studies reporting coverage rate, the non-vaccinated patients were implicitly considered as having refused the injection, although the reason was often different (injection performed elsewhere or later, temporary contraindication, negligence of the patient or the doctor, no medical contact, etc.) [13]. Reviews of studies have mentioned prevalence rates for the refusal of influenza vaccination varying between 9 and 66% [6, 10, 12, 14–16]; some authors reported the motives of refusal [8, 14, 15, 17] but none of them described

these motives in detail. This is however a crucial information in order to improve the coverage rate in the elderly [18] and is the main focus of the present report. According to the literature, the most frequent reasons for refusal reported by the patients are: fear or previous experience of adverse events related to the vaccine, absence of efficacy of the vaccine, fear of injections, underestimation of influenza complications, a perceived good health, and not having had influenza or not having had the vaccine in the past [8, 14, 15, 17].

Until now, few studies analysed the potential risk factors for refusal, in particular the demographical and behavioural characteristics in elderly patients [14]. Such an investigation would allow to identify groups at risk for refusing the vaccination, and develop an information strategy targeted on these persons [19, 20].

With the aim of investigating the true motives as well as the potential risk factors for refusal, we recorded the attitude towards the vaccine in elderly patients attending the Medical Outpatient Clinic, University of Lausanne (MOC) and private practices (Orbe and Neuchâtel) during the vacci-

nation period of the winter of 1999–2000. The same data collection was performed during the winter of 2000–2001, but only in the MOC.

Methods

The Medical Outpatient Clinic, University of Lausanne, is a primary care centre open to the general population. There is a selection bias of patients towards refugees, asylum seekers, foreigners and the elderly with low income. Patients are seen on appointment or by the staff on duty if attending spontaneously. As far as the influenza vaccine is concerned, a walk-in clinic is also established for the vaccination period.

During the influenza vaccination period (mid-October to mid-December), each patient over 64 years old was seen prior to the medical consultation by a medical student who informed him/her about influenza and its complications, about the efficacy of the prevention by the vaccine and about its potential adverse events. The student asked about vaccination the previous year, allergy to eggs, anticoagulant treatment and any febrile illness in the last few days. At this stage, the patient could choose 1) to be vaccinated immediately, 2) to discuss further with the doctor or 3) to refuse the vaccination. In the latter case, the reason was investigated by an open question and discussed further.

In the private practitioner's office, the strategy was similar, except that the medical secretary instead of the medical student proposed the vaccination.

The data collection was performed in 1999–2000 and 2000–2001 with the objective to cover all patients over 64. For prevalence rates calculation, we excluded 198 persons who came spontaneously for vaccination to the walk-in clinic but were not followed regularly at the MOC. These patients were nonetheless included in the risk factors analysis.

We analysed the data to determine the prevalence rate of refusals as well as the reasons given by the patients. We classified them into 5 main groups: 1) reasons related to the patient, 2) reasons related to the vaccine, 3) practical reasons, 4) other reasons, 5) no reason. Within these groups, we made 22 subclasses to report precisely the responses of the patients. The risk factors for refusal were analysed using multivariate logistic regression (Stata version 7). Variables included in the model were sex, origin, regular follow-up and vaccination in the previous year.

Results

A total of 1398 questionnaires were filled by all the patients aged over 64 who attended the MOC and the 5 medical practices during the vaccination period of 1999–2000, and those who attended the MOC only in 2000–2001. Of these, 198 persons who came spontaneously to the walk-in clinic were not followed regularly by a physician at the MOC. The demographical characteristics and prevalence rates of refusals per year and health facility are detailed in Table 1.

During the 1999–2000 season, 404 patients were included at the MOC and 12% refused to be vaccinated. Another 598 patients were included in the private practitioners' offices of which 14% refused the vaccination. Among the 124 patients who refused the vaccine, 120 (97%) did not receive the vaccine the year before and 36 (29%) had a regular medical follow up.

In 2000–2001, 396 patients were included at the MOC and 9% refused to be vaccinated. Among

the 24 patients who refused, 9 (38%) did not get vaccinated the year before and 19 (79%) had a regular medical follow up.

The detailed reasons for refusal are described in Table 2. The main reasons were related to the person, i.e. perception of good health, impression to be at low risk for the disease, and not having had the vaccine in the past. Among other motives related to the vaccine, the main one for refusing was a bad previous experience, either of the patient or of a parent and the opinion that the vaccine was not necessary.

Seven MOC patients were included during the two seasons and refused the vaccination twice. All but one gave different reasons on each occasion.

Table 3 shows the risk factors for refusing vaccination: after adjustment, the Swiss origin and never having had the shot were significant risk factors for refusal.

Table 1
Demographical characteristics and prevalence rates of refusal according to season and health facility.

