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Work Package 8 – Task 8.1

Report on:

Vaccine hesitancy and uptake. From research and practices to implementation

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Abbreviations:

EU Joint Action on Vaccination (EU-JAV)

European Centre for Disease Prevention and Control (ECDC)

European Commission (EC)

Finnish Institute for Health and Welfare (THL)

Health care workers (HCWs)

Human papillomavirus (HPV)

Joint Research Center (JRC)

Measles, mumps and rubella (MMR)

National immunisations programme (NIP)

Public Health Agency Sweden, Folkhälsomyndigheten (FOHM)

Diphtheria, tetanus, pertussis, polio, Haemophilus influenzae type B (DTaP-IPV-HiB)

Tailoring Immunization Programme (TIP)

Vaccine-preventable disease (VPD)

World Health Organization (WHO)

Work Package (WP)

Vaccine hesitancy and uptake. From research and practices to implementation

Contents

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Introduction

This report presents the results of the work done in the EU Joint Action on Vaccination (EU-JAV) Work Package 8 (WP8) task 8.1. The aim of task 8.1 in WP8 corresponds to the specific objective 5 in the EU-JAV: "To develop a systematic overview and analysis of the current situation of activities related to vaccine hesitancy and uptake, including best practices and lessons learned in the Member States and their regions." This report has been written by the EU-JAV team at the Finnish Institute for Health and Welfare (THL) leading this work in the EU-JAV.

Task 8.1 examines:

- What kind of research-based determinants behind high and low vaccination coverage have been identified
- What kind of practices are known to maintain good vaccination coverage
- How have these practices been implemented in the public health work
- What lessons have been learned from implementing these practices and what scientific evidence has been produced about the impact of these practices (or interventions)

And

- Identifies cases that can be presented as constructive examples of both successful and unsuccessful actions, practices and decisions.

Corresponding work, examining and mapping how the organisations responsible for the national immunisations programmes (NIPs) and stakeholders active in the field in Europe perceive the situation related to vaccine hesitancy and uptake and how they work with tackling issues connected to these, has not been done previously. It is only by examining the different experiences, perceptions, good practices and lessons learned from our European peers that we can start to capitalise from the work done in the field in Europe. Results from this report are shared through the European Health Policy Platform.

Data Collection

A specific survey tool (Annex 1) was developed in collaboration with WP8 participants and colleagues from the ECDC and the European Commission, in order to gather data. At the end, two similar versions of the survey tool, one for the Member States and another for stakeholder groups, were created. The Member State version contained 73 questions, while the stakeholder version contained 48 questions. Some questions were specific for each survey. The questions were a mixture of Likert-scale-type, yes/no, questions and free text questions – which produced results often referred to in this report as "quantitative" or "qualitative data."

Some other questions asked respondents to provide a reference, such as to a study they conducted or review of a project they completed. These references were accepted without respect to language, though the survey itself was written and completed in English.

In order to find the organisation and persons most knowleadgeable about the work related to vaccine hesitancy and uptake in connection to the NIPs in the respective countries, EU-JAV participants, national health authorities and Ministries of Health were consulted. The entire survey tool was distributed to 32 Member State representatives of the EU-JAV in November 2019.

Response rate was 88%, with answers from 28 different Member States collected by June 2020, even though many Member States were in an extremely difficult situation due to the COVID-19 pandemic. The abbreviated version of the survey tool was subsequently distributed to 32 non-governmental EU-JAV stakeholders in November 2020. Responses from 8 stakeholder groups (response rate: 25%) were collected by the end of the collection period (January 2021). Each Member State and stakeholder group typically designated one individual to complete the entire survey, some surveys were completed through collaborative efforts. In some cases, completeing questions were asked from the respondents in order to obtain more information. (More complete data and analysis method description in Annex 2) It must be noted that many things may have changed in the different countries and among stakeholders when it comes to what kind of vaccine hesitancy and uptake related activities have been conducted and how the work is organised internally within different organisations. Also, the Covid-19 pandemic may have changed people's attitudes towards and perceptions about vaccines in general.

In order to find out more about the work related explicitly to COVID-19 Vaccine communication in EU Member States and other countries, the European Commission (EC), together with the European Centre for Disease Prevention and Control (ECDC) and the EU-JAV WP8 team at THL carried out a survey focusing on perceived actions, concerns and challenges in December 2020. (Results of this work are found in Annex 4.)

Country respondents: Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Malta, Netherlands, Norway, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, UK

Stakeholder respondents: Cittadinanzattiva ACN, European Institute of Women's Health, Medical University Graz, The International Association of Mutual Benefit Societies (AIM), The Standing Committee of European Doctors (CPME), Université Claude Bernard Lyon 1, Vaccines Europe, Vaccines Today

Executive summary of the results

In order to map the current situation of activities related to vaccine hesitancy and uptake, including best practices and lessons learned in the Member States and their regions, and among stakeholders, a data gathering was conducted as a part of the EU-JAV WP8. The survey used for gathering data was sent to 32 countries and 32 EU-JAV stakeholders. In total, 28 countries and 8 stakeholders responded to the survey. The survey sent to the coiuntries included 73 questions, while the stakeholder version contained 48 questions. The data from the countries was collected between November 2019 and june 2020, and the stakeholder data between November 2020 and January 2021. The survey included both multiple choice and open-ended questions. The data was analysed using both quantitative and qualitative methods by the EU-JAV team at the Finnish Institute for Health and Welfare (THL) leading this work in the EU-JAV.

The report shows that:

- The definition of vaccine hesitancy has many interpretations. Vaccine confidence, or lack thereof, is perceived to be the dominating feature of vaccine hesitancy. However, it is important not to leave any of the components of vaccine hesitancy – such as, complacency and convenience – behind.
- Determinants of vaccine hesitancy are also understood primarily from the perspective of a lack of confidence. This lack of confidence is rooted within vaccines' safety and effectiveness profiles or more broadly a lack of confidence due to ideological or religious reasons.
- From a public health and policy perspective, inconsistent terminology – and focusing only on vaccine confidence, or the lack of it, and overlooking other factors of vaccine hesitancy, such as convenience and complacency – means that programs designed to reduce vaccine hesitancy and strengthen uptake may be too narrow or improperly focused.
- The most emphasized practices among the countries were communication activities and work related to health care workers (HCWs), followed by cooperation with government bodies.
- The vaccines or subgroups perceived to be responsible for suboptimal vaccine uptake do not completely match with the target of work conducted by health departments. In this work, there are underserved groups, such as HCWs, or underemphasized vaccine, such as pneumococcal, in vaccine uptake work.
- The work to improve vaccine uptake has focused heavily on the HPV and influenza vaccinations. However, none of the work primarily targeted the vaccine mentioned with the reportedly lowest/most decreasing coverage: Diphtheria, tetanus, pertussis, polio, Haemophilus influenzae type B (DTaP-IPV-HiB) vaccine; and the pneumococcal vaccines were rarely mentioned as targets at all. Further on the human papillomavirus (HPV) vaccine, as it is one of the latest additions to national immunization programs, it is the top focus of communication, population-specific, and education-related activities. The measles, mumps and rubella (MMR) vaccine was reported frequently as a target, and alongside childhood vaccines such as MMR, makes it a prominent target across communication strategies.
- Official websites, HCWs, and informational literature are all the most highly emphasized for communicating both information on vaccines and information on vaccine safety. HCWs are trusted intermediaries in delivering vaccine information to their patients.
- The benefits of working across borders can include sharing experiences and data, as well as the possibility to collaborate on reviews of the international scientific literature. Barriers are identified

as socio-cultural, institutional and resources. The report includes a number of examples of international initiatives which have facilitated cross border collaborations linked to vaccine hesitancy and uptake.

- What is left unanswered from these results is a deeper look into the public's mind of what is driving the lack of confidence.
- Organizational barriers, personnel shortages, and lack of funding are listed as the most common barriers to working on vaccine uptake and vaccine hesitancy issues.

For further findings that can be used to support ways to work with vaccine hesitancy and uptake related issues in the future, please see the Discussion part of this report (p. 52)

Definition of Vaccine Hesitancy

I. Aim

According to the World Health Organization (WHO), vaccine hesitancy refers to a *"delay in acceptance or refusal of vaccines despite availability of vaccination services. Vaccine hesitancy is complex and context specific varying across time, place and vaccines. It includes factors such as complacency, convenience and confidence."*[1]

A clear definition of vaccine hesitancy is important for understanding its determinants, how it is studied, and how it is tackled through policy solutions. This part of the study examined how respondents define vaccine hesitancy, along with how their definition corresponds to the WHO definition, and if what best explains any discrepancies between those definitions (and subsequent consequences of the discrepancy).

II. Questions

Is there a specific term/are there specific terms describing vaccine hesitancy in your country? [1 = yes, 2 = no, 3 = I do not know]

How do you understand the meaning of the term 'vaccine hesitancy'? [Free response]

Please elaborate on your answers to the two previous questions: Are different terms and definitions used? Is there, for example, a difference between the official and the public or popular discourse related to the topic? If you have more than one official language in your country, is there a difference between how vaccine hesitancy is described in these languages? If you answered yes, does it affect your work in connection to vaccine confidence and uptake in your country/region? In the case the terminology related to vaccine hesitancy is not established or if it is multifaceted or incoherent, how does it affect your work in connection to vaccine uptake and confidence? [Free response]

According to the WHO, "Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccination services. Vaccine hesitancy is complex and context specific varying across time, place and vaccines. It includes factors such as complacency, convenience and confidence" (WHO SAGE Vaccine Hesitancy Working Group report.) How well do you think this definition corresponds to how you understand the meaning of the term 'vaccine hesitancy' in your country/region? [1 = not at all, 2 = only to a limited extent, 3 = to some extent, 4 = to a great extent, 5 = I do not know]

According to the so-called 3C model of vaccine hesitancy, vaccination confidence refers to "trust in (i) the effectiveness and safety of vaccines; (ii) the system that delivers them, including the reliability and competence of the health services and health professionals and (iii) the motivations of policy-makers who decide on the needed vaccines"; "complacency exists where perceived risks of vaccine-preventable diseases are low and vaccination is not deemed a necessary preventive action"; and convenience is a factor

[1] Noni E. MacDonald, Vaccine hesitancy: Definition, scope and determinants, Vaccine, Volume 33, Issue 34, 2015, Pages 4161-4164.

referring to the ”physical availability, affordability and willingness-to-pay, geographical accessibility, ability to understand (language and health literacy) and appeal of immunization services affect uptake.”[2]

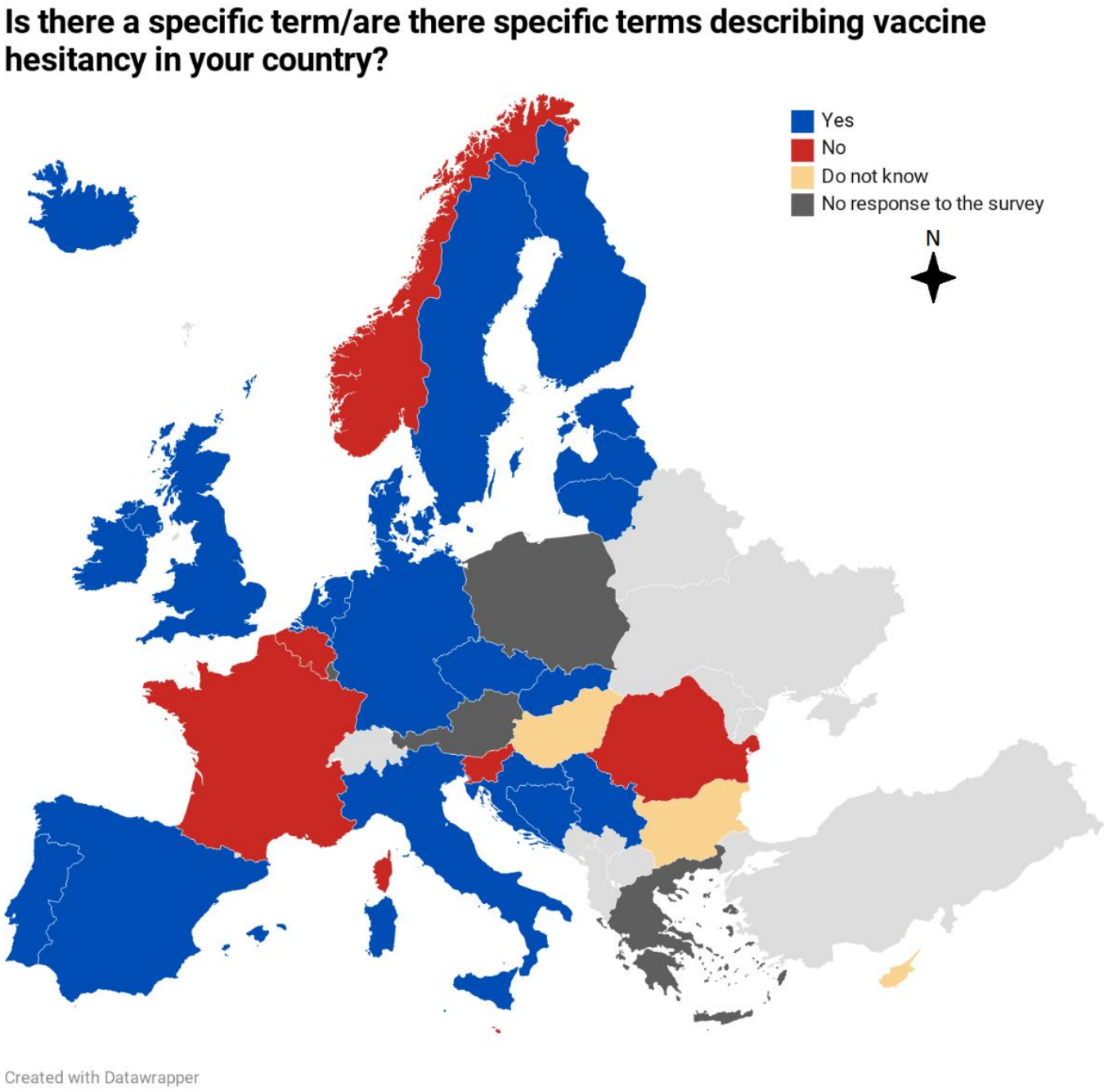
III. Analysis

The majority of respondents reported that there is a term describing vaccine hesitancy used/applied in their country (19/28). Also, the majority believe that the WHO definition of vaccine hesitancy is understood in their country to a great extent (20/28) (Figures 1 and 2). Interestingly enough, all respondents that reported having no specific term (9/28) for vaccine hesitancy in their country unanimously reported that the definition of vaccine hesitancy is understood to a great extent.

Vaccine hesitancy is defined both by determinants and outcomes of vaccinations in accordance with the WHO definition. The responses gathered from the survey indicate that an issue with vaccine confidence is understood as nearly synonymous with vaccine hesitancy itself. This will be seen later on in the survey in the section on policies and interventions aimed at increasing vaccine uptake. If vaccine hesitancy is addressed through the route of influencing vaccine confidence, certain interventions will be pursued over others. It is important to note that a lack of confidence in vaccines is acknowledged to span the entire spectrum of a more neutral uncertainty or doubt to outright fear or opposition. Therefore, even interventions aimed at improving vaccine confidence tend to be aimed at some targets along this spectrum.

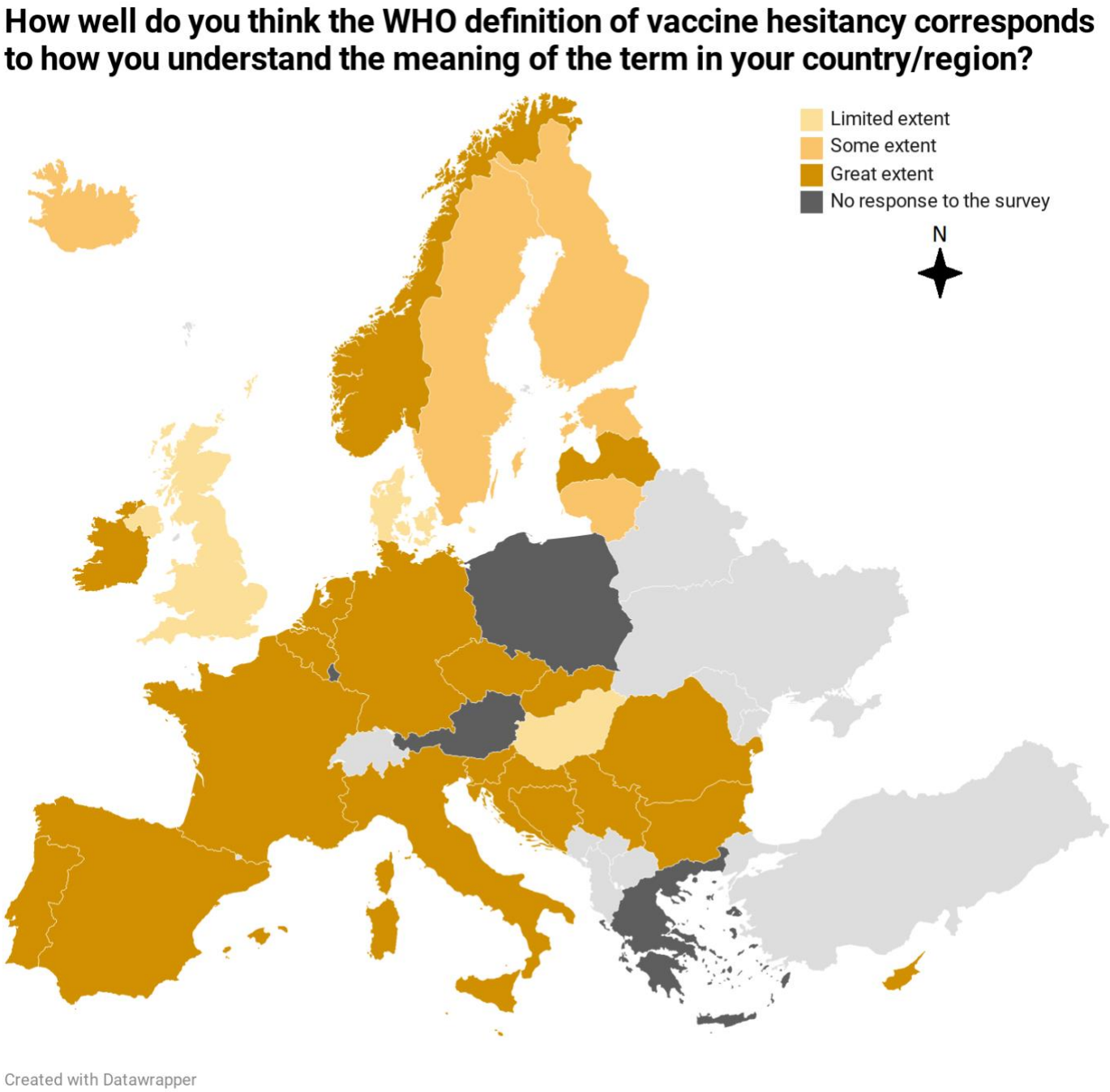
[2] Noni E. MacDonald, Vaccine hesitancy: Definition, scope and determinants, Vaccine, Volume 33, Issue 34, 2015, Pages 4161-4164.

