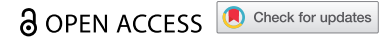




RESEARCH ARTICLE



## Navigating vaccine hesitancy: Strategies and dynamics in healthcare professional-parent communication

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### ABSTRACT

Understanding the communication dynamics between vaccine-hesitant parents and healthcare professionals (HCPs) is vital for addressing parent concerns and promoting informed decision-making. This paper focuses on strategies used by HCPs to communicate with vaccine-hesitant parents. It draws on empirical evidence generated as part of the international project VAX-TRUST. More specifically, 60 hours of observations were carried out in three different pediatric practices during vaccination-related visits, and 19 physicians and nurses were interviewed. We focused on the specific context of the Czech Republic, which represents a country with a mandatory vaccination system and in which children's immunization is the responsibility of pediatric general practitioners. We demonstrate that the dynamics between parents and HCPs and their willingness to invest time in the vaccination discussion are influenced by how HCPs categorize and label parents. Furthermore, we outline some of the different strategies HCPs employ while addressing concerns regarding vaccination. We identified two different strategies HCPs use to manage the fears of vaccine-hesitant parents. The first strategy focused on the communication of risks associated with vaccination (and lack thereof). HCPs used a variety of discursive practices to familiarize the unfamiliar risks of vaccine-preventable diseases (by mobilizing representations that are part of collective memory, incorporating personal experiences to materialize the presence of risk and the confidence in the safety of vaccines and by situating risk as embedded in everyday processes and integral to the uncertainty of the global world). The second strategy involved the conscious employment of medical procedures that may contribute to reducing vaccination fears.

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### Introduction

Parents' interaction with healthcare professionals (HCP) has been identified as one of the crucial factors impacting vaccine attitudes.<sup>1</sup> In the long term, providers who can ethically and effectively communicate the benefits and risks of vaccination and the importance and safety of vaccines have the potential to increase parental confidence in vaccination.<sup>2</sup> The core attributes of such communication are openness, dialogue, empathy and respect for risks.<sup>3</sup> Evidence shows that hesitant parents often desire a more comprehensive approach and more information than they are provided. They need two-way and compassionate communication about risks, with an exchange of information and opinions between them and the provider, and they need balanced information that is not dominated by the provider's efforts to shape the information to meet predetermined goals.<sup>4</sup> As a result, communication with parents is not always limited to medical issues; it might require a comprehensive and compassionate approach,<sup>5</sup> and providers often feel unprepared to address these types of questions from parents.<sup>3,6</sup>

Communicating the risks and benefits of vaccination is a complex task. Nevertheless, HCPs have only limited time to do this. In addition, the evidence suggests that HCPs do not

receive adequate training in evidence-based risk communication strategies.<sup>6,7</sup> Vaccination is a topic that provokes strong emotions. HCPs must balance between adequately communicating the risks associated with vaccine-preventable diseases while also appropriately communicating the risks associated with the vaccination itself as part of the interaction. Furthermore, HCPs represent only one possible source from which parents can draw information about vaccination. Broader parents' networks significantly affect parental vaccination decisions.<sup>8</sup> Online information has been identified as particularly important in spreading anti-vaccination messages.<sup>9</sup> Within these discussions, HCPs become merely one of many authorities, and facts can be reinterpreted as just one possible "opinion."<sup>10</sup> A study focused on the ways parents communicate anxieties about a connection between autism and vaccines shows that rather than a lack of information, parents struggle with the knowledge that their understanding of the risk of vaccination will always be partial while, simultaneously, feeling responsible for deciding whether to vaccinate their child.<sup>11</sup> According to Hausman,<sup>12</sup> vaccine skepticism reveals the "pervasive cultural worries about how the things that save us also just might kill us" (pp.: 15). Consequently, those controversies cannot be solved solely by communicating scientific knowledge better.

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Parents may be particularly sensitive toward communication regarding the possible risks of vaccination. Messages indicating the nonexistence of vaccination risks paradoxically lead to higher perceived vaccination risks.<sup>13</sup> However, providing detailed reports on vaccine adverse events reduces vaccine acceptance.<sup>6,14</sup> Some evidence shows that repeating myths to discredit them with facts may cause a familiarity backfire effect, unintentionally fortify the ideas one intends to correct<sup>15,16</sup> and even reduce the intent to vaccinate among those who are already hesitant.<sup>17</sup> However, other studies report no evidence that correcting misinformation may have harmful effects.<sup>18,19</sup> This mixed evidence suggests that a deeper investigation is still needed to understand the complex dynamics of various communication strategies.

