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"Vaccination needs to be easy for the people, right ?": a qualitative study of the roles of physicians and pharmacists regarding vaccination in Switzerland

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ABSTRACT

Objective Vaccination in pharmacies has been a key component of national vaccination strategies to facilitate vaccination access. Qualitative data on the perspectives of professional stakeholders on vaccination in pharmacies and on the professional relations of pharmacists with physicians regarding increasing immunisation rates is limited. We conducted a qualitative study in Switzerland. The main aim was to gain further insight into professional stakeholders' perspectives on vaccination counselling and administration conducted in pharmacies, and to further understand their views on physicians' and pharmacists' roles in increasing immunisation rates.

Design We conducted semistructured qualitative interviews. We coded and analysed transcripts using thematic analysis.

Setting Face-to-face interviews took place in German-speaking and French-speaking regions of Switzerland.

Participants We interviewed 14 key vaccination stakeholders including health authorities, heads of pharmacy management and professional association boards. All participants had a background in medicine or pharmacy.

Results Three main themes emerged from the qualitative data: (1) Participants viewed pharmacists as competent to provide vaccination counselling and administration based on their university training; (2) interprofessional cooperation between physicians and pharmacists on vaccination topics is limited and should be improved; and (3) pharmacists play an important role in increasing immunisation rates by facilitating vaccination access and through provision of vaccination counselling.

Conclusion By providing vaccination counselling and administering vaccines, pharmacists play an important public health role. Healthcare policies and health authorities should encourage more involvement of pharmacists and encourage interprofessional cooperation between physicians and pharmacists in order to improve vaccination counselling and increase immunisation rates.

Strengths and limitations of this study

- The qualitative study design provides novel insights into the opinions of key Swiss experts with both medical and pharmacy backgrounds and allows us to gain a deeper understanding of the topic of vaccination in pharmacies from the participants' own perspectives.
- This study includes detailed insights into the views of a wide variety of key actors, by including stakeholders from German-language and French-language regions of Switzerland, from public health, professional pharmacists and physicians organisations, and complementary medicine and biomedicine.
- The methodological approach to recruit only key Swiss experts on vaccination topics limits our results, because practising physicians and pharmacists are under-represented in our study.
- Our results reflect the opinions of a limited number of experts and should be generalised with caution.

INTRODUCTION

Despite generally high vaccination rates, vaccination coverage in many Western countries is not currently meeting public health targets to protect their populations against measles, human papillomavirus (HPV), and influenza.[1–4] Insufficient immunisation rates are not always simply a result of negative attitudes towards vaccination, a lack of reliable information, or vaccine hesitancy (VH); they can also result from inadequate access to vaccination services.[5–9] For example, hard-to-reach populations, such as healthy adolescents with no primary care physician, are often missed by healthcare systems.[10] Pharmacists have been involved in vaccination for many years,[11] and pharmacists involvement has been linked to increased vaccination rates, for example, in the USA,[12 13] Canada[14] and in the UK.[15] With their extended business hours and walk-in services, pharmacies offer easy access to healthcare providers and immunisation delivery.[13 16] In recent years, pharmacists in certain Western countries have become involved in offering vaccination services by serving as vaccination advocates, facilitators, and immunizers.[6 17–21]

Vaccination in pharmacies can increase access to immunisations and improve vaccination counselling.[14 20] For these reasons, pharmacists have been allowed and are encouraged to administer certain vaccines as a key component of the 2015 Swiss National Vaccination Strategy.[5 9] Additionally, pharmacists are now increasingly expected to provide preventive health services, having been attributed this role in the Swiss national law of medical professions.[22–24] In 22 of the 26 Swiss cantons (states), community pharmacists can currently administer vaccines (table 1).[25] This requires (since 2011) them to have obtained specific pregraduate and postgraduate training, an appropriate federal certificate,[26] and there is a compulsory continuing education requirement.[20 22 27 28]

Cooperation between physicians and pharmacists has the potential to facilitate access to vaccination and other health services and to improve the quality of the care delivered.[29–32] However, vaccination counselling and administration in pharmacies has previously been met with resistance by physicians in the US and other countries,[17 33] with physicians expressing doubts that pharmacists are qualified to deal with acute adverse reactions to vaccines, such as anaphylactic reactions. This resistance was also related to fears of reduced physician revenue when patients obtain vaccination in pharmacies rather than physicians' offices.[32] Conversely, pharmacists have been critical of physicians being allowed to sell medication directly to the patient in their offices (a practice referred to in Switzerland as 'self-dispensation' of medication by physicians) in countries including the UK[34 35] and Switzerland,[36 37] thereby reducing revenue from drug sales in pharmacies.

Since vaccination services overlap between the fields of activity of physicians and pharmacists, and due to the potential for friction between these professional groups around issues of revenue and authority, this topic merits further study, particularly in Switzerland where the opportunity to vaccinate in pharmacies is relatively recent and pharmacists have a new role regarding vaccination.[23] Since studies have shown that interprofessional interactions between pharmacists and general practitioners could be considerably improved,[29 30] it is important to understand the impact of the above mentioned interprofessional political issues on cooperation between physicians and pharmacists.

Here, we provide a detailed qualitative characterisation of the perspectives of key physician and pharmacy stakeholders from professional societies, public health departments, and community pharmacy boards on professional training, vaccination counselling and administration, and the respective roles and competencies of physicians and pharmacists.