Figure 1: Map of Vaccine Hesitancy Definitions



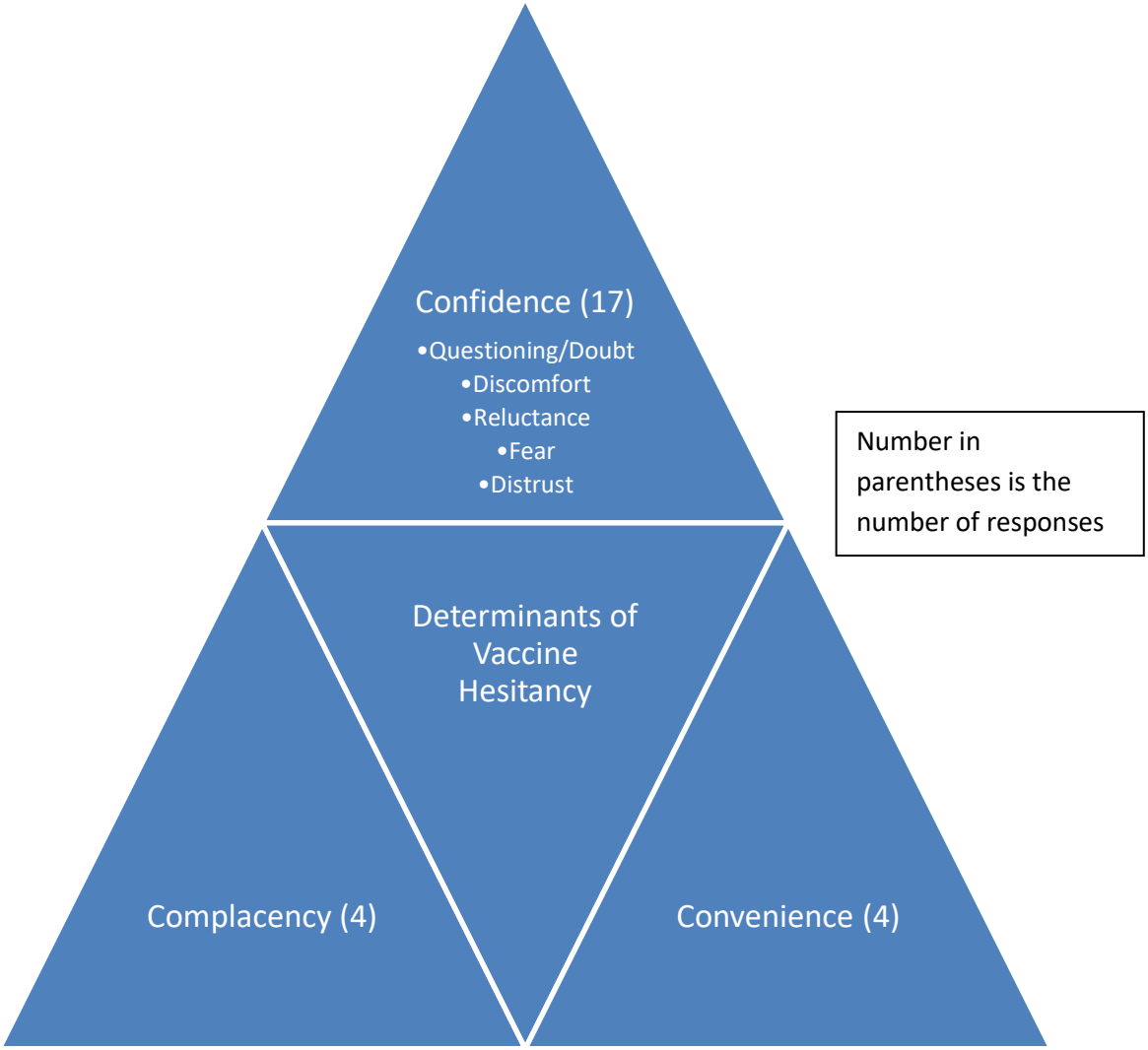
	Yes	No	Do not know	Did not respond
Count	19 (68%)	6 (21%)	3 (11%)	4

Figure 2: Map of WHO Definition Understanding



	No extent	Limited extent	Some extent	Great extent	Do not know	Did not respond
Count	0 (0%)	3 (11%)	5 (18%)	20 (71%)	0 (0%)	4

Figure 3: Relationship of the 3 C's of Vaccine Hesitancy



Finally, the survey asks about discrepancies in the use and understanding of terms related to vaccine hesitancy. Repeatedly, the responses produced several concerns.

Issues with Defining Vaccine Hesitancy

The term 'vaccine hesitancy' was not directly translatable into the official or prominent languages of many countries (n=10). When vaccine hesitancy had no direct translation, the respondents reported examples of similar analogues of the definition in their country's language(s). However, these terms often missed the nuance found in the WHO definition. Specifically, these analogues tend to be narrower in their definition of vaccine hesitancy and translate into terms closer to skepticism, rejection, or refusal of vaccines. For that reason, many countries have decided to adopt outright the terminology found in the WHO definition of vaccine hesitancy in their official communications among health professionals.

In countries where the term 'vaccine hesitancy' is not easily translatable, there exists a terminology gap between the terminology used in official or research capacities and those used in the public sphere. Terms for vaccine hesitancy in the public sphere were found to be universally negative – such as vaccine rejection, refusal, avoidance, criticism, and others. The anti-vaccine, or anti-vaxx, movement was another commonly

repeated phrase found in the responses. The movement is used synonymously with vaccine hesitancy in the public sphere, particularly in popular and news media leading to an oversimplification of the concept of vaccine hesitancy towards an incomplete definition. A lack of consistent terminology presents difficult barriers to work on studying vaccine hesitancy as well as policy solutions aimed to limit its negative health impact.

Interestingly, when comparing the responses to this question compared to the quantitative responses, there appears to be a discrepancy. Roughly 70% of the respondents claimed that there was a specific term or specific terms for vaccine hesitancy in their respective country and a similar number of respondents reported that the WHO definition of vaccine hesitancy corresponds with the understanding of vaccine hesitancy in their country to a great extent. Respondents that report that the WHO definition of vaccine hesitancy is understood to a great extent are also noting how the term vaccine hesitancy is difficult to define in their countries. This can be explained by the above analysis: while countries may not have a specific term for vaccine hesitancy, the countries or regions may have similar or analogous terms to vaccine hesitancy. The respondents, in other words, can use other terms or phrases that approximate (to varying degrees of completeness) the definition of vaccine hesitancy provided by the WHO.

IV. Summary

The definition of vaccine hesitancy has many interpretations among respondents. As discussed earlier, there are many challenges to reach a universally understood definition across countries, languages, and populations. Across respondents, it does appear as if vaccine confidence, or lack thereof, is perceived to be the dominating feature of vaccine hesitancy. While vaccine confidence certainly plays a large, maybe even exagerated role in determining vaccine hesitancy, it is important to not leave any of the components of vaccine hesitancy – such as, complacency and convenience – behind.

Any study of vaccine hesitancy must arrive at an understood definition and a variable definition of what is supposed to be. A universal term presents a challenge that must be overcome first before seeking any action to address it. From a researcher's perspective, vaccine hesitancy may be challenging to gauge due to how public survey questions need to be worded to accurately measure trends in vaccine hesitancy. From a policy perspective, inconsistent terminology means that programs designed to reduce vaccine hesitancy may be too narrow or improperly focused and hardly comparable.

The definition inconsistency issue also plays out in government communication to the public. Without a consistent term or terms, guidance to providers, service announcements, and other communication tools may change too often and may confuse both health professionals and the public on vaccine hesitancy. Overall, the breadth of definitions along with the terminology's incompatibility between and within countries is a challenge that should be addressed when aiming to reduce vaccine hesitancy.

Determinants of Vaccine Hesitancy

I. Aim

To understand which determinants of vaccine hesitancy are believed to have the greatest extent on producing suboptimal vaccine uptake, respondents were asked a series of questions regarding commonly understood drivers of vaccine hesitancy and subsequent poor vaccine uptake. They were asked about their knowledge on the extent that these determinants are responsible for suboptimal vaccine uptake and asked to provide examples of specific vaccines or vaccine-preventable diseases that most relate to those determinants.

II. Questions

As far as you are aware, is suboptimal vaccine uptake in your country:

- *The result of poor access of vaccination services?*
- *The result of a regional or national vaccine safety-related crisis?*
- *The result of the lack of confidence in vaccine safety?*
- *Related to the lack of confidence in the effectiveness of vaccines?*
- *Related to the perceived risk of VPDs?*
- *The result of the lack of confidence in the institution responsible for organising the vaccination services?*
- *The result of inconvenience of vaccination services?*
- *Related to specific groups within the population?*
- *Related to the lack of confidence among health care workers?*
- *Related to the public perception of specific vaccines?*
- *Related to vaccine shortages?*
- *Related to religious reasons or groups?*
- *Related to ideological reasons promoted, for example, by a vocal anti-vaccine lobby?*
- *Other (please describe)?*

[These questions all have the following response options: 1 = not at all, 2 = only to a limited extent, 3 = to some extent, 4 = to a great extent, 5 = I do not know; then the question asks the respondent to give examples or a description

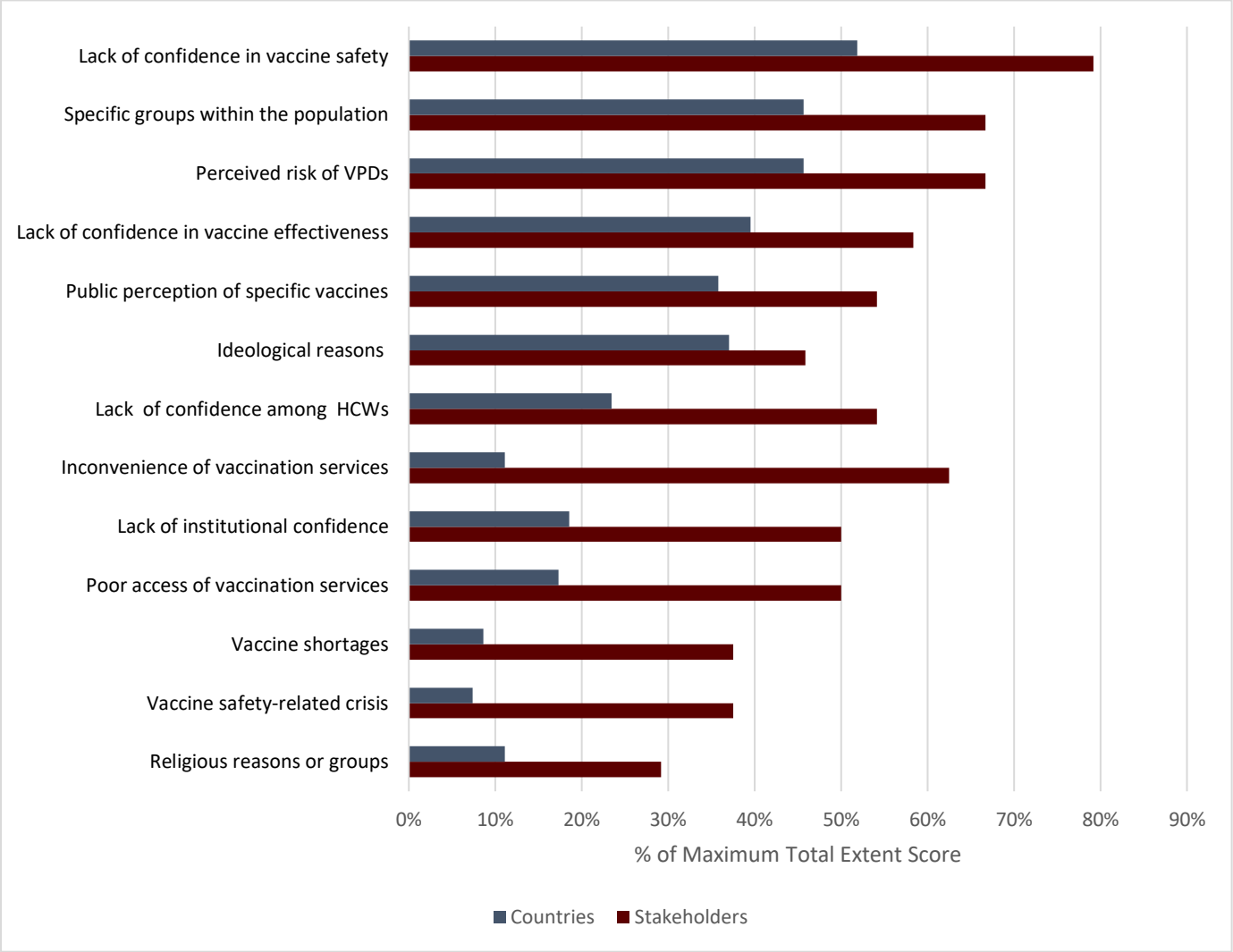
Please elaborate and please provide one or more examples, and describe in detail the reasons behind and the groups with suboptimal vaccine uptake in your country/region. [Free text]

Please list the three vaccines from the National Immunisation Programme with the lowest or with decreasing coverage. Please indicate coverage (%) for each using most recent data (year). [Free text]

III. Analysis

Country and stakeholder respondents both had the opportunity to share their perceptions on the main drivers of suboptimal vaccine confidence and/or uptake from a list of 13 possible determinants. For both country and stakeholder respondents, the results were quite similar (Figure 4): Country and stakeholder respondents share the same perceptions on the top 3 determinants of suboptimal vaccine uptake: lack of confidence in vaccine safety, perceived risk of vaccine-preventable diseases (VPDs), and specific groups within the population. Worth noting is that the stakeholders reported higher extent scores than those for the countries on every possible determinant. The country respondents' responses for each determinant are also visualized through the maps in annex (Additional figures 1–13).

Figure 4: Total Extent Scores (% of Maximum) of Determinants of Suboptimal Vaccine Uptake



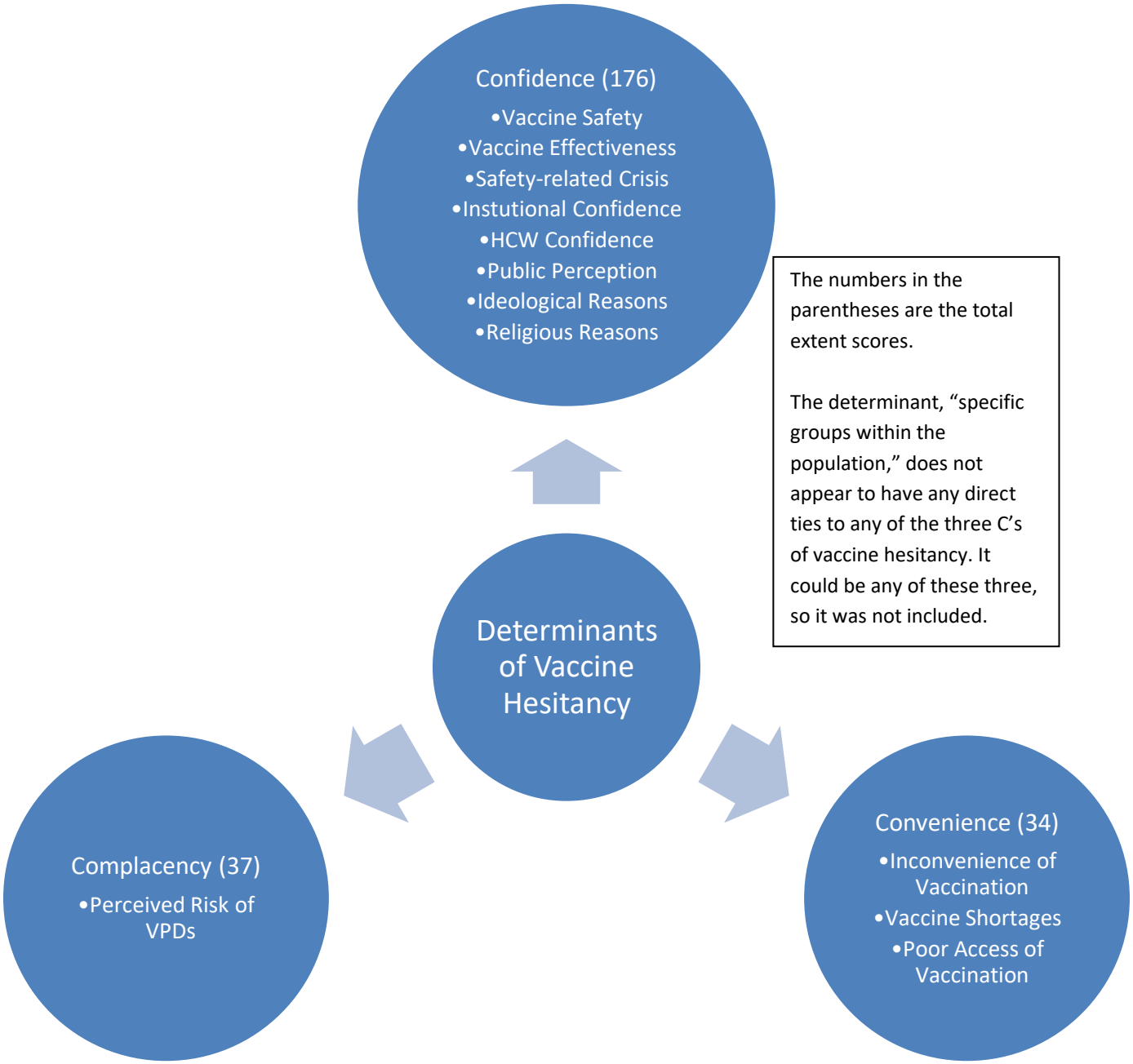
When grouping determinants into their groups among the 3 C's of Vaccine Hesitancy (Figure 5), similar results to how members defined vaccine hesitancy emerge.

First, the determinants listed as options for the respondents heavily represent issues regarding vaccine confidence. Out of the 13 listed options, 8 relate directly or indirectly to vaccine confidence, 3 relate to the convenience of vaccination, and only 1 relates to complacency. As a result, lack of confidence (in vaccine effectiveness, safety, in public health institutions, etc.), are consistently explained as the main drivers of

suboptimal vaccine uptake. Though "specific groups within the population" is the second-most perceived determinant of vaccine hesitancy, it does not neatly fit into one of the 3 C's of vaccine hesitancy.

Second, while confidence issues are implicitly acknowledged as the main determinants of poor vaccine uptake, the respondents confirm this with their answers. As mentioned, the responses with the greatest scores skew mostly to vaccine confidence as the main driver of suboptimal vaccine uptake. Three out of the top five responses dealt with vaccine confidence.

Figure 5: Determinants of Vaccine Hesitancy using the 3 C's



The free-response section of the surveys asks respondents to specify vaccines or VPDs that are associated with the determinants. This was specified mostly with four determinants: safety, effectiveness, perceived risk, and the perception of specific vaccines (Figure 6). When asked to specify specific population groups who

were relevant drivers of suboptimal vaccine uptake, immigrants and pregnant mothers had several mentions, across both survey groups (Figure 7).

Figure 6: Free-Text Determinants of Suboptimal Vaccine Uptake (Excluding Population Subgroups)