## Methodology

This paper draws on evidence from a project VAX-TRUST: Addressing Vaccine Hesitancy in Europe that examined vaccine hesitancy in seven European countries (Belgium, the Czech Republic, Finland, Italy, Poland, Portugal and the UK). Our analysis focussed solely on data collected in the Czech Republic (CR). CR operates a compulsory public health insurance system. The system provides high financial protection, universal coverage, and a wide range of services. There is a long tradition of immunization in the country, dating back to 1803. Children in CR are currently required to be vaccinated against nine diseases listed in the national vaccination programme. The Czech system shows relatively high vaccination rates, which, however, have generally been in a slight but steady decline over time. The country managed to maintain high levels of mandatory child vaccination during the first year of the COVID-19 pandemic, with 97% of one-year-olds receiving the third dose of diphtheria, tetanus and pertussis vaccine in 2020. However, as the pandemic progressed, CR could not maintain the same high level, with childhood vaccination coverage dropping to 94% in 2021 and 2022.<sup>20</sup> In the CR, children and adolescents up to the age of 19 are vaccinated by pediatric general practitioners (PGPs). Parents can choose which PGP they wish to register their children with. There is a long-term relationship between parents, children and the PGPs and nurses, and regular (compulsory) vaccinations, including boosters, are fully covered by public health insurance. In the CR, the main communication regarding childhood vaccination is between PGPs and the parents. Nursing staff are usually responsible for vaccination administration. Communication between health professionals and parents also seems to be affected by the persistence of a paternalistic approach in the Czech health-care system.<sup>21</sup>

Our project maps strategies HCPs use in the Czech Republic when interacting with parents about vaccination. We specifically focused on communication with vaccine-hesitant parents. The project combines qualitative data from ethnographic observation and in-depth interviews to analyze communication patterns employed by HCP.

## Ethnographic observation

Observations were conducted at three pediatric practices in the capital city, Prague, amounting to a total of 60 hours carried out between January 2022 and June 2022. The observations at three sites allowed us to understand vaccination in three different contexts, differing in terms of parents' socio-economic status and the approach toward vaccination taken by HCPs. Site 2 (14 hours of observation) and Site 3 (15 hours of observation) represented practices located in different parts of Prague (Site 2 was located on the outskirts of Prague, attracting primarily children from low-class and low-middle-class families). PGPs working in those surgeries strongly emphasized the importance of vaccinating children, however, they differed slightly in their approach toward communication with parents (in Site 2, the communication was more directive and oriented toward the expert decision of the doctor, while in Site 3, the vaccination decisions were discussed and communicated with parents in more detail). Site 1 (30 hours of observation) was located in the middle- and high-middle-class neighborhood of Prague. The PGP characterized himself during the interview as having a slightly "*benevolent approach towards vaccination*," actively communicating with parents and commonly postponing the vaccination due to the current health situation of children, leaving significant space for parents to decide. The practice was often targeted by parents who decided to give birth at home, which is a very stigmatizing decision in the Czech Republic and is associated with an "alternative" approach to health.<sup>22</sup>

Access to the field was subject to a written contract with the practice. Informed consent was obtained from all the medical staff working in the surgery. The parents were contacted in the waiting room before their appointment was scheduled, and their informed consent was obtained before each observed interaction. The observation was recorded through detailed field notes by a research team member.

## In-depth interviews with healthcare professionals

Healthcare professionals were recruited between January 2022 and June 2022 through e-mail and snowball convenience sampling. Our recruitment strategy focused solely on contacting PGPs and nurses working in PGPs' surgeries who assist during vaccination. Altogether, 19 healthcare professionals were interviewed—15 PGPs and four nurses. With one (online) exception, all interviews were conducted face-to-face. Most participants were female ( $N = 16$ ). The age of our participants varies between 27 and 67. The age profile represents a significant limitation of our sample, as more than half of PGPs in CR are over 60 years old. Healthcare professionals under the age of 40 (who were overrepresented in our sample) represent only 7% of PGPs in CR.<sup>23</sup> However, while this fact represents a limitation of our study, the convenience sampling still allowed us to provide a heterogeneous insight into HCPs' interaction with parents, including HCPs with a more benevolent approach toward vaccination, and even a hesitant position toward specific vaccines.