METHODS

We conducted this study in the context of the Swiss National Research Program 74 (NRP74) on vaccine-hesitant patients and physicians in Switzerland.[7 38]

We selected participants through purposive sampling. The principal investigator (author PT) recruited all participants via publicly available email. Participants included stakeholders with a medical or pharmacy degree, including public health authorities, heads of community pharmacy management boards, and heads of professional medical and pharmacy associations (table 2). A total of 20 stakeholders were contacted, of whom 1 declined to participate due to general lack of time, and 5 were unable to participate due to constraints related to the coronavirus pandemic. We interviewed each participant once, with one interview conducted with two participants simultaneously.

We designed a semistructured qualitative interview guide based on previous projects of the NRP74 VH programme[8 39] and finalised it after several pilot interviews and revisions by team members (online supplemental files 1; 2). The guide included questions designed to capture in-depth insights about participants' perspectives on professional training and competence, vaccination counselling in pharmacies, immunisation rates, administration modalities, vaccination costs and mandatory vaccination. Several interviewees requested and received the interview guide from us in advance.

We conducted interviews with participants in the German-speaking and French-speaking regions of Switzerland from February 2020 to April 2020. Two senior pharmacy students trained in qualitative methods conducted the interviews (author MJ and author MAA). Before the interviews, we introduced ourselves as pharmacy students and stated our study objectives. We carried out the interviews at the location requested by the participants, such as their offices or a local café. We took field notes during the interview, but did not use them proactively in our analysis. All interviews were audio recorded and transcribed verbatim. We transcribed the interviews in the language of utterance (German or French). The French interviews were then translated into German by a native bilingual research team member. All quotes have been translated into English. To ensure anonymity, we use pseudonyms throughout. The interviewers and the study research team assumed that participants were in favour of and aware of the Swiss Vaccination Plan. Since we conducted this work in Switzerland, we also, as researchers and clinicians, use the Swiss Vaccination Plan as the benchmark against which we consider participants' views on vaccination. We regularly discussed data interpretation in the team during the process of transcription. After several rounds of in-depth readings, we developed a coding scheme. Coding allows data to be classified for subsequent, systematic analyses.

Transcripts were coded and analysed using thematic analysis, following Braun and Clarke's 6 phases in order to organise and analyse the data.[40] We made use of the qualitative data analysis software MAXQDA for coding and organising data. The analysis of the coding scheme and themes was reviewed independently by other group members. Data saturation was reached after nine interviews and confirmed with the following four interviews.[41]

We grouped similar codes into themes and organised data into three main themes: (1) competence of various

Table 1 List of vaccinations authorised in pharmacies in Switzerland by canton

Canton	Approval since (extensions)	Vaccination in pharmacies	Age (years)	Influenca	FSME	Hep. A	Hep. B	Hep. A+B	MMR	Other (HPV, dTp, etc)
AG	–	–								
AI	–									
AR	–	–								
BE	2015 (2018)	+	16	+	+	+*	+*	+*		
BL	2016 (2017,2019.07)	+	16	+	+	+	+	+	+	+all according to CH guidelines
BS	2018	+	18	+	+	+	+	+		
FR	2015 (2018)	+	16	+	+				+	Tetanus (dT, dTp)
GE	2016 (2018.12)	+	16	+						
GL	2020.02	+	16	+	+	+*	+*	+*		
GR	2016 (02.2020)	+	16	+	+	+*	+*	+*	+*	+* all according to CH guidelines
JU	2016 (2019.03)	+	16	+	+	+	+	+		
LU	2017	+	16	+	+	+*	+*	+*	+*	+* all according to CH guidelines
NE	2015	+	16	+	+				+*	
NW	2017	+	16	+	+	+*	+*	+*		
OW	2019	+	16	+	+	+*	+*	+*		
SG	2016	+	16	+	+					
SH	2016	+	16	+	+	+*	+*	+*		
SO	2015	+	16	+	+	+	+	+	+	+all according to CH guidelines
SZ	2016	+	16	+	+	+*	+*	+*		
TI		R†								
TG	2016	+	16	+	+	+*	+*	+*	+*	+* all according to CH guidelines
UR	2019.05	+	>16	+	+	+*	+*	+*		
VD	2016 (2017)	+	16	+	+	+*	+*	+*	+	

Continued

Table 1 Continued

Canton	Approval since (extensions)	Vaccination in pharmacies	Age (years)	Influenca	FSME	Hep. A	Hep. B	Hep. A+B	MMR	Other (HPV, dTp, etc)
VS	2016 (06.2019;02.2020)	+	16	+	+					further vaccinations within the framework of campaigns (time-limited, cantonally defined)
ZG	2017	+	16	+	+	+*	+*	+*		
ZH	2015	+	16	+	+	+*	+*	+*		

Table as of: 02/25/2020.
*From second dose, after initial vaccination by physician has taken place
†R: Vaccination by prescription
HPV, human papillomavirus.

healthcare providers (HCP) to provide vaccination counselling, (2) roles of physicians and pharmacists in vaccination counselling, and (3) contribution of physicians and pharmacists to increasing immunisation rates in Switzerland.

The research team discussed any discrepancies in coding. We used the Consolidated criteria for Reporting Qualitative research checklist as guidelines for reporting qualitative results, which applies to all aspects of qualitative research.[42] Participants' exact professional affiliations are not displayed in order to protect their identities. In the following sections, we will use the term clients to refer to patients and clients, unless directly citing participants.

Patient and public involvement

No patients were involved in this study.

RESULTS

Study participants had a medical (N=8) or pharmacy (N=6) professional background (table 2). Two participants with a medical background had additional training in complementary and alternative medicine (CAM). The interviews lasted from 30 to 60 min, with an average of 44 min.

