Vaccine hesitancy among healthcare workers in Europe: A qualitative study

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Abstract

Healthcare workers (HCWs) are often referred to as the most trusted source of vaccine-related information for their patients. However, the evidence suggests that a number of HCWs are vaccine-hesitant. This study consists of 65 semi-structured interviews with vaccine providers in Croatia, France, Greece, and Romania to investigate concerns HCWs might have about vaccination. The results revealed that vaccine hesitancy is present in all four countries among vaccine providers. The most important concern across all countries was the fear of vaccine side effects. New vaccines were singled out due to perceived lack of testing for vaccine safety and efficacy. Furthermore, while high trust in health authorities was expressed by HCWs, there was also strong mistrust of pharmaceutical companies due to perceived financial interests and lack of communication about side effects. The notion that it is a doctor's responsibility to respond to hesitant patients was reported in all countries. Concerns were also seen to be country- and context-specific. Strategies to improve confidence in vaccines should be adapted to the specific political, social, cultural and economic context of countries. Furthermore, while most interventions focus on education and improving information about vaccine safety, effectiveness, or the need for vaccines, concerns raised in this study identify other determinants of hesitancy that need addressing. The representativeness of the views of the interviewed HCWs must be interpreted with caution. This a qualitative study with a small sample size that included geographical areas where vaccination uptake was lower or where hesitancy was more prevalent and it reflects individual participants' beliefs and attitudes toward the topic. As HCWs have the potential of influencing patient vaccination uptake, it is crucial to improve their confidence in vaccination and engage them in activities targeting vaccine hesitancy among their patients.

Keywords: Vaccine hesitancy, healthcare workers, patients, Europe

Introduction

Healthcare workers (HCWs) are considered the most trusted source of vaccine-related information(1). However, studies are showing that HCWs are losing confidence in vaccination for their children, themselves, or their patients(2-5). Public health experts refer to this loss of confidence as “vaccine hesitancy”, which has recently been defined by the SAGE Working Group on Vaccine Hesitancy as “a behaviour, influenced by a number of factors including issues of confidence, complacency, and convenience.”(6) Vaccine hesitant HCWs can have a powerful influence on vaccination decisions, as they might recommend vaccines less frequently to their patients, and/or otherwise undermine confidence and contribute to vaccine hesitancy among the general population(2).

The little available research on HCWs’ attitudes is primarily related to seasonal and/or pandemic influenza vaccines. Most found that HCWs had not taken the influenza vaccine because of lack of time (7, 8), not feeling at risk of influenza (9, 10), because they considered they had no medical indication for the vaccine (4, 5), or due to concerns about safety and efficacy (3, 11).

This research aims to better understand vaccine hesitancy among vaccine providers in Europe, and explore the nature of their concerns, their perceptions of vaccine-related information, and their perceived role in responding to vaccine hesitancy.

Methods

The study was conducted in Croatia, France, Greece and Romania, as these countries responded to ECDC’s call for interest in participating in the project entitled “Comprehensive expert opinion on motivating hesitant population groups to vaccinate”. These countries have very different socio-economic and political backgrounds, allowing a more comprehensive overview of vaccine hesitancy in various contexts. Semi-structured interviews were conducted with healthcare providers who advise on vaccination for children, pregnant women and adults and who were working in one of the selected countries at the time of

study. Healthcare professionals who only administer the vaccine, after the patient has already decided to receive it, were not included. Recruitment of participants was done to include vaccine providers that are either vaccine hesitant or that face vaccine hesitancy in their practice. The aim was to build a sample of the general population of vaccine providers in each country to understand what their concerns about vaccines might be and how they respond to patient hesitancy. Areas with known vaccine hesitancy or low vaccination coverage were purposively favoured to increase the likelihood of recruiting healthcare workers either facing hesitancy or being hesitant themselves. The aim was not to determine levels of hesitancy in healthcare workers. Due to varying quality and quantity of data available on vaccination coverage rates and vaccine hesitancy in the different countries, different sampling methods were used in each country. In Croatia and Romania, the assumption that vaccine hesitancy exists across the whole country was used to select participants as there was no available data on specific levels of hesitancy in different regions and populations. In France, MMR vaccine coverage rates were used as a proxy for vaccine hesitancy. In Greece, this was done by using snowball sampling and first contacting two vaccine hesitancy vaccine providers. Based on the time and budget available for the study, and recommended sampling strategies for qualitative research, each country was asked to recruit approximately 15 HCWs, selected purposively.