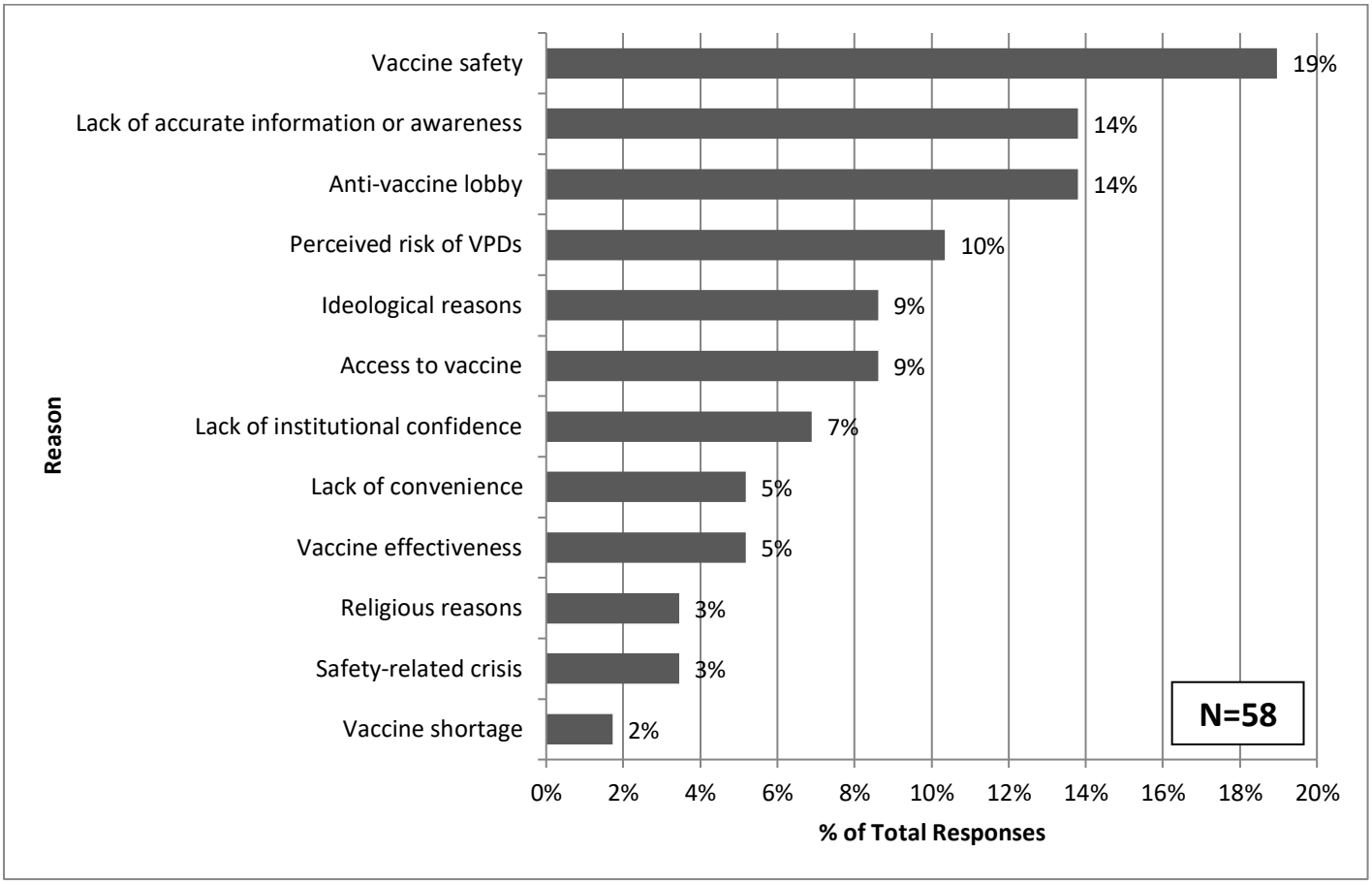
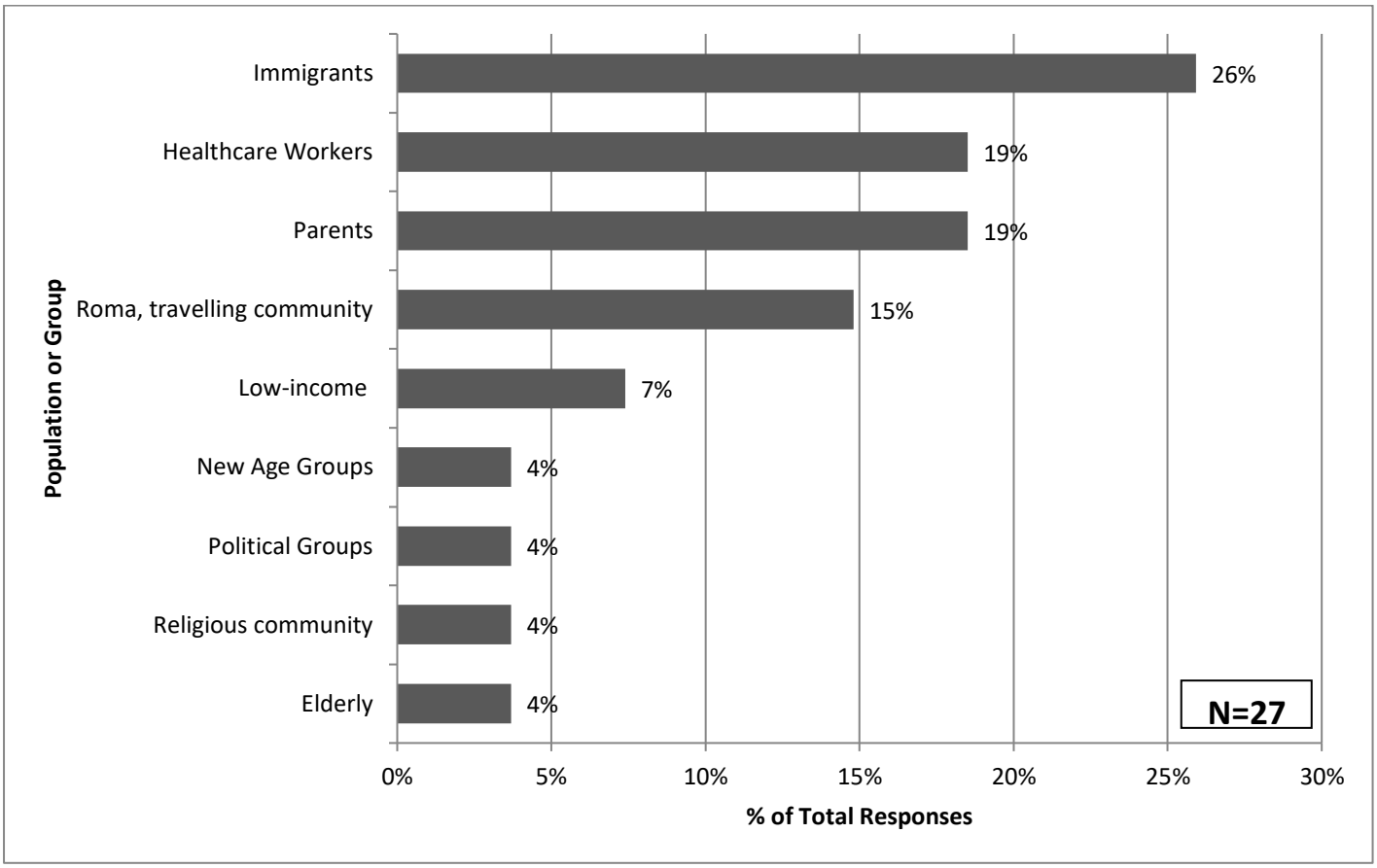


Figure 7: Suboptimal Vaccine Uptake Related to Specific Populations



Every determinant option also asked respondents to specify vaccines and/or vaccine-preventable diseases or, for example, the subgroups with suboptimal vaccine uptake (Additionnal Figures 14–18). Not every determinant had sufficient responses to be visualized. Combining the results with those from the question regarding vaccines with the lowest or decreasing coverage (Figure 7), we can gather several trends and observations:

- MMR and influenza vaccines were consistently cited to be most responsible for suboptimal vaccine uptake.
- MMR and influenza vaccines were also cited second and third most, respectively, as vaccines with the lowest or decreasing vaccine coverage
- The pentavalent DTaP-IPV-Hib vaccine, or its components was/were the most cited vaccine(s) to have the lowest or most decreasing coverage, yet neither the combination nor the individual components were perceived as a major determinant of suboptimal vaccine uptake.
- HPV also consistently appeared to have some influence across all determinants and was sometimes among the large components of the free-text response. However, it does not make an appearance on the list of lowest or most decreasing coverage.
- Childhood vaccines, such as the pentavalent vaccine and MMR, were listed as among the vaccines with the lowest or most decreasing coverage, which is following the perception that mothers, or expecting mothers, are the largest subgroup of the population that is believed to be responsible for poor vaccine uptake.
- Besides parents, immigrants and HCWs were frequently reported to be responsible for suboptimal vaccine uptake when the respondents were allowed to elaborate on population subgroups.

Several respondents in both survey groups associated the influenza vaccine as the prominent vaccine that drives vaccine hesitancy in HCWs. However, stakeholders gave more elaborate answers with this prompt, for example, by mentioning that HCWs do not have the time nor incentive to educate their patients on vaccines or to help address vaccine hesitancy directly. Childhood and youth vaccines are frequently reported as those with worse uptake, compared to adult or elderly vaccination. As will be seen in future sections of this report, this should influence the types of strategies and actions undertaken by the countries, since they have now identified the probable cause of which vaccines and which subgroups of the population are responsible for suboptimal vaccine uptake and vaccine confidence.

Some unique findings in this section were found among both groups of respondents. Country respondents pointed that the lack of institutional trust in public health agencies or policies (for example, distrust in mandatory vaccination), can lead to suboptimal vaccine uptake. Along with other findings, stakeholders noted that greater visibility of health experts in the media could help counteract vaccine misinformation and hesitancy.

In the elaboration question, respondents were able to give more examples behind the surface-level determinants. For example, some mentioned that low-income and immigrant populations may have insufficient resources (e.g., money or time to attend an appointment) to maintain vaccine compliance.

IV. Summary

Like the discourse on the definition of vaccine hesitancy, the determinants of vaccine hesitancy are understood primarily from the perspective of a lack of confidence. This lack of confidence is rooted within vaccines' safety and effectiveness profiles or more broadly a lack of confidence due to ideological or religious reasons. What is left unanswered from these results is a deeper look into the public's mind of what is driving the lack of confidence, for example, by further examining the role of misinformation. A lack of vaccine confidence can include anything along the spectrum of mistrust in authorities reponsible for organising vaccinations in a country to the false belief that vaccines can cause autism.

The responses from both groups identify potential targets for action to improve vaccine uptake in terms of vaccines, VPDs, and population subgroups. Largely consistent, the MMR and influenza vaccines appear to be the largest drivers of suboptimal vaccine uptake. However, there appears to be inconsistent relationships with the pentavalent vaccine (reportedly lowest/most decreasing coverage yet not a strong determinant of vaccine hesitancy) and the HPV vaccine (strong determinant of vaccine hesitancy yet not among the vaccines with the lowest coverage). The next section regarding the work carried out by countries will illuminate how countries are utilizing their knowledge on the determinants of vaccine hesitancy for the work to improve vaccine uptake.

Work Related to Maintaining or Increasing Good Vaccine Uptake and Confidence

I. Aim

Understanding the work already conducted across countries on the topic of vaccine uptake and confidence is necessary to construct a landscape of strategies that have been previously used to address the consequences of poor vaccine uptake. Country and stakeholder respondents were asked a series of questions regarding the type of work completed within their organization that is related to maintaining or increasing good vaccine uptake and/or strengthening vaccine confidence.

II. Questions

What kind of experience does your organisation have from work related to maintaining or increasing good vaccine uptake and/or strengthening confidence? Has the work been:

- *Vaccine or antigen-specific?*
- *Related to health care workers?*
- *Carried out through communication activities?*
- *Conducted in cooperation with government bodies?*
- *Conducted in cooperation with other partners and stakeholders in your country or region?*
- *Related to specific population groups*
- *Related to the access of vaccination services?*
- *Related to education (as a part of the school curriculum, for example)?*
- *Other (please describe)?*

[These questions all have the following response options: 1 = not at all, 2 = only to a limited extent, 3 = to some extent, 4 = to a great extent, 5 = I do not know; then the question asks the respondent to give examples or a description]

Please elaborate on your answers above about your organisation's experiences from work related to maintaining or increasing good vaccination coverage and/or strengthening confidence. [Free text]

What is the latest programme/activity you have conducted at your organisation aimed at increasing vaccine confidence and uptake? [Free text]

Do you, at your organisation, have long-term strategies or plans for strengthening vaccine confidence and increasing vaccine uptake in your country/region? [Yes, No, I do not know] - *If no, please state why. If yes, please describe in detail. [Free text]*

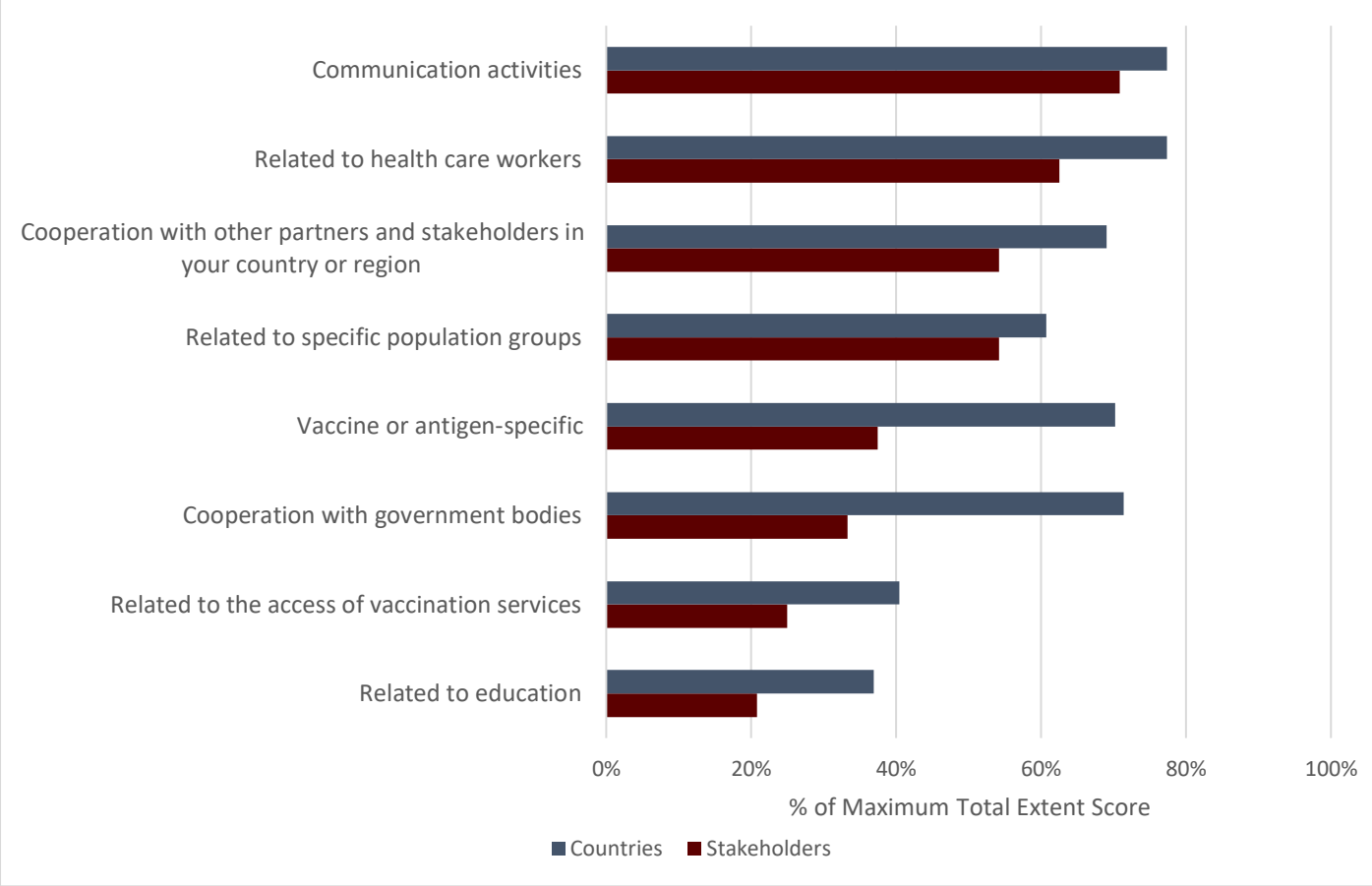
III. Analysis

The most emphasized practices among the countries were communication activities and work related to HCWs, followed by cooperation with government bodies. The top two methods are the same among the stakeholders, though their third-most emphasized method was a tie between work conducted in cooperation with other stakeholders and work related to specific population groups (Figure 8).

Each type of practice listed had the option to specify the vaccine or VPD target (Annex II, additional Figures 19–23). While the country respondents had responses for every type of strategy, the stakeholders largely did not specify vaccines or VPDs targets for their actions on this question. We observed the following:

- The work to improve vaccine uptake has focused heavily on the HPV and influenza vaccinations. This may be because the influenza vaccine was reported to have the third-lowest/most decreasing coverage, while the HPV vaccine is many countries' newest addition to their national immunization program.
- However, none of the work primarily targeted the vaccine mentioned with the lowest/most decreasing coverage: DTaP-IPV-HiB; and the pneumococcal vaccines were rarely mentioned as targets at all.
- Further on the HPV vaccine, as it is the latest addition to national immunization programs, it is the top focus of communication, population-specific, and education-related activities.
- Most work was target-specific, meaning that different strategies had a different target, or target(s). While the grouped response of "all vaccines" or "childhood vaccines" did appear in several of the responses, most work related to improving vaccine uptake was directed at a definitive vaccine
- The MMR vaccine was reported frequently as a target, and alongside childhood vaccines such as MMR, makes it a prominent target across communication strategies

Figure 8: Total Extent Scores (% of Maximum) of Vaccine Uptake and/or Confidence Work



When respondents reported collaboration with other structures, it was mostly conducted on a national level. These partnerships also tend to be less focused on a certain vaccine, like the other work to improve vaccine uptake, indicated by how the grouped vaccine categories, “all vaccines” and “childhood vaccines,” make up half of the total responses to the question of collaborative work. This finding and cross-border partnerships will be discussed in later sections.

Most of the top groups perceived as having suboptimal vaccine uptake were acknowledged as targets of vaccine uptake work, such as immigrants and parents. However, some groups were diminished or completely missing as targets entirely. For example, HCWs were the second most mentioned group behind suboptimal vaccine uptake but were rarely listed as the target of vaccine uptake and/or confidence work. Also, low-income individuals were mentioned by a few respondents as a group with suboptimal vaccine uptake, but they are never listed as targets of vaccine uptake and/or confidence work.

Next, both country and stakeholder respondents identified specific examples of practices that they have conducted aimed at improving vaccine uptake and/or confidence. Broadly, there are four groups of practices that were conducted by both stakeholder and country respondents:

- direct vaccination programs,
- communication and training strategies,
- policy-related changes, and
- conducting studies on vaccine hesitancy

The specific examples of practices within these groups are listed in Figures 9 and10. The graphics should be understood with the context that there are fewer respondents for the stakeholder survey than for the country survey (8 vs. 28). Therefore, the exact number of responses or examples should not be indicative of the amount nor emphasis of work conducted by the different respondents.

Figure 9: Examples of Vaccine-Related Work – Countries

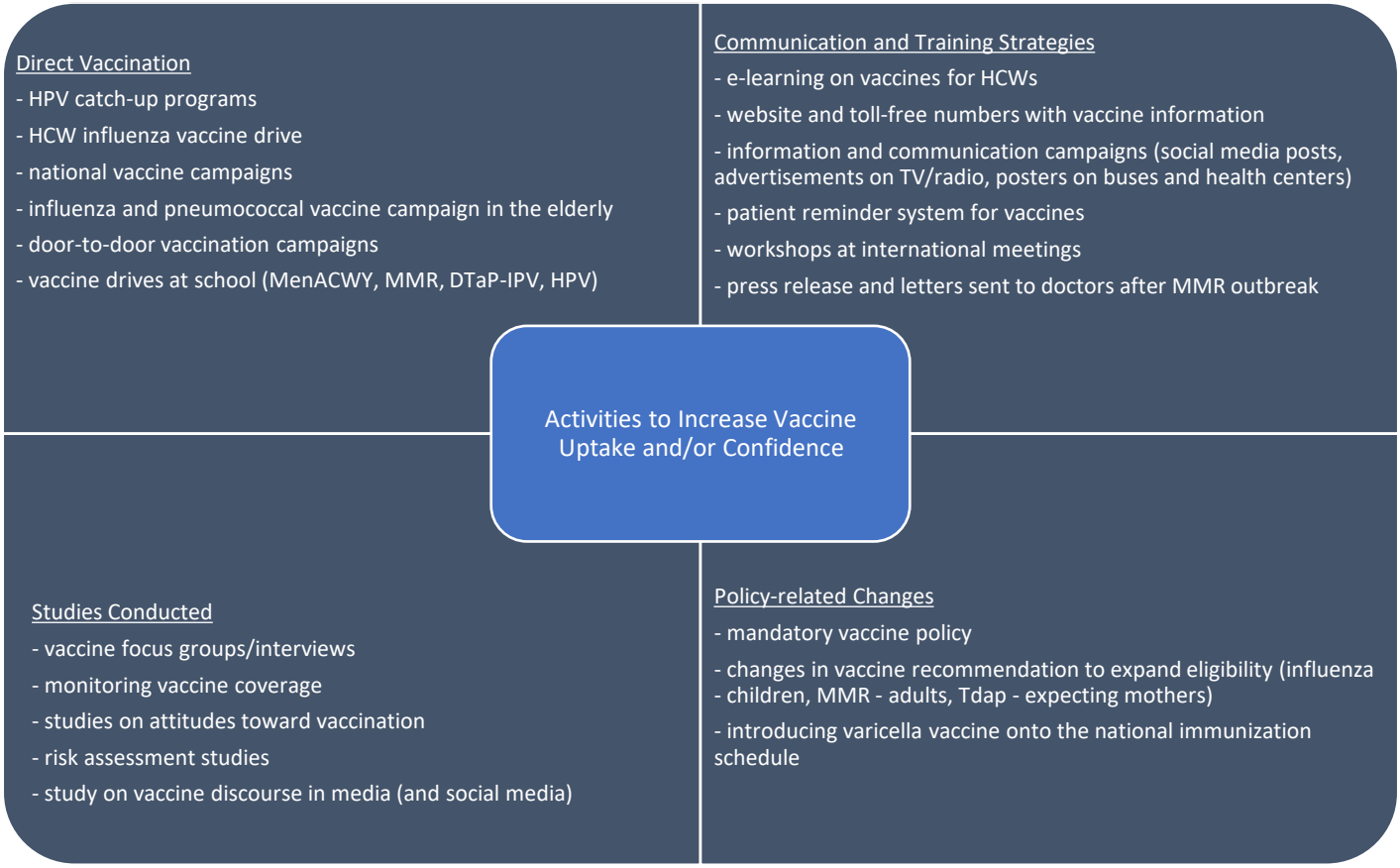
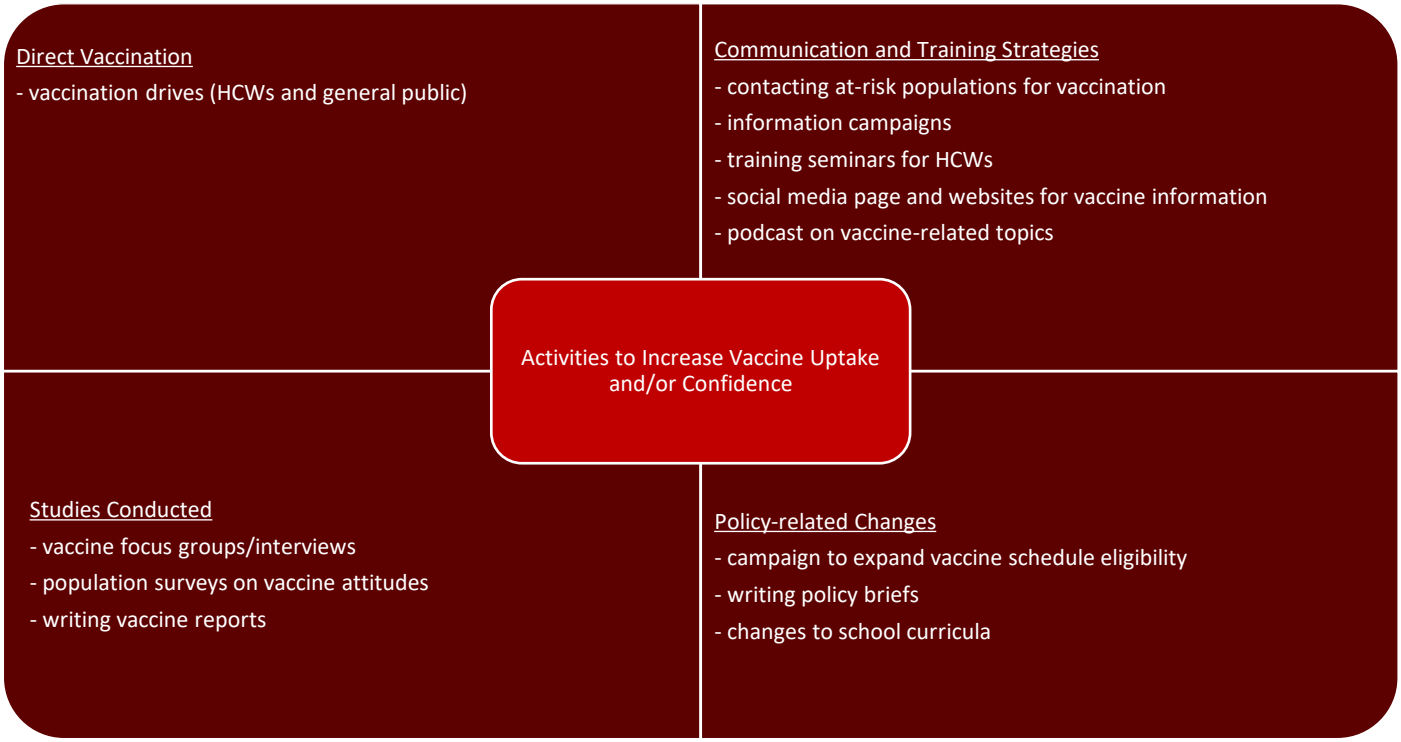