We first illustrate who participants considered to be competent to provide vaccination counselling and what formal requirements this should entail. Second, we describe participants' perspectives on the roles of the two main actors in vaccination counselling in Switzerland: physicians and pharmacists. Third, we examine participants' suggestions for how physicians and pharmacists could potentially contribute to increasing vaccination rates.

Pharmacists are competent to provide vaccination counselling

We asked participants which healthcare professionals were competent to provide vaccination counselling. All participants agreed that vaccination topics were 'complex issues' and argued that sound expert knowledge about the different vaccines, their efficacy, safety and how to deal with complications was required. Participants also emphasised the importance of knowing one's 'own limits' and of seeking expert advice when uncertainties arise. Furthermore, they discussed how an interest in the topic of vaccinations and a fundamental knowledge base were prerequisites for providing scientific and objective advice and to be able to answer 'tough' questions and provide in-depth information.

According to the participants' descriptions of competence, pharmacists and physicians best meet criteria for competent vaccination counselling. As Ms. Tanner (Pharmacist, Swiss Pharmacists Association) explained physicians and pharmacists both are qualified to provide vaccination counselling: 'All things considered, to have a really good conversation with the client (…), for me, an academic background is necessary to have a good understanding of the information, of the immunology, so that

Table 2 Participant characteristics

Pseudonym	Language region	Professional affiliation	Occupation
Dr. Tanner	German	Swiss Pharmacists Association	Pharmacist
Ms. Thies	German	Swiss Pharmacists Association	Pharmacist
Mr. Tschopp	German	Swiss Young Pharmacists Group	Pharmacist
Mr. Nagy	French	Head of a community pharmacy chain	Pharmacist
Ms. Zehnder	French	Chief pharmacist in public health department	Pharmacist
Ms. Bertschi	German	Chief pharmacist in public health department	Pharmacist
Dr. med. Camenzind	German	Swiss Federal Vaccination Commission	Physician
Dr. med. Felder	German	Swiss Association of Complementary Medicine Physicians	Physician
Dr. med. Tiefenbacher	German	Swiss Association of Paediatricians	Physician
Dr. med. Dahl	German	Swiss Society for General and Internal Medicine	Physician
Dr. med. Zeller	German	Major complementary medicine hospital	Physician
Dr. med. Müller	German	Swiss Medical Association	Physician
Dr. med. Lehmann	German	Chief physician in public health department	Physician
Dr. med. Meyer	French	Chief physician in public health department	Physician

you can explain a vaccine correctly. And that's why I feel that if a client wants to be informed in-depth, vaccination counseling currently belongs in the hands of physicians and pharmacists.'

Views on other healthcare professionals' vaccination competency

Some of the participants explained that, in addition to physicians and pharmacists, other medical professionals who do not have university training, such as nurses, medical practice assistants, and pharmacy assistants, could also be competent to provide appropriate vaccination advice. Ms. Lehmann (chief physician, public health department) expressed that HCPs with various backgrounds who obtain additional vaccination training are competent to provide high quality vaccination counselling. Participants agreed that HCPs without university training could, at the very least, relieve physicians and pharmacists by evaluating clients' vaccination status, asking certain triage questions or administering vaccines.

Only one participant, Mr. Zeller (physician, Swiss CAM hospital), saw vaccination counselling and administration as being outside of pharmacists' area of expertise. He explained that pharmacists who vaccinate would 'interfere' with the job of the physician, arguing that pharmacists would vaccinate with other intentions; in his view, profit would be pharmacists' primary focus, meaning that there would be a possible conflict of interest. He said that during the physician–patient encounter, the primary goal is not selling and administering a vaccine, but to counsel the patient, to aid them in their decision-making process, and to embed vaccination in the medical check-up visit.

Limited vaccination training during medical school compared with excellent vaccination education in pharmacy school

When discussing how physicians and pharmacists acquired their vaccination counselling and administration competence, participants considered HCPs' university education, postgraduate training, and continuing education. Participants described how all physicians are allowed to vaccinate after postgraduate training to obtain a medical specialist title. In contrast, pharmacists can only vaccinate clients by meeting 2 conditions: (1) completing specific postgraduate training course leading to a certificate of competence for vaccination; and (2) fulfilling regular continuing education requirements. According to physician and pharmacist participants, the quality of vaccination counselling from physicians could be improved by increasing the content of their pre-graduate vaccination training.

All pharmacists agreed that vaccine education during pharmacy university training in Switzerland was excellent, especially since 2016 when the vaccination content of the curriculum was updated. According to Mr. Tschopp (pharmacist, Swiss Young Pharmacists Group), however, there is 'room for improvement' regarding communication training for both physicians and pharmacists.

Opinions regarding coverage of vaccination topics in medical school differed. Most participants felt that physicians received only limited and 'superficial' training on vaccination. According to Mr. Tiefenbacher (physician, Swiss association of paediatricians), vaccination is a topic that receives only 'marginal' attention in medical school. He pointed out: 'I cannot remember many vaccine-specific lectures [in medical school], let alone practical courses. (…) When I talk to medical students or have master students with me who are in their fourth year [of medical school], or when I do one-on-one student tutoring, vaccination for them is still a closed book.'

In terms of postgraduate training, according to both physician and pharmacist participants, pharmacists who have acquired the postgraduation vaccination certificate have obtained 'outstanding and stringent' training. In contrast, regarding postgraduate medical residency

training, some participants considered that the vaccination issues were not discussed in enough detail. Mr. Tiefenbacher (physician, Swiss association of paediatricians) expressed wishing to be confronted with vaccination questions 'from the beginning on and more frequently' during postgraduate residency training.