All participants were informed about the project's objectives, funding source and data handling protocols before the

interviews. They were requested to sign an informed consent form and verbally confirm their consent during the recording. The interviews focused on the reflections of interactions with vaccine-hesitant parents and their communication procedures employed during vaccination. The research study was approved by the Ethics Committee of the Faculty of Social Sciences at Charles University.

The collaboration and analysis followed the principles of rapid team ethnography.<sup>24</sup> The interviews and written field notes were analyzed using NVivo software. The coding process had two steps. A codebook summarizing key topics important for the VAX-TRUST project was developed following a broader discussion among the team members from all countries involved. This codebook enabled us to coordinate the data analysis for future comparisons. The codebook provided first-order themes that were, in the second step, reduced into more restricted themes based on the individual coding procedure in the Czech team. The result section discusses the key communication strategies identified during the analysis.

## Results

HCPs used various terms in the interviews to indicate the continuity of parental attitudes toward vaccination. All of the HCPs employed the terms “*vaccine rejectors*” (only in very few cases also using the term “*anti-vax*”) and “*vaccine postponers*” to distinguish among different forms of vaccine hesitancy. Some of the HCPs added additional categories of “*undecided/looking for more information*” and “*only compulsory vaccines*.” All the HCPs stressed that “*vaccine rejectors*” represent only a minority of the vaccine-hesitant parents.

The attitudes toward vaccination are usually addressed very early – during the first parental visit to the practice or even during the first contact between HCP and parents before registration. The vaccine-hesitant attitude was perceived by HCPs as a factor that significantly affected the following relationship between parents/children and HCPs and the related healthcare strategies. Except for HCPs 7 and 8, who reflected that their practice attracts vaccine-hesitant parents and who perceived this fact rather positively, the cooperation between vaccine-hesitant parents and HCP was depicted as more challenging and bringing increasing demands, as is well documented by the following remark made by one of the interviewed PGPs:

Well, almost everyone immediately thinks that it [registering vaccine-hesitant parents] will be more demanding, even in terms of time, which not everyone can offer. Because, in the end, one devotes more time to these patients or parents than to the others. And it's actually only because you have to communicate more with those parents. That's the first thing that crosses my mind, that it will be more time-consuming, so for example if there is an epidemic, an infectious disease, I don't know, it can negatively affect the surgery. So you are not exactly happy with such a family that wants to register. It is all about the time. (Interview, HCP 1, PGP, age 36)

Vaccine hesitancy was associated with other time-consuming and potentially conflicting situations unrelated to vaccination, such as the refusal of antibiotics and lower trust in the HCP's recommendation. HCPs reflected that they have to make

a rational decision not to invest time in discussions with some parents. The term “*vaccine rejectors*” was used by the HCPs to refer to the group of parents who are strictly confident in their position not to vaccinate. To invest time in discussion with those parents was perceived as pointless, counterproductive and a time burden for the practice (that negatively affects other patients who cannot be cared for). HCPs, in those cases, preferred to close the topic of vaccination in order to avoid eroding the trust and mutual relationship necessary for further cooperation.

The emphasis on “*not losing time*” or “*avoiding such discussion*” contrasted with the perception of “*postponers/hesitant parents*” and HCPs' description of communication strategies used in their cases. Whereas in the case of “*refusers*,” the parents' attitudes were interpreted more in terms of lifestyle (“*alternative*”) choices, “*postponers/hesitant*” were perceived as motivated by their anxieties and uncertainties. While lifestyle attitudes were conceptualized as relatively fixed and based on individual decisions, fears for the child evoked feelings of understanding. The “*postponers/hesitant parents*” were depicted as more open to discussion.

