Czech VAX-TRUST Intervention: External Evaluation Report

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1. Executive Summary

The external evaluation assessed Czech VAX-TRUST intervention in the Prague region that aimed to stimulate the reflexivity of general practitioners for children and adolescents and their nurses regarding vaccination hesitancy in their clinical practice. More specifically, the key objectives of the Czech interventions were: 1) improving knowledge of GPCA and nurses about the complexity of factors underpinning vaccine hesitancy; 2) fostering their positive attitudes dealing with vaccine hesitancy and hesitant parents; and 3) incorporating a reflexive standpoint through behaviour change in their everyday clinical practice.

There were three main objectives of external evaluation: 1) to understand both internal and external factors that contributed to the outcomes of the Czech intervention; 2) to learn how the VAX-TRUST intervention in the Czech Republic was implemented; and 3) to evaluate the adequacy of the Czech intervention, especially in terms of the potential for scaling up to other contexts and/or regions. These objectives are anchored in six evaluation criteria: effectiveness, implementation fidelity, sustainability, utility, feasibility, and accuracy.

While we do not have evidence of effectiveness yet, we consider the intervention largely successful. The main contributing factors were the credibility and expertise of the implementing team. They professionally delivered the workshops while preserving a friendly and open atmosphere as an important factor contributing to sharing and learning. The tools and resources utilised by the intervention team were adequate, given the limited time to prepare the intervention and the busyness of HCPs. To further improve the intervention, we recommended adjusting content to fit HCPs' needs better and increase participants’ engagement.

We also found high implementation fidelity in all dimensions monitored. The implementation of the intervention matched the original design and intended delivery fully, with only minor issues regarding participant responsiveness (lower than expected participation rate and lower engagement during some parts of the workshop). Again, more attention on identifying the target group's needs on vaccine hesitancy and the involvement of a psychologist and a communication expert were recommended to provide more tailored and engaging skills training for HCPs.

The sustainability potential of the intervention seems to be considerable both in terms of possible follow-up activities and utilization of gained knowledge by workshop participants. For the latter, perceived utility appears to be moderate. Workshops contributed to HCPs' understanding and reflections regarding vaccine hesitancy. On the other hand, a partial mismatch between workshop content and expectations/needs of HCPs was identified, leading to perceived lower practical utility. Two broader variants of further actions were recommended to address sustainability and utility.

We consider the so-called “Low effort variant” as minimal and low-cost way to preserve and use gathered knowledge and tools for interested HCPs or, eventually, by other parties such as professional associations or educational organisations. On the contrary, the “high effort variant” expect the current team to find additional funding, include experts on psychology and communication, and further upscale the intervention to remaining regions. Within this variant, we briefly outline the pros and cons of an online format.

We also draw three lessons learned regarding 1) intervention preparation under uncertainty within a complex and multi-country project such as VAX-TRUST; 2) the importance of need analysis and clarifying expectations of different stakeholders; and 3) the confusing relationship between internal and external evaluation.

2. Introduction

Czech VAX-TRUST intervention: increasing awareness of the complexity of vaccine hesitancy among healthcare professionals (hence the "project" or "intervention ") is one of seven WP5 interventions addressing vaccine hesitancy in target regions. The Czech WP5 team carried out the intervention in the Prague region from January to June 2023.

2.1. Target groups (key stakeholders), aim and objectives

The intervention aimed to stimulate the reflexivity of general practitioners for children and adolescents (hence also GPCA) and their nurses regarding vaccination hesitancy in their clinical practice. The intervention focused on the interaction between these healthcare professionals and parents and their children.

The Czech team formulated three intervention pillars and related objectives (The TIDier Checklist of the Czech Republic, 2023):

1. Diversity, plurality, and continuum: sensitivity towards diversity and plurality of perspectives and vaccines (X vaccination)
2. Compassion: recognition of reasoned concerns and irrational layers of argumentation, coupled with the need to change the discourse from statistics and concepts to stories
3. Child-centrality: acknowledge that the interaction in surgeries is grounded around the common, yet often invisible aspect: all actors act "for the good of the child."

The key objectives of the Czech interventions were:

1. improving knowledge of GPCA and nurses about the complexity of factors underpinning vaccine hesitancy;
2. fostering their positive attitudes dealing with vaccine hesitancy and hesitant parents and;
3. incorporating a reflexive standpoint through behaviour change in their everyday clinical practice.

2.2. Intervention

The intervention consisted of three main tools:

1. Pre-intervention and post-intervention online KAB survey to measure reflexive attitudes of HPCs and their readiness to incorporate the reflexive standpoint in their everyday clinical practice.
2. In-person workshop composed of a lecture regarding the complexity of vaccine hesitancy and following group discussions. The intervention is based on five model situations of interaction between HCP and hesitant parent.
3. A brochure explaining the complexity of the factors underpinning vaccine hesitancy in the target region as well as in other VAX-TRUST regions. The brochure is provided at the end of the workshop.

The intervention logic is summarised in Figure 1.

2.3. The intervention logic

Figure 1 The intervention logic

Context
VAX-TRUST project design
Czech national context: strict vaccination calendar, six vaccines mandatory, administered by GCPAs

Problems (to be solved)	Resources	Actions	Outputs	Immediate outcomes	Long-lasting outcomes
Parents' concerns regarding vaccination are not appropriately addressed by healthcare professionals.	Resources of the intervention team (time, skills, knowledge, finance, etc.)	Preparation of a lecture Preparation of a brochure Modification of the KAB questionnaire Recruitment & Promotion Intervention (see above) Monitoring & Internal Evaluation	Pre-post KAB questionnaire Lecture Brochure (n=60) 5 In-person workshops for approx. 60 HCPs in total Internal evaluation report	**Participants satisfaction** overall &with elements of the intervention **Improved knowledge of participants** about **the** complexity of factors underpinning vaccine hesitancy **Attitudes** willingness to engage in conversation with hesitant patients	More reflexive standpoint toward vaccine hesitancy resulting in **behavioural change** in HCPs' clinical practice

2.4. Evaluation framework and methods

The external evaluation follows the CDC framework (CDC, 1999), as summarised in Figure 2.

