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## Influenza vaccination coverage at community pharmacies: positioning, needs, expectations and involvement of community pharmacists in the Franche-Comté Region.

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## Abstract

**Introduction:** Influenza vaccination coverage currently remains below the 75% recommended threshold by the World Health Organization. To correct this situation, experiments have been successively carried out in France to enable community pharmacists to vaccinate at-risk populations. In this context, a study was conducted with pharmacists from the French Franche-Comté Region to evaluate their positioning, needs and expectations regarding influenza vaccination at community pharmacies.

**Materials and methods:** A survey was created and sent to licensed pharmacists in March of 2018. This consisted of 4 parts: characteristics of the community pharmacy; positioning of the pharmacist regarding vaccinations carried out at the pharmacy; training needs and expectations; and willingness to implement vaccinations.

**Results:** The participation rate in this survey was 32% (137/427). More than 90% of the pharmacists agreed that community pharmacies' assets were adequate for the implementation of these vaccinations (accessibility, availability), although 52% considered this complicated. Their main fears were reluctance from patients and conflicts of interest with other health professionals authorized to vaccinate (58%). The needs and expectations regarding pharmacy student training were essential for 94% of them as well as continuous training of practicing pharmacists (96%). The willingness of pharmacists to vaccinate stemmed from the fact that influenza vaccination coverage would increase for at-risk subjects (36%).

**Conclusion:** This survey allowed us to assess the favorable positioning and the real interest of pharmacists from Franche-Comté regarding the

influenza vaccination done at community pharmacies, given the proviso that they were given relevant training and allocated adequate resources.

Key words: Community pharmacist; Health; Patient care; Vaccination

## Introduction

The influenza vaccination allows for collective immunization, the goal of which is to protect at-risk populations from serious complications arising from influenza. The promotion of this vaccination amongst the public at large as well as health professionals is therefore of national interest since its goal is to increase the influenza vaccine's coverage [1, 2]. The French public health goal, which has been determined by the World Health Organization and set in the Council of the European Union's recommendations on seasonal influenza since 2009, is vaccination coverage of over 75% for those aged 65 and older [3]. In fact, a vaccination rate of 75% would prevent 3,032 [461 ; 5,472] deaths a year in this category compared to 2,102 [320 ; 3,794] deaths prevented at a vaccination rate of 52% [4].

Following the 2009 A/H1N1 influenza pandemic, a climate of suspicion regarding vaccinations came about causing a global reduction in the number of at-risk people getting the influenza vaccination [5]. Between 2011 and 2016 the number of those 65 and over vaccinated against seasonal influenza dropped more than 5%. Over the same period, the number of adult patients between 16 and 64 years of age treated for long term illnesses diminished by 1.7%. As a result, the French General Health Directorate requested the technical vaccination commission of the Superior Health Authority for an evaluation in order to simplify influenza vaccine access by harmonizing health professionals' competency in this domain [6]. One vocation of community pharmacists is to contribute to any activity promoting public health and protection. Their vaccination training can lead to increased access, simplified patient vaccination procedures and increased ease of care. Indeed, one lever used in other countries to increase the population's seasonal

influenza vaccination coverage is to simplify the path to vaccinations by promoting neighborhood access. Thus, the United States, Canada and 11 European countries including the United Kingdom, Ireland, Portugal and several Swiss cantons have opted for extending vaccination access to community pharmacists [6-10]. This community pharmaceutical vaccination endeavor has improved the rate of influenza vaccinations for at-risk subjects in these countries since vaccinations by community pharmacists add to global vaccination coverage [6, 9, 11].

Thus, in order to increase the number of vaccinated at-risk subjects and simplify their access to vaccinations, the 2017 Social Security Funding Act led to vaccination-related experiments by trained voluntary community pharmacists, possessing adapted space and equipment, and authorized by the Auvergne – Rhône Alpes and Nouvelle Aquitaine Regions for the 2017-2018 winter season [12]. The implementation conditions for this experiment were defined by Decree 2017-985 and the Decree of May 10, 2017 [13]. During the experiment's first year 160,000 vaccinations were carried out by 5,000 pharmacists who had received specific training. Building on this success, the 2018 Social Security Funding Law authorized an extension of this experiment by opening it up to two other regions: Occitanie and the Hauts-de-France [14]. The target population was also enlarged to include primo-vaccinations, pregnant women, those suffering from immune-system dysfunctions and those experiencing problems of coagulation. The implementation conditions for this second experimental year were defined in the Decree of September 25, 2018 [15]. Only those showing a severe allergic reaction antecedent to ovalbumin or to a previous vaccination could not be vaccinated by a community pharmacist. The outcome of this second experimental year proved its indisputable interest with 743,000 subjects vaccinated, 165,000 for the first time [16].