Some parents are reasonable and just afraid, but you can talk to them. That's a completely different kind of people. They come and say that they don't want to vaccinate, but you can see that they are worried about the child and you really understand them. You can normally sit down with them and calmly discuss it repeatedly. [...] You can understand them. When they are worried about their child, they can usually be convinced to take an individual approach. We can usually work with them when it is about fear. (Interview, HCP 2, PGP, age 37)

Surprisingly, the interviewed HCPs declared a relatively high level of comprehension for the “*postponers/hesitant*” (compared to “*refusers*”). Two of the interviewed HCPs, who were mothers of young children, pointed out that their own motherhood experience helped them to have more empathy for the feelings of vaccine-hesitant parents. “*Postponers/vaccine-hesitant parents*” were perceived by HCPs as primarily overwhelmed by fears for their child – a feeling that any parent may sympathize with, no matter how irrational that fear may be in that particular situation.

Knowing what the parent is anxious about was interpreted as a key to communicating the benefits of vaccination. HCP10 mentioned that trying to convince the “*refusers*” is a waste of time, because their opinion is fixed, and they are not interested in the arguments. She compared them to “*postponers*” with whom you can talk “*because they have some vision, that they want to vaccinate, but they don't want to inject the small child, because he is still tiny*.” (Interview, HCP10, PGP, age 51). In those cases, HCPs stressed the need to uncover parents' fears so they could address them adequately. Managing fears was described as a critical competence when communicating with hesitant parents.

They don't need studies; it doesn't work for them; they instead need to dissolve their fears. They need a completely different method of dialogue, not authoritatively, but through discussion. That you don't throw them in one bag, that they are anti-vax, and you must be very careful about that. (Interview, HCP15, PGP, age 53)

We identified two different strategies HCPs use to manage the fears of vaccine-hesitant parents regarding vaccination. The first strategy focused on the communication of risks associated with vaccination (and lack thereof). The HCPs used various strategies to stress the need to redirect the perception of vaccination-related risk toward the risk of the disease against which the vaccine is available. However, redirecting does not mean substituting or downplaying the possible risk associated with vaccination. Vaccination is associated with the imminent threat of a decision that parents must make at a specific time, which (despite the unquestionable benefits and maximum safety of vaccines) can bring with it a potential risk for the child. This immediate perceived risk contrasts with the risk of contracting diseases that (mostly due to their eradication by vaccination) can seem remote. HCPs have sought to balance this disproportion by reframing the emphasis on the constant presence of vaccine-preventable diseases' risks. In addition to referring to statistics and existing research, HCPs related the unknown vaccine or vaccine-preventable diseases to the objects and emotions the parents know from their individual or familiar experiences. This communication strategy was part of their broader compassionate approach, and it allowed them to mitigate parents' concerns and fears or to give them a sense of situations that they could find difficult to imagine due to the abstract nature of biomedical knowledge and the relative invisibility of vaccine-preventable diseases. The second identified strategy involved the conscious employment of medical procedures that may contribute to reducing vaccination fears.

### **Familiarising the risk**

HCPs noted that compared to parents, they often have more direct experience with the effect of the disease, which significantly impacts their attitude toward vaccination. HCPs were aware that the risks associated with conditions that are vaccinated against might not be that tangible for parents. Along with interviews with HCPs, ethnographic observations suggested that the interactions between HCPs and parents commonly moved beyond the strictly rational and biomedical discourse. HCPs often link unfamiliar vaccines or diseases preventable by vaccines to objects and emotions familiar to parents from their own personal or familial experiences. More generally, HCPs made the unfamiliar familiar;<sup>25,26</sup> they presented unknown and allegedly disappeared vaccine-preventable diseases as known or as non-distant and therefore somewhat close. By familiarizing the unfamiliar, HCPs linked the unknown, abstract and intangible world of scientific knowledge and expertise to the tangible and imaginable social world, objects and experiences that the parents had, knew, or lived.

They used drawings and metaphors to translate the unfamiliar abstract and Latin names of almost eradicated diseases into something concrete and recognizable in the material world. This allowed them to create a clearer picture of almost eradicated and hardly imaginable vaccine-preventable diseases. A PGP in one of the observed surgeries repetitively drew pictures of pneumococcus,

meningitis and pertussis. She spoke about the last one as a “*beastie*,” similar to rotavirus, and explained the symptoms, including whooping cough, which can be life-threatening among newborn children, and dehydration in the case of rotavirus. Furthermore, she remembered that there were attempts in the past to use polio as a biological weapon which attacks the central nervous system (Fieldnotes, Site 3).