Figure 10: Examples of Vaccine-Related Work – Stakeholders



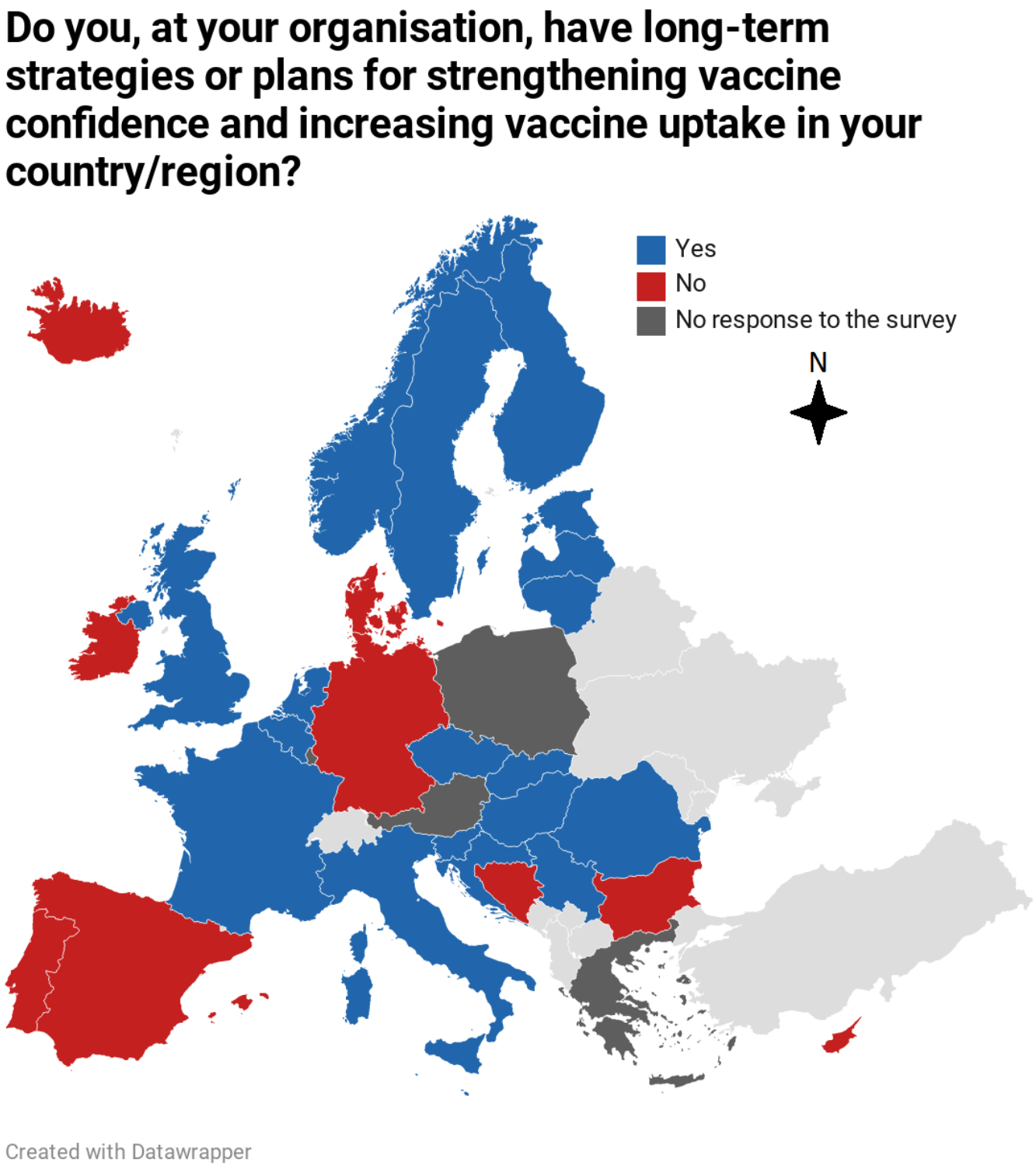
Besides the shared broad groups of practices, some specific activities were often alluded to by the respondents in both surveys. Respondents often highlighted their work, for example, on increasing and improving vaccine-related communication to both HCWs and the general public through websites and social media platforms. Also, respondents pointed out the extensive use of studies, such as focus groups or interviews, that were used to gain a better understanding of the determinants of vaccine hesitancy and suboptimal vaccine uptake.

There are some notable differences between the two respondent groups. The country respondents reported proportionally more examples of direct vaccination programs, such as national vaccination campaigns at schools or in local communities. They also drew attention to their work on changing vaccine policy, such as by widening the eligibility of vaccines or through the introduction of a new vaccine into the national immunization program. Stakeholder groups, however, would have a challenging time directly conducting these types of activities, and they instead reported more work on communication-based activities.

Next, respondents were asked if they, at their organization, have any long-term strategies or plans for strengthening vaccine uptake and increasing vaccine uptake. About 68% of the respondents in the country survey (Figure 11) and 75% in the stakeholder survey affirmed that they do. This number may appear lower than expected, especially since participating in the EU-JAV survey should be considered as one step in long-term planning on vaccine uptake and confidence.

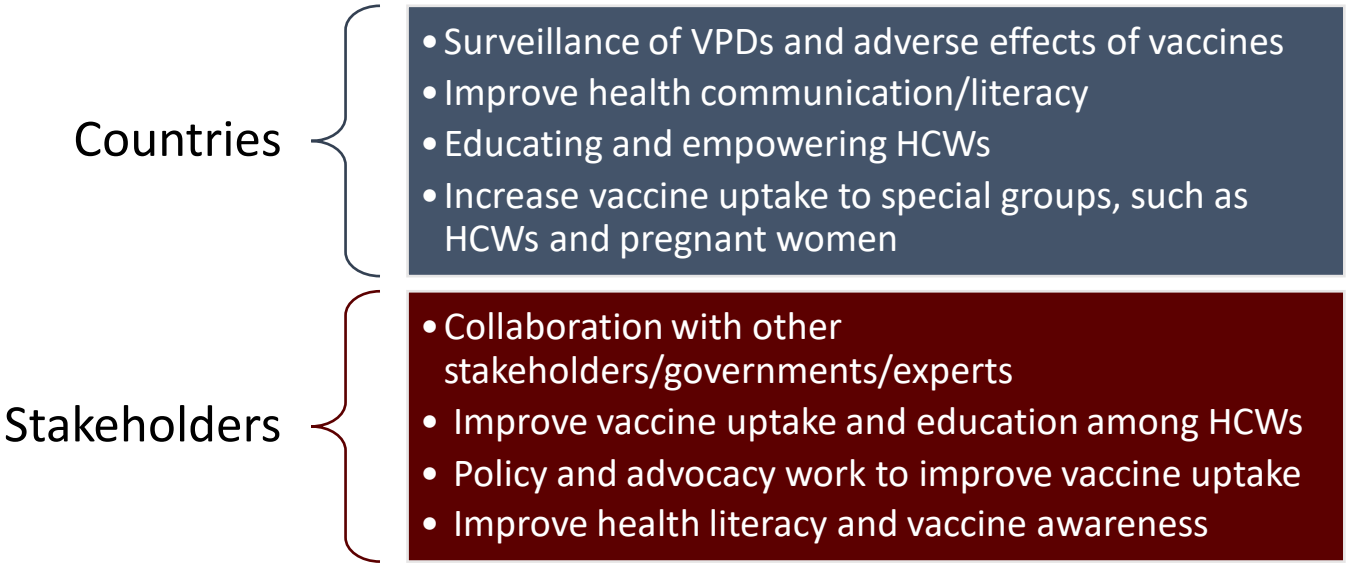
Respondents were also further asked to describe the targets of their long-term plans and strategies or plans in detail (Figure 12). Such plans and strategies featured HCWs to a great extent. For example, HCWs were often listed as targets of efforts aimed at directly increasing vaccine uptake, improving vaccine education, and improving health communication. The goal of improving health literacy was also notable in both surveys, usually through communication activities. Survey respondents often pointed our lack of ressourses (i.e., time or staff) as a reason why they were not able to to have long-term strategies and plans to improve uptake in place. Vaccine hesitancy is an evolving concept for many of the respondents, and not every respondent may have experienced or directly observed the effects of diminishing vaccine confidence firsthand.

Figure 11: Map of Long-Term Strategies and Plans for Vaccine Confidence/Uptake



	Yes	No	Do not know	Did not respond
Count	19 (68%)	9 (32%)	0	4

Figure 12: Examples of Long-Term Strategies and Plans for Vaccine Confidence/Uptake



IV. Summary

The work related to improving vaccine uptake and vaccine confidence has so far been mostly in line with the determinants of vaccine hesitancy found earlier in this report. But by this point, there are several inconsistencies within and between sections. As the vaccines or subgroups perceived to be responsible for suboptimal vaccine uptake do not completely match with the target of work conducted by health departments, there ultimately are underserved groups, such as HCWs, or underemphasized vaccine, such as pneumococcal, in vaccine uptake work. Acknowledging the gaps in vaccine coverage and among the subgroups of the population would be the most efficient to increase vaccine uptake and strengthen vaccine confidence.

It is also important to note that the development of long-term plans is necessary to address vaccine hesitancy in the future upon the eventual introduction of novel vaccines – and several respondents who reported not having a long-term strategy also reported that their organizations were currently in the process of developing such strategies.

Definition of Program Success

I. Aim

With the knowledge of what type of vaccine hesitancy and uptake work the respondents have engaged in, these next series of questions aimed to understand the perception of their success. Respondents were asked how they define if a program is successful using examples. A shared, comprehensive definition of program success across respondents can be utilized for a standardized evaluation of future programs – though variety in this definition is also valuable. Any discrepancies in the definition of program success give insight into the different resources and limitations of vaccine hesitancy and uptake work from the perspective of public health agencies and stakeholder groups.

II. Questions

In the case you have conducted work (interventions, projects, campaigns, policies, practices) in relation to increasing vaccination coverage or strengthening trust, has this work been successful or unsuccessful? If no, please state why. If yes, please describe these cases separately in detail. [Free text]

Concerning your previous answer, how do you determine the success or failure? Have you, for example, conducted studies evaluating the possible impact of the work (interventions, projects, campaigns, policies, practices)? If no, please state why. If yes, please describe in detail. [Free text]

III. Analysis

Besides sharing examples, respondents elaborated on their definitions of the success of programs in working with vaccine hesitancy and uptake. As the examples of practices themselves, there were many similarities between how the respondents defined the parameters of success of their practices.

The country respondents defined success in three broad, identifiable areas (Figure 13):

- favorable public health data changes (such as an increase in vaccine uptake or decrease in the incidence of vaccine-preventable diseases),
- engagement with a target audience of work (usually with communication-based work), and
- favorable changes in attitude towards vaccines/vaccination (evaluated through focus group interviews).

In addition, there were a few other indicators of success that did not fall into one of these categories, such as improving access to vaccine information or through favorable third-party evaluations in scientific papers.

The stakeholder respondents, without as much access to public health data, did not include metrics such as vaccination rates or incidence of vaccine-preventable diseases in their definition of program success. They did, however, share the same definition of engagement while adding a unique area of visibility of their work (Figure 14). Essentially, if their vaccine-related programs were acknowledged – by media, medical journals, or HCWs – some stakeholders defined their programs as successful. Though both countries and stakeholders conducted population surveys and focus groups, only the stakeholder group defined success by learning new

information. In other words, when vaccine work revealed some new information from the target population (for example, regarding the difficulties or concerns in obtaining a vaccine), the stakeholder group viewed the program as successful.

Lastly, some respondents in both surveys reported having difficulty in creating a definition of success. Most respondents pointed to the challenge in establishing a direct causative relationship between their programs and a measurable outcome related to vaccine hesitancy and uptake. As a result, deciding on which metrics to measure supposed success is not possible.

Figure 13: Definition of Program Success – Country Survey

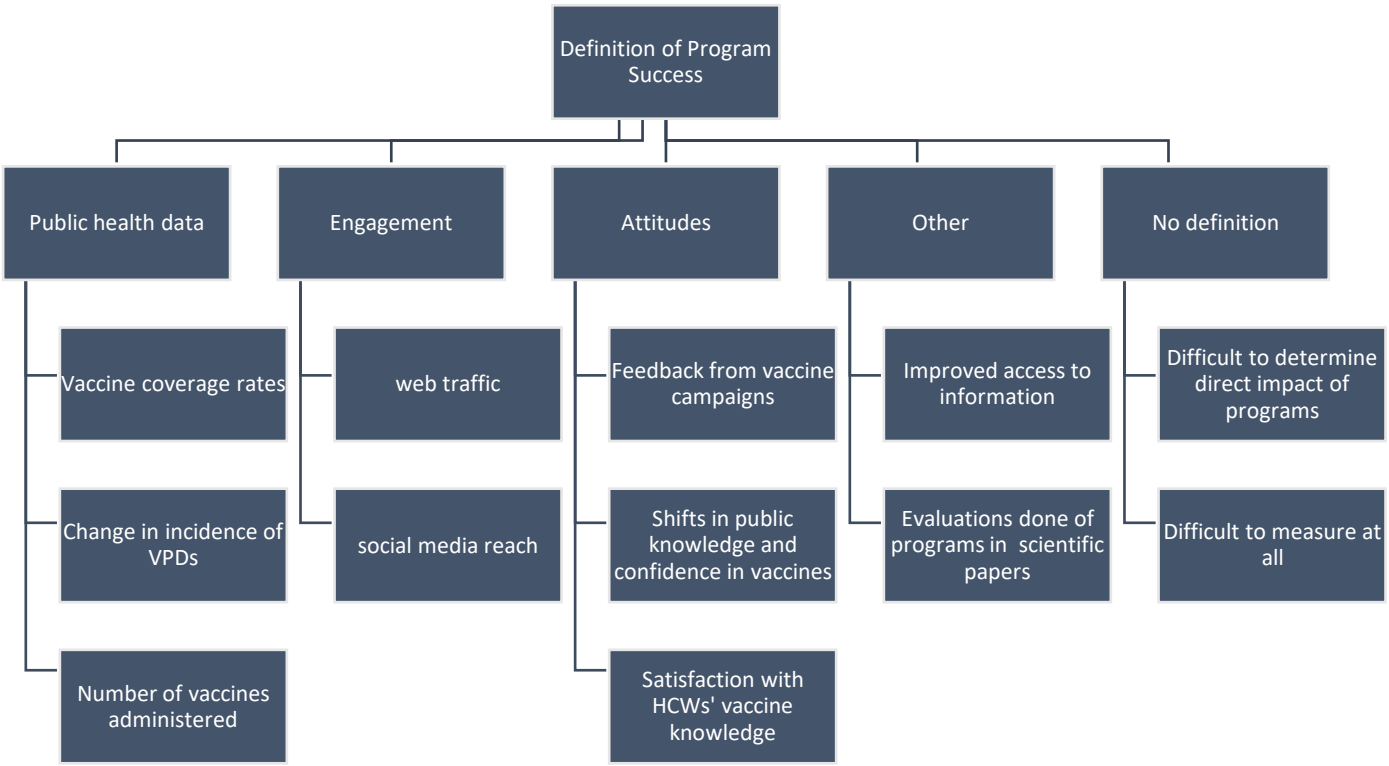
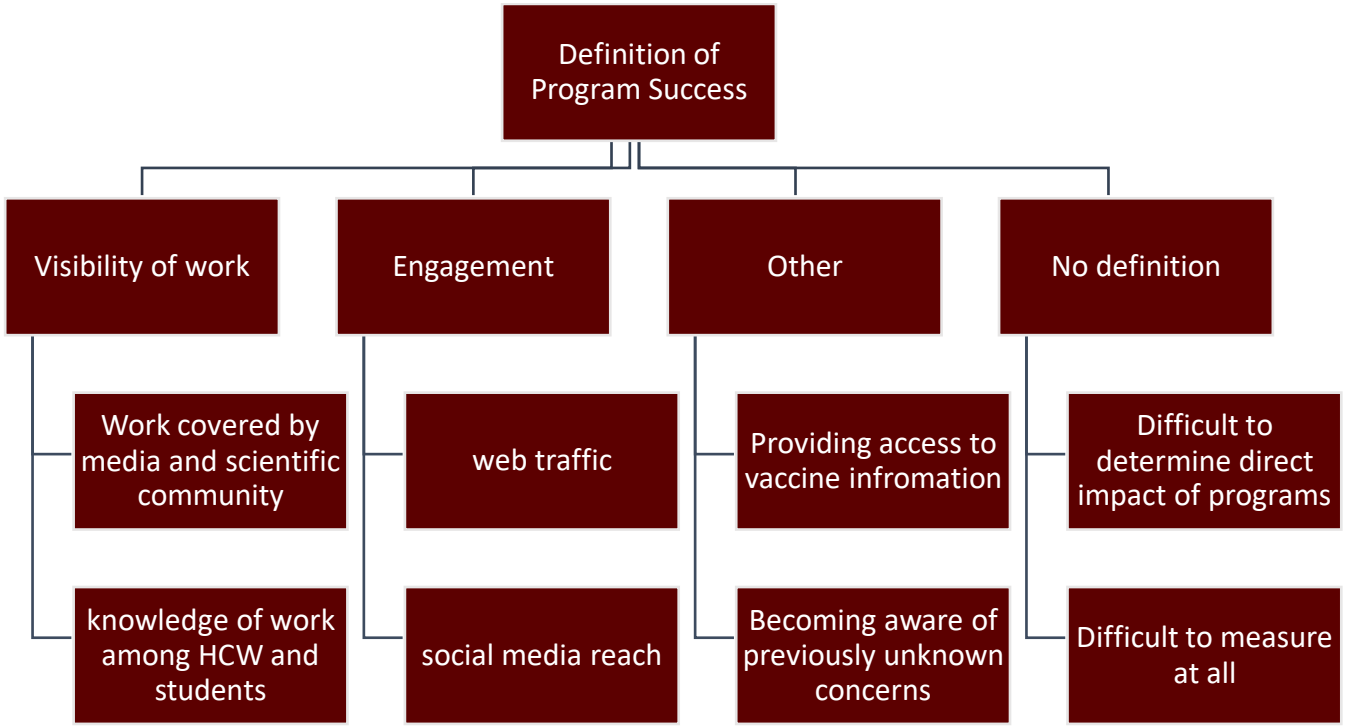


Figure 14: Definition of Program Success – Stakeholder Survey



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IV. Summary

The respondents to the country and stakeholder surveys found common ground in establishing a definition of program success. For both groups, engagement was prominently featured as a metric of program success. Perhaps as an indicator of the level of resources, the respondents of the country surveys tend to measure success with other numerical metrics in public health data and results from surveys on the attitudes towards vaccines. Overall, both respondent groups gave insight into self-evaluation of their work on vaccine hesitancy and uptake. As further action is taken in this area, future programs might consider one or more of these metrics of success as appropriate.