Since March 1, 2019, vaccinations have been part of the medical acts performed by community pharmacists all throughout France [17, 18]. Application conditions for this measure were laid out in several texts published in the *Journal Officiel* on April 23, 2019 [19 – 22]. In this context the Research and Training Unit (UFR) of the Franche-Comté Science and Health University undertook a study of licensed community pharmacists practicing in Franche-Comté. The main objective of the study was to evaluate Franche-Comté pharmacists' positioning in relation to the influenza vaccine performed by community pharmacists. The secondary objectives were to evaluate their needs and expectations in terms of initial and continuing training in preparation of this new pharmaceutical activity as well as measuring their willingness to participate in this activity.

## **Materials and methods**

### *The demography of the Franche-Comté Region*

207,200 residents of Franche-Comté were over the age of 65 in 2011, which represents 17.7% of the population as compared to the national average of 17.2%. Of these 107,700 were under the age of 75, or 9.2% of the regional population (source INSEE [23]). Like the rest of the population, most residents 65 years of age or older lived in the large cities or their surrounding areas: 61% of all senior citizens lived in one of the region's seven large urban zones (Besançon, Belfort, Montbéliard, Dole, Pontarlier, Lons-le-Saunier, Vesoul and their surrounding areas) as opposed to 63.6% of those between 18 and 64 years of age (source INSEE [23]).



### *Study schema and sequence*

This is a prospective study sent to all independent community pharmacists in the Franche-Comté Region. It was sent out electronically (e-mail) on March 30, 2018. Three e-mail reminders then followed. The final date to hand in data was set at September 27, 2018.

### *Pharmacists' questionnaire and letter requesting further information*

In order to meet the study's objectives, a questionnaire for community pharmacists was created. This came with an information letter for the pharmacy's licensed pharmacist, which outlined the study's objectives, participation modalities as well as other defining details. It was comprised of four main items:

- The pharmacist's general characteristics (gender, graduation date, type of pharmacy, existence of a private area, etc.);
- The positioning of the community pharmacists in relation to setting up vaccinations in their pharmacy, as evaluated according to their answers (agree, agree somewhat, disagree somewhat, disagree and without opinion) to 21 affirmative statements;
- The needs and expectations of the community pharmacists relative to this new activity, as evaluated according to their answers (yes, no, no opinion) to 12 affirmative statements;
- Their willingness to participate or not in this new activity, as evaluated according to their answer (yes, no, no opinion) to the following question: "If a vaccination experiment were to be extended to the Bourgogne – Franche-Comté Region, would you participate?" This question came with two other open questions on the positive and negative aspects of setting up vaccination points in community pharmacies.

### *Statistical analysis*

Data analysis was performed using SAS software (version 9.4). Qualitative variables were described in frequency and percentages [n (%)] and quantitative variables were described by the median and the range [minimum – maximum]. Qualitative variables were described and compared statistically using a Chi-2 test or Fischer's exact test. The relationship between the quantitative variables was analyzed using the Mann-Whitney test. We also calculated and presented 95% confidence intervals for the rate of participation [IC95%]. The significance threshold  $p$  was set at 0.05.

## **Results**

### *Rate of participation*

In all, 427 pharmacists were contacted. There were 137 responses, indicating a rate of participation of 32.1% [IC95 = 27.7 – 36.5]. The questionnaires were then analyzed.

### *General characteristics of community pharmacists who participated in the study.*

The general characteristics of pharmacists who answered the questionnaire are presented in **Table I**. The median seniority of tenure was 14 years [1 – 38].

More than 2/3 of the pharmacists worked in rural areas.

### *Positioning of community pharmacists*

The positioning of community pharmacists in relation to the influenza vaccine is presented in **Table II**. The pharmacists were in agreement as to the clear advantages of pharmacy staff involvement in this project. The accessibility of pharmacies (92.7%, n = 127), the frequency of patient contact (92.0%, n = 126), the relation of trust between pharmacist and patients (93.4%, n = 128) and the availability of pharmacy staff (92.6%, n = 112) were the existing and necessary logistical and human resources needed to justify their involvement in the increased influenza vaccination coverage strategy set up by the French authorities.