Figure 2 CDC program evaluation framework

Source: https://www.cdc.gov/evaluation/framework/index.htm

The very first step was **stakeholder engagement**. The main stakeholders, i.e., persons involved or affected by the intervention and intended primary users are:

1. VAX-TRUST Czech implementation team WP5
2. General practitioners for children and adolescents and nurses at paediatric ambulances in Prague
3. VAX-TRUST external evaluation leadership (WP6)
4. VAX-TRUST team WP7
5. Based on stakeholder engagement, external evaluators gain a detailed **description of the intervention** regarding needs, expected effects, activities, resources etc. It allowed focus **on the evaluation design**, formulating evaluation questions, and appropriate data collection and analysis methods.
6. Subsequently, **credible evidence** was gathered, and the resulting findings were **justified** using established evaluation standards. Lastly, this report provides key lessons to be learned by all stakeholders, particularly the implementation team and WP6 leadership, for further dissemination and utilisation.

2.4.1. Evaluation objectives, criteria, and questions

The first objective is to understand both internal and external factors that contributed to the outcomes of the Czech intervention. The evaluation criterion for this objective is effectiveness, i.e., the extent to which the intervention objectives were achieved. For this purpose, the results of the internal

evaluation (pre-post questionnaires) are put into a broader context of the intervention and interpreted together with findings from all other parts of the external evaluation described below.

The second objective is to learn how the VAX-TRUST intervention in the Czech Republic was implemented. The evaluation criterion for this objective is implementation fidelity (hence also "IF"). IF in this evaluation refers to the degree to which the intervention is implemented as intended by the WP5 team and resulted in specific outputs. It assesses how closely the implementation of the program matches the original design and intended delivery. In particular, we focus on the following dimensions[1]:

1. adherence – the extent to which the intervention is delivered as intended,
2. dosage – the amount or frequency of the intervention delivered,
3. quality – the level of skill and competency of the intervention deliverers,
4. participant responsiveness – the extent to which participants engage with and respond to the intervention.

The third objective is to evaluate the adequacy of the Czech intervention, especially in terms of the potential for scaling up to other contexts and/or regions. Two evaluation criteria are used for this objective: sustainability and utility. As for sustainability, given the timeframe for evaluation, only the *possible* extent to which the intervention results are durable over time is assessed. Both the implementation team and participants estimate the sustainability potential. Utility criterion relates outcomes of the intervention with the specific needs of participants (healthcare professionals) and broader public health needs as reflected in VAX-TRUST goals.

Both objectives and criteria are summarised in Table 2, together with relevant evaluation questions.

Table 1 Evaluation objectives, criteria and questions

Objectives	Criterion	Evaluation question (EQ)
1. Understand factors influencing results	Effectiveness	EQ1: Did the intervention produce the expected outcomes?*
		EQ1a: What factors contributed to the success/failure of the intervention?
		EQ1b: Were the instruments and resources used in the intervention adequate to produce the expected results?
2. Lear about implementation	Implementation fidelity	EQ2: Was the intervention implemented as planned?
		EQ2a: (If not) What aspects/parts were modified or missing? Did the team justify the changes?

[1] There are two opposing arguments regarding the measurement of fidelity in the literature (Carroll et al., 2007). One suggests that the five elements provide distinct approaches to measuring implementation fidelity. In our approach, we argue that to obtain a comprehensive understanding of the process, all four elements must be measured.

3. Adequacy of the Czech intervention	Sustainability	EQ3: What is the perceived sustainability potential of the intervention?
		EQ3a: Has the implementation team considered the sustainability of the intervention? (If yes) What measures have been taken?
		EQ3b: Do participants intend to apply gained knowledge and skills?
	Utility	EQ4: What is the perceived utility of intervention?
		EQ4a: How are participants satisfied in general and with individual parts of the intervention?
		EQ4b: Does the intervention meet participants' expectations (needs)?
		EQ4c: How do participants perceive the usefulness of the intervention? Is it relevant to their own practice?

* - evaluated by the implementation team

External evaluators are guided by the following quality standards thorough evaluation:

1. feasibility – ensure that the evaluation is viable and practical;
2. accuracy – ensures that the evaluation process produces correct findings.

3. Methodology

The mixed-method approach is used for the external evaluation based on the triangulation of both data and methods.

3.1. Secondary data analysis (SAD)

Collecting and analysing monitoring data, intervention documentation and outputs are an essential part of this evaluation. The external evaluation collected and analysed the following documents made/provided by the implementation team: questionnaires, educational materials, reports (data analysis, minutes), attendance lists, promotional materials, and correspondence with relevant stakeholders. SAD cut across all evaluation phases, and findings inform all evaluation questions.

3.2. Semi-structured interviews

The interviews aimed to verify and supplement secondary data and to delve deeper into the issues and perspectives of stakeholders in the Czech Republic, namely the deliverers of the intervention and representatives of the umbrella organisations for GPCA and nurses. Findings from semi-structured interviews inform all evaluation questions.

Three interviews were prepared and carried out by external evaluators:

- interview with the implementation team (June 26, 2023; 52 min.)

- interview with the representative of the Young Paediatricians' Society (June 30, 2023; 25 min.)
- interview with the representative of the Czech Nurse Association (July 14, 2023; 15 min.).

For all interviews, external evaluators prepared an interview script. An interview with the implementation team was recorded with the informants' consent; a condensed transcription was prepared for interviews with HCP's representatives. All data obtained were handled in accordance with the rules of personal data protection and the Code of Ethics of the Czech Evaluation Society.

3.3. Participant observation

Participant observation was used to immerse the external evaluator as closely as possible in the experience of workshop participants. The evaluator observed the participants' and lecturers' behaviours, interactions, and practices to gather data about project inputs, outputs, and outcomes. Such observation allowed the evaluator to see what was happening in the project and prepare additional topics for interviews. An observation matrix (see Figure 8 in Appendix) was used to help the evaluator organise and record the observations.