A 30-minute interview guide, with a consent form and information sheet, was sent to country teams for translation and adaptation. The questions, which were not piloted due to time constraints, were designed to be neutral (i.e. “Have you ever had a patient who was hesitant or opposed to get himself/herself or his/her children vaccinated?”, “Do you think that some vaccines which are officially recommended are not necessary?”). Face-to-face interviews were conducted at a location chosen by the participant, recorded with their approval, and transcribed removing identifiers such as names and locations using an automated programme or manually where software was not available. Interviewers in all countries were trained experienced researchers in qualitative interviewing.

Sampling methods

Different sampling strategies were used in different countries. In Croatia, a snowball sampling technique was used to select participants. Vaccination is provided in Croatia by family doctors, paediatricians, specialist doctors, and epidemiologists. Fifty general practitioners (GPs) and ten epidemiologists from areas with vaccine hesitancy were identified from the main general practitioner networks and through the Epidemiological Society and contacted by mail or telephone. Thirteen GPs and four epidemiologists agreed to participate.

In France, Montpellier and two surrounding villages (Ganges and Le Vigan) were chosen for this study due to low vaccine coverage. GPs are responsible for 90% of vaccination while other physicians such as paediatricians and gynaecologists vaccinate some target populations. GPs and gynaecologists were arbitrarily selected using a telephone directory and 142 were contacted through a telephone survey platform. Fourteen vaccine providers agreed to participate. Eight participants came from an area with <55% MMR vaccine coverage rates (first dose), three from a 55–75% coverage rate area and five from a 75–80% coverage rate area.

In Greece, a snowball methodology was employed as vaccination is mostly carried out privately by doctors and GPs and they are not connected to a national database recording vaccination coverage and vaccine hesitancy. Two persons who self-identified as being vaccine-hesitant – one GP, one paediatrician – were starting points and led to the identification of an additional 19 contacts from their social networks. Six vaccine providers refused to participate in the study and 15 interviews were conducted.

In Romania, vaccines are either administered by maternity services, paediatricians or by family doctors who work under the supervision of the National Institute of Public Health, part of the Ministry of Health. The presidents of Family Doctors Associations in various districts were contacted with information about the study and asked to share the contact details of several GPs and/or paediatricians. Twenty-three HCWs were contacted via phone and six

refused to participate. At the end of each interview, physicians were asked to refer other vaccine providers who might be interested to participate in the study.

Data analysis

The Vaccine Confidence Project used a deductive approach, based on a comprehensive literature review, to develop a standardised coding scheme. Country teams reviewed the scheme and coded the interviews, adding additional codes where needed. Country analyses were translated into English to allow comparison across the four countries and sent back to the Vaccine Confidence Project for overall analysis.

Ethics

Ethical approval was obtained from LSHTM Research Ethics Committee, as well as the Croatian and Romanian ethics committees. No ethics approvals were required in France or Greece.

Results

Sixty-five semi-structured interviews were conducted across Croatia (17/65), France (16/65), Greece (15/65) and Romania (17/65). Most participants were female (66%) and between 25-44 years old (58%). The majority were GPs (72%), with gynaecologists (9%), epidemiologists (6%), paediatricians (6%) and internal medicine specialists (6%) also participating (Table 1).

Table 1: Participants characteristics (n (%))

	Croatia	France	Greece	Romania	Total
Number of participants	17	16	15	17	65
Age	25-44yo: 17 (100%)	25-44yo: 3 (19%) 45-64yo: 12 (75%) 65+: 1 (6%)	25-44yo: 8 (53%) 45-64yo: 7 (47%)	*25-45yo: 10 (59%) 46-65yo: 7 (41%)	25-44yo: 38 (58%) 45-64: 26 (40%) 65+: 1 (2%)
Sex	Females: 15 (88%) Males:	Females: 8 (50%) Males:	Females: 4 (27%) Males:	Females: 16 (94%) Males:	Females: 43 (66%) Males:

	2 (12%)	8 (50%)	11 (73%)	1 (6%)	22 (34%)
Profession	GPs: 13 (76%) Epidemiologists: 4 (24%)	GPs: 10 (62.5%) Gynaecologists: 6 (37.5%)	GPs: 9 (60%) Internal medicine: 4 (27%) Paediatricians: 2 (13%)	GPs: 15 (88%) Paediatricians: 2 (12%)	GPs: 47 (72%) Gynaecologists: 6 (9%) Epidemiologists: 4 (6%) Paediatricians: 4 (6%) Internal medicine: 4 (6%)
Average years of practice (range)	5 (1-11)	21 (4-39)	18 (2-35)	17 (2-31)	16 (1-39)
Type of practice	Solo: 13 (76%) Group: 4 (24%)	Solo: 9 (56%) Group: 7 (44%)	Solo: 11 (73%) Group: 2 (13%) Other: 2 (13%)	Solo: 14 (82%) Group: 3 (18%)	Solo: 47 (72%) Group: 16 (25%) Other: 2 (3%)
Number of HCWs practicing alternative medicine**	0 (0%)	1 (6%)	0 (0%)	3 (18%)	4 (6%)

* The age categories used in the baseline questionnaires in Romania were different from the ones used in other countries

**Alternative medicine was defined as practicing one or more of these activities at work: acupuncture, homeopathy, anthroposophy, natural medicine

The coding themes identified across all countries included: perceived benefits of vaccination (mentioned 227 times across all interviews – more than one mention per interview is possible), issues with vaccination (201), role of HCWs in responding to patient hesitancy (197), trust issues (139), suggestions to improve vaccine confidence (127), quality of information and communication (120), and decision-making influences (115).

HCWs in all four countries identified the following benefits of vaccination: benefits outweigh risks of vaccination (Croatia(C)=17; France(F)=12; Greece(G)=8; Romania(R)=13), vaccines prevent dangerous diseases and current outbreaks constitute the best example of the dangers of not vaccinating (C=16;F=10; G=8;R=10). One HCW in Romania explained: "V*accines have been used for a long time now (…). They have achieved their purpose: to prevent disease, to maintain health status, and to stop recurrence of diseases that have life-long sequelae"* (R6). Many HCWs, particularly in France, Romania and Croatia also emphasised the benefit of herd immunity (C=15; F=11; G=2; R=10), and the responsibility people (including doctors) have to protect the entire society. As one French participant

noted, "*I consider that those people who refuse vaccination are selfish because they take advantage of the vaccination of other people*" (F1). A large number of HCWs in Romania and Croatia supported vaccination due to the existence of good scientific evidence (C=15; F=3; G=4; R=10).

Concerns about the safety of vaccination was the most recurrent theme in Romania and in Greece, and was raised by a small number of HCWs in France and Croatia, with some reporting patients' perceptions of risks. The most common concern reported, particularly in Greece and Romania was about side effects (C=5; F=3; G=9; R=14), including feelings of guilt if patients were to suffer from vaccine adverse events. A few HCWs had severe worries, as one from Romania concluded, "*It's well known that there are vaccines that have been banned in other countries (e.g., anti-hepatitis), precisely because they were proven to cause multiple sclerosis. (…) HPV vaccines can lead to tumours and autism. It's outrageous that they are prescribed"* (R9). Concerns that new vaccines, such as HPV, might not have been tested long enough were also raised. Issues of low vaccine effectiveness, or beliefs that vaccines (i.e. influenza) do not always work were particularly common in Greece, which sometimes led HCWs to avoid recommending vaccines (C=2; F=4; G=10; R=4). One noted, "*I recommend some vaccines at a later stage than what is recommended to avoid over-stimulating their immune system*" (G11). Many HCWs in Romania and Greece also mentioned that there might be too many vaccines (C=1;F=2;G=11;R=5) given to children at a very young age (C=1;F=3;G=6;R=2), which led some interviewed doctors to follow their own vaccination plans in Greece.

Trust issues were raised in Greece, Romania, and Croatia and to a lesser extent in France. In Croatia, France and Romania, the majority of these positively referred to trust in the government, health authorities, doctors or research (C=17;F=8;G=6;R=12), and in vaccination (C=17;F=4;G=5;R=11). In Croatia and Greece, trust in information received by HCWs from various sources was also observed. Mistrust was extremely prevalent in Greece, especially towards pharmaceutical companies (C=2;F=4;G=11;R=7). Interviewed HCWs in

all countries believed pharmaceutical companies have financial interests, put pressure on HCWs, and do not provide sufficient information about side effects. A mistrust of health authorities (C=0;F=3;G=9;R=4) and information about vaccination (C=0;F=3;G=7;R=6) was also observed among some of the interviewed French, Romanian and Greek HCWs. One Greek respondent commented, "*I do not trust the Greek Ministry of Health and rightly so. Many patients do not trust them either*." (G12).