Concerning the preparation for this new activity, more than 9 pharmacists out of 10 agreed on the principle that it must be accompanied by technical (manual) and practical (advice, undesirable side effect management) skills. However, this also implied a reorganization of their pharmaceutical activity (89.8%, n = 123). Payment for administering vaccinations was judged to be too small and economically unsustainable for 47.4% (n = 65) of them.

Finally, more than 95.6% (n = 131) agreed on the fact that this new pharmaceutical vocation would allow them to educate patients on the importance of the influenza vaccine and help restore confidence in a context of mistrust toward vaccines.

### *Influenza vaccination training*

Initial and continual training in vaccination administration was considered to be necessary for more than 9 pharmacists out of 10 (**Table III**). Pharmacists agreed on the necessity of integrating into their initial and continuing training the epidemiological basics of influenza, the definition of at-risk populations, learning the undesirable side effects of

the vaccination and advice given before commencing the specific act of influenza vaccination.

The theoretical training of administrative modalities to practise vaccination in a community pharmacy, as both initial and continuing training, was an expressed need for 96.4% (n = 132). Finally, the need to acquire best vaccination practices and the preparation of practical influenza vaccination simulation workshops was formally expressed by 94.9% (n = 130) of community pharmacists in the region.

#### *Willingness of community pharmacists to participate in administering vaccinations*

More than 60% of the pharmacists wished to participate in this new influenza vaccination activity. Only one factor, the existence of a private space within the pharmacy, significantly influenced their willingness to practise influenza vaccinations at their pharmacy ( $p = 0.02$ ) (**Table IV**).

The answers received from the open questions in the questionnaire showed different degrees of willingness to set an influenza vaccination program up in their pharmacies. The main negative point for 58.2% (n = 71) was concern arising from conflicts with other health professionals who are authorized to vaccinate. Other concerns expressed by more than 30% of the pharmacists were the time needed for this activity (39.4%, n = 54), the reorganization of the pharmacy (21.9%, n = 30) and creating an appropriate space (18.2%, n = 25) within the pharmacy. On the other hand, the possibility of increasing influenza vaccine coverage was a strong motivator mentioned by 36.5% (n = 50) of participating pharmacists. The availability and proximity of pharmacy staff were

other undisputable advantages for patient comfort noted by the pharmacists. Finally, one of the strong points related to this activity mentioned by 10.2 % (n = 14) of them was the public valorization of their profession.

## **Discussion**

In the context of extending influenza vaccine administration to community pharmacists all throughout France, the Health University of Franche-Comté wished to evaluate the positioning, needs and expectations of community pharmacists and their willingness to develop this new vocation. This approach is part of the objectives laid out in the National Health Strategy for 2018 – 2022 which accentuates health system prevention tools and follows through on community pharmacy vaccination experiments undertaken in 4 French regions between 2017 and 2019.

Although the level of participation in the study appears to be low at 32% (n = 137), this is in line with participation levels obtained in other community pharmacist related studies [24, 25]. The study results certainly deserve attention. Participating pharmacists agree on the advantages community pharmacists have in carrying out this new vaccination program. Thus, more than 90% of them answer that the accessibility, availability, frequency and quality of patient contacts are clear and necessary advantages. However, the technical gestures, along with pharmaceutical advice, should be administered by a trained pharmacist. In total, only 60% (n = 81) of the pharmacists agree on the fact that this new mission should be seen as an opportunity. This percentage can be explained, on one hand, by the inherent obstacles in reorganizing the pharmacy; as raised by 89% (n = 123) of them and, on the other hand, the question of payment is deemed problematic as the proposed fee is considered to be insufficient for 47% (n = 65). Despite

the logistical, human and economic difficulties mentioned, 86% (n = 119) consider that vaccinations at pharmacies could positively impact the rate of at-risk patient vaccinations. Two thirds of the pharmacists also agree that their pharmacies should be vaccination follow-up locations. These results demonstrate pharmacists' willingness to participate in this activity by highlighting their pharmacies' logistical and human advantages, given the proviso that they be given the necessary practical and financial means to do so.