Main Barriers to Working on Vaccine Hesitancy and Uptake

I. Aim

This section identifies the most commonly reported barriers that prevent the respondents and their institutions from working on vaccine hesitancy and uptake related issues. These questions allow for gaining a better understanding of what type of challenges that the respondent countries face when they seek to implement a program aimed to work with vaccine hesitancy and uptake.

II. Questions

What are the main barriers that prevent you from working with vaccine hesitancy and uptake related issues?

- *Lack of funding.*
- *Lack of competence/competent staff.*
- *Lack of mandate.*
- *Organisational limits/restrictions (such as workload and/or other responsibilities and/or prioritisations).*
- *Other, what? (Free text)*

[These questions, except the last one, all have the following response options: 1 = not at all, 2 = only to a limited extent, 3 = to some extent, 4 = to a great extent, 5 = I do not know]

Does your institution have one or more persons or advisors dedicated to working primarily on maintaining or increasing good vaccine uptake and/or strengthening vaccine confidence? *[Yes, No, I do not know]*

Are you, at your institution or organisation, able to work with vaccine hesitancy and uptake related issues in a way that meets your needs? *[Yes, No, I do not know]*

Please elaborate on your answer above on main barriers that prevent you from working with vaccine hesitancy and uptake related issues in your country/region. *[Free text]*

III. Analysis

Like previous sections, both the stakeholder and country respondents reported similar results. From the quantitative results, the 'lack of funding' and 'organizational limits' options were cited as the two main barriers for both groups (Figure 15). When respondents listed "other," most mentioned the lack of personnel as the main barrier to working on vaccine hesitancy and uptake. The other "other" responses allowed for a more expanded view of barriers to work:

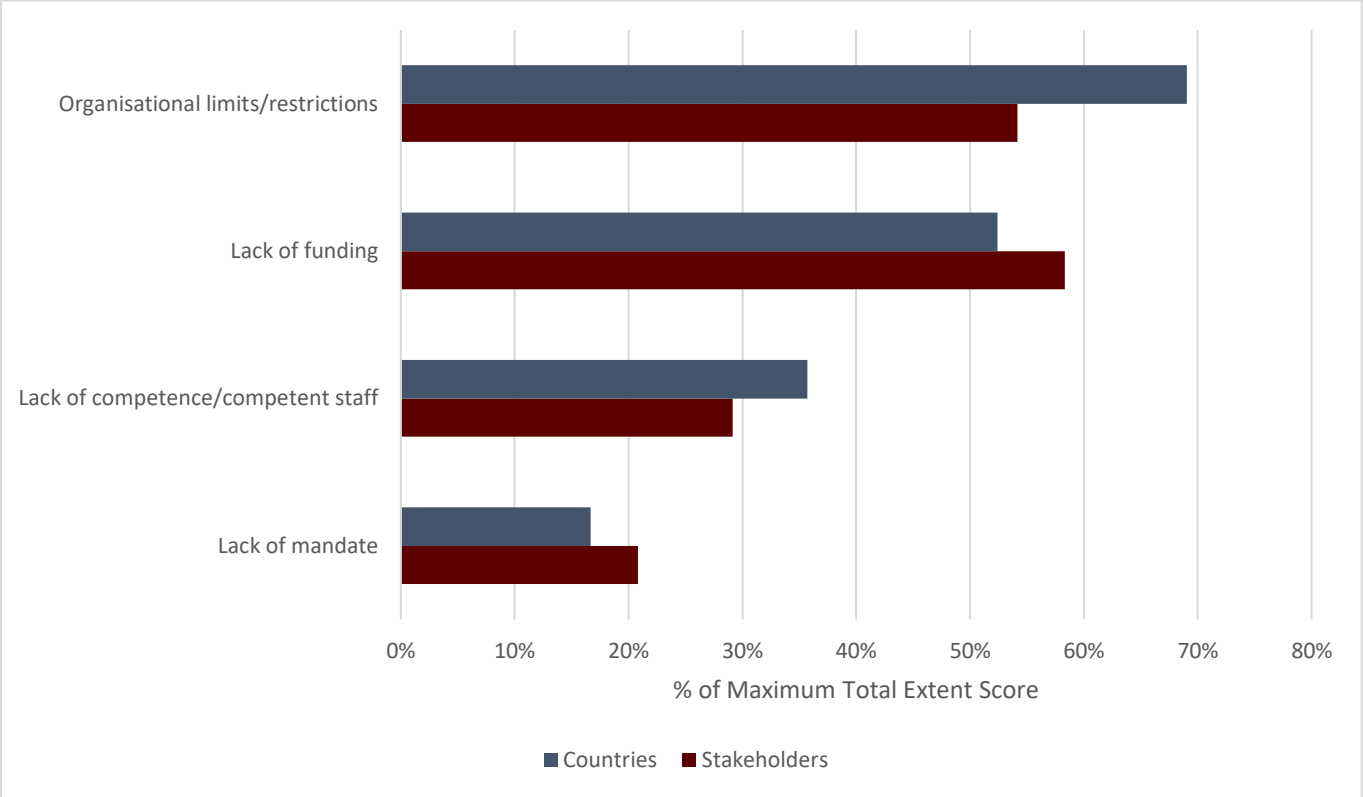
- Issues with vaccine registration – working on increasing vaccine uptake can be impeded if vaccines are not recorded accurately in a nationwide vaccine register. A fully functioning vaccine register will allow

institutions to gather the most accurate vaccine situation, and also allow them to identify and target vaccines with suboptimal uptake

- Lack of demand – one respondent mentioned that due to vaccine hesitancy not being considered a large issue in their country, there is no directive or demand for services dedicated to improving vaccine uptake
- Lack of collaboration – one respondent reported that a lack of collaboration within and among institutions produces a barrier to vaccine hesitancy and uptake-related work

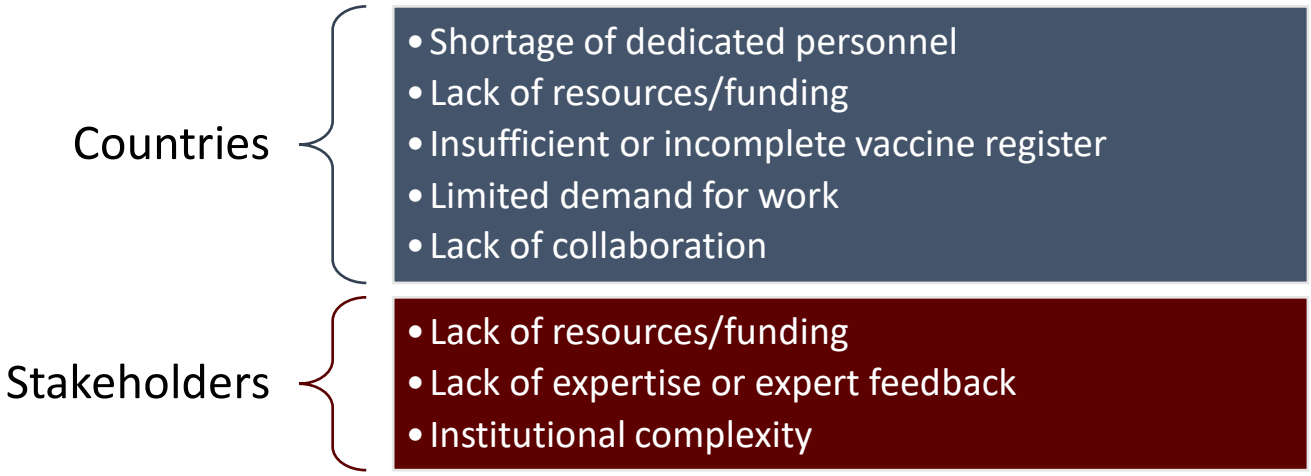
The maps (Figures 30–33) do not reveal any strong or consistent geographical trends with regards to barriers to working on vaccine hesitancy and uptake issues.

Figure 15: Extent Score of Barriers to Working on Vaccine Hesitancy and Uptake



When asked to elaborate on barriers to vaccine hesitancy and uptake work, the two main responses were repeated: the shortage of (dedicated) personnel and lack of resources, particularly funding (Figure 16). Though it was reported as the highest barrier to vaccine uptake work, organizational limits or restrictions were not elaborated on in the free text options for this section, except tangentially related in the response on collaboration. Instead, human and financial resources were repeatedly emphasized as the main barrier to working on vaccine hesitancy and uptake-related work.

Figure 16: Barriers to Vaccine Hesitancy and Uptake-Related Work



Both respondent groups were then asked specifically if they have staff dedicated to vaccine hesitancy and uptake issues and if they were able to tackle these areas in a way that met their needs (Figures 17 and 18). The results were once again very similar between both groups. Nearly half (13 out of 28) respondents from the country survey and exactly half (4 out of 8) of the respondents to the stakeholder survey reported they did not have the dedicated staff at their organization to work on vaccine hesitancy and uptake. The same proportion of respondents also reported that their organization could not work on vaccine hesitancy and uptake-related issues in a way that meets their needs.

IV. Summary

The barriers to working on vaccine uptake and vaccine hesitancy issues are rather shared across the respondents. In the quantitative and qualitative answers, organizational barriers, personnel shortages, and lack of funding are listed as the most common barriers. These issues are very specific to the institution and the country; however, these barriers open the possibility of the benefits of collaboration with non-government stakeholders in vaccine uptake and hesitancy-related work.

V. Figures

Figure 17: Map of Dedicated Staff to Vaccine Confidence/Uptake Work

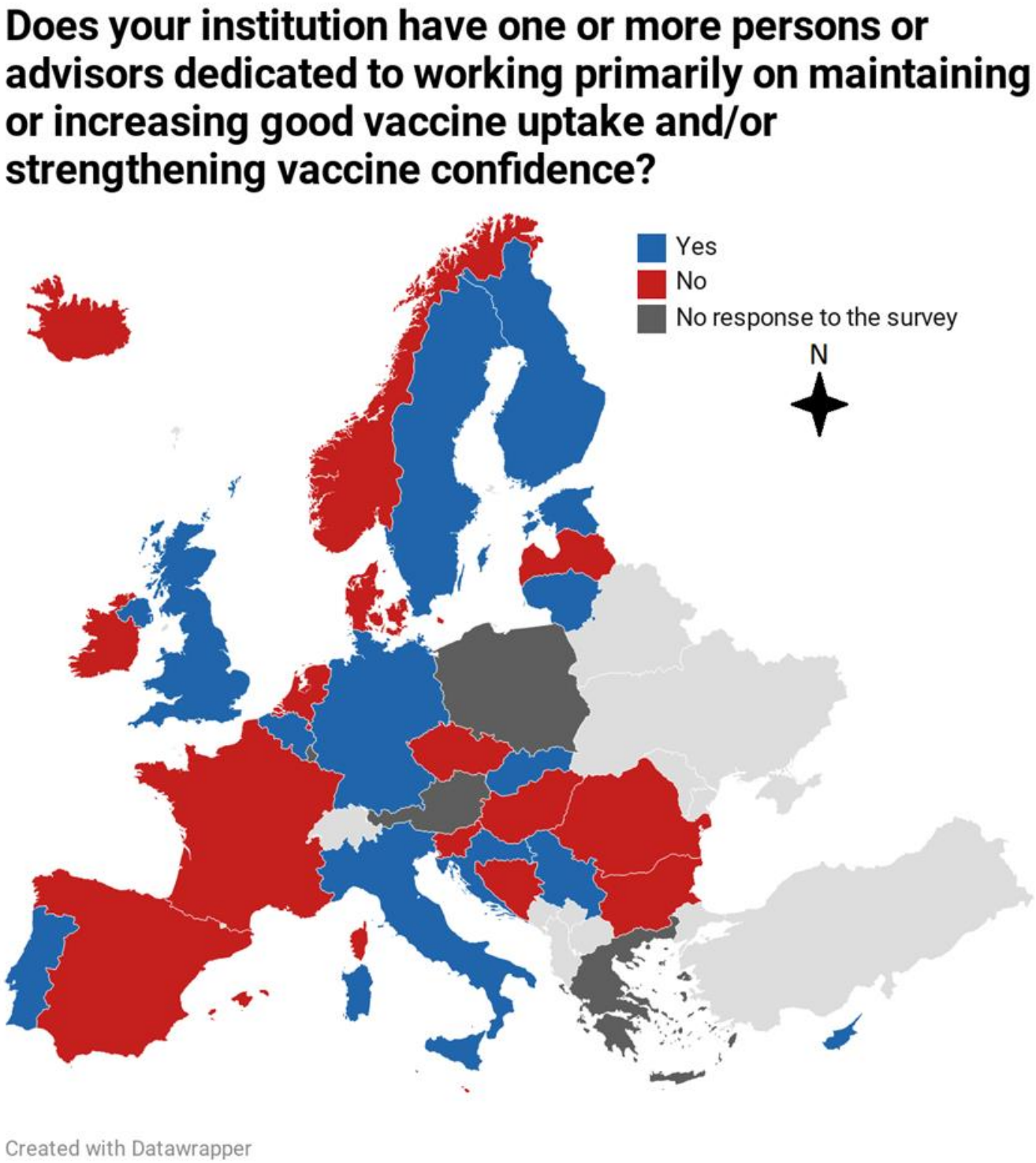
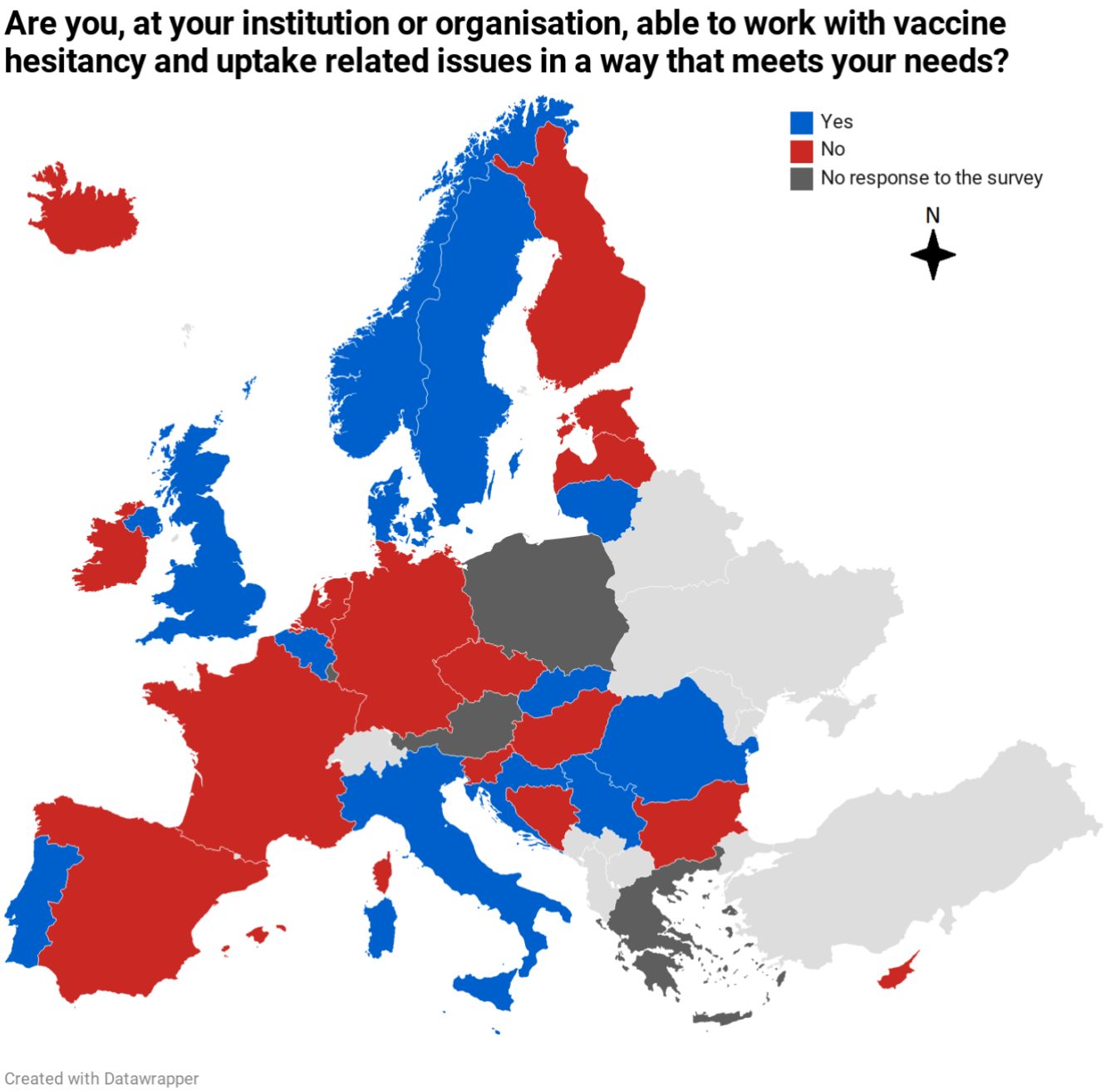


Figure 18: Map of Ability to Work on Vaccine-Related Issues



Vaccine Information Communication Strategies

I. Aim

Communication methods are a critical component of the overall strategy to working with vaccine hesitancy and uptake. A reliable and accessible source of information is necessary to inform the public and HCWs on the importance of vaccine uptake, up-to-date immunization schedules, and to address concerns of vaccine safety. As it relates to HCWs directly, a well-informed healthcare workforce is necessary for frontline efforts to combat vaccine hesitancy.

Identifying the most pursued communication efforts will reveal the channels of communication most used among the Member States currently. With a strong line of communication, a trusted, clear, and understood message can be delivered to the public and HCWs, ultimately improving vaccine confidence and uptake

II. Questions

How is vaccine information for vaccines included in the National Immunisation Programme communicated to the public in your country?

- *Informational brochures/pamphlets/leaflets. (if relevant, please specify which vaccines and/or VPDs this concern*
- *School education (as a part of the school curriculum, for example, vaccine related education in primary and/or secondary schools).*
- *Official website(s) (please describe which).*
- *News media, including print media (newspapers, news magazines), broadcast media (television and radio), and online newspapers.*
- *Social media.*
- *Health care worker when meeting patient.*
- *Advertisements or campaigns.*
- *E-health (electronic health services).*
- *Other. (please elaborate)*

[Each example has the following response options: 1 = not at all, 2 = only to a limited extent, 3 = to some extent, 4 = to a great extent, 5 = I do not know]

Please elaborate on your answers above on how vaccine information is communicated to the public in your country. [free text]

How is vaccine safety information for vaccines included in the National Immunisation Programme communicated to the public in your country?

- *Informational brochures/pamphlets/leaflets.*
- *School education (as a part of the school curriculum, for example, vaccine related education in primary and/or secondary schools).*
- *Official website(s) (please describe which).*

- *News media, including print media (newspapers, news magazines), broadcast media (television and radio), and online newspapers.*
- *Social media.*
- *Health care worker when meeting patient.*
- *Advertisements or campaigns.*
- *E-health (electronic health services).*
- *Other. (please elaborate)*

[Each example has the following response options: 1 = not at all, 2 = only to a limited extent, 3 = to some extent, 4 = to a great extent, 5 = I do not know]

Please elaborate on your answers above on how vaccine safety information is communicated to the public in your country. [free text]

How is vaccine and vaccine safety information for vaccines included in the National Immunisation Programme communicated to health care workers responsible for vaccination in your country?