During the intervention phase, the external evaluator participated in three workshops (one with Young Paediatricians' Society members, one with paediatric nurses, and one with experienced GPCAs).

3.4. Questionnaire survey

A short (5 min.) questionnaire survey was prepared concerning participants' expectations, satisfaction and practical utility of the intervention (see Figure 9 in Appendix). The survey was administered in cooperation with the implementation team at the end of the intervention as part of a shared questionnaire.[2]

The questionnaire was completed by 43 of the 51 participants (response rate 84%), of whom 11 were paediatric nurses and 32 doctors.

Table 2 Summary of evaluation questions and related methods

Evaluation question	Secondary data analysis	Semi-structured interviews	Participant observation	Questionnaire
EQ1: Did the intervention produce the expected outcomes?*				
EQ1a: What factors contributed to the success/failure of the intervention?	●	●	●	●
EQ1b: Were the instruments and resources used in the intervention adequate to produce the expected results?	●	●	●	●

[2] The first part, provided by WP5 team, measured readiness to change (3 questions). In the second part, satisfaction with the workshop was measured by 5 close-ended and 3 open-ended questions.

EQ2: Was the intervention implemented as planned?	●	●	●	
EQ2a: (If not) What aspects/parts were modified or missing? Did the team justify the changes?	●	●		
EQ3: What is the perceived sustainability potential of the intervention?	●	●		●
EQ3a: Has the implementation team considered the sustainability of the intervention? (If yes) What measures have been taken?	●	●		
EQ3b: Do participants intend to apply gained knowledge and skills?				●
EQ4: What is the perceived utility of intervention?	●	●		●
EQ4a: How are participants satisfied in general and with individual aspects of the intervention?			●	●
EQ4b: Does the intervention meet participants' expectations (needs)?			●	●
EQ4c: How do participants perceive the usefulness of the intervention? Is it relevant to their own practice?			●	●

* - evaluated by the implementation team

4. Findings

This chapter is structured according to the evaluation questions and summarises the findings of the external evaluation in individual subsections.

4.1. Expected outcomes

The primary expected outcomes were a change in the attitudes of HPCs and their increased readiness to incorporate the reflexive standpoint in their everyday clinical practice. Pre-intervention (online) and post-intervention (paper and online) KAB survey was used to measure HCPs' knowledge, attitudes and behaviour concerning the clinical practices of vaccination before and after the intervention. Data analysis from this survey and assessment of the intervention impact is the responsibility of the internal evaluation within the WP5 team. The results of the analysis were not available for external evaluation and thus are not included in this report. Nevertheless, we tried to answer the follow-up sub-questions EQ1a and EQ1b using evidence gathered by external evaluation.

4.1.1. EQ1a: What factors contributed to the success/failure of the intervention?

While we do not have evidence on the overall impact of the intervention yet, several factors that might contribute to expected outcomes were identified.

Based on participant observation, the team successfully established its credibility during the introductory phase of the workshop. Lecturers' expertise in sociology and health policy was also

backed-up by their work in the respected organisation (Charles University) and participation in EU's Horizon 2020 project. Their expertise was never challenged by participants during the workshop, and the lectures were rated high also in the questionnaire (average range from 1.2 to 1.5 on a 5-point scale). Indeed, the credibility was also enhanced by support from GPCA and nurse's associations, particularly by the workshop accreditation and the possibility of gaining 3 CME credits.

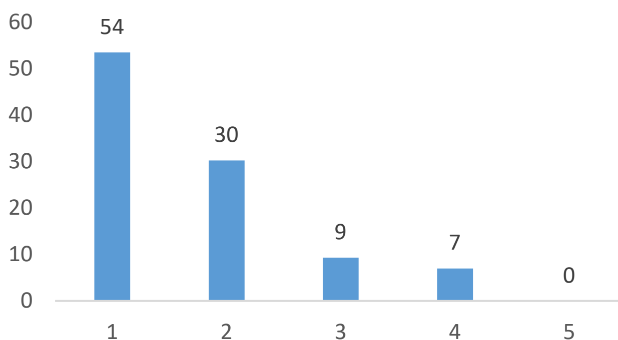
Moreover, the lecturers' experience was also manifested in excellent moderation and high clarity of presentations (according to both observation and questionnaire). During the intervention, continuous learning of the intervention team was notable and led to an overall improvement in timing and knowledge transfer. We observed a change in emphasis on what was important for participants (discussion, interaction, sharing personal experiences, practical recommendations, stories) rather than for researchers themselves (statistical data, high-level/abstract concepts, presentation of general knowledge about vaccine hesitancy).

"I appreciated personal and very friendly format in a pleasant environment." (participant)

"For the future, the clarity of the lectures and especially the demonstration with concrete examples should be kept." (participant)

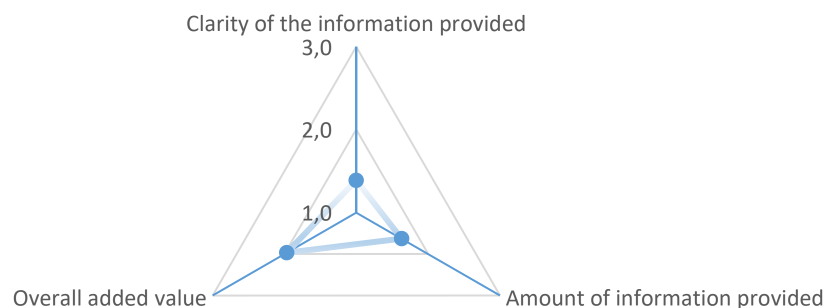
This is reflected in participants' assessment of overall quality (see Figure 3) and selected aspects of the workshop related to clarity, amount of information provided and overall added value (figure 4).

Figure 3 Participants' assessment of the overall quality of the workshop (in %)



Note: the scale ranges from 1–excellent to 5–unsatisfactory.

Figure 4 Participants' assessment of formal aspects of the workshop (average)



Note: the scale ranges from 1–excellent to 5–unsatisfactory.