Participants felt that pharmacists' competence is ensured by continuing training they must undergo, to maintain their vaccination certification. In contrast, physicians do not have to obtain any continuing vaccine education. One pharmacist (Mr. Nagy, pharmacist, head of a community pharmacy chain) argued how it is in the interest of physicians to receive additional training: 'It is a question of individual will. This is the advantage pharmacists have over physicians.' However, Mr. Meyer (chief physician, public health department) considered that regarding formal requirements for vaccination administration, too much is required of pharmacists, whereas too little is demanded of physicians. In his view, the rules for continuing education should be the same for both professions.

Lack of interprofessional cooperation between physicians and pharmacists

In this section, we discuss stakeholders' different perspectives on interprofessional cooperation between physicians and pharmacists when it comes to vaccination, a matter on which the interviews revealed considerable disagreement. We illustrate the stakeholders' characterisation of interprofessional cooperation and how it should best be organised.

According to most participants, ample communication and good working relationships on the same professional level between physicians and pharmacists are important for collaboration to be effective. As stated by the stakeholders from both disciplines, there is an unmet need for better professional cooperation between physicians and pharmacists. Complex situations and uncertainties regarding vaccine supply, appropriate indications, and complications could thus be resolved together. Furthermore, incorporation of different physician and pharmacist perspectives would ultimately improve the quality of care. Participants expressed how interprofessional cooperation could allow 'better access to and understanding of vaccination.' Participants agreed that a primary goal of inter-professional cooperation would be to put the patient at the centre. Mr. Müller (physician, Swiss Medical Association) succinctly summarised this point by arguing that vaccination needs to be 'easy for the people, right? That's the point.'

Furthermore, participants argued how physicians and pharmacists should pursue common goals, such as providing the best possible medical care and improving vaccination rates. For example, Ms. Tanner (pharmacist, Swiss Pharmacists Association) stated, '(It's) not only the pharmacists. All actors are important here. We have to assure somehow that we all pull together. That we respond to the level of knowledge of patients or vaccine-hesitant people so that they can be convinced, and vaccination rates can be increased and health care costs reduced.'

However, participants described how, at present, interprofessional cooperation was mostly non-existent. According to Ms. Dahl (physician, Swiss Society for General and Internal Medicine) the reason for the lack of interprofessional cooperation was clear: 'Cooperation between physicians and pharmacists? I don't think there is any communication, sorry [laughs].' Mr. Meyer (chief physician, public health department) explained how he felt that physicians and pharmacists 'put up with each other' but that there was 'no cooperation.' Mr. Müller (physician, Swiss Medical Association) even described interprofessionalism as an 'illusion'.

According to participants, pharmacists' ability to vaccinate might be an important source of friction for some physicians and thus the lacking interprofessional cooperation. Mr. Zeller (physician, major swiss CAM hospital) stated that 'prevention belongs in the hands of the physician.' This sentiment was echoed by other physician stakeholders. A common stereotype among physicians, according to both medical and pharmacy stakeholders, was that pharmacists acted 'like little physicians' when they vaccinate or provide vaccination counselling. Another sentiment participants described involved physicians having a 'fear' of pharmacists overstepping their professional roles, which might bring physicians in general to develop a 'competitive' attitude with pharmacists. Participants explained how there was a perception that pharmacists were 'taking something away' from physicians by being allowed to vaccinate.

Mr. Tiefenbacher (physician, Swiss association of paediatricians) explained this 'scepticism' of physicians towards pharmacists by detailing how vaccination was often the only contact between the family physician and their healthy patients and that vaccination in pharmacies carried the potential to eliminate physician-patient contact entirely. He clarified that physicians' scepticism was attributable to the fact that pharmacists would try to sell 'lots of things' in addition to vaccinations, since pharmacies nowadays resemble 'general stores'.

Other participants stated that pharmacies were merely 'an additional service' to the already existing ones. Mr. Nagy (pharmacist, head of a community pharmacy chain) explained: 'Pharmacies provide care to individuals who have no family physician, who do not regularly see a physician, or have no contact with any medical professional. The only medical profession with which they have contact is the pharmacist. This will only *increase* immunisation rates. There is no competition there, quite the opposite.'

Mr. Tschopp (pharmacist, Swiss Young Pharmacists Group) similarly pointed to vaccination in pharmacies as 'the best way' to reach people who never consult a physician.

Ms. Bertschi (chief pharmacist, public health department) explained that pharmacists should apply all knowledge that they acquired during their training and that could be legally provided. Vaccination being included

in pharmacists' training was an obvious area of pharmacists' expertise. Furthermore, all pharmacist participants stated that pharmacists, as trained HCPs, increasingly are considered key providers of preventive medicine in Switzerland.

To improve the relationships between physicians and pharmacists, Mr. Nagy (pharmacist, head of a community pharmacy chain) argued that joint workshops on vaccination topics for physicians and pharmacists should be arranged. Mr. Tschopp (pharmacist, Swiss Young Pharmacists Group) proposed joint social events to help physicians and pharmacists get to know each other better. Ms. Felder (physician, association of CAM physicians) echoed this thought, 'I think that inter-professional cooperation can be fruitful. Together is always better than against each other, right?'

However, two participants felt that further cooperation was not necessary. Mr. Zeller (physician, major CAM hospital) explained that this would lead to 'complicate' rather than simplify matters. According to him, pharmacist–physician cooperation would lead to difficulties in defining who is in charge and responsible for vaccination decisions. Ms. Bertschi (chief pharmacist, public health department) also expressed scepticism: 'Either the physician or pharmacist vaccinates. I do not see much interprofessional cooperation here.'