- *Informational brochures/pamphlets/leaflets.*
- *Meetings/lectures/training events.*
- *Official website(s).*
- *News media, including print media, broadcast media, and online newspapers.*
- *Social media.*
- *Telephone service/hotline to public health institute or other.*
- *E-mail service.*
- *Official written communication.*
- *E-health (electronic health services).*
- *Post diploma education and/or continuous/updating training.*
- *Other. (please elaborate)*

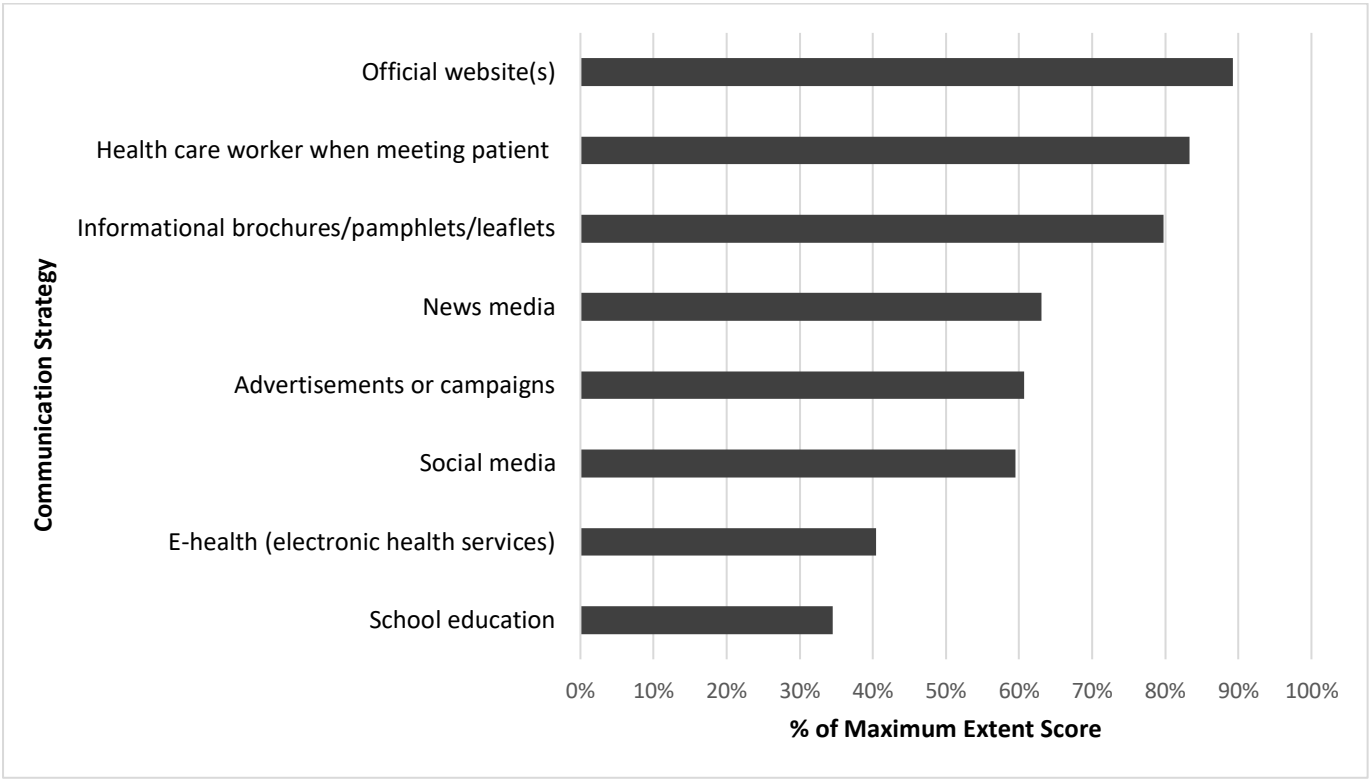
[Each example has the following response options: 1 = not at all, 2 = only to a limited extent, 3 = to some extent, 4 = to a great extent, 5 = I do not know]

Please elaborate on your answers above on how vaccine and vaccine safety information is communicated to health care workers responsible for vaccination in your country. [free text]

III. Analysis

For both general and safety information directed at the public, there are some shared trends: official websites, HCWs, and informational literature are all the most highly emphasized for communicating both types of information on vaccines (Figures 19 and 20). Regardless of the communication method, safety information is always less emphasized than general vaccine information.

Figure 19: Public Communication Strategies on Vaccine Information

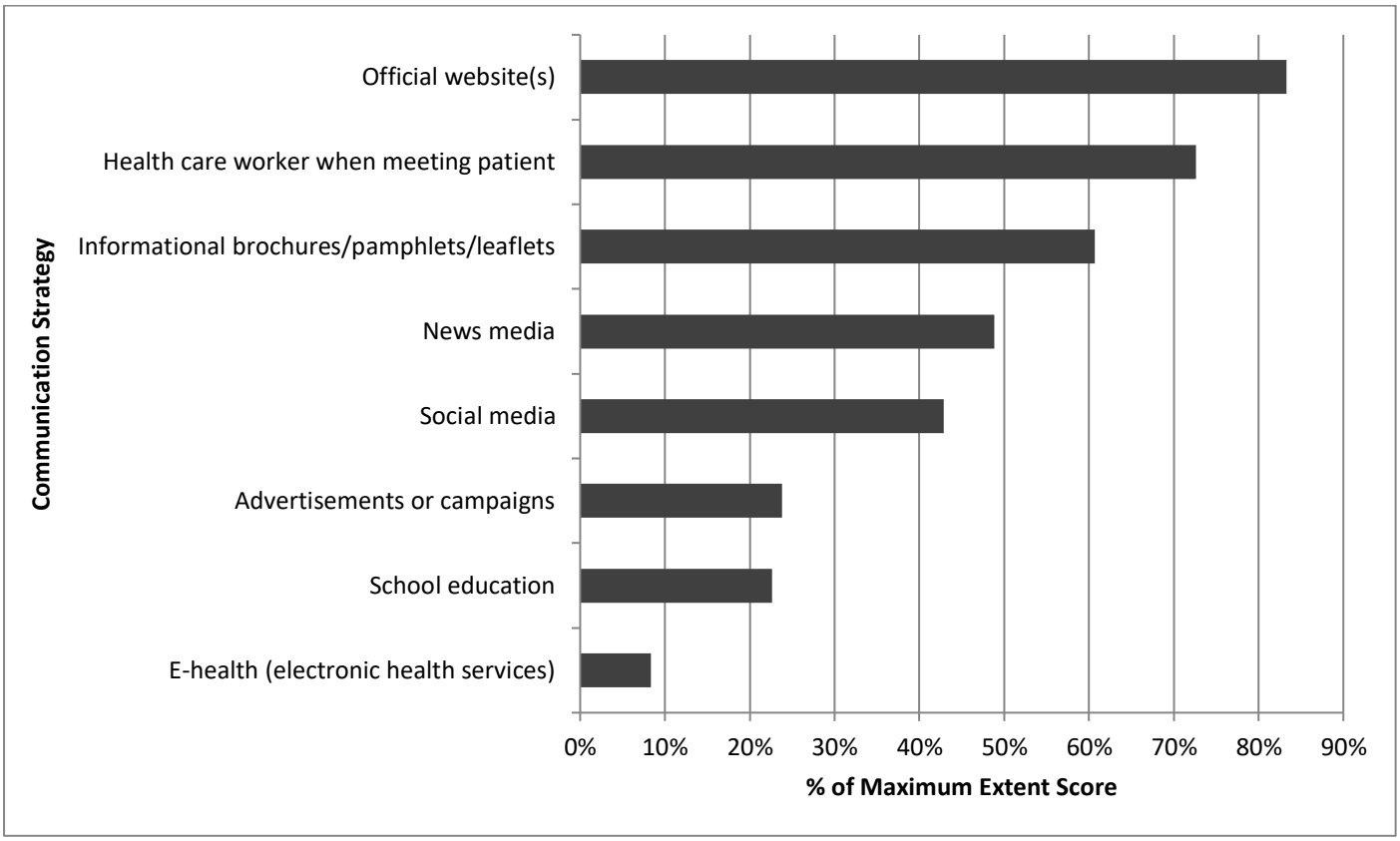


The free text responses give a greater insight into the vaccines and VPDs that are the focus of the different communication strategies. Of note, respondents gave far fewer responses in the section regarding communicating safety information.

The term “all vaccines” appears in all of the questions where respondents were asked to clarify the target vaccines or VPDs of a certain communication strategy. It appears as either the response that received the most or second-most responses for every question. Another frequent grouped response was “childhood vaccines,” which made several appearances, though not as popular as “all vaccines.” These responses indicate that many communication strategies are neither vaccine nor VPD-specific.

However, this observation is different when considering the communication strategies that are targeting a certain segment of the population. For example, school-based communication strategies are targeting school-aged persons, and social media is generally an environment most frequented by youth and young adults. With these two strategies in particular, HPV is the vaccine/VPD target as frequently, or more frequently, than “all vaccines.” Because the HPV vaccine is received exclusively by children and young adults, the targeting matches well with the communication strategy and its audience.

Figure 20: Public Communication Strategies on Vaccine Safety Information



With regards to the communication strategy of advertisements and campaigns, it is the influenza vaccine that is the most cited target. Though not explained as such, one reason influenza may be named as a target for this strategy is due to the recommended annual vaccination schedule. In other words, influenza vaccine campaigns may be perceived as a reasonable strategy because the vaccine is routinely administered.

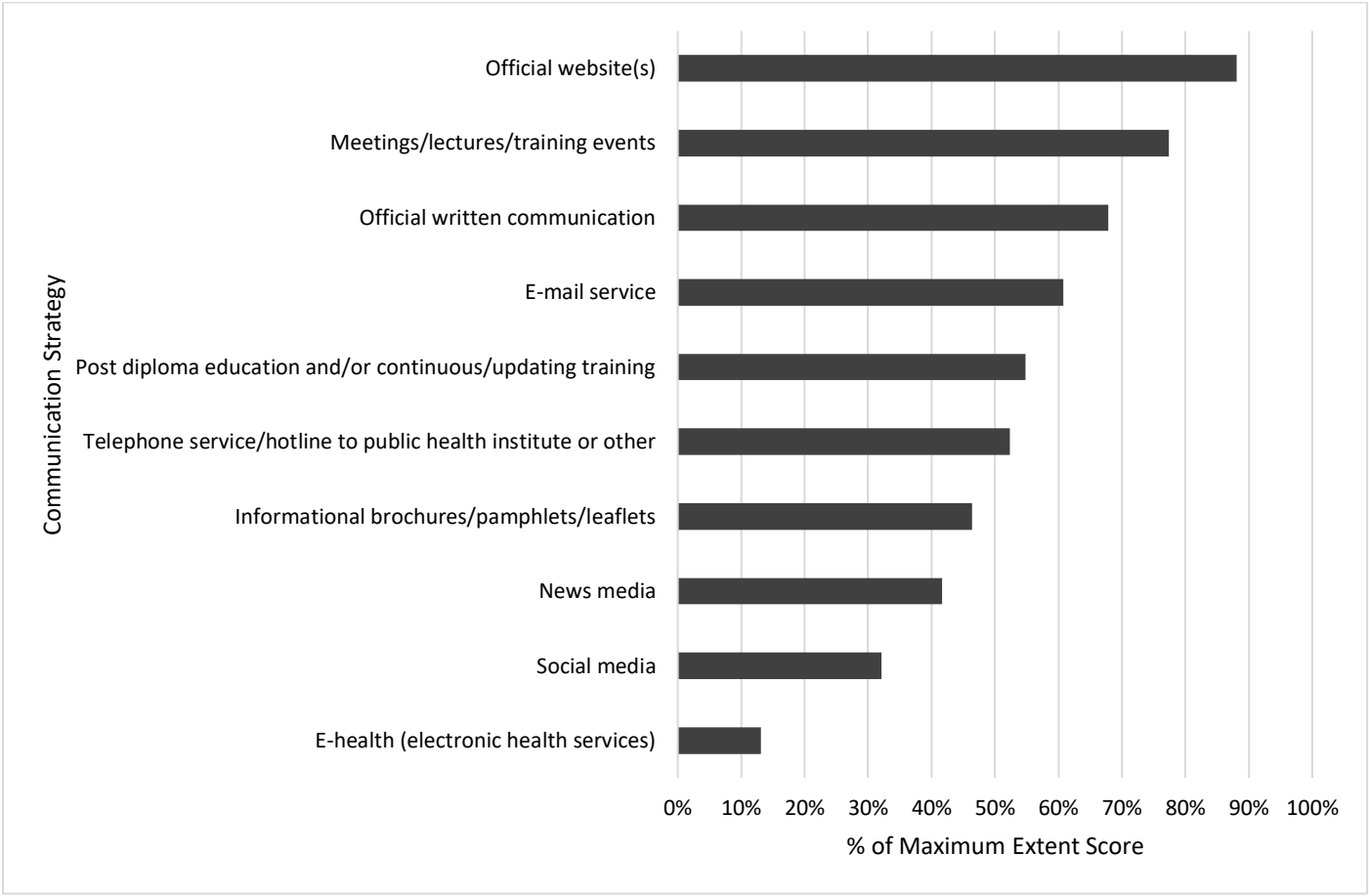
Moving onto communication strategies aimed at reaching HCWs, the options of the strategies are different from the strategies aimed at the public, though there are some overlapping strategies (Additional Figures 27 and 28). The most emphasized strategies used to communicate vaccine information were official websites, followed by meeting/lectures/trainings and then informational brochures/pamphlets/leaflets. These results are mirrored to the results seen earlier with the public communication strategies. Indeed, when excluding the "health care worker when meeting with patient" option, the results from the three questions conclude that official websites are the most emphasized communication strategy.

The utilization of tiered communication was a popular method of disseminating vaccine information. Regional and local health officials were often the intermediaries between national public health agencies and HCWs. This strategy is advantageous since local health professionals are more numerous than national officials and have a closer connection to frontline HCWs.

Meetings/seminars, websites, and trainings were also frequently reported in the free text responses (Figure 21). Regular meetings (for example, yearly trainings and conferences) for HCWs are a common response, even meetings that are explicitly vaccine-focused. Concerning websites, the qualitative data gives no insight into the use of websites designed specifically for HCWs that is separate from other websites for the general public.

Any strategies using news or social media, when mentioned, were similar to communication with the general public. In other words, government agencies did not use news media or social media platforms to communicate with HCWs directly and specifically beyond the news and social media platforms used to communicate vaccine information with the general public. This may help explain why these methods of communication were among the least emphasized strategies from the list.
Lastly, with regards to communication with HCWs, specific vaccines or VPDs were not emphasized as targets. Rather, the many different modes of communication were utilized for all vaccinations.

Figure 21: Vaccine Information Communication Strategies for HCWs



The separate question asking to elaborate on communication with HCWs yielded similar results. Seminars, conferences, meetings and websites are the most common methods cited as the utilized modes of communication. Interestingly enough, here, the use of local officials is seldom reported. Unfortunately, there are no quantitative prompts that suggest local health officials. Therefore, the respondents may simply be re-reporting communication method that was already outlined by the quantitative questions.

IV. Summary

The communication strategies between the public and HCWs are largely shared. The most emphasized communication strategies do not differ between the audience groups. This observation is particularly notable with respect to websites, news media, social media, and campaigns. The respondents did not identify unique channels for these strategies for the public or HCWs. The result is that the communication strategy for these communication modes largely represents a catch-all strategy.

This catch-all strategy is also seen with vaccine and VPD targets. Respondents reported that ”all vaccines” or “childhood vaccines” are among the main focus subjects of each of the communication strategies. With some exceptions, it appears that vaccine communication strategies aimed at both the public and HCWs take on a generalized approach, instead of focusing on individual vaccines or VPDs.

The results also reveal that HCWs are trusted intermediaries in delivering vaccine information to their patients. Returning to the discourse on determinants of suboptimal vaccine uptake, the respondents reported that hesitancy among HCWs is not perceived to have a large extent on rates of vaccination. The dependence on HCWs to provide the public information on vaccine makes sense in this context, yet hesitancy among this group cannot be ignored. Given this reliance, national health agencies must put effort into keeping HCWs informed on the latest vaccine information – and provide them with tools to encounter people and issues related to vaccine hesitancy – should they continue to be relied upon to address vaccine hesitancy and suboptimal vaccine uptake.

Cross Border Collaborative Practices

I. Aim

In collaboration with the EU-JAV team at the Swedish Public Health Agency, (Folkhälsomyndigheten, FOHM) working on a feasibility study for a future coordinated cross-border vaccination campaign in the EU and associated countries in WP 5.4, we developed a series of specific questions aimed at documenting cross-border collaborations linked to vaccine hesitancy and uptake.

To understand the extent of collaboration on vaccine hesitancy and uptake work, the respondents were asked a series of questions regarding their efforts and feedback on cross-border collaborative work. The questions encapsulate fields such as collaboration on study methodologies, sharing of data, and implementation of a vaccine program. Cross-border collaboration is useful for many reasons. As the data will show below, such collaborative practices provide an opportunity to address vaccine hesitancy more effectively through, for example, information sharing and conducting a vaccine scheme. Overall, the intention of cross border collaboration is for mutual assistance in working with vaccine hesitancy and/or uptake – either of a specific vaccine or group of vaccines.

II. Questions

Have any of these interventions to address barriers and drivers to vaccination been done as a collaboration with cross border partners? [Yes, No, I do not know]

Have any of these studies to understand barriers and drivers to vaccination, including literature reviews or sharing of data, been done as a collaboration with cross border partners? [Yes, No, I do not know]

Are there any examples of where you have collaborated with cross border partners on the development of vaccine information materials, including vaccine safety information and information to healthcare workers? [Yes, No, I do not know]

Please describe any other collaboration (excluding the EU Joint Action on Vaccination) where you are working across borders on the development of plans or strategies relating to work on addressing barriers and drivers of vaccination.

- *In your experience, what could be the benefits of teaming up with cross border partners?*
- *In your experience, what could be the difficulties of teaming up with cross border partners?*
- *In your experience, what could be done to encourage more cross border collaboration? [Free text]*

Has the knowledge from these studies been implemented in policies or actions and operations in your country/region? If you answered no to the previous question, please state why. If you answered yes, please elaborate. [Free text]

What kind of experience does your organisation have from work related to maintaining or increasing good vaccine uptake and/or strengthening confidence? Has the work been: Conducted in cooperation

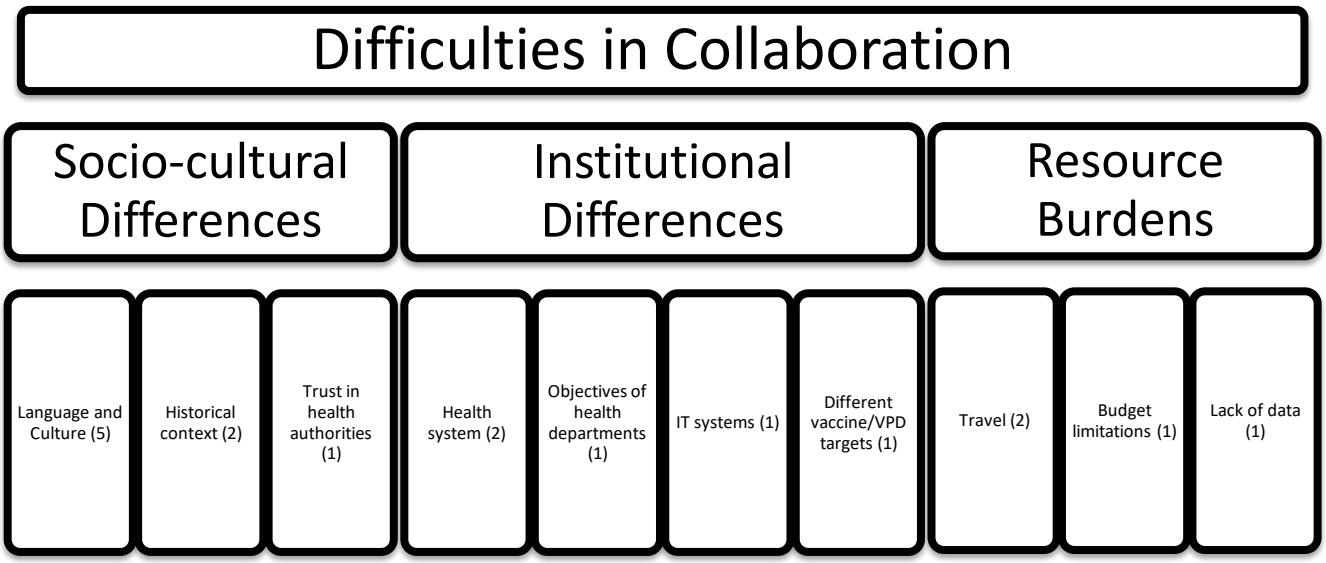
with other partners and stakeholders in your country or region? [1 = not at all, 2 = only to a limited extent, 3 = to some extent, 4 = to a great extent, 5 = I do not know]

III. Analysis

The results of these questions reveal three trends. First, the majority of respondents responded to the questions either claiming that there have been no collaborative efforts or that they were unaware of such efforts (Figure 24–26). Secondly, respondents were likely to respond to these three questions in the same manner. That is, if a respondent reported no collaborative actions with one question, they were also likely to report no collaborative actions on the other questions. Thirdly, on a regional level, countries in Southeastern Europe were more likely to report having conducted collaborative practices, whereas countries in Western and Northern Europe were more likely to report a lack of collaboration efforts. Overall, it is clear enough that collaboration activities with cross-border partners are not always consistent or the norm across the Member States.

The free-text questions explore in greater detail the rationale, outcomes, and examples of collaborative practices. The first question asks about the benefits and difficulties of collaborative efforts. The most commonly reported benefit was that collaborative efforts allow for the sharing of experience of vaccine hesitancy work, from studies, practices for implementation, and relevant data (Figures 22and 27). It appears, therefore, that collaborative studies and practices essentially facilitate sharing of information and best practices.