The representatives of Young Paediatricians' Society and Czech Nurse Association received similar feedback from participants. According to them, the main advantage of the workshop was a smaller number of people which provided a space for asking questions (and getting an answer) and sharing experiences. She also highlighted the great organization of the workshop, including the premises.

On the other hand, it must be noted that few participants left during the seminar expressing their dissatisfaction either because they expected a different type of workshop or considered the lectures irrelevant to their practice. This issue was also reflected in participants' answers to questionnaire items related to relevance, practical utility and gained skills. Several comments to open-ended questions stressed the importance of more concrete examples (see below), and the evaluator also questioned practical utility during observation. This issue especially pertains to the first and third topics of the workshop.

4.1.2. EQ1b: Were the instruments and resources used in the intervention adequate to produce the expected results?

This evaluation question is difficult to answer without knowing the estimated impact of the intervention. The tools and resources appear adequate based on the information available from the observation, satisfaction questionnaires, and interviews. On the other hand, research shows that change in people's attitudes, especially behaviour, is hard to achieve simply by imparting information (Crano & Prislin, 2008). Acquiring practical communication skills and deepening reflection through experiential methods such as role-play appear to be very effective ways, especially in medical education (e.g., Nestel & Tierney, 2007)

At the same time, we consider the section on interaction in general and communication between health professionals and patients to be underdeveloped. The lack of practical guidance and examples was also one of the most frequently mentioned reservations by the participants themselves. In this sense, it will be essential to evaluate the impact of interventions in other countries that included the involvement of psychologist and/or expert in professional communication and interaction or practical skills training and compare results with the Czech intervention.

4.2. Was the intervention implemented as planned?

High implementation fidelity was achieved in all dimensions monitored.

1. *Adherence*: the implementation of the intervention matched the original design and intended delivery fully. Expected financial resources for the implementation of the intervention were provided to the team. Five workshops (i.e., the maximum of those planned initially) included all expected components (pre-intervention, education, and post-intervention measurement). A brochure on vaccine hesitancy was also prepared and provided to participants in hard copy. The graphic design of the booklet is of a good standard. However, it does not contain any specific instructions/advice on how to communicate with parents. Thus, the brochure only informs about the project and the topic but is not usable in praxis (as a handbook for a doctor's office). An internal evaluation report is still in preparation.

2. *Dosage*: all five workshops were carried out as planned. Only the first workshop did not follow the set timetable, and bad timing caused the final part of the workshop (which the participants themselves considered crucial) to be cut short. For the following workshops, the timing was fine. In addition, the intervention team demonstrated the ability to respond flexibly to an unforeseen event. Just before the last workshop, one of the lecturers was injured, and another team member delivered part of it.

3. *Quality*: the members of the implementation team had the required knowledge, skills and experience for preparing and delivering workshops on vaccine hesitancy. This also includes organisation, ensuring publicity among the relevant target group, modifying the KAB questionnaire, and conducting the internal evaluation.
4. *Participant responsiveness*: it is one of the weakest dimensions of the intervention. If we count participation itself among responsiveness, the planned number of 50 participants was not achieved.[3] Some of the enrolled participants did not arrive at all, and one of the workshops was thus conducted with only three participants, one of whom participated for the second time. On the other hand, paediatric doctors and nurses are a relatively busy target group and achieving an 86% participation rate can thus be a success. Moreover, the implementation team made a great effort to recruit the required number. It accommodated the time requirements of different groups, arranged workshops at attractive locations, communicated continuously with the enrolled participants, etc. The actual engagement of the participants during the workshop was variable. In general, the presentations offered relatively little scope for real engagement (mostly, it was just asking substantive questions, answering them, and continuing with the presentation). In contrast, participants responded very vividly to the opportunity to share their experiences and challenges in dealing with hesitant parents. Thus, the most significant engagement occurred in the second session (Complexity of vaccine hesitancy) or during the final summary and reflection.

4.2.1. EQ2a: (If not) What aspects/parts were modified or missing? Did the team justify the changes?

As seen from the above, no significant modifications or omissions have occurred. The maximum number of workshops was carried out, the last one being organised on the basis of interest from a professional organisation. After the first workshop, the schedule was also slightly adjusted to better meet the needs of the participants (more space for discussion during the workshop, not just at the end).

4.3. Perceived sustainability potential of the intervention

The question of the sustainability of the intervention can be divided into two parts. Firstly, it is a possibility that the intervention itself will continue. In this part, we focus mainly on considerations of the intervention team (EQ3a). We consider the intervention relatively modest from an organisational and financial point of view. It can be easily replicated and disseminated if relevant stakeholders are interested. However, this raises several issues that are key to sustainability. These are primarily the willingness of the intervention team to conduct follow-up workshops after the VAX-TRUST project has ended (e.g., funded by other project sources or co-financed by medical organisations), or to ensure adequate replacement of credible trainers. Others include modifying, expanding, and updating background materials (presentations, the brochure, etc.) or providing trainers from other fields (e.g., social psychology and communication). Last but not least, of course, is the doctors' interest in such workshops.

Secondly, it is the extent to which (long-term) benefits of the intervention last. While we do not have evidence regarding the (long-term) impact of the intervention, we can, at least, assess sustainability potential from participants' intention to use gained knowledge in their practice (EQ3b).

[3] Originally, the intervention team aimed at 60 participants. This number was then reduced to 50 in March 2023.

4.3.1. EQ3a: Has the implementation team considered the sustainability of the intervention? (If yes) What measures have been taken?

The interviews show that the intervention team is seriously considering continuing the workshops and is considering different options and formats. In this regard, discussions have already taken place with representatives of umbrella organisations of paediatricians. One conclusion is that an online version of the workshop could be an essential tool to increase the sustainability and upscaling of the whole intervention. The online format would make the intervention more accessible to Prague and regional doctors and nurses who could not attend the seminars. A very concrete step is then the agreement of the intervention team with the Young Paediatricians' Society to participate in the Czech paediatric congress. They would present the intervention and its results to other paediatricians as soon as September 2023. Such presentation can then become a catalyst for further dissemination of the intervention in the regions of the Czech Republic.