Self-dispensation of medication in physicians' offices as a 'counterpart' to vaccination in pharmacies

Participating stakeholders discussed physicians' practice of selling medication in their offices directly to their patients (self-dispensation), thereby generating significant financial revenue, potentially at the disadvantage of the local pharmacy. On the other hand, vaccination in pharmacies might generate revenue for the pharmacy, potentially disadvantaging local office physicians.

Several physician stakeholders reported that physicians and pharmacists should have 'equal rights' by arguing that self-dispensation by physicians should be allowed in Swiss cantons where vaccination in pharmacies is allowed. Some pharmacists, however, noted that this was already largely the case. Cantons with liberal laws on self-dispensation by physicians typically also promote vaccination in pharmacies.

Some pharmacists stated that self-dispensation and vaccination in pharmacies could not be directly compared because vaccination in pharmacies was based on compulsory postgraduate training and quality assurance requirements, whereas no further educational requirements are imposed on 'self-dispensing' physicians. Mr. Tschopp (pharmacist, Swiss Young Pharmacists Group) criticised this: 'This is all political. Self-dispensation is an unregulated system that is wildly proliferating in doctors' offices. In contrast, vaccination in pharmacies is tightly regulated, and physicians and the authorities keep a close eye on us. It's about economic privileges.'

Despite the mentioned differences, both physician and pharmacist participants were overall confident that cooperation between the two professions will improve. However, participants discussed how pharmacists should not 'push' and should 'proceed in small steps,' because it is important that 'trust must be built up and physicians must not get angry.' This view was expressed by both physician and pharmacist stakeholders.

Vaccination in pharmacies as a strategy to increase vaccination rates

We asked participants about the extent to which physicians and pharmacists could play roles in increasing vaccination rates. Stakeholders explained that physicians and pharmacists play a key role in this regard by providing vaccine information to patients and clients. Ms. Zehnder (chief pharmacist, public health department) explained: 'You have to provide people with information, awareness, and responsibility, without the specter of fear.' Participants described it being essential to inform patients and clients 'skillfully' so that the advice does not cause resistance. Physicians and pharmacists often face difficult questions on vaccination and need to take sufficient time for counselling such clients. Providers should face up to 'untruths,' misinformation, and outdated information. Some stakeholders believed that misinformation leads to the development of 'vaccination sceptics' or 'vaccine-hesitant' people. Mr. Meyer (chief physician, public health department) argued how HCPs collectively needed to prevent this 'minority' from 'setting the tone.' Participants argued that it was important to educate vaccine-hesitant groups specifically. Mr. Müller (physician, Swiss Medical Association) and Ms. Tanner (pharmacist, Swiss Pharmacists Association) mentioned motivational interviewing techniques to better inform clients and guide them towards their vaccine decisions. For Mr. Tschopp (pharmacist, Swiss Young Pharmacists Group), vaccination counselling required an 'emotional and trusting' relationship between pharmacists and their clients. In his view, by providing correct and easily understandable information, the number of people willing to be vaccinated would increase.

Two physicians specialised in CAM stated that increasing vaccination rates in Switzerland is not a priority for them. Ms. Felder (physician, association of CAM physicians) explained that if the patient 'had good reasons not to be vaccinated,' she would not try to persuade them to get vaccinated just to increase vaccination rates. Rather, she argued that by providing 'transparent' and 'individualised' vaccination counselling, patients should be able to make a more informed vaccination decision. In her view, this will ultimately lead to increased vaccination rates. Mr. Zeller (physician, major CAM hospital) put it bluntly: 'I treat patients and not vaccination rates. My primary goal is to protect those [with vaccines] who want to be protected, and to counsel them as objectively as possible. Those who don't want to be protected: well, they can do this, it's their own responsibility.'

Finally, pharmacy stakeholders suggested that different regulations in the Swiss cantons (states) should be

harmonised. Ms. Tanner (pharmacist, Swiss Pharmacists Association) stated: 'Each canton has different rules for vaccination in pharmacies—this makes no sense. The goal clearly is to increase vaccination rates in the whole country.'

DISCUSSION

In this study, we provide a detailed characterisation of key Swiss medical and pharmacy stakeholders' perspectives on vaccination in pharmacies. Stakeholders viewed both physicians and pharmacists as competent to provide vaccination counselling. By providing low threshold access to vaccination counselling, pharmacists play an important public health role, and vaccine administration in pharmacies increases vaccination rates. However, stakeholders noted only limited professional cooperation between pharmacists and physicians on vaccination and recommended improving collaboration.

The results of this study show how physicians and pharmacists in Switzerland serve as major actors for providing high-quality vaccination counselling and administering vaccines. This is in line with previous studies.[11 14 17 43 44] For example, previous research has shown how pharmacists have in-depth knowledge of physicochemical properties of drugs and vaccines, of pharmacology, pharmacokinetics, drug interactions and adverse drug effects.[45 46] Interviewed stakeholders discussed extensive pregraduate and postgraduate training as a key prerequisite for pharmacists' vaccination competence. Schaffer *et al*[47] point out how pharmacists' willingness to complete additional postgraduate vaccination training demonstrates their commitment and high level of interest in the topic of vaccination.[47] Previous authors recorded that pharmacy students in Switzerland receive more hours of training on vaccination topics as part of their curriculum than medical students.[28] Several of our participants mentioned this as evidence that pharmacists are well prepared for vaccination counselling and administration, perhaps even more so than physicians.