Figure 22: Examples of Difficulties in Cross Border Collaborative Efforts



There were far more difficulties listed compared to the benefits of collaboration. Though there were many examples, they can be subdivided into several categories: socio-cultural differences, institutional differences, and resource differences. A socio-cultural difference was the single most commonly cited difficulty of cross-border partnerships. The sharing of information is complicated on several fronts – a language barrier, lack of applicability of data considering other factors (such as difference in priorities among countries), and the financial and human resources required to dedicate towards collaborative practices.

In addition to the benefits and difficulties of collaboration, the respondents were also asked how to encourage collaboration. This question received far fewer responses, but the ones received point reducing the difficulties. Workshop or similar activities was one recommendation given that can allow for collaboration to take place under a common language in a dedicated setting that does not specifically require dedicated staff or resources to attend. The use of teleconferences was also suggested to reduce the cost of travel, and thereby reducing the financial burden that smaller health departments may face. The respondents also listed examples of collaborative partners. Of these, the WHO Tailoring Immunization Programme (TIP) was the most commonly cited across responses.[3]

The next question asks the country respondents what actions they have taken following the results of collaborative studies. The examples are far-reaching, and address several areas of vaccine hesitancy and uptake, from implementing overall strategies within public health and hosting seminars/trainings departments down to specific programs such as an improved vaccine register or the implementation of a vaccine reminder system. If a respondent responded that their country had not implemented any result of collaborative studies, they either cited that vaccine hesitancy is not a major issue within their country, or they had either inadequate (or insufficient) data from the collaborative studies. The results of this question are summarized in Figure 23.

Figure 23: How Knowledge is Implemented from Cross Border Studies

Examples of Implementation	Count	Reasons for	Count
Operational strategies	2	Vaccine hesitancy is not a major issue in my country	2
Improve communication between HCWs and their patients	2	Studies have not been representative of my country	1
Measurements for vaccine acceptance	2	Awaiting results from these studies	1
Conferences, seminars	2	Study results were too limited	1
Trainings of vaccine administration	1		
Vaccine reminder system	1		
High-level advocacy for political and financial commitments	1		
Vaccine decision tool	1		
Vaccine registration system	1		

Lastly, returning to a question in a previous section – respondents were asked to specify the vaccines/VPDs that are the subject of collaborative efforts and to list out the partners they have worked with. It is important to note, that these responses may not always refer to cross-border partners since the question was worded in a way to gather any type of collaboration (both within and cross-border efforts). Regardless, the responses are listed here to gather a fuller picture of collaborative efforts happening across the Member States.

Half of the responses did not specify a specific vaccine but instead reported that the collaborative works involve multiple (or all) vaccines in the national immunization program (Figure 31). Collaboration focused on a broad array of vaccines (such as childhood vaccines) may be both easier and more difficult to receive

[3] Robb Butler, Noni E. MacDonald, Diagnosing the determinants of vaccine hesitancy in specific subgroups: The Guide to Tailoring Immunization Programmes (TIP), Vaccine, Volume 33, Issue 34, 2015, Pages 4176-4179.

collaborative support. It may be easier because, in general, cross-border partners may have a greater motivation to conduct cross-border collaboration if there is a two-way benefit. Rather than focus on one vaccine that may not be in their national immunization program or on vaccines that do not have uptake issues, the broader categories allow for collaborating partners to find some benefit within the portfolio of vaccines that would be targeted.

The only specific vaccine/VPD to receive more than one response was HPV. Still, not every country may have the HPV vaccine as part of their immunization program, or HPV administration may occur in different settings (school or health clinic), or even HPV vaccine recommendations (such as age restrictions) may differ.

Figure 32 lists the partners cited among the respondents as the major collaborative partners on improving or maintaining good vaccine uptake and vaccine confidence. The results here are more diverse, and it garnered a greater number of examples compared to vaccine/VPD targets as well. Overall, medical and science professionals were the most popular collaborative partners, followed by academia and a national immunization group. At the same time, it appears that 'international groups or agencies' were among the least popular responses.

IV. Summary

From these questions, cross-border collaboration efforts appear to be perceived and carried out with ambivalent enthusiasm or focus. While the respondents give many examples of cross-border collaborative efforts, they are quicker to list out the challenges of cross-border collaboration than the benefits. Partnerships with governments or groups within a country are also more popular than with international partners when describing collaborative efforts to improve vaccine uptake and confidence.

Undoubtedly, there are technical hurdles for effective collaborative efforts, but as one respondent notes, collaborative efforts produce the positive outcome of helping integrate health systems within Europe. While health systems, health care delivery, and health care needs may differ vastly across the Member States, even on the specific issues of vaccine uptake and hesitancy, collaborative efforts can yield outcomes that should apply to any country, such as an improved vaccine register that is aligned with best practices carried out by other vaccine registers across Europe.

The respondents also report that when collaboration efforts do occur, those efforts do not often target a specific vaccine or VPD. As the most commonly listed target of collaborative efforts was either "all vaccines" or "all vaccines in the national immunization program," the broad target may seem inclusive and aid in starting collaborative efforts on the same grounds. On the other hand, the reality is that "all vaccines" for one country or stakeholders may not mean the same for "all vaccines" across the border. Without a clear objective, collaborative efforts could break down should it appear that the collaboration is not mutually beneficial or has no relevance for one of the partners.

The country respondents may not have had unilateral decision-making ability to collaborate, either within a country or across borders, and the several responses that express this limitation are found in the data. If the respondent responds that they are unaware of any collaborative efforts on vaccines, that might indicate that collaborative efforts may be occurring at a greater incidence than reported. Still, if more cross-border

collaboration is desired, it would be wise to emphasize the benefits, while mitigating the difficulties listed in this survey tool, to encourage wider efforts to improve vaccine uptake and tackle vaccine hesitancy.

V. Figures

Figure 24: Map of Collaborative Interventions with Cross Border Partners

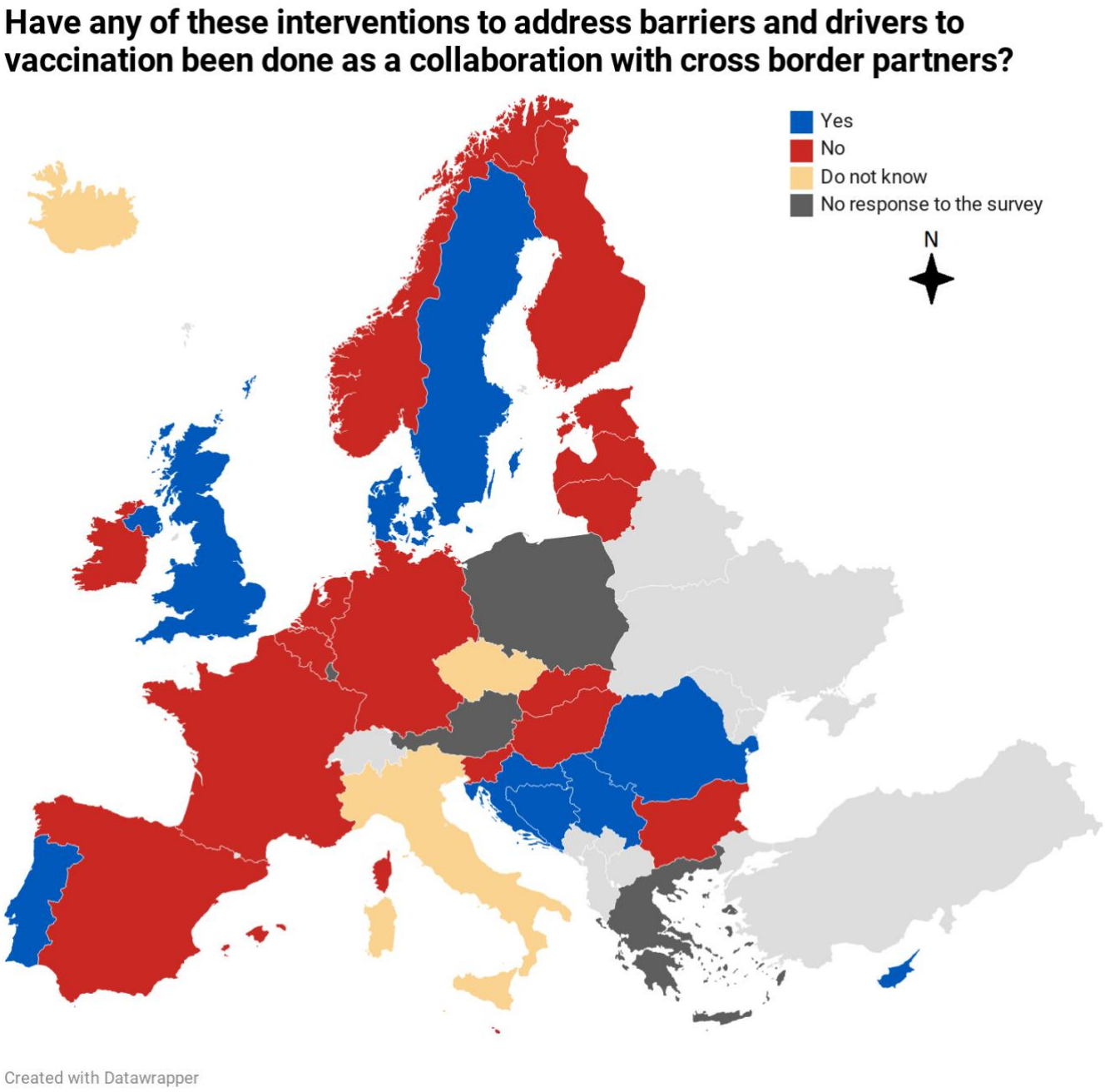


Figure 25: Map of Collaborative Studies with Cross Border Partners

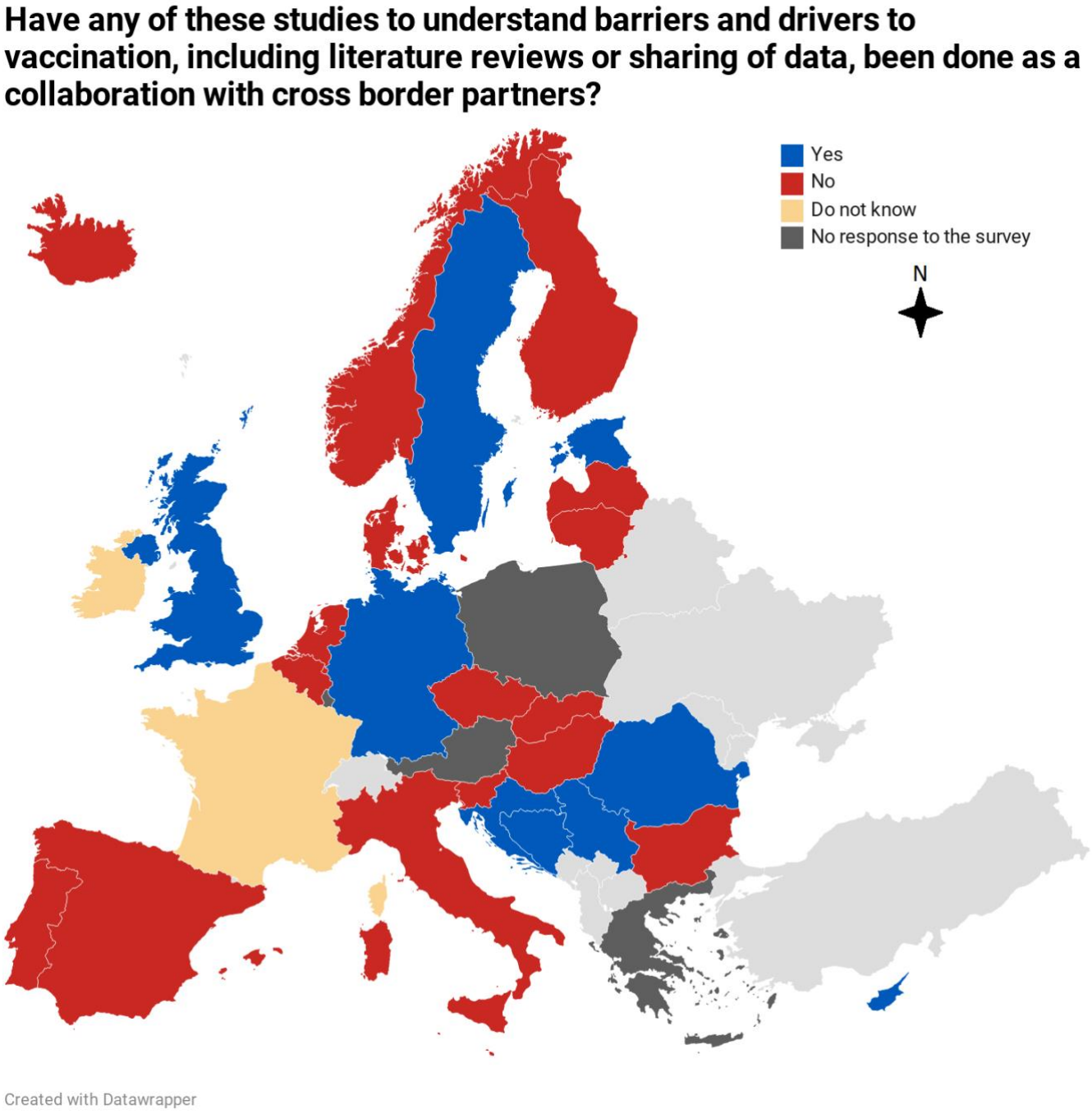


Figure 26: Map of Collaborative Development of Vaccine Information Materials with Cross Border Partners

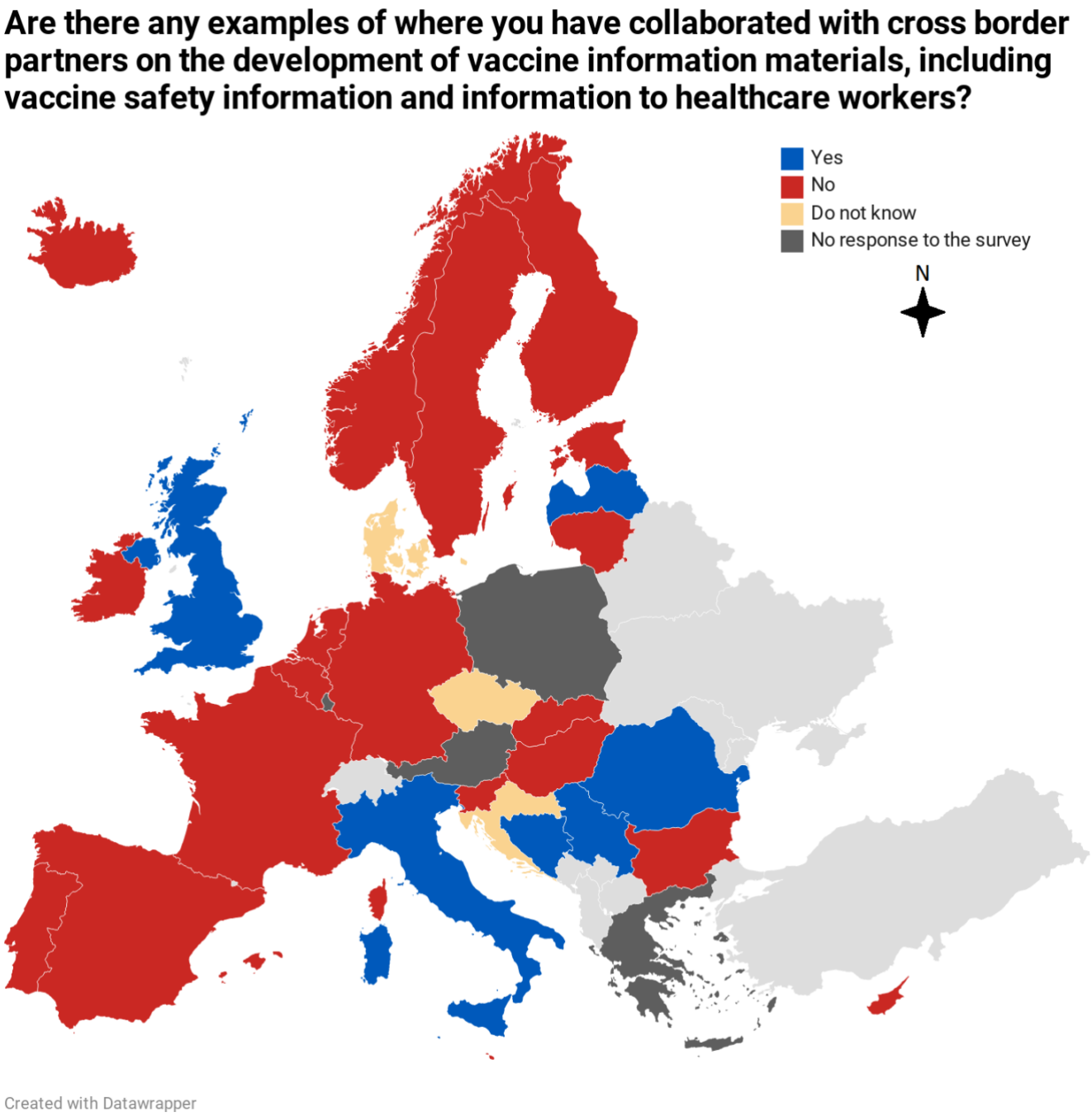


Figure 27: Benefits, Difficulties, Encouragements, and Examples of Cross Border Collaboration Efforts

Benefits	Count	Difficulties	Count	Encouragements	Count	Examples
Sharing experiences with studying vaccine hesitancy and best practices	5	Difference in language and/or culture	5	Workshops or activities	2	Nordic Group on Vaccine Hesitancy WHO Tailoring Immunization Programme ECDC (NITAG and technical advisory group on vaccine hesitancy) WHO technical advisory group VENICE I-III European Immunization Week
Sharing of data	2	Differences in the health system	2	Teleconferences	2	
Collaboration on reviewing literature	1	Differences in historical contexts	2			
Integrating strategies across countries	1	Travel costs	2			
		Different in objectives	1			
		Financial burden	1			
		Lack of data with countries with fewer resources	1			
		Different IT systems	1			
		Difference in trust in health authorities	1			
		Difference in vaccine targets	1			

Discussion

In this report we have presented the results from Work Package 8 (WP8) task 8.1, of the European Joint Action on Vaccination (EU-JAV). The aim of task 8.1 in WP8 is: “To develop a systematic overview and analysis of the current situation of activities related to vaccine hesitancy and uptake, including best practices and lessons learned in the Member States and their regions.”

Many learnings can be extracted from this work. Selected examples of good practices and lessons learned will be shared through the European Health Policy Platform (Stakeholder network: Vaccine hesitancy and uptake). Taking into consideration the magnitude of the data gathering process, participating in this work has presumably also provided respondents, the possibility to audit and reflect on their own work connected to vaccine hesitancy and uptake.

This worl provides the first steps of creating a joint European network and space that promotes sharing of experiences from the work done in relation to vaccine hesitancy and uptake in Europe. It is, of course, true that the European countries and regions differ from each other, and national immunisation programmes are organised in many different ways. Hence, many of the experiences are not directly transferable to another country or region. It is, therefore, difficult – and possibly even debatable – to identify universally applicable recommendations based on this work. But as long as we are aware of the contextual differences, this work should provide many opportunities for increasing our capacities to tackle challenges related to vaccine hesitancy and uptake. That said, we still want to present the following findings that can be used as a general roadmap when developing waysand policies to work with vaccine hesitancy and uptake issues in the future:

- There needs to be a better understanding of the differences between how public health professionals and how the general public define vaccine hesitancy
- Vaccine uptake is affected and secured by a complex system of processes. Any work on vaccine hesitancy and uptake should first reflect on an all-inclusive understanding of the issue rather than focusing solely on vaccine confidence-specific topics
- Vaccine uptake work, including collaborative work, currently takes a broad approach, and uptake could be improved through better targeting of population groups or focus on specific vaccines
- The work of stakeholders and public health authorities on vaccine hesitancy and uptake largely overlap, and more intentional collaboration partnerships can make more efficient use of limited resources among both parties
- Short- and long-term planning should consider greater prioritization of vaccine hesitancy and uptake work, which is currently most restricted by organizational limits and funding
- A conducive space for collaborating on vaccine hesitancy and uptake related work is needed that can mitigate the challenges in socio-cultural, institutional, and resource differences

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Annex 1: Surveys

Member states survey

EU Joint Action on Vaccination – Vaccine hesitancy and uptake. From research and practices to implementation

1. Contact information *

First name	
Last name	
Position	
Email	
Organisation	
Country	

2. Is there a **specific term/are there specific terms describing vaccine hesitancy** in your country? *

- ◯ Yes
- ◯ No
- ◯ I do not know

3. How do you understand the meaning of the term 'vaccine hesitancy'? *

4. **Please elaborate** on your answers to the two previous questions (2 and 3):
   - Are **different terms and definitions** used?
   - Is there, for example, a difference between the official and the public or popular discourse related to the topic?
   - If you have **more than one official language** in your country, is there a difference between how vaccine hesitancy is described in these languages? If you answered yes, does it affect your work in connection to vaccine confidence and uptake in your country/region?
   - In the case the terminology related to vaccine hesitancy is not established or if it is multifaceted or incoherent, how does it affect your work in connection to vaccine uptake and confidence?