The paediatric association, which initially did not want to co-host the workshops, has now invited the intervention team to prepare a summary of the intervention for the journal Pediatrie [Paediatrics]. The first draft of the paper will be developed over the summer. Moreover, if the Prague pilot is successful, the association will discuss whether, when, under what conditions and in what form it would support the continuation of the intervention in the regions.

Other potential options for expanding the intervention to the regions are being considered in cooperation with the Faculty of Medicine of Charles University. Another possibility is funding such a project through the Technology Agency of the Czech Republic. Here, not only could the expansion occur, but also further development and testing of various tools.

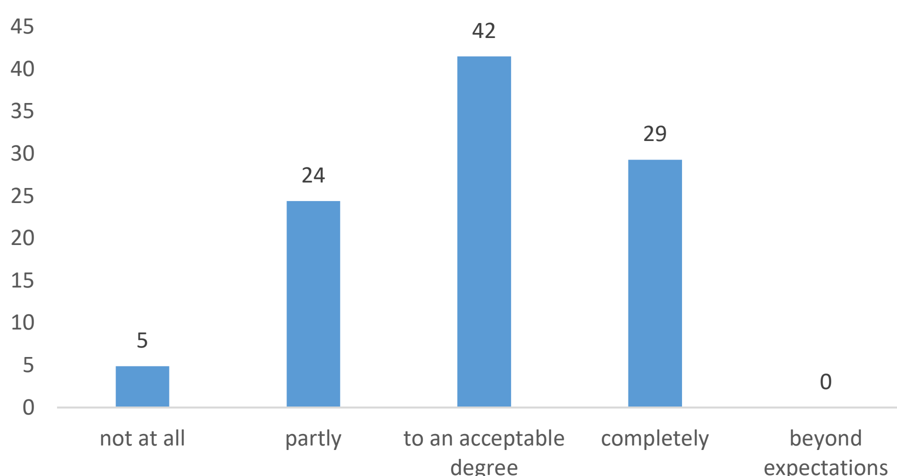
Overall, the intervention team's familiarity with the paediatric physician and nurse communities has also increased, so they foresee more effective opportunities to share information about upcoming vaccine hesitancy activities and thus increase the sustainability of the intervention.

On the other hand, there is no project website in the Czech language (as far as we know), and the materials (including the brochure) are not publicly available. We consider this problematic in spreading awareness of the project and its sustainability.

4.3.2. EQ3b: Do participants intend to apply gained knowledge and skills?

Most participants expect to use the knowledge and skills acquired in their practice. Only 5% found the workshop's content completely unusable, and 24% found it at least partially usable.

Figure 5 Participants' expectations regarding utilization of gained knowledge and skills (in %)



Some participants cited a lack of concrete examples and little focus on real communication situations as reasons for lower utilisation.

„I would like to know more about specific cases and how to communicate properly, also what specifically parents perceive negatively, i.e. what arguments to avoid.“ (participant)

Assuming the impact on attitudes and reflectivity of HCPs is demonstrated, we consider the potential for sustainability of the intervention to be considerable. The intervention team is planning further activities, meeting with stakeholders, and there is interest in the topic from them. At the same time, it can be expected that the completion of the workshop will indeed be reflected in the way the vast majority of participants communicate with parents of paediatric patients.

4.4. Perceived utility of the intervention

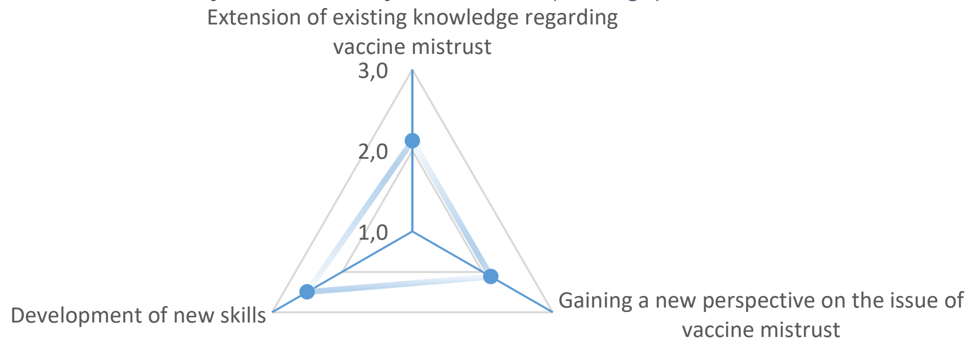
According to the intervention team, HCPs learned about vaccination in other countries, and based on how parents perceive this area, they were able to compare it with their own perspective, experience and offered a platform to share their experiences and solutions to each situation they experience with parents. And this gave them room for manoeuvre and the opportunity to respond more effectively next time. It is important to note that the seminars were attended by people who are interested in this topic and would like to communicate better with parents if they notice that they are hesitating. But some doctors have had a bad experience with the parents (based on WP4 findings), and, unfortunately, they were not attending such workshops. Nevertheless, we observed during workshops several HCPs describing complicated interactions with hesitant parents with some level of discontent. On the contrary, we suppose that such a challenging experience might be the reason for participation in the event. Also, as noted by the intervention team, the influence of Prague is perhaps noticeable, meaning that HCPs might be different in opinion and communication compared to the regions.

Another critical point of view was provided by the representative of the Young Paediatricians' Society. She believes that participants now have a record of how widespread this problem is in the Czech Republic and got inspiration on how to communicate with hesitant parents in a new way. The VAX-TRUST analysis confirmed what they only subjectively thought regarding the issue of vaccine hesitancy and that this is a concern across Europe. The reactions that HCPs shared with her were very positive. They especially praised the whole concept and getting the analysis results that, while not so new for them, were excellently presented and confirmed their lived experience.

4.4.1. EQ4a: How are participants satisfied in general and with individual aspects of the intervention?

The above is confirmed by the participants, who commented positively on gaining a new perspective on vaccine hesitancy and expanding their knowledge in this area. On the other hand, the workshop developed relatively fewer new skills (see Figure 6).