Year	health facility	total nb of patients	mean age (range)	male (%)	female (%)	nb of refusals	% of refusals
1999–2000	MOC walk-in	77	73 (65–88)	57	43	NA	NA
	MOC regular	327	74 (65–97)	55	45	40	12
	private practices	598	74 (65–99)	38	62	84	14
2000–2001	MOC walk-in	118	73 (65–90)	47	53	NA	NA
	MOC regular	278	75 (65–98)	57	43	24	9
Total		1398	74	47	53	148/1203	12

NA = not applicable

Table 2
Refusal numbers and categories according to season and health facility.

Reasons for refusal	1999–2000		2000–2001	
	MOC n (%)	private practices n (%)	MOC n (%)	total n (%)
Related to the person	31 (78)	50 (60)	14 (58)	95 (64)
Good health	7 (18)	14 (17)	2 (8)	23 (16)
Too young for the vaccine to be necessary	2 (5)	0 (0)	0 (0)	2 (1)
Not at risk for influenza	7 (18)	10 (12)	5 (21)	22 (15)
Sufficient immunity, want to fight by myself	4 (10)	3 (4)	0 (0)	7 (5)
Other more important health problems	1 (3)	0 (0)	0 (0)	1 (1)
Too old to be vaccinated	2 (5)	0 (0)	0 (0)	2 (1)
Wants to die and refuse any prevention	1 (3)	0 (0)	0 (0)	1 (1)
Must die one day or another from influenza or other disease	1 (3)	0 (0)	2 (8)	3 (2)
Opposed to vaccines and drugs	5 (13)	1 (1)	2 (8)	8 (5)
Has never been vaccinated against influenza	0 (0)	21 (25)	1 (4)	22 (15)
Does not want to change his/her habits	1 (3)	1 (1)	2 (8)	4 (3)
Related to the vaccine	20 (50)	22 (26)	12 (50)	54 (37)
Fear of adverse events	4 (10)	1 (1)	3 (13)	8 (5)
Bad experience himself or of a relative	5 (13)	14 (17)	3 (13)	22 (15)
Fear of injections	2 (5)	1 (1)	1 (4)	4 (3)
Vaccine is useless, not necessary	6 (15)	4 (5)	4 (17)	14 (10)
Vaccine is not efficacious	2 (5)	2 (2)	1 (4)	5 (3)
Medicine is incompetent	1 (3)	0 (0)	0 (0)	1 (01)
Logistical reasons	1 (3)	1(1)	3 (13)	5 (3)
Prefers alternative medicine (homeopathy)	0 (0)	1 (1)	0 (0)	1 (1)
Wants to be vaccinated later	1 (3)	0 (0)	3 (13)	4 (3)
Other reasons	5 (13)	1 (1)	2 (8)	8 (5)
Lack or bad information	1 (3)	1 (1)	0 (0)	2 (1)
Refusal decided by another person	2 (5)	0 (0)	0(0)	2 (1)
Fear of interference with diet; thinks that it is a way to earn money; fears that the vaccine will not be reimbursed	2 (5)	0 (0)	2 (8)	4 (3)
No reason	4 (10)	12 (14)	1 (4)	18 (12)
No response	2 (5)	1 (1)	2 (8)	5 (3)
Total*	63 (158)	87 (104)	34 (142)	185 (125)

* The total exceeds 100% since most patients gave several reasons for refusing vaccination (0–4 responses).

Table 3
Risk factors for refusal.

Characteristics	prevalence rate or means		crude Odd Ratio (95% CI)	p value	adjusted Odd Ratio (95% CI)	p value
	Refusal	Vaccinated				
Age (years)	74	74		0,45		
Sex female	57	52	1,25 (0,87–1,79)	0,24		
Origin Switzerland (only in 487 MOC patients)	89	82	1,89 (0,86–4,63)	0,17	2,4 (1,03–5,6)	0,02
Regular follow up	37	40	0,88 (0,6–1,27)	0,51		
No vaccination in the preceding year (%)	91	19	42 (23–77)	<0,001	15,9 (7,6–33,1)	<0,001

Discussion

This study demonstrated that the prevalence rate of vaccination refusal is much lower when the vaccination is proposed in the best possible conditions (person dedicated for this task, time available

for information and questions, etc.) than when no incentive strategy is in place [12]. This indicates that the majority of non-vaccinations in the elderly population is not due to refusal, but to the logisti-

cal or maybe financial difficulties to establish a strategy that allows to reach, inform and potentially convince the target population. If the individual can give his/her opinion or ask questions without being stigmatised, he/she may be more receptive to the arguments given by the medical personnel and may accept the vaccination easily. It also seems that the time spent by the person in charge of vaccination to give accurate information is pre-eminent in order for the recipient to accept.