Visual and metaphoric representations of vaccine-preventable diseases were not the only strategy used to familiarize the unfamiliar. We identified several strategies used by HCPs to do this. These included mobilizing the representations that are part of the collective memory (including the mass-mediated and pop-cultural examples), incorporating individual personal experiences to materialize the presence of risks and confidence in the safety of vaccines, and situating risk as it is embedded in everyday processes and integral to the uncertainty of the global world.

### **Mobilising representations that are part of the collective memory**

HCPs have often referred to the loss of collective memory regarding the impact of vaccine-preventable disease in their explanations of why vaccine hesitancy has become such a major social issue. Diverse HCPs recalled the stories that remained imprinted in either the individual or community memory, as suggested in the following story narrated by one of the interviewed HCPs, who uses the power of the traumatic collective experience:

I tell my students, that my father's younger brother died of diphtheria in the arms of his parents sometime in the 1920s. That year, seven other children died of diphtheria in that village. The social experience in that community was that diphtheria was fatal. They all knew. Everybody in that village knew whose child had died, and they all knew how difficult that death was and how difficult it was for that family. And so when a vaccine came along that could prevent this, it was a tremendously welcome thing because they remembered. And our generation doesn't remember it anymore. (interview, HCP 18, PGP, age 67)

Furthermore, references to movie representations presented another tool which could be used to stress the gravity of vaccine-preventable diseases and to provide a more specific sense of their social meanings. This is well-illustrated with a reference to the pertussis or poliomyelitis in two of the most well-known Czech movies, repetitively used by one of the HCPs.

PGP For example, to illustrate it, I tell them: “Haven't you seen the beautiful film *In the Shadows* with Trojan [a Czech actor, authors' note], who was an investigator and had that baby that had pertussis?

Observer: Yeah, yeah, yeah.

PGP The child had terrible pertussis, and they were wringing their hands there that he would die of whooping cough. (Fieldnotes, Site 3)

As regards the medialised case of disease, several interviewed PGPs remembered a recent case of tetanus in which a non-vaccinated three-year-old boy almost died. The case was widely reported in the media in the CR and was accompanied by a strong emotional message emphasizing the child's suffering (and the irresponsibility of the decision not to vaccinate). HCPs have often used the case as a particularly vivid example of how to make parents aware of the persistent risk of vaccine-preventable disease.

### *Incorporating individual personal experiences to materialise the presence of risks and the confidence in the safety of vaccines*

HCPs reflected that personal experience played a crucial role in the process of trust building and said that they were looking for strategies to employ it. One of the interviewed PGPs mentioned that she actively involved other parents in the discussion, asking them to refer to vaccine-hesitant parents regarding their particular experience with vaccination. She described moving the discussion regarding vaccination into the waiting room and asking the waiting parents (whose children are vaccinated) to share their experiences with others. We witnessed one of these situations, during which the doctor encouraged uncertain mothers to ask other parents about adverse effects (Fieldnotes, Site 3) as part of our observations.

Another strategy of employing personal experience was a discussion of cases they have witnessed during their professional career. Some of the HCPs did this to illustrate the persistence of risks.

They [parents] are afraid [to vaccinate the child], but if I tell them "I will tell you what a child with pneumococcus looks like; I have seen him in hospital I have worked several times over the 17 years. I will tell you what a child with meningococcal looks like, in hospital during my internships, I also saw a few of them at emergency units." They tell me that I am trying to scare them. But this is the reality. It is no idle scaring. Those children really don't look good, and we can find them in the Czech Republic. This is why we vaccinate. (Interview, HCP 6, PGP, age 44)

Some of the HCPs mentioned the role of their parenting experience, and they strategically used examples of their personal vaccination strategies to show parents their confidence in the safety of vaccines. By sharing their personal experiences and drawing on their own moments of concern as parents, they made the potential risks of vaccine-preventable diseases visible. Simultaneously, they underscored their confidence in vaccines through narratives of vaccination decisions made for their own children. Some HCPs perceived sharing their own parental experience as a vulnerable moment that linked their professional and private personal biography. However, they were aware that their personal biographies serve as a powerful tool for showing their confidence in vaccines, although their decisions may not always be verbally articulated.