Figure 6 Participants' assessment of the content of the seminar (average)



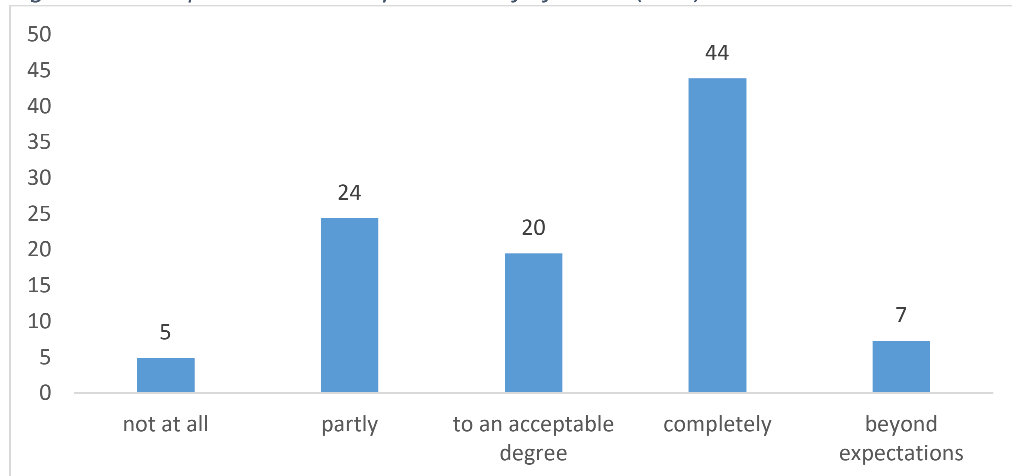
Note: the scale ranges from 1–excellent to 5–unsatisfactory.

The vast majority of participants (84 %) is very satisfied with the overall quality and formal aspects of the workshop related to clarity, amount of information provided and overall added value (see figure 3 and 4 above for details).

4.4.2. EQ4b: Does the intervention meet participants' expectations (needs)?

The participants can be divided into two groups, with approximately one-third coming to the workshop with different expectations. Participants' comments and evaluator's observations suggest that they expected more emphasis on the practical side of communicating with hesitant parents, including specific guidance and examples from practice. The other two-thirds left the workshop with partially or fully met expectations (see Figure 7).

Figure 7 Participants' overall expectations fulfilment (in %)



In terms of content, participants particularly appreciated the provision of the broader context of hesitancy in Europe and the division into two types of concerns: vaccine-specific and then child-specific, including examples (see chapter 4.1.1 for an assessment of form). There was a consensus (among participants that actually provided written comments) to shorten the lecture sections, especially the first lecture on vaccination statistics in Europe. Also, they call for increasing the interactivity and specificity of the lectures.

"I would have liked more concrete cases and how to communicate properly, also what parents perceive negatively, i.e., what arguments to avoid." (participant)

"Certainly skills training, e.g., a full day course. Thank you!" (participant)

5. Conclusions

The external evaluation assessed Czech VAX-TRUST intervention in the Prague region that aimed to stimulate the reflexivity of general practitioners for children and adolescents and their nurses regarding vaccination hesitancy in their clinical practice. More specifically, the key objectives of the Czech interventions were: 1) improving knowledge of GPCA and nurses about the complexity of factors underpinning vaccine hesitancy; 2) fostering their positive attitudes dealing with vaccine hesitancy and hesitant parents; and 3) incorporating a reflexive standpoint through behaviour change in their everyday clinical practice.

There were three main objectives of external evaluation: 1) to understand both internal and external factors that contributed to the outcomes of the Czech intervention; 2) to learn how the VAX-TRUST intervention in the Czech Republic was implemented; and 3) to evaluate the adequacy of the Czech intervention, especially in terms of the potential for scaling up to other contexts and/or regions. These objectives are anchored in six evaluation criteria: effectiveness, implementation fidelity, sustainability, utility, feasibility, and accuracy. Based on the gathered evidence, we provided below a concluding assessment of each of the evaluation questions.

Firstly, the question regarding expected outcomes cannot be answered now because the external evaluation has not received the necessary information from the internal evaluation. Nevertheless, based on stakeholders' assessment, the intervention was largely successful. The team successfully established its credibility and expertise. The workshops were delivered in a professional manner while preserving a friendly and open atmosphere as an important factor contributing to sharing and learning. The tools and resources utilized by the intervention team were adequate, given the limited time to prepare the intervention and the busyness of HCPs.

Secondly, high implementation fidelity was achieved in all dimensions monitored. The implementation of the intervention matched the original design and intended delivery fully. All five workshops were carried out as planned, and the implementation team members had the required knowledge, skills, and experience for preparing and delivering workshops on vaccine hesitancy. The only weakness was relatively moderate participant responsiveness: 86% participation rate and lower engagement during some parts of the workshop.

Thirdly, we consider the potential for sustainability of the intervention to be considerable. The intervention team is planning further activities, meeting with stakeholders, and there is interest in the topic from them. At the same time, it can be expected that the completion of the workshop will indeed be reflected in the way the vast majority of participants communicate with parents of paediatric patients.

Fourthly, perceived utility seems to be moderate. Workshops contributed to HCPs' knowledge about vaccination in other countries and parents' reasoning regarding vaccine hesitancy. Also, space for sharing their perspectives and experiences was offered, which can lead to greater reflection on their attitudes. On the other hand, some HCPs were dissatisfied with the general nature of provided information and missed concrete guidance on communicating with hesitant parents. Thus, about one-third of participants felt that their needs were unmet and found practical utility of gained knowledge as low.

6. Lessons

This chapter presents general lessons that have the potential for broader application and use.