Our results document a considerable potential for tension between physicians and pharmacists on the topic of vaccination. In a 2014 report from Ireland, general practitioners expressed concern about pharmacists vaccinating, questioning pharmacist's professional competence and ability to deal with vaccine-related complications in the pharmacy.[33] Interestingly, most Swiss physician stakeholders were supportive of vaccination in pharmacies as an important addition to vaccination in physicians' offices. This could be interpreted as a favourable change in interprofessional attitudes in recent years, with a welcome emphasis on physicians' and pharmacists' shared goal of achieving success for national immunisation programmes by increasing vaccination rates. This phenomenon has similarly been observed in the UK, where resistance from general practitioners towards pharmacists vaccinating decreased over time.[48] Nevertheless, stakeholders also mentioned concerns about pharmacists who vaccinate, potentially interfering with the financial well-being of physicians, by taking customers and therefore revenue away from physicians. This is in line with previous reports.[17 33] The direct comparison by our stakeholders of selling medication by physicians in practice with vaccination in pharmacies was an interesting observation that has not previously been documented in Switzerland.[49] Pharmacists' concerns about loss of income and authority has also been recorded in the USA.[35] Importantly, selling medication constitutes a significant source of revenue for 'self-dispensing' physicians, representing the second largest distribution channel in the Swiss drug market.[23 50] In cantons where physician self-dispensation is allowed, the number of pharmacies is lower than in the other cantons.[37]

Our findings underline the importance of considering financial aspects and highlight the extent to which such decisions are politically charged and likely need to be resolved at a higher political level. As the Swiss Federal Office of Public Health mentioned in a 2016 report, interprofessional cooperation might meet fewer obstacles in cantons without self-dispensation of medicines by physicians.[23 36] In addition, the perceived potential for financial competition between physicians and pharmacists in the private sector may provide a possible explanation for the currently limited degree of cooperation between these professional groups.

Similar to what has been shown in a previous report[31] and other research, study participants discussed how interprofessional cooperation in the field of vaccination is likely to facilitate access to vaccination information and delivery,[14 17] heightened awareness concerning vaccinations, and, consequently, increased immunisation rates.[10 51 52] This may concern particularly people with previously little contact with healthcare systems, such as adolescents and healthy adults who have no regular physician or socioeconomically disadvantaged groups.[14 46] Pharmacy and physician stakeholders underscored how active communication and the provision of high-quality information on vaccination by the provider increases vaccination rates. This is in keeping with previous observations, such as those of Grabenstein *et al*[17] who found that patients are more likely to be vaccinated if they were approached actively by the provider.[17] Active initiation of the conversation by the provider, and the use of motivational interviewing[53] may be useful to respond to patient needs.[54] Motivational interviewing has already been applied in the field of vaccination and has been shown to be an effective approach in increasing vaccination intention and vaccination rates when used by both pharmacists[54] and physicians.[55 56]

Strengths and limitations

Strengths of this study include a qualitative approach, which allowed us to gain a deeper understanding of the topic of vaccination in pharmacies from the participants' own perspectives. Our results provide novel insights into the opinions of key Swiss experts with both medical and

pharmacy backgrounds. This is an understudied aspect in the field of vaccination services. By including stakeholders from German-language and French-language regions of Switzerland, from public health, professional pharmacists and physicians organisations, CAM and biomedicine, we obtained detailed insights into the views of a wide variety of key actors.

Qualitative studies have limitations. Our results reflect the opinions of a limited number of experts and should not be generalised. For qualitative interviewing, the interviewer effect[7] and the social desirability bias[57] may have affected the information obtained. Given that our data were collected in the German-speaking and French-speaking regions of Switzerland, translation of interviews into English might have altered the meaning of some statements due to language-specific nuances. That being said, language-related issues were discussed among the multilingual team throughout data analysis. These limitations can be addressed by including our study findings into future quantitative research that aims at studying similar issues on a wider scale.

CONCLUSION

Our results suggest that promoting the integration of pharmacists as vaccine counsellors and vaccine administrators should be considered to maintain successful national immunisation programmes. Health policy-makers should consider more actively encouraging interprofessional cooperation between physicians and pharmacists which currently seems limited in Switzerland. Participants criticised the lack of uniform regulation for vaccination in pharmacies throughout Switzerland. Active initiation of discussion of vaccines by pharmacists and physicians with their patients and providing high-quality vaccination advice may further contribute to increased immunisation rates and improved coordination between healthcare professionals in Switzerland.

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REFERENCES

1 Federal Office of Public Health. *French version: Couverture vaccinale des enfants âgés de 2, 8 et 16 ans en Suisse, 2014–2016*, 2018. https://www.bag.admin.ch/dam/bag/fr/dokumente/mt/i-und-b/durchimpfung/bu-24-18-durchimpfung-2014-2016-de.pdf.download.pdf/bu-24-18-durchimpfung-2014-2016-fr.pdf
2 Federal Office of Public Health. *German version: Bericht zur Grippesaison 2018/19*, 2019. https://www.bag.admin.ch/dam/bag/de/dokumente/mt/infektionskrankheiten/grippe/saisonbericht-grippe-2018-19.pdf.download.pdf/saisonbericht-grippe-2018-19-de.pdf
3 Tarr PE, Deml MJ, Huber BM. Measles in Switzerland - progress made, but communication challenges lie ahead. *Swiss Med Wkly* 2019;149:w20105.
4 Sheikh S, Biundo E, Courcier S, *et al*. A report on the status of vaccination in Europe. *Vaccine* 2018;36:4979–92.
5 Federal Office of Public Health. National Vaccination Strategy - Short Version, 2017. Available: https://www.bag.admin.ch/dam/bag/en/dokumente/mt/i-und-i/national-vaccination-strategy-short-version.pdf.download.pdf/national-vaccination-strategy-short-version.pdf
6 Kamal KM, Madhavan SS, Amonkar MM. Determinants of adult influenza and pneumonia immunization rates. *J Am Pharm Assoc* 2003;43:403–11.
7 Deml MJ, Jafflin K, Merten S, *et al*. Determinants of vaccine hesitancy in Switzerland: study protocol of a mixed-methods national research programme. *BMJ Open* 2019;9:e032218.
8 Deml MJ, Notter J, Kliem P, *et al*. "We treat humans, not herds!": A qualitative study of complementary and alternative medicine (CAM) providers' individualized approaches to vaccination in Switzerland. *Soc Sci Med* 2019;240:112556.
9 Federal Office of Public Health. *French version: Stratégie nationale de vaccination*, 2017. https://www.bag.admin.ch/dam/bag/fr/dokumente/mt/i-und-i/nsi/nsi-strategie-vollversion.pdf.download.pdf/nsi-strategie-vollversion-fr.pdf