I share it [personal parental experience with vaccination], mostly when parents ask directly. But, you know, I live here [in the town where her surgery is located], so they know my kids, and often they're either classmates or they meet at a club somewhere. So it's not completely anonymous. The parents sometimes ask if my kids are vaccinated against some particular disease, but it's rare. On the other hand, of course, I try to protect my privacy, but there are

things that we just know about each other; it's a small town. (Interview, HCP 2, PGP, age 37)

The personal experience makes the risk familiar by providing first-hand experience and transmitting related emotions and feelings. By discussing their professional experience with the effects of the disease, HCPs materialize their existence as they occur in concrete experiences. Simultaneously, by employing direct personal experiences (of other parents or their own), they were representing confidence in vaccines that was not only grounded in biomedical expertise but also in parental experience.

### *Situating risk as embedded in everyday processes and integral to the uncertainty of the global world*

Familiarity with risk has, in some cases, been demonstrated through practices that are part of our lives and which are not necessarily associated with the risks of preventable diseases. In these cases, the risks associated with non-vaccination were framed in the context of situations that are part of everyday practices and lifestyles. Bringing such examples into the debate allowed HCPs to situate disease risks in situations that were familiar to parents, and which they could imagine their children being exposed to. Discussing risks in the context of these situations brought the horizon of remote possibilities of contagion much closer to being more concrete and immediate moments in parents' lives.

If you want to travel to Southeast Asia, for example, or fly to the Maldives, etcetera, the Prague clientele is specific in a way, so I tell them, look, the incidence of infectious diseases is much higher than in our country, those people are not nearly as vaccinated as in our country, you may encounter diseases that here we already regard as eradicated or rare. You will be travelling by plane, airport . . . Nowadays, mothers meet. There are children's groups, they go with them to playrooms and various cafes, clubs, swimming . . . To make it brief, they come up with a program from the age of 6 months and the children meet and, without vaccination, there is a really big risk that the child can get sick. (Interview, HCP 16, PGP, age 35)

The HCPs mentioned the argument of a potential change in the epidemiological situation in the CR due to the refugee crisis induced by the war in Ukraine as a new essential argument in the debates with parents. From the outbreak of the war until the beginning of November 2023, more than 372 thousand refugees from Ukraine arrived in the CR; 26% of those entering the country were children.<sup>27</sup> Compared to EU countries, Ukraine has a higher incidence of infectious diseases such as tuberculosis and measles and, compared to the CR, a lower immunization rate.<sup>28</sup> Debates regarding the risk of infectious diseases became a visible part of the media coverage of the refugee crisis. HCPs were aware that the discussion regarding the possible change in the epidemiological situation might represent an important tool for making disease risks more imaginable for the parents.

And if they came, I would tell them that I would get vaccinated. I'm taking advantage of the migration within Europe a little bit because of the war in Ukraine or when there was a measles epidemic. I'm just looking for arguments I can use, and sometimes there is nothing, but I still try to explain to them that the diseases are serious, that they are not here precisely because we vaccinate. (Interview, HCP 2, PGP, age 37)

As is also apparent in the quote above, some HCPs were aware that the migration argument could be used to purposefully communicate a broader argument about the importance of the unpredictability of risk in a changing global world. The possible change in the epidemiological situation in the CR in connection with the arrival of refugees from Ukraine was primarily used as a means of highlighting that the risks of preventable infectious diseases can vary, and these risks are, to a significant extent, unpredictable. In this context, the specific situation of the influx of refugees primarily served as a means of demonstrating the immediacy of these risks through a situation that was understandable and which could be felt immediately by the parents.

### **Managing anxieties using medical procedures**

Beyond the verbal argumentation, some of the HCPs interviewed also mentioned the employment of medical procedures that might contribute to reducing vaccination fears. HCPs referred to offering consultation with a neurologist to assure hesitant parents that the child's development can handle the vaccination. For example, HCP 6 offered parents who were anxious due to family anamnesis of autism the chance to postpone vaccination until the autism spectrum questionnaire could be conducted at 18 months. The interviewed HCPs primarily framed this procedure as an activity designed to minimize parental concerns, and thus increase the likelihood that they would vaccinate their child. Although our research has also pointed out the existence of tensions between different types of medical specialists (mainly among PGPs, neurologists and immunologists) regarding vaccine recommendation (unfortunately, a more detailed discussion of this aspect is beyond the scope of this text), in the vast majority of the cases the HCPs described the cooperation with specialists as beneficial in terms of the quality of health care provided and the psychological effect it may have on the parents' decision-making process. HCPs reflected that further examination might strengthen parents' trust in the medical procedure and safety of vaccinations:

Of course, when there was something more serious [in terms of perceived negative effects of vaccination], we would send them to a neurologist to reassure them, we would just send them for further investigations to either calm them down or just. . . (Interview, HCP 5, PGP, age 40)

In Site 1, which was intentionally sought out by many vaccine-hesitant parents because it had a reputation for being more benevolent in dealing with vaccine postponements and rejections, the PGP routinely applied homoeopathy before and after vaccination. The nurse working in the practice also interpreted this procedure as a tool to reassure parents:

If you would give them only sugar there, I think that for such very stressed, anxious parents, who are afraid of vaccinations, of everything regarding the child. When you give them homoeopathy, and you have even only a small chance of preventing some kind of reaction, they are all calmer. (Interview, HCP 7, nurse)

We are not suggesting that those procedures were not motivated by the health benefit for the child. However, the HCPs were also aware of their psychological effect regarding the management of the fears and used them actively, while taking this effect into consideration.

### **Discussion**

This study sought to analyze the HCPs' approaches to communication with vaccine-hesitant parents, and the strategies they employ while addressing concerns regarding vaccination. The findings indicate that the dynamics between parents and HCPs and their willingness to invest time in the vaccination discussion are influenced by how medical professionals categorize and label parents. HCPs often stressed that discussing vaccination with "vaccine rejectors" (whose attitudes were perceived by HCPs as primarily embedded in their lifestyle and difficult to change) was a time burden for the practice. It could also be disruptive to the relationship with parents, the quality of which is important for providing further care to the child. In contrast to vaccine refusal, HCPs distinguished the position of hesitant parents, where the discussion was seen as meaningful, not least because their position was perceived as primarily motivated by an understandable concern for the child. Those findings suggest that HCPs actively use attitudes toward vaccination as an indicator of future collaboration patterns. Attitudes toward vaccination were recognized by HCPs as factors potentially impacting other spheres of care. The ability to adjust appropriate communication arrangements and build long-term cooperation becomes essential in a healthcare system based on a long-term relationship between individual HCPs and parents, as is the case of CR. Vaccination represents only a subset of the care general PGPs in the CR provides. In this context, they approached the topic of vaccination as an issue with other implications for the care they provide. Their approach was influenced by an awareness that communication about vaccination may have direct implications for other areas of future cooperation with parents.

Concern management is one of the most important axes influencing communication with vaccine-hesitant parents. In doing so, our study highlights the use of different strategies incorporated by HCPs to make the existence of vaccine-preventable diseases visible using language and tools beyond expert knowledge (mobilizing narratives that are part of collective memory, using personal experience and situating risk as embedded in everyday processes and integral to the uncertainty of the global world). At the same time, in some cases, HCPs also used other medical procedures that aimed (in addition to improving the quality of care provided) to reduce feelings of anxiety and enable parents to strengthen their sense of control over the risks associated with vaccination.

Available evidence suggests that the perception of risk (associated both with vaccination and vaccine-preventable disease) represents one of the most important factors impacting vaccination decisions.<sup>29,30</sup> The perceived risk of vaccine-preventable diseases can bolster vaccine acceptance, while the perceived risk of vaccines themselves can fuel vaccine hesitancy. However, vaccines are typically administered to healthy individuals, and the immediate individual risk associated with

vaccination may seem more tangible than its future benefits. Conversely, the risk of contracting vaccine-preventable diseases may be perceived as a more distant possibility.<sup>31</sup> These different starting points for risk perception pose a major challenge for HCPs in communicating the risks and benefits of vaccination. The proponents most often confront this challenge by focusing on providing statistical information and biomedical knowledge.<sup>32</sup> However, the available evidence points out that statistical information has little impact on risk perception when compared to narratives containing emotional charges.<sup>33</sup>