The first lesson we would like to discuss is the circumstances of the preparation of the intervention. From our own observation and from the intervention team's accounts, the shape intervention was developed in a relatively short time and in an environment of uncertainty. The initially quite ambitious plan for one joint intervention changed due to differences in the countries, and this exposed the WP5 team to uncertainty about the content of the intervention and its form. The Czech team was unwilling or unable to apply techniques that had been developed for other participating countries. At the same time, the team received a clear signal from the representatives of the health professionals' associations that more extended training (6 to 8 hours) was not feasible for them. Lastly, internal (WP5) and external evaluation (WP6) roles were unclear for a long time. While this is understandable in complex multi-country projects like VAX-TRUST, it must be noted that all this led to a relatively short preparation time and even confusion during the whole process. Also, it wasn't easy to reconcile the ideas and needs of the VAX-TRUST project and the more specific needs and capacities of HCPs in Prague.

The needs of the target group are then related to the second lesson. From the interview with the intervention team, it became clear that communication techniques were not to be part of the WP5 intervention. However, this was the expectation that many participants came to the workshop with and expressed this need in their comments. The importance of clear expectations for utilisation is also evident in the comparison between Figure 5 and Figure 7 (see above), where there is a clear overlap between those whose expectations were met and who expect to use the knowledge and skills they have gained in their practice. Moreover, based on The TIDier Checklist for other countries available to us, we conclude that communication techniques are (eventually?) part of some interventions and improving communication skills is a legitimate goal (e.g., Portugal, Finland).

The last lesson concerns the relationship between internal and external evaluation. From our perspective, the traditional logic has been inverted, where internal evaluation is usually more formative and focuses on process, while external evaluation is more summative and focuses on impact. At the same time, there was a strong emphasis in this project on ensuring that external and internal evaluation did not work together. In our view, this is an overly rigid division of roles that limits potential synergies, makes the knowledge transfer process more difficult, and limits the opportunities to learn already during the intervention. Such emphasis on implementation fidelity would make sense for rigorously designed randomised control trials and similar designs but not for this intervention.

7. Recommendations

In this chapter, we propose actionable suggestions for further improvement of the intervention, either for the follow-up project focusing on vaccine hesitancy or similar interventions focusing on related issues or target groups.

Firstly, we recommend focusing more attention on identifying the target group's needs on the topic of vaccine hesitancy and adapting the content to be more relevant to them. In this respect, a discussion with potential participants (not only representatives of umbrella organisations) could be organised, ideally on the occasion of another event where HCPs are present (e.g. another training, congress, etc.), or a small-scale need analysis could be carried out. Moreover, the content and format of the workshop should then be clearly communicated to potential participants to avoid not meeting their expectations.

Secondly, in terms of the content itself, it seems appropriate to adapt the content to increase the engagement of participants. In case that it is not possible to increase the number of teaching hours (a request for a full-day workshop was also heard from participants on occasion), we would recommend shortening the lectures to 15-20 minutes and, on the contrary, to strengthen the interactive component for skills training purposes. In other words, less lecturing, more sharing and concrete advice. In any case, the intervention will benefit from the involvement of a psychologist and a communication expert, or a facilitator experienced with role-play, World Café, speed-dating and similar techniques (here, the team could certainly draw on the experience of WP5 implementation in other countries).

Concerning participant responsiveness, the idea of preparing an online version of the workshop (coming from both the intervention team and a representative of one of the associations) seems relatively tricky. Such a workshop would undoubtedly be more accessible to time-strapped HCPs or HCPs from the regions. However, it is challenging to prepare an online workshop that is both engaging and brings about a change in attitudes or behaviour. There is also the question of whether the online workshop should be purely asynchronous or whether it could include a synchronous component. It is the latter that seems to be more effective. However, in this respect, it will again be helpful to await evaluations of interventions from countries where the online workshop format has been used.

Finally, sustainability can be ensured in two main ways or a suitable combination of them.

1. **Low effort variant**: preparing a proper website in the Czech language that provides all materials (including appropriate material from other countries) in the editable form under Creative Commons licence can significantly improve re-usability. Also, the implementation team should also stay in touch with stakeholders (HCP representatives in particular) and provide at least some support for possible parties interested in continuing the intervention.
2. **High effort variant**: ensure funding (e.g., grants) for further development of the intervention and its upscaling to the Czech Republic. More resources would allow content extension, preparation of the abovementioned online form, contracting additional lecturers/experts, and continuous updates. As stressed by a representative of Young Paediatricians' Society, there are frequent and fundamental changes in the vaccination landscape, just as attitudes towards vaccination are changing for incoming cohorts of mothers and fathers.

Indeed, many mid-effort combinations can be derived from these two variants, including engagement of students, transferring the intervention to medical schools as semestral or half-semestral courses and other relevant modifications.

8. References

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9. Annexes

Figure 8 Observation matrix

Observation matrix	Seminar no.		date:		evaluator:		
Activity	**Clarity**	**Consistency with objectives**	**Timing**	**Active participation**	**Moderation**	**Challenges**	**Further observations**
Introduction and reinforce credibility							
T1: Context of vaccine hesitancy (based on WP2), ZK							
T2: Complexity of vaccine hesitancy (based on WP4), JHM							
T3: HCPs role and social and mass media matter (based on WP3 and WP4), DN							
Sumary: Vaccine hesitancy as a process							

Figure 9 Questionnaire (in Czech language)

VAX-TRUST

Sekce A: Připravenost na změnu

A1. ID účastníka

☐☐☐

A2. Když se zamyslíte nad tím, jak s rodiči diskutujete téma očkování, domníváte se, že byste měl/a Váš přístup měnit?

ohodnoťte na stupnici od 1 (tj. velmi důležité) do 5 (tj. naprosto nedůležité)

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐

A3. Jak velkou chuť máte na to, abyste se do změny přístupu k rodičům a dětem, pokud jde o očkování, pustil/a?