HCWs in Croatia and Romania were particularly pleased with the quantity and quality of information they receive or give to patients through leaflets, posters, books or websites (C=13;F=1;G=3;R=11). However, other HCWs in Romania and in Greece also reported a lack of information about safety and the risks of receiving too many vaccines to allow patients to make an informed decision (C=4; F=2; G=8; R=7). A few doctors in Greece and Romania (C=0, F=0, G=4, R=3) were also entirely against vaccination, two of which also mentioned a preference for homeopathy or prescribing natural remedies. "I *do not like vaccines! I tell my patients that I've never vaccinated myself with any vaccine*."(R1).

HCWs in Romania, Greece and France, and to a lesser extent in Croatia, discussed ways they and their patients are influenced when making decisions about vaccination. HCWs in all countries reported being influenced by their employers or health authorities in terms of vaccination schedules or reminders (C=11; F=9; G=4; R=10). Influences by pharmaceutical representatives who remind HCWs of vaccination schedules were mostly discussed in France (C=0; F=12; G=0; R=2), where mistrust in pharmaceutical companies was not reported as much as in other countries. One French HCW commented, "*Pharmaceutical drug representatives visit me; they explain to me how vaccines work, why a vaccine more than another…*" (F6), while another expressed some distrust. "*I listen to (pharmaceutical) companies but do not trust them*" (F5). This shows that HCWs in France receive visits by pharmaceutical representatives and use the information they provide, but do not necessarily trust them. Influences from patient experiences (i.e. observing a lack of vaccine side effects or infections with vaccine-preventable diseases) were reported in Greece and Romania.

Other influences mentioned were training courses, the media, online information, and medical experts and journals. Some HCWs in Greece and Romania believed that their patients were influenced by the media (C=0;F=1;G=3;R=13), HCWs (C=0;F=0;G=14;R=0), and families, friends or partners (C=0;F=0;G=3;R=1). HCWs in Romania discussed the negative, unverified and sometimes contradictory information available online which is sometimes more persuasive than doctors: "*With the increasing popularity of the Internet, many parents are misinformed by charlatans and crooks that "seduce" them with false and absurd information. (…) If some doctors were fooled by such misinformation, then parents (…) are very vulnerable to such poisoning*."(R5)

HCWs in all countries discussed their role in responding to patient hesitancy. In Croatia, Greece and Romania, HCWs mostly believed that it is their role to address and respond to patient hesitancy (C=17; F=4; G=13; R=11) by sharing "*accurate and reliable information in a way that they can understand*" (C3). Some HCWs in Croatia, France and Romania, went one step further and explained they have to try to influence patients' decision-making regarding vaccination by emotionally affecting them (i.e. showing them images of poliomyelitis cases), telling them they vaccinate their own children, or telling them vaccination is mandatory (C=10; F=6; G=3; R=10): "*I say it is mandatory even if it is not... (…) I don't want to follow a child, a family who do not vaccinate their children"* (F16). Some HCWs, mostly in France, believed they should only provide neutral facts and information about vaccination, without trying to influence or force patients to vaccinate (C=1; F=10; G=3; R=4).

Overall, across all countries, HCWs came up with four major suggestions to improve vaccination confidence: improve information, involve health authorities, ensure skilled communication between HCWs and patients, and improve HCW training.

Discussion

The results from the qualitative interviews with HCWs from Croatia, France, Greece and Romania confirm the study's initial assumption of existence of vaccine hesitancy among

HCWs and provide an insight into the reasons behind these doubts. Although the reports from the interviews were overall positive and showed generally high levels of trust and confidence in vaccination, there were also concerns about safety, questions about the need for vaccines, and/or mistrust of pharmaceutical companies and health authorities. A few doctors, some practicing homeopathy, were entirely against vaccination, and actively decided not to recommend it to their patients. This is of particular concern as many studies have shown that the attitude and knowledge HCWs have about vaccines can influence their intentions to vaccinate themselves and their children, and to recommend vaccination to their patients (12, 13). It is therefore highly important for public health leaders to find ways to better understand HCW vaccine-related behaviours and attitudes and take steps to counter hesitancy.