Expert biomedical knowledge calculates risks based on probabilities and evaluates gains by comparing benefits and risks. Within the polarizing vaccination debate, such an approach is often symbolically contrasted with concerns articulated by parents, who are perceived as irrational and emotionally driven.<sup>34</sup> Similarly, the HCPs interviewed in our study highlighted that the argumentation used by vaccine-hesitant parents is often irrational and grounded in emotional responses, and they symbolically positioned themselves as rational authorities. However, at the same time, they actively used arguments that evoked strong feelings in their efforts to reframe the risk-benefit debate toward discussing the risks of the particular disease rather than the risks of the vaccines. These strategies were seen by HCPs as being complementary to information that embeds risks in statistical information and biomedical risk calculations. In these cases, HCPs used comprehensible (media or cultural) representations, personal experiences and media coverage of cases of infection to place vaccine-preventable disease risk in frameworks that are easy for parents to understand and that make unfamiliar risks appear more familiar.

These examples were anecdotal (and, in some cases, for example, exploited fears of the challenges associated with the migration wave to the Czech Republic). As such, they stand to a significant degree against the principles on which biomedical knowledge builds its expertise. However, in this context, some authors<sup>35</sup> call for the need to rethink how such anecdotal evidence is engaged in vaccination communication and to reinforce its relevance. In some ways, a story may be a more effective communication tool than an information leaflet. As a number of previous studies have pointed out, anecdotal evidence and emotionally saturated narratives (such as first-hand testimony of parents) underpin anti-vaccination discourses<sup>35,36</sup> and allow anti-vaccination messages to spread rapidly.<sup>37</sup> A dichotomy of “us vs. them,” where HCPs are situated as the “other,” which needs to be fought against, is often part of those discourses.<sup>10</sup> Engaging with one’s own experiences (including making any personal parenting practices and decisions visible or drawing other parents into sharing their experiences with vaccination) can potentially become a tool that can be used to subvert such dichotomy.

Our findings have several important implications. Firstly, they show that HCPs actively seek creative strategies to communicate risks. These strategies focus heavily on vaccine-preventable diseases’ risk familiarization, often incorporating emotions, personal experiences and anecdotal evidence. However, there is currently limited evidence on the

effectiveness of these strategies. Existing evidence suggests that emotionally charged messages emphasizing the risks of vaccine-preventable disease can have pitfalls.<sup>38</sup> Our research indicates that HCPs employ this type of communication and subjectively consider it a suitable strategy to address parents’ concerns. Therefore, more research is needed to explore the contexts in which HCPs use this type of communication and its impact on vaccination attitudes.

Furthermore, our research shows that HCPs mainly focus on risk communication, specifically reframing risk and emphasizing the risks associated with vaccine-preventable diseases. However, studies mapping vaccine-hesitant parental attitudes also highlight the importance of reasoning about the child’s individuality and the benefits to his/her individual health.<sup>39,40</sup> In this context, it is crucial to reflect on the importance of communication strategies that shift the focus from risks to the benefits and individual situation of the child, which may address the needs of some parents more effectively. In this regard, some of the HCPs collaborated with other specialists (e.g. neurologists and immunologists) or suggested the possibility of further examinations. These practices reinforced an individual approach to child health care and were perceived by HCPs as a tool to (among other things) alleviate parents’ concerns. Obviously, these strategies entail additional financial costs and can hardly be considered universally applicable. However, the possibility of interprofessional collaboration and employment of procedures that reinforce the individual approach to the child in the context of vaccination may represent an unexplored option to address vaccine hesitancy.

Finally, our findings underscore the importance of the organization of immunization services. In the CR, vaccination is provided within the context of a long-term relationship between PGPs and parents. HCPs viewed communication about vaccinations within this relationship as an aspect that may influence future care provision, and they adapted their strategies accordingly. The organization of vaccination services and its impact on communication patterns with vaccine-hesitant parents should be the subject of further research.

## Limitations

The study’s limitation relates to the participants’ age profile. Younger HCPs were overrepresented in our sample. This factor may have also impacted the HCP’s relatively high level of understanding related to parental vaccine-hesitant attitudes observed in the study. Interviews with vaccine-hesitant parents conducted during another part of our project and previous evidence<sup>40</sup> suggest that such a high level of understanding was not a common practice. According to the requirements of the VAX-TRUST project, the entire research was conducted with participants from only one region of the country, namely the capital city of Prague. Therefore, regional differences are not reflected.

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