More than 9 pharmacists out of 10 consider initial and continuing theoretical and practical training on the influenza vaccine to be essential. The challenge is to integrate vaccine administration, a technical gesture, into their training. In response, setting up a specific pluridisciplinary and coordinated training program following the publication of the April 23 2019 Decree seems to be the most appropriate solution [22]. Health simulation centers now help facilitate this new type of technical training in pharmaceutical colleges by dispensing practical classes adapted to best vaccination practices. Other than the technical gesture, theoretical training is also seen as an essential element to which pharmacists are attached. Training which encompasses the fundamental (epidemiology, mechanisms), clinical (at-risk populations to receive priority treatment, undesirable side-effects and associated pharmaceutical advice) as well as administrative basics is deemed necessary. Much remains to be done in terms of initial and continuing training inherent in this new activity. This must be measured and taken into account institutionally in order to offer pharmacists the means to accomplish this new vaccination mission.

Their willingness to be part of the vaccination campaign is understandable, since they are health professionals dealing directly in disease prevention. On a practical level, the main difficulty is the logistical organization implied within each pharmacy. These results

demonstrate that community pharmacists equipped with a private space at the time of the questionnaire were more inclined to develop the influenza vaccination activity in their pharmacies. ( $p = 0.02$ ). Indeed, the reorganization of the pharmacies, which implies creating an adapted dedicated space as well as expanded pharmaceutical activity – the presence of a vaccination trained pharmacist – combined with the necessary time set aside by the pharmacist and administrative management of the mission, are all major constraints for more than 30% of those questioned.

It has also been noted that 2/3 of these pharmacists are wary of potential conflicts with other health professionals who are authorized to vaccinate. Results after 2 years of experiments highlight that 20% of all patients vaccinated by their pharmacist were vaccinated for the first time [26]. We must, however, await the final results before drawing any conclusions as to the transferring of vaccinations away from nurses and doctors to pharmacists or even to a global increase in the number of vaccinated subjects. Also, vaccination by pharmacists is in answer to the Priority Prevention Plan's protocol of 2018-2019, the objective of which was to promote collective immunization by removing all vaccination obstacles. The finality of this measure is to thus protect at-risk patients from contracting influenza by easing their way to vaccination and improving the influenza vaccination coverage.

The wish to reach the vaccination objectives set by the WHO is also an important motivator for 36% of respondents.

To conclude, this study allowed us to examine the favorable positioning of pharmacists in the Franche-Comté Region in regards to influenza vaccination experimentation in their pharmacies. This highlights the importance of their needs and expectations in terms of the practical and theoretical training implied in this new mission. Coordinated

pluridisciplinary and technical training in their early and continuing education has already begun in the Science and Health Research and Training Unit (UFR) of the University of Franche-Comté. The goal is to give pharmacists the tools needed to guarantee the success of this new mission. Pharmacists practising in community pharmacies are privileged health stakeholders contributing to first line medical acts, including preventive medicine. In this way, their responsibility has become primordial. Their mission to disseminate vaccination recommendations and benefits is the same, and their possibility to administer vaccinations makes this mission all the more pertinent.

**Conflicts of interest:** none.

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**Table I.** General characteristics of participating pharmacists.

<b>Number of pharmacists n (%)</b>	<b>137 (100.0)</b>
<b>Gender n (%)</b>	
Male	57 (41.6)
Female	80 (58.4)
<b>Practising since, years, median [min – max]</b>	<b>14 [1 – 38]</b>
<b>Place</b>	
Rural	91 (66.4)
City	44 (32.1)
Shopping mall	2 (1.5)