(ohodnoťte na stupnici od 1 (tj. obrovskou) do 5 (tj. žádnou)

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐

A4. Mohl/a byste prosím uvést, do jaké míry souhlasíte s následujícími tvrzeními?

ohodnoťte na stupnici 1 - zcela souhlasím, 7 - zcela nesouhlasím

	zcela souhlasím	2	3	4	5	6	zcela nesouhlasím
K rodičům a dětem již přistupuji způsobem, který považuji za vhodný.	☐	☐	☐	☐	☐	☐	☐
Nemám dostatek času na řešení těchto nelékařských problémů.	☐	☐	☐	☐	☐	☐	☐
Pokud bych změnil/a svůj současný přístup, ohrozil/a bych tím expertní autoritu, kterou jsem si u rodičů získal/a.	☐	☐	☐	☐	☐	☐	☐
Nevím, jak přesně bych mohl/a poznatky z dnešního semináře zapracovat.	☐	☐	☐	☐	☐	☐	☐
Obsah dnešního semináře se v mé práci určitě odrazí, ale teď netuším, jak se to přesně stane.	☐	☐	☐	☐	☐	☐	☐
Myslím, že změna mého přístupu by znamenala zásadní úpravu mojí každodenní práce.	☐	☐	☐	☐	☐	☐	☐
S mým současným přístupem k rodičům a dětem ve věci očkování mám dobrou zkušenost.	☐	☐	☐	☐	☐	☐	☐
Dnešní seminář mě přesvědčil, že postupuji správně.	☐	☐	☐	☐	☐	☐	☐

VAX-TRUST

A5. Jak byste zhodnotil/a důležitost následujících faktorů dle toho, jak by případně ovlivnily Vaši ochotu změnit Váš přístup k rodičům a dětem, pokud jde o očkování?

ohodnoťte na stupnici od 1 (tj. velmi důležité) do 5 (tj. naprosto nedůležité)

	1	2	3	4	5
Vyšší míra angažovanosti profesního sdružení či odborné společnosti.	☐	☐	☐	☐	☐
Doporučení profesního sdružení či odborné společnosti.	☐	☐	☐	☐	☐
Finanční motivace - zohlednění v úhradě od zdravotní pojišťovny.	☐	☐	☐	☐	☐
Můj pocit, že změna mého přístupu by skutečně mohla přispět ke změně postoje některých váhavých rodičů	☐	☐	☐	☐	☐
Vyšší zapojení dalších lékařů (např. psychologů, imunologů).	☐	☐	☐	☐	☐
Více času na očkování a diskuse o něm.	☐	☐	☐	☐	☐

Sekce B: Dotazník spokojenosti

Seminář (Ne)důvěra k očkování

B1. Jak hodnotíte celkovou kvalitu semináře?

Hodnoťte jako ve škole, tj. 1 výborné, 2 velmi dobré, 3 dobré, 4 dostatečné a 5 nedostatečné.

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐

B2. Komentář k celkové kvalitě semináře (co Vám v obsahu chybělo, případně co přebývalo?):

Sekce A: Připravenost na změnu

A1. ID účastníka

A2. Když se zamyslíte nad tím, jak s rodiči diskutujete téma očkování, domníváte se, že byste měl/a Váš přístup měnit?

ohodnoťte na stupnici od 1 (tj. velmi důležité) do 5 (tj. naprosto nedůležité)

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐

A3. Jak velkou chuť máte na to, abyste se do změny přístupu k rodičům a dětem, pokud jde o očkování, pustil/a?

(ohodnoťte na stupnici od 1 (tj. obrovskou) do 5 (tj. žádnou)

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐

A4. Mohl/a byste prosím uvést, do jaké míry souhlasíte s následujícími tvrzeními?

ohodnoťte na stupnici 1 - zcela souhlasím, 7 - zcela nesouhlasím

	zcela souhlasím	2	3	4	5	6	zcela nesouhlasím
K rodičům a dětem již přistupuji způsobem, který považuji za vhodný.	☐	☐	☐	☐	☐	☐	☐
Nemám dostatek času na řešení těchto nelékařských problémů.	☐	☐	☐	☐	☐	☐	☐
Pokud bych změnil/a svůj současný přístup, ohrozil/a bych tím expertní autoritu, kterou jsem si u rodičů získal/a.	☐	☐	☐	☐	☐	☐	☐
Nevím, jak přesně bych mohl/a poznatky z dnešního semináře zapracovat.	☐	☐	☐	☐	☐	☐	☐
Obsah dnešního seminář se v mé práci určitě odrazí, ale teď netuším, jak se to přesně stane.	☐	☐	☐	☐	☐	☐	☐
Myslím, že změna mého přístupu by znamenala zásadní úpravu mojí každodenní práce.	☐	☐	☐	☐	☐	☐	☐
S mým současným přístupem k rodičům a dětem ve věci očkování mám dobrou zkušenost.	☐	☐	☐	☐	☐	☐	☐
Dnešní seminář mě přesvědčil, že postupuji správně.	☐	☐	☐	☐	☐	☐	☐

A5. Jak byste zhodnotil/a důležitost následujících faktorů dle toho, jak by případně ovlivnily Vaši ochotu změnit Váš přístup k rodičům a dětem, pokud jde o očkování?

ohodnoťte na stupnici od 1 (tj. velmi důležité) do 5 (tj. naprosto nedůležité)

	1	2	3	4	5
Vyšší míra angažovanosti profesního sdružení či odborné společnosti.	☐	☐	☐	☐	☐
Doporučení profesního sdružení či odborné společnosti.	☐	☐	☐	☐	☐
Finanční motivace - zohlednění v úhradě od zdravotní pojišťovny.	☐	☐	☐	☐	☐
Můj pocit, že změna mého přístupu by skutečně mohla přispět ke změně postoje některých váhavých rodičů	☐	☐	☐	☐	☐
Vyšší zapojení dalších lékařů (např. psychologů, imunologů).	☐	☐	☐	☐	☐
Více času na očkování a diskuse o něm.	☐	☐	☐	☐	☐

Sekce B: Dotazník spokojenosti

Seminář (Ne)důvěra k očkování

B1. Jak hodnotíte celkovou kvalitu semináře?

Hodnoťte jako ve škole, tj. 1 výborné, 2 velmi dobré, 3 dobré, 4 dostatečné a 5 nedostatečné.

1 ☐
2 ☐
3 ☐
4 ☐
5 ☐

B2. Komentář k celkové kvalitě semináře (co Vám v obsahu chybělo, případně co přebývalo?):