The most important concern across all countries was about vaccine safety. Most HCWs reported these as concerns their patients have, but some shared similar worries. Many studies have found that HCWs refuse vaccination because of the risk of side effects (11), but also because they think they are at low risk of infection (15, 16). The latter was also observed in this study, with HCWs lacking confidence in the need for and the effectiveness of some vaccines, particularly the seasonal influenza one. HCWs have their patients' health at heart, and it important that they are reminded of the dangers of vaccine-preventable diseases and the low risks of vaccine side effects.

New vaccines, such as the HPV vaccine, were singled out due to perceived lack of testing for vaccine safety and efficacy. This confirms previously conducted studies which also showed HCWs' concerns about new vaccines (17, 18). The HPV vaccine is of particular concern, as it is delivered by different HCWs in different countries. Making sure all vaccine providers (nurses, gynaecologists, GPs, etc.) are included in the planning and deployment of new vaccination campaign will alleviate their doubts and concerns, improve their knowledge about the vaccine, and facilitate their recommendation to patients.

Another important theme which came across the interviews was trust. A 2015 French study found that eight out of ten GPs trust the Ministry of Health but 50% of them also believe that the Ministry is influenced by pharmaceutical companies (19). A similar scenario was found in this study, with high trust expressed in the health authorities but mistrust of pharmaceutical companies. Interviewed HCWs in Greece also showed high mistrust of the government and health system, which could have been influenced by the political and economic crisis situation in which the interviews were conducted and may require interventions to avoid negative impact on vaccination uptake. This result demonstrates the importance of context in vaccine hesitancy, and highlights the need for more cross-cutting research looking into the impact of political, socio-economic and cultural contexts on concerns about vaccination. Many institutions can be associated with vaccination and the public's credibility of vaccine information will be influenced by their trust in some or all of these organisations and how open and transparent these are. Trust can be built by expressing empathy and acknowledging people's concerns and feelings and depends on the specific social, cultural, political and economic context of the country or region affected.

HCWs stressed the issue of anti-vaccination content in the media and its influence on patients. With continuous advancements in communication technologies such as social media, the public is increasingly using the internet to research and share information about vaccines. Some studies have analysed the content of vaccine information available on websites and social media and have shown not only that it is of variable quality, but also that there is a predominance of negative and sometimes incorrect content, which has the potential to influence vaccine decisions (21-24). However, a study looking particularly at French websites found that while some websites criticise some aspects of vaccines, not all disseminate anti-vaccination opinions (25). National authorities and governments should consider taking advantage of what online media, including social media, have to offer by promoting and sharing clear, concise and easy to understand information about vaccination. Increasing the presence of reliable sources of information online will allow countries to

counteract anti-vaccine groups and prevent them from reaching parents seeking more information about vaccines on the internet.

Many interviewed vaccine providers felt it was their responsibility to respond to hesitant patients, with some believing they should do even more and try to actively influence patients to ensure they get vaccinated. However, in France, most study participants described their role as providers of neutral information, explaining patients should make that decision for themselves. HCWs are often seen as having the greatest influence on patients' decision to get vaccinated. It is therefore important they not only communicate with hesitant patients, but that they know how to respond to concerns or doubts. A study from 2011 concluded that HCWs should aim to have open, non-confrontational dialogues with patients as early as possible. It recommended using personal stories, reports of disease outbreaks and visual images of individuals suffering from vaccine-preventable diseases to remind patients of the need for high vaccination coverage (26).

This study sheds light on current knowledge gaps that future research could explore further such as varying opinions about vaccination among different types of vaccine providers, but also in relation to different vaccines. The wide range of concerns raised related to vaccine hesitancy points to the need for more comprehensive, context-specific interventions. While most current interventions focus on education and improving information about vaccine safety, effectiveness, or the need for vaccines, concerns raised in this study identify other determinants of hesitancy that need addressing, such as trust in health systems, or HCWs' perceived roles in responding to patient hesitancy and their levels of confidence in doing so. Although some commonalities between countries can be found, determinants of hesitancy have also been shown to be country- and context-specific and need to be addressed as such. National vaccination programmes should consider developing the capacity of identifying local determinants of vaccine hesitancy, whether in patients or in healthcare workers and then developing strategies adapted to address these determinants, in a social, cultural, political and economic context.