**Table II.** Positioning of pharmacists in relation to influenza vaccinations in community pharmacies.

n (%)	Agree somewhat or agree	Disagree somewhat or disagree	Without opinion
<b>Pharmacy characteristics</b>			
Accessibility	127 (92.7)	7 (5.1)	3 (2.2)
Patient contact frequency	126 (92.0)	7 (5.1)	4 (2.9)
Relation of confidence with patients	128 (93.4)	5 (3.7)	4 (2.9)
Availability*	112 (92.6)	5 (4.1)	4 (3.3)
General knowledge of patients (family and social context)	130 (94.9)	4 (2.9)	3 (2.2)
<b>Vaccination preparation in the pharmacy</b>			
Vaccination must be carried out by qualified pharmacists	124 (90.5)	8 (5.8)	5 (3.7)
Vaccination must come with advice	129 (94.2)	5 (3.6)	3 (2.2)
This activity requires reorganization of the pharmacy's activities	123 (89.8)	12 (8.7)	2 (1.5)
This activity implies management of potential undesirable vaccination side-effects	102 (74.5)	31 (22.6)	4 (2.9)
This is an opportunity for pharmacists	81 (59.1)	54 (39.4)	2 (1.5)
This activity will lead to patient loyalty	77 (56.2)	51 (37.2)	9 (6.6)
Vaccination reimbursement (estimated at between 4,50€ and 6,30€) is a hurdle	58 (42.3)	58 (42.3)	21 (15.4)
Vaccination reimbursement (6,30€) is financially unsustainable	55 (40.2)	5 (47.4)	17 (12.4)
This activity is easy to implement	71 (51.8)	65 (47.5)	1 (0.7)
<b>This new mission will permit</b>			
Sensitizing patients on the individual and collective interest of the influenza vaccination	133 (97.1)	3 (2.2)	1 (0.7)
Restoring a climate of confidence in relation to the influenza vaccine by responding to patients' questions	131 (95.6)	5 (3.7)	1 (0.7)
Listening, sharing and informing patients about the influenza vaccine	133 (97.1)	3 (2.2)	1 (0.7)
Increasing the influenza vaccines coverage	119 (86.9)	13 (9.5)	5 (3.6)

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Making community pharmacies a place for vaccination follow-up	104 (75.9)	30 (21.9)	3 (2.2)
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\* Missing data

**Table III.** Training needs and expectations of Franche-Comté pharmacists

n (%)	Initial training			Continuing training		
	Yes	No	Without opinion	Yes	No	Without opinion
<b>Influenza vaccine theoretical and practical training</b>						
Indispensable	129 (94.2)	7 (5.1)	1 (0.7)	132 (96.4)	3 (2.2)	2 (1.5)
Must lead to theoretical skills acquisition	126 (92.0)	10 (7.3)	1 (0.7)	128 (93.4)	7 (5.1)	2 (1.5)
Must lead to practical skills acquisition	130 (94.9)	6 (4.4)	1 (0.7)	133 (97.1)	3 (2.2)	1 (0.7)
<b>Contents of theoretical training</b>						
Epidemiology and structure of influenza virus	129 (94.2)	8 (5.8)	0 (0.0)	131 (95.6)	6 (4.4)	0 (0.0)
Practical means of administering vaccination in the pharmacy	132 (96.4)	3 (2.2)	2 (1.5)	132 (96.4)	4 (2.9)	1 (0.7)
Vaccination time-table	129 (94.2)	8 (5.8)	0 (0.0)	131 (95.6)	5 (3.6)	1 (0.7)
At-risk persons	131 (95.6)	5 (3.6)	1 (0.7)	129 (94.2)	6 (4.4)	2 (1.5)
Undesirable side effects: prevention and management	132 (96.4)	4 (2.9)	1 (0.7)	131 (95.6)	5 (3.6)	1 (0.7)
Influenza vaccination advice	132 (96.4)	4 (2.9)	1 (0.7)	132 (96.4)	5 (3.6)	0 (0.0)

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**Contents of practical training**

Vaccination best practices	132 (96.4)	5 (3.6)	0 (0.0)	133 (97.1)	4 (2.9)	0 (0.0)
Practical workshops with simulation	130 (94.9)	6 (4.4)	1 (0.7)	130 (94.9)	6 (4.4)	1 (0.7)

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**Table IV.** Factors influencing the willingness of Franche-Comté pharmacists to set up pharmacy influenza vaccinations

n (%)	Yes	No	Without opinion	Total	<i>p</i>
<b>Gender</b>					<b>0.,15</b>
Female	55 (40.1)	14 (10.3)	11 (8.0)	80 (58.4)	
Male	30 (21.9)	14 (10.2)	13 (9.5)	57 (41.6)	
<b>Private space*</b>	78 (64.5)	20 (16.5)	23 (19.0)	121 (100.0)	<b>0.02</b>
<b>Place</b>					<b>0.55</b>
Rural	57 (41.6)	16 (11.7)	18 (13.1)	91 (66.4)	
City	27 (19.7)	11 (8.1)	6 (4.4)	44 (32.2)	
Shopping mall	1 (0.7)	1 (0.7)	0 (0.0)	2 (1.4)	

\* Missing data