Our study showed that the main reasons for refusal are linked to the perception of the patient of his/her good health and to self-estimation of his/her risk of disease. The patients often mentioned that he/she wants his/her body to fight the disease without external help. The evaluation of the individual risk is totally subjective. To question this perception, the patient would need to have some kind of epidemiological background as well as an understanding of the difference between the individual and the population level of risk.

The second group of refusals included the reasons related to the vaccine or to the supposed efficacy of medicine. It is interesting to note that the beliefs and fears about potentially severe adverse events of the vaccine lead to a significant proportion of refusals. On the other hand, there seems to be little concern about influenza morbidity or complications, even after clear and objective explanations. Similarly, the experience of a relative (whether positive or negative) weighs more in the decision-making than any medical or official talk on the question [19]. Also, reports by the media of a reduced efficacy of the vaccine in the years when the vaccine strains did not match the circulating ones may have had an important impact on public opinion. Now, numerous individuals may be convinced that the vaccine is useless. The short-term protection, the necessity of repeated immunisations and the limited period to be vaccinated are probably all reasons for a diminished acceptance and coverage of immunisation.

Intuitive knowledge coupled with the results of some previous studies [21] would place fear of injection as one of the main reasons for refusal but unexpectedly, only 3% of the patients stated that it is why they refused. One can argue that the patients did not dare to mention this reason and gave a more reasonable one. The fact that so few patients fear the injection goes against the efforts of some experts promoting the use of vaccine administered through the mucosal route to improve compliance. Actually, it would be more important to insist on the reduction of virus transmission and on the potential improvement of protection conferred by the intranasal vaccine against heterologous strains rather than on the easy and painless administration of the vaccine.

Resistance to changing one's habits is a major reason for refusal: 15% of those who did not want to be vaccinated argued that they had never been vaccinated in the past and therefore did not see why they should. One way of decreasing the number of refusals would be to reach this population at a younger age, when it may be easier to adapt to new behaviours.

Our results show that foreign people living in Switzerland better accept the immunisation than the Swiss population, perhaps because they have more respect for physicians in their culture or because they don't speak French good enough to protest ... The fact that never having had the shot is a risk factor for refusing it again denotes the difficulty of changing one's habits.

Some may argue that the study is limited by the strategy of information and interview chosen that were rather directive. We think that the use of an open question allowed some freedom to the patients. The fact that it was not the usual doctor who proposed the vaccination may also have left the patient with more freedom to choose refusal. The type of population, namely the patients recruited at the MOC who were from various cultural backgrounds, may have biased the results when compared to a typical Swiss population. The fact that the results were almost similar in the private practices validates the findings at the MOC. Also, since different populations were included, the conclusion is probably reasonably representative of all kinds of elderly populations.

Conclusion

The reasons for refusal of the influenza vaccine in Switzerland are mainly related to subjective beliefs of the patient on his/her health status and susceptibility to influenza as well as to his/her opinion on vaccine efficacy. Resistance to changing one's behaviour seems to be a major obstacle to the universal vaccination of elderly patients. An information targeted on a slightly younger population (i.e. at the age of 60 or 65) may be more effective in order to improve vaccination coverage against influenza.

Acknowledgment

We would like to thank the patients for responding to the questions, the medical personnel of the MOC, especially the medical students who were responsible for patient interviews and vaccination as well as the nurses.

Correspondance:

Blaise Genton

Policlinique Médicale Universitaire

Rue du Bugnon 44

CH-1012 Lausanne

E-Mail: Blaise.Genton@hospvd.ch

References

- 1 Alexander ER. Control of influenza. University of Washington Med 1977;4:17–24.
- 2 Barker WH, Mulloly JP. Influenza vaccination of elderly persons: Reduction in pneumonia and influenza hospitalisations and deaths. J Am Med Assoc 1980;244:2547–9.
- 3 Barker WH, Mulloly JP. Impact of epidemic type A influenza in a defined adult population. Am J Epidemiol 1980;112:798–813.
- 4 Barker WH, Mulloly JP. Pneumonia and influenza deaths during epidemics: Implications for prevention. Arch Intern Med 1982;142:85–9.
- 5 Housworth J, Langmuir AD. Excess mortality from epidemic influenza, 1957–1966. Am J Epidemiol 1974;100:40–8.
- 6 Margolis KL. Organizational strategies to improve influenza vaccine delivery. A standing order in a general medicine clinic. Arch Intern Med 1988;148:2205–7.
- 7 Armstrong K, Berlin M, Sanford Schwartz J, Propert K, Ubel PA. Educational content and the effectiveness of influenza vaccination reminders. J Gen Intern Med 1999;14:695–8.
- 8 Gupta A, Makinde K, Morris G, Thomas P, Hasan M. Influenza immunization coverage in older hospitalised patients during winter 1998–99 in Carmarthenshire, UK. Age and Ageing 2000; 29:211–3.
- 9 Moran WP, Nelson K, Wofford, JL, Velez, R, Case LD. Increasing influenza immunization among high-risk patients: Education or financial incentive? Am J Med 1996;101:612–20.
- 10 Herman CJ, Speroff, T, Cebull RD. Improving compliance with immunization in the older adult: Results of a randomised cohort study. J Am Geriatrics Soc 1994;42:1154–9.
- 11 Ornstein, SM, Musham C, Reid A, Jenkins RG, Zemp LD, Garr DR. Barriers to adherence to preventive services reminder letters: The patient's perspective. J Fam Pract 1993;36:195–200.
- 12 Birchmeier M, Favrat B, Pécoud A, Abetel G, Karly M, Landry P, et al. Strategy using a systematic intervention of a health-care professional to improve vaccination coverage against influenza in elderly patients. J Fam Pract 2002;51:856.
- 13 Stehr-Green PA, Sprauer MA, Williams WW, Sullivan KM. Predictors of vaccination behavior among persons ages 65 years and older. Am J Public Health 1990;80:1127–9.
- 14 Fiebach NH, Viscoli CM. Patient acceptance of influenza vaccination. Am J Med 1991;91:393–9.
- 15 Gauthey L, Toscani L, Chamot E, Larequi T, Robert CF. Influenza vaccination coverage in the population of the state of Geneva, Switzerland. Eur J Public Health 1999;9:36–40.
- 16 McKinney PW, Barnas GP. Influenza immunization in the elderly: Knowledges and attitudes do not explain physician behavior. Am J Public Health 1989;79(10):1422–4.
- 17 Ganguly R, Schler S, Vargas L, Cameron D, Chmel H, Benhke RH. Reasons for nonimmunization against influenza in the aged (letter to the editor). J Am Geriatr Soc 1989;37:387–93.
- 18 Luthi JC, Burnand B, Méan F, Ammon C. Evaluation of a population-based prevention program against influenza among Swiss elderly people. Swiss Med Wkly 2002;132:592–7.
- 19 Frank JW, Henderson M, McMurray L. Influenza vaccination in the elderly: 1. Determinants of acceptance. Can Med Assoc J 1985;132:371–5.
- 20 Carter WB, Beach LR, Inui TS, Kirscht JP, Prodzinski JC. Developing and testing a decision model for predicting influenza vaccination compliance. Health Serv Res 1986;20, 6, February, part II.
- 21 Ganguly R, Webster TB. Influenza vaccination in the elderly. J Invest Allergol and Clin Immunol 1995;5(2):73–7.

The many reasons why you should choose SMW to publish your research

What Swiss Medical Weekly has to offer:

- SMW's impact factor has been steadily rising, to the current 1.537
- Open access to the publication via the Internet, therefore wide audience and impact
- Rapid listing in Medline
- LinkOut-button from PubMed with link to the full text website <http://www.smw.ch> (direct link from each SMW record in PubMed)
- No-nonsense submission – you submit a single copy of your manuscript by e-mail attachment
- Peer review based on a broad spectrum of international academic referees
- Assistance of our professional statistician for every article with statistical analyses
- Fast peer review, by e-mail exchange with the referees
- Prompt decisions based on weekly conferences of the Editorial Board
- Prompt notification on the status of your manuscript by e-mail
- Professional English copy editing
- No page charges and attractive colour offprints at no extra cost

Editorial Board

Prof. Jean-Michel Dayer, Geneva
 Prof. Peter Gehr, Berne
 Prof. André P. Perruchoud, Basel
 Prof. Andreas Schaffner, Zurich
 (Editor in chief)
 Prof. Werner Straub, Berne
 Prof. Ludwig von Segesser, Lausanne

International Advisory Committee

Prof. K. E. Juhani Airaksinen, Turku, Finland
 Prof. Anthony Bayes de Luna, Barcelona, Spain
 Prof. Hubert E. Blum, Freiburg, Germany
 Prof. Walter E. Haefeli, Heidelberg, Germany
 Prof. Nino Kuenzli, Los Angeles, USA
 Prof. René Lutter, Amsterdam, The Netherlands
 Prof. Claude Martin, Marseille, France
 Prof. Josef Patsch, Innsbruck, Austria
 Prof. Luigi Tavazzi, Pavia, Italy

We evaluate manuscripts of broad clinical interest from all specialities, including experimental medicine and clinical investigation.

We look forward to receiving your paper!

Guidelines for authors:

http://www.smw.ch/set_authors.html

Impact factor Swiss Medical Weekly



All manuscripts should be sent in electronic form, to:

EMH Swiss Medical Publishers Ltd.
 SMW Editorial Secretariat
 Farnsburgerstrasse 8
 CH-4132 Muttenz

Manuscripts: submission@smw.ch
 Letters to the editor: letters@smw.ch
 Editorial Board: red@smw.ch
 Internet: <http://www.smw.ch>