10 Vlahov D, Coady MH, Ompad DC, *et al*. Strategies for improving influenza immunization rates among hard-to-reach populations. *J Urban Health* 2007;84:615–31.
11 Hogue MD, Grabenstein JD, Foster SL, *et al*. Pharmacist involvement with immunizations: a decade of professional advancement. *J Am Pharm Assoc* 2006;46:168–82.
12 Burson RC, Buttenheim AM, Armstrong A, *et al*. Community pharmacies as sites of adult vaccination: a systematic review. *Hum Vaccin Immunother* 2016;12:3146–59.
13 Goad JA, Taitel MS, Fensterheim LE, *et al*. Vaccinations administered during off-clinic hours at a national community pharmacy: implications for increasing patient access and convenience. *Ann Fam Med* 2013;11:429–36.
14 Isenor JE, Edwards NT, Alia TA, *et al*. Impact of pharmacists as immunizers on vaccination rates: a systematic review and meta-analysis. *Vaccine* 2016;34:5708–23.
15 Anderson C, Thornley T. Who uses pharmacy for flu vaccinations? Population profiling through a UK pharmacy chain. *Int J Clin Pharm* 2016;38:218–22.
16 Klepser ME. Seasonal and pandemic influenza: preparing pharmacists for the frontline. *J Am Pharm Assoc* 2008;48:312–4.
17 Grabenstein JD. Pharmacists as vaccine advocates: roles in community pharmacies, nursing homes, and hospitals. *Vaccine* 1998;16:1705–10.
18 Valeri F, Hatz C, Jordan D, *et al*. Immunisation coverage of adults: a vaccination counselling campaign in the pharmacies in Switzerland. *Swiss Med Wkly* 2014;144:w13955.
19 International Pharmaceutical Federation (FIP). *An overview of current pharmacy impact on immunisation: a global report 2016*. The Hague: International Pharmaceutical Federation, 2016.
20 Leuthold C, Bugnon O, Berger J. The role of community pharmacists in travel health and vaccination in Switzerland. *Pharmacy* 2018;6:125. doi:10.3390/pharmacy6040125
21 Anderson C, Thornley T. "It's easier in pharmacy": why some patients prefer to pay for flu jabs rather than use the National Health Service. *BMC Health Serv Res* 2014;14.
22 Federal Office of Public Health. *French version: Loi fédérale sur les professions médicales universitaires (SR 811.11, Loi sur les professions médicales, LPMéd), Art. 9*, 2006. https://www.admin.ch/opc/fr/classified-compilation/20040265/index.html
23 Federal Office of Public Health. *French version: Place des pharmacies dans les soins de base.Rapport du Conseil fédéral élaboré en réponse au postulat Humbel (12.3864) du 27 septembre 2012*, 2016. https://www.bag.admin.ch/dam/bag/fr/dokumente/nat-gesundheitspolitik/koordinierte_versorgung/verstaerkung_bestehender_aktivitaeten/po_12.3864_bericht.pdf.download.pdf/po_12.3864_bericht_f_def.pdf
24 The Federal Assembly-The Swiss Parliament. *French version: 12.3864 Postultat, place des pharmacies dans les soins de base*, 2012. https://www.parlament.ch/en/ratsbetrieb/suche-curia-vista/geschaeft?AffairId=20123864
25 Swiss Pharmacists Association. *German version: Liste der Impfungen nach Kanton, Stand Februar 2020*, 2020. https://impfapotheke.ch/assets/impfapotheken/liste-der-impfungen-nach-kanton-200225-de.pdf
26 Foederatio Pharmaceutica Helvetiae. *German version: Fähigkeitsprogramm FPH Impfen und Blutentnahme*, 2014/2015. https://www.pharmasuisse.org/data/docs/de/23096/F%C3%A4higkeitsprogramm-FPH-Impfen-und-Blutentnahme.pdf?v=1.0
27 Federal Office of Public Health. *French version 1: Objectifs de formation en pharmacie selon La LPMéd*, 2008. https://www.bag.admin.ch/dam/bag/fr/dokumente/berufe-gesundheitswesen/medizinalberufe/eidg-pruefungen-universitaerer-medizinalberufe/pharmazie/lernzielkatalog-pharmazie-version-1.pdf.download.pdf/lernzielkatalog-pharmazie.pdf
28 Sottas B, Kissmann S. *German version: Ist-Analyse Aus-, Weiter- und Fortbildung Im Impfbereich Schlussbericht. bag*, 2019. https://www.bag.admin.ch/dam/bag/de/dokumente/mt/i-und-i/nsi/bildung-impfen-gesundheitsberufe.pdf.download.pdf/bildung-impfen-gesundheitsberufe-de.pdf
29 Bradley F, Ashcroft DM, Crossley N. Negotiating inter-professional interaction: playing the general practitioner-pharmacist game. *Sociol Health Illn* 2018;40:426–44.
30 Cunningham DE, Ferguson J, Wakeling J, *et al*. GP and pharmacist inter-professional learning - a grounded theory study. *Educ Prim Care* 2016;27:188–95.
31 Federal Office of Public Health. *Support programme «Interprofessionality in healthcare». 2017-2020*, 2020. https://www.bag.admin.ch/bag/en/home/strategie-und-politik/nationale-gesundheitspolitik/foerderprogramme-der-fachkraefteinitiative-plus/foerderprogramme-interprofessionalitaet.html#-1903361658