Limitations

There were a few limitations in this research. The first is the limited sample size and differential sampling strategy in each country which may have affected the reliability of the study. Recruitment of HCWs was also intentionally biased as it was done in geographical areas where vaccination uptake was lower than average or where hesitancy was reported to be more prevalent. Results for Greece must also be interpreted with caution as it was the only country were vaccine hesitant providers were directly recruited through snowball sampling. The representativeness of the views of the HCWs interviewed in this study must be interpreted with caution, especially as they come from different healthcare systems, with different approaches to vaccine provision. That said, the study's intent was to start identifying the characteristics and experience of hesitancy among HCWs where vaccine hesitancy and low vaccine uptake was known rather than quantify vaccine hesitancy. HCWs from different countries might also have answered questions differently, due to the influence of vaccination legislation in their country, which might have led to underreporting of some perceived issues. Fear of reprisal might have also deterred some HCWs from sharing their concerns about vaccination.

Appendix

Topic guide for the semi-structured interviews

BASELINE INFORMATION

1. What is your gender?
☐ Male ☐ Female

2. What is your age?
☐ ≤24 ☐ 25-44 ☐ 45-64 ☐ 65+

3. What is your profession?

☐ General practitioner (family doctor) ☐ Nurse/midwife
☐ Specialist, please specify _____ ☐ Other, please specify _____

4. Where do you currently work (what type of health institution) and how long have you been working there?

_____

5. Do you practice alternative medicine at work (acupuncture, homeopathy, anthroposophy)? If yes, could you shortly explain what it entails?

☐ No ☐ Yes, _____

VACCINATION PERCEPTIONS AMONGST HEALTH CARE PROVIDERS

For each question, sub questions are there to direct or redirect the conversation if necessary.

6. Do you ever explain to patients that getting vaccinated is not only important to protect themselves but also others? Why?

- How do patients usually respond?

_____

7. Did you receive last season's influenza vaccine?

- What were your reasons for accepting/refusing?
- Did you experience any doubt or concern about the vaccine and if so what were they?
- In your opinion, should healthcare workers get vaccinated against influenza every season?

_____

8. Do you have children? If so, are your children/is your child vaccinated with the national recommended vaccinations (according to the national immunisation schedule)?

- How difficult was it for you to make the decision to vaccinate your child/children compared to vaccinating yourself or patients?
- Did you experience any doubt or concern about a particular vaccine recommended to your children and if so, what were they (for which vaccines)?
- Are there some vaccines you offer to your patients but you would not vaccinate your children with?

_____

9. Do you personally give advice to patients on vaccination and if so, what influences the content of your advice?

- Where do you seek information on vaccines and who do you trust the most? (Fellow doctors, health authorities, health agencies, medical press, internet, pharmaceutical companies, friends and family, others)(Please specify)?

_____

10. In your opinion, does your workplace offer patients enough advice and information about vaccination?

- What material is available for patients, and what resources are they redirected to?

- Do you think colleagues take or have enough time to dedicate to discuss patients' concerns?
- Have you ever disagreed/provided conflicting advice with a colleague?
- Are any of your colleagues against vaccination? If so, why and how did you respond to their claims?

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11. Have you ever had a patient who was hesitant or opposed to get himself/herself or his/her children vaccinated?

- Could you describe what happened, why was the patient hesitant or opposed and how did you respond?
- Did you feel comfortable to answer his/her questions/concerns? And why?
- Did you have access to information/resources that helped you to address these concerns? Which ones?
- Did you feel like you agreed or shared some of their doubts and concerns?
- After speaking with this patient, did you re-consider your views on vaccines and vaccine safety?

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12. How confident are you that vaccinated individuals have more benefits from vaccinations than rare severe adverse events?

- What are your concerns or worries about vaccine safety?
- What about new vaccines or vaccines for pregnant women?
- Could you rank your biggest concerns in order of importance?
- Would you feel responsible if something were to happen to your patient after immunisation?

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13. Are there any particular vaccines about which you have safety concerns?

- Which vaccines and which concerns?
- Do you recommend them to patients? Why/why not?
- Have you ever recommended to a patient that he/she should not get vaccinated (please give examples and reasons explaining the advice you gave patients)?

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14. Do you think that some vaccines which are officially recommended are not necessary? If yes, which vaccines?

- How concerned are you that some vaccines might not prevent the disease?
- How effective/necessary do you think vaccines are?
- Do you think children receive too many vaccines?

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15. Do you think there is a need to improve vaccination confidence and uptake amongst health care professionals and patients, and if so, how do you think it could be improved?

- Which tools, training, information, or communication skills do you think you would need to improve vaccination uptake?
- Where, from which organisations do you think you could find support to do this?

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