32 Hindi AMK, Schafheutle EI, Jacobs S. Community pharmacy integration within the primary care pathway for people with long-term conditions: a focus group study of patients', pharmacists' and GPs' experiences and expectations. *BMC Fam Pract* 2019;20:26.
33 Moore T, Kennedy J, McCarthy S. Exploring the general Practitioner-pharmacist relationship in the community setting in Ireland. *Int J Pharm Pract* 2014;22:327–34.
34 Goldacre B, Reynolds C, Powell-Smith A, *et al*. Do doctors in dispensing practices with a financial conflict of interest prescribe more expensive drugs? A cross-sectional analysis of English primary care prescribing data. *BMJ Open* 2019;9:e026886.
35 David NJ. *Selling Drugs in the Physician's Office A Problem of Medical Ethics*. . Philosophy Documentation Center, 1992: Vol. 11. 73–88.
36 Brügger FA. *German version: Interdisziplinäre Zusammenarbeit zwischen Apotheker/innen und anderen universitären Medizinalpersonen und/oder Gesundheitsfachpersonen Büro für Arbeits- und Sozialpolitische Studien bass Ag*, 2014.
37 Swiss Pharmacists Association. *French version: Faits et chiffres Pharmacies suisses* 2020, 2020. Available: https://www.pharmasuisse.org/data/docs/de/20910/Faits-et-chiffres-2020.pdf?v=1.1
38 National Research Programme. *28 Vaccine-sceptical patients and doctors in Switzerland*, 2020. Available: http://www.nfp74.ch/en/projects/out-patient-care/project-tarr
39 Deml MJ, Buhl A, Notter J, *et al*. 'Problem patients and physicians' failures': what it means for doctors to counsel vaccine hesitant patients in Switzerland. *Soc Sci Med* 2020;255:112946.
40 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77–101.
41 Guest G, Bunce A, Johnson L. How many interviews are enough?: an experiment with data saturation and variability. *Field Methods* 2006;18:59–82.
42 Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19:349–57.
43 Bartsch SM, Taitel MS, DePasse JV, *et al*. Epidemiologic and economic impact of pharmacies as vaccination locations during an influenza epidemic. *Vaccine* 2018;36:7054–63.
44 Ernst ME, Bergus GR, Sorofman BA. Patients' acceptance of traditional and nontraditional immunization providers. *J Am Pharm Assoc* 2001;41:53–9.
45 Harding G, Taylor K. Pharmacy's strength lies in its blend of clinical, scientific and social skills. *Pharm J* 2004;273:126.
46 Valiquette JR, Bédard P. Community pharmacists' knowledge, beliefs and attitudes towards immunization in Quebec. *Can J Public Health* 2015;106:e89–94.
47 Schaffer SJ, Fontanesi J, Rickert D, *et al*. How effectively can health care settings beyond the traditional medical home provide vaccines to adolescents? *Pediatrics* 2008;121 Suppl 1:S35–45.
48 Burns C. Pharmacies in England delivered 50% more flu jabs per pharmacy during 2020/2021 season. *Pharm J* 2021 https://pharmaceutical-journal.com/article/news/pharmacies-in-england-delivered-a-50-increase-in-flu-jabs-per-pharmacy
49 Morton-Jones T, Pringle M. Dispensing by physicians and pharmacists: a UK perspective. *Pharmacoeconomics* 1994;5:5–7.
50 Interpharma mit Datengrundlage Quintiles Transnational Corp (IQVIA) Schweiz. *German version: Pharma-Markt Schweiz*, 2019. https://www.interpharma.ch/wp-content/uploads/2020/02/ly_iph.01.19.002_-_pharmamarkt_schweiz_2019_d_web-komprimiert.pdf
51 Westrick SC, Patterson BJ, Kader MS, *et al*. National survey of pharmacy-based immunization services. *Vaccine* 2018;36:5657–64.
52 Rothholz MC. Pharmacist-provided immunization compensation and recognition: white paper summarizing APhA/AMCP stakeholder meeting. *J Am Pharm Assoc* 2011;51:704–12.
53 Rollnick S, Butler CC, Kinnersley P, *et al*. Motivational interviewing. *BMJ* 2010;340:c1900.
54 Brackett A, Butler M, Chapman L. Using motivational interviewing in the community pharmacy to increase adult immunization readiness: a pilot evaluation. *J Am Pharm Assoc* 2015;55:182–6.
55 Gagneur A, Gosselin V, Dubé Ève. Motivational interviewing: a promising tool to address vaccine hesitancy. *Vaccine* 2018;36:6553–5.
56 Gagneur A, Lemaître T, Gosselin V, *et al*. A postpartum vaccination promotion intervention using motivational interviewing techniques improves short-term vaccine coverage: PromoVac study. *BMC Public Health* 2018;18:811.
57 Grimm P. Social desirability bias, 2010. Wiley online library. Available: https://onlinelibrary.wiley.com/doi/abs/10.1002/9781444316568.wiem02057