5. According to the WHO, "Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccination services. Vaccine hesitancy is complex and context specific varying across time, place and vaccines. It includes factors such as complacency, convenience and confidence" (WHO SAGE Vaccine Hesitancy Working Group report). *

	Not at all	Only to a limited extent	To some extent	To a great extent	I do not know
How well do you think this definition corresponds to how you understand the meaning of the term 'vaccine hesitancy' in your country/region?	◯	◯	◯	◯	◯

6. Please list the **three vaccines from the National Immunisation Programme with the lowest or with decreasing coverage**. Please indicate coverage (%) for each using most recent data (year). *

7. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all languages are welcome).

8. **As far as you are aware,** is suboptimal vaccine uptake in your country *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
The result of poor access of vaccination services? (if relevant, please specify which vaccines and/or VPDs this concerns)	◯	◯	◯	◯	◯

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
The result of a regional or national vaccine safety-related crisis? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
The result of the lack of confidence in vaccine safety? (if relevant, please specify the concerns expressed and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to the lack of confidence in the effectiveness of vaccines? (if relevant, please specify the concerns expressed and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to the perceived risk of VPDs? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
The result of inconvenience of vaccination services? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
The result of the lack of confidence in the institution responsible for organising the vaccination services? (if relevant, please specify the concerns expressed and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to specific groups within the population? (if relevant, please specify which groups and which vaccines and/or VPDs this concerns)	○	○	○	○	○

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Related to the lack of confidence among health care workers? (if relevant, please specify the concerns expressed and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to the public perception of specific vaccines? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to vaccine shortages? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to religious reasons or groups? (if relevant, please specify which reasons/groups and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to ideological reasons promoted, for example, by a vocal anti-vaccine lobby? (if relevant, please specify which groups and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Other (please describe)?	○	○	○	○	○

9. Please elaborate and please provide one or more examples, and **describe in detail the reasons behind**
and the groups with suboptimal vaccine uptake in your country/region.

10. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

11. Have you at your institution or organisation **conducted studies** (or surveys, reviews or other examinations) to
understand barriers and drivers to vaccination and vaccine hesitancy in your country/region? *

- ◯ Yes
- ◯ No

12. If you answered yes, **please describe briefly** (in case more than one study has been conducted, please describe them all):
- Methods (study design, selection of participants (sampling methods), sample size, representativeness, timeframe/period)
- Results

- Relevance
- Information on whether study/studies addressed barriers and drivers of vaccination of a specific vaccine and/or VPD
- How often are these studies conducted
- Comment (your observations in general of the study)

13. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

14. If you have conducted studies, has the knowledge from these studies been **implemented in policies or actions and operations** in your country/region? *

- ◯ Yes
- ◯ No
- ◯ I do not know

15.
- If yes, **please elaborate how**.
- In case you have conducted a baseline evaluation as well, did the policies or the actions and operations help achieve the intended objective for which they were implemented or not?
- If no, please explain why.

16. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

17. Have any of these studies to understand barriers and drivers to vaccination, including literature reviews or sharing of data, been done as a collaboration with cross border partners? *

- ◯ Yes
- ◯ No
- ◯ I do not know

18. If yes, please explain your motivation for working across borders.
Please provide a list of any cross border partners and studies.

19. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

20. As far as you are aware, **have other parties conducted studies** (or surveys, reviews or other examinations) to understand barriers and drivers to vaccination and/or vaccine confidence in your country/region? *

- ◯ Yes
- ◯ No
- ◯ I do not know

21. If you answered yes, **please describe briefly**:
- Which type of organisation(s) (please provide contact information)
- Methods (study design, selection of participants (sampling methods), sample size, representativeness, timeframe/period)
- Results
- Relevance
- Information on whether study/studies addressed barriers and drivers of vaccination of a specific vaccine
- How often are these studies conducted
- Comment (your observations in general of the study)

22. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

23. Has the **knowledge from these studies been implemented** in policies or actions and operations in your
country/region? *

- ◯ Yes
- ◯ No
- ◯ I do not know

24.
- If you answered no to the previous question, please state why.
- If you answered yes, please elaborate.

25. Concerning your answer to the previous question, **please provide references** and/or copy of the

report(s) (all
languages are welcome).

26. What kind of experience does your organisation have from work related to **maintaining or increasing good**
vaccine uptake and/or strengthening confidence? Has the work been: *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Vaccine or antigen-specific? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to health care workers? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Carried out through communication activities? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Conducted in cooperation with government bodies? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Conducted in cooperation with other partners and stakeholders in your country or region? (if relevant, please specify which partners and/or stakeholders and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to specific population groups (if relevant, please specify which groups and which vaccines and/or VPDs this concerns)	○	○	○	○	○

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Related to the access of vaccination services? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to education (as a part of the school curriculum, for example, vaccine related education in primary and/or secondary schools)? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Other? (please elaborate)	○	○	○	○	○

27. Please elaborate on your answers above about your organisation's experiences from **work related to maintaining or increasing good vaccination coverage** and/or strengthening confidence.

28. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

29. Has this work (interventions, projects, campaigns, policies, practices, etc.) been based on research-based
knowledge? *

- ◯ Yes
- ◯ No
- ◯ Both yes and no
- ◯ I do not know

30.
- If you answered yes, please describe how.
- If you answered no, please state why.

31. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

32. Have any of these interventions to address barriers and drivers to vaccination been done as a collaboration with cross border partners? *

- ◯ Yes
- ◯ No
- ◯ I do not know

33. If yes, please explain your motivation for working across borders.
Please provide a list of any cross border partners and interventions.

34. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

35. Have you at your institution or organisation experience from work related specifically to **maintaining or increasing the uptake of the second dose of measles mumps, and rubella vaccine (MMR2)**? *

- ◯ Yes
- ◯ No

36. Please elaborate on your answer above and please give examples on your work related specifically to to **maintaining or increasing uptake for the second dose of measles mumps, and rubella vaccine (MMR2).**

37. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

38. Have you at your institution or organisation experience from work that **could also have maintained or increased the uptake of the second dose of measles mumps, and rubella vaccine (MMR2)**, but was not specifically designed for only that purpose? *

- ◯ Yes
- ◯ No

39. Please elaborate on your answer above and please give examples on your work that **could also have maintained or increased the uptake of the second dose of measles mumps, and rubella vaccine (MMR2)**, but was not specifically designed for only that purpose.

40. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all languages are welcome).

41. How is **vaccine information** for vaccines included in the National Immunisation Programme communicated to the public in your country? *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Informational brochures/pamphlets /leaflets. (if relevant, please specify which vaccines and/or VPDs this concerns)	◯	◯	◯	◯	◯

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
School education (as a part of the school curriculum, for example, vaccine related education in primary and/or secondary schools). (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Official website(s) (please describe which). (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
News media, including print media (newspapers, newsmagazines), broadcast media (television and radio), and online newspapers. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Social media. (if relevant, please specify which social media platform(s) and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Health care worker when meeting patient. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Advertisements or campaigns. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
E-health (electronic health services). (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Other. (please elaborate)	○	○	○	○	○

42. Please elaborate on your answers above on how **vaccine information** is communicated to the

public in your
country.

43. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

44. How is **vaccine safety information** for vaccines included in the National Immunisation Programme communicated to the public in your country? *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Informational brochures/pamphlets /leaflets. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
School education (as a part of the school curriculum, for example, vaccine related education in primary and/or secondary schools). (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Official website(s). (if relevant, please specify which website(s) and which vaccines and/or VPDs this concerns)	○	○	○	○	○
News media, including print media (newspapers, newsmagazines), broadcast media (television and radio), and online newspapers. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Social media. (if relevant, please specify which social media platform(s) and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Health care worker when meeting patient. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
E-health (electronic health services). (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Other. (please elaborate)	○	○	○	○	○

45. Please elaborate on your answers above on how **vaccine safety information** is communicated to the public in
your country.

46. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

47. How is vaccine and vaccine safety information for vaccines included in the National Immunisation Programme communicated to **health care workers** responsible for vaccination in your country? *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Informational brochures/pamphlets /leaflets. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Meetings/lectures/training events. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Official website (s) (please describe which). (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
News media, including print media (newspapers, newsmagazines), broadcast media (television and radio), and online newspapers. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Social media. (if relevant, please specify which social media platform(s) and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Telephone service/hotline to public health institute or other. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
E-mail service. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Official written communication. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
E-health (electronic health services). (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Post diploma education and/or continuous/updating training. (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Other. (please elaborate)	○	○	○	○	○

48. Please elaborate on your answers above on how vaccine and vaccine safety information communicated to **health care workers** responsible for vaccination in your country.

49. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

50. Are there any examples of where you have collaborated with cross border partners on the development of vaccine information materials, including vaccine safety information and information to healthcare workers? *

- ◯ Yes
- ◯ No
- ◯ I do not know

51. If yes, please explain your motivation for working across borders.
Please provide a list of any cross border partners and links to vaccine information materials.

52. Please describe any other collaboration (excluding the EU Joint Action on Vaccination) where you are working across borders on the development of plans or strategies relating to work on addressing barriers and drivers of vaccination.

- In your experience, what could be the benefits of teaming up with cross border partners?
- In your experience, what could be the difficulties of teaming up with cross border partners?
- In your experience, what could be done to encourage more cross border collaboration?

53. Concerning your answers to the previous questions on collaboration with cross border partners, **please provide references** and/or copy of the report(s) (all languages are welcome).

54. Are there any examples of where you have collaborated with cross border partners on the development of vaccine information materials, including vaccine safety information and information to healthcare workers? *

- ◯ Yes
- ◯ No
- ◯ I do not know

55. If yes, please explain your motivation for working across borders.
Please provide a list of any cross border partners and links to vaccine information materials.

56. Please describe any other collaboration (excluding the EU Joint Action on Vaccination) where you are working across borders on the development of plans or strategies relating to work on addressing barriers and drivers of vaccination.

- In your experience, what could be the benefits of teaming up with cross border partners?
- In your experience, what could be the difficulties of teaming up with cross border partners?
- In your experience, what could be done to encourage more cross border collaboration?

57. Concerning your answers to the previous questions on collaboration with cross border partners, **please provide references** and/or copy of the report(s) (all languages are welcome).

58. Does your institution have one or more **persons or advisors dedicated to working primarily on maintaining or increasing good vaccine uptake and/or strengthening vaccine confidence**? *

- ◯ Yes
- ◯ No

59.
- If no, please state why and describe what team or which person is in charge of this matter.
- If yes, please describe in detail the roles and responsibilities of this/these person(s), their educational and
professional background, resources available etc.
- Please estimate the time efforts you use at your institution on vaccine hesitancy related work (100%=1 person working full time).
- Please also give the contact information for the person in charge of this work.

60. Are you, at your institution or organisation, **able to work with vaccine hesitancy and uptake related issues** in a way that meets your needs? *

- ◯ Yes
- ◯ No

61. What are the **main barriers that prevent you from working with vaccine hesitancy and uptake related issues**? *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Lack of funding.	◯	◯	◯	◯	◯
Lack of competence/competent staff.	◯	◯	◯	◯	◯
Lack of mandate.	◯	◯	◯	◯	◯
Organisational limits/restrictions (such as workload and/or other responsibilities and/or prioritisations).	◯	◯	◯	◯	◯
Other, what?	◯	◯	◯	◯	◯

62. Please elaborate on your answer above on **main barriers that prevent you from working with vaccine hesitancy and uptake related issues** in your country/region.

63. Do you, at your organisation, have **long-term strategies or plans** for strengthening vaccine confidence and increasing vaccine uptake in your country/region? *

- ◯ Yes
- ◯ No
- ◯ I do not know

64.
- If no, please state why.
- If yes, please describe in detail.

65. Concerning your answer to the previous questions, **please provide reference** and/or copy of the strategy/plan (all
languages are welcome).

66. In the case you have conducted work (interventions, projects, campaigns, policies, practices) in relation to
increasing vaccination coverage or strengthening trust, has this work been **successful or unsuccessful**?
- If no, please state why.
- If yes, please describe these cases separately in detail.

67. Concerning your previous answer, how do you **determine the success or failure**?
Have you, for example, conducted studies evaluating the possible impact of the work (interventions, projects, campaigns, policies, practices)?
- If no, please state why.
- If yes, please describe in detail.

68. Concerning your answers to the two previous questions, **please provide reference** or copy of reports, if possible(all
languages are welcome).

69. What is the latest programme/activity you have conducted at your institution aimed at increasing vaccine confidence and uptake?

70. Concerning your answer to the previous questions, **please provide reference** and/or copy of the strategy (all
languages are welcome).

71. Please describe any other **policies, practices and projects** that have affected (increased or decreased) vaccine uptake in your country/region, but that have not directly been related to or affected by the work at your institution, for example, social media activities or influencers, legislation related to mandatory vaccinations or school curriculums/vaccine related education in primary or secondary schools.

72. Concerning your answer to the previous question, **please provide reference** or copy of reports, if possible(all
languages are welcome).

73. Are there **examples of vaccine hesitancy and/or uptake related work** at your organisation or in your country/region that could be presented as constructive examples of either successful or unsuccessful actions, practices and decisions? *

- ◯ Yes. If yes, please explain what and why. _____
- ◯ No

74. Would you be willing to **present this work**, for example, in the form of an article, podcast or video lecture/webinar that could be published on an online platform specifically designed for providing guidance for developing practices and policies for maintaining good vaccine uptake and confidence? (Or, if the work has been conducted by another actor, would you be willing to organise a presentation of their work?) *

- ◯ Yes. Please explain how. _____
- ◯ No. Please explain why. _____

75. Are there **stakeholders** that have been active in vaccine hesitancy and uptake related work in your country/region that should be asked to take part in the mapping of best practices and lessons learned? *

- ◯ Yes
- ◯ No. If no, please state why not. _____

76. If you answered yes to the previous question, please describe **who** should be included and **why** (Please also provide contact information).

77. Is there **anything** else you would like to tell us?

EU Joint Action on Vaccination – Vaccine hesitancy and uptake. From research and practices to implementation

1. Contact information *

First name	
Last name	
Position	
Email	
Organisation	
Country	

2. **As far as you are aware,** is suboptimal vaccine uptake: *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
The result of poor access of vaccination services? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
The result of a regional or national vaccine safety-related crisis? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
The result of the lack of confidence in vaccine safety? (if relevant, please specify the concerns expressed and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to the lack of confidence in the effectiveness of vaccines? (if relevant, please specify the concerns expressed and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to the perceived risk of VPDs? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
The result of inconvenience of vaccination services? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
The result of the lack of confidence in the institution responsible for organising the vaccination services? (if relevant, please specify the concerns expressed and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to specific groups within the population? (if relevant, please specify which groups and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to the lack of confidence among health care workers? (if relevant, please specify the concerns expressed and which vaccines and/or VPDs this concerns)	○	○	○	○	○

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Related to the public perception of specific vaccines? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to vaccine shortages? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to religious reasons or groups? (if relevant, please specify which reasons/groups and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to ideological reasons promoted, for example, by a vocal anti-vaccine lobby? (if relevant, please specify which groups and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Other (please describe)?	○	○	○	○	○

3. Please elaborate on your answer above.

4. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

5. Have you at your organisation **conducted studies** (or surveys, reviews or other examinations) to understand barriers and drivers to vaccination and vaccine hesitancy? *

- ◯ Yes
- ◯ No

6. If you answered yes, **please describe briefly** (in case more than one study has been conducted, please describe them all):
- Methods (study design, selection of participants (sampling methods), sample size, representativeness, timeframe/period)
- Results
- Relevance
- Information on whether study/studies addressed barriers and drivers of vaccination of a specific vaccine and/or VPD
- How often are these studies conducted
- Comment (your observations in general of the study)

7. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

8. If you have conducted studies, has the knowledge from these studies been **implemented in policies or actions and operations by you or someone else**? *

- ◯ Yes
- ◯ No
- ◯ I do not know

9.
- If yes,**please elaborate how**.
- In case you have conducted a baseline evaluation as well, did the policies or the actions and operations help achieve the intended objective for which they were implemented or not?
- If no, please explain why.

10. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

11. Have any of these studies to understand barriers and drivers to vaccination, including literature reviews or sharing of data, been done as support to cross border partners? *

- ◯ Yes
- ◯ No
- ◯ I do not know

12. If yes, please provide a list of any cross border partners and studies.

13. Concerning your answer to the previous question, **please provide references** and/or copy of the

report(s) (all
languages are welcome).

14. What kind of experience does your organisation have from work related to **maintaining or increasing good vaccine uptake and/or strengthening confidence**? Has the work been: *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Vaccine or antigen-specific? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to health care workers? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Carried out through communication activities? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Conducted in cooperation with government bodies? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Conducted in cooperation with other partners and stakeholders in your country or region? (if relevant, please specify which partners and/or stakeholders and which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to specific population groups (if relevant, please specify which groups and which vaccines and/or VPDs this concerns)	○	○	○	○	○

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Related to the access of vaccination services? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Related to education (as a part of the school curriculum, for example, vaccine related education in primary and/or secondary schools)? (if relevant, please specify which vaccines and/or VPDs this concerns)	○	○	○	○	○
Other? (please elaborate)	○	○	○	○	○

15. Please elaborate on your answers above about your organisation's experiences from **work related to maintaining or increasing good vaccination coverage** and/or strengthening confidence.

16. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

17. Has this work (interventions, projects, campaigns, policies, practices, etc.) been based on research-based
knowledge? *

- ◯ Yes
- ◯ No
- ◯ Both yes and no
- ◯ I do not know

18.
- If you answered yes, please describe how.
- If you answered no, please state why.

19. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

20. Have any of these interventions to address barriers and drivers to vaccination been done as support to cross border partners? *

- ◯ Yes
- ◯ No
- ◯ I do not know

21. If yes, please provide a list of any cross border partners and interventions.

22. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all
languages are welcome).

23. Have you at your organisation experience from work related specifically to **maintaining or increasing the uptake of the second dose of measles mumps, and rubella vaccine (MMR2)**? *

- ◯ Yes
- ◯ No

24. Please elaborate on your answer above and please give examples on your work related specifically to to **maintaining or increasing uptake for the second dose of measles mumps, and rubella vaccine (MMR2).**

25. Concerning your answer to the previous question, **please provide references** and/or copy of the report(s) (all languages are welcome).

26. Have you at your organisation experience from work that **could also have maintained or increased the uptake of the second dose of measles mumps, and rubella vaccine (MMR2)**, but was not specifically designed for only that purpose? *

- ◯ Yes
- ◯ No

27. Please elaborate on your answer above and please give examples on your work that **could also have maintained or increased the uptake of the second dose of measles mumps, and rubella vaccine (MMR2)**, but was not specifically designed for only that purpose.

28. Concerning your answer to the previous question, **pleaseprovide references** and/or copy of the report(s) (all
languages are welcome).

29. Does your organisation have one or more **persons or advisors dedicated to working primarily on maintaining or increasing good vaccine uptake and/or strengthening vaccine confidence**? *

- ◯ Yes
- ◯ No

30.
- If no, please state why and describe what team or which person is in charge of this matter.
- If yes, please describe in detail the roles and responsibilities of this/these person(s), their educational and
professional background, resources available etc.
- Please estimate the time efforts you use at your institution on vaccine hesitancy related work (100%=1 person working full time).
- Please also give the contact information for the person in charge of this work.

31. Are you, at your organisation, **able to work with vaccine hesitancy and uptake related issues** in a way that meets your needs? *

- ◯ Yes
- ◯ No

32. What are the **main barriers that prevent you from working with vaccine hesitancy and uptake related issues**? *

	No	Yes, but only to a limited extent	Yes, to some extent	Yes, to a great extent	I do not know
Lack of funding.	◯	◯	◯	◯	◯
Lack of competence/competent staff.	◯	◯	◯	◯	◯
Lack of mandate.	◯	◯	◯	◯	◯
Organisational limits/restrictions (such as workload and/or other responsibilities and/or prioritisations).	◯	◯	◯	◯	◯
Other, what?	◯	◯	◯	◯	◯

33. Please elaborate on your answer above on **main barriers that prevent you from working with vaccine**

hesitancy and uptake related issues.

34. Do you, at your organisation, have **long-term strategies or plans** for strengthening vaccine confidence and increasing vaccine uptake within the scope of your activities? *

- ◯ Yes
- ◯ No
- ◯ I do not know

35.
- If no, please state why.
- If yes, please describe in detail.

36. Concerning your answer to the previous questions, **please provide reference** and/or copy of the strategy/plan (all
languages are welcome).

37. In the case you have conducted work (interventions, projects, campaigns, policies, practices) in relation to
increasing vaccination coverage or strengthening trust, has this work been **successful or unsuccessful**?
- If no, please state why.
- If yes, please describe these cases separately in detail.

38. Concerning your previous answer, how do you **determine the success or failure**?
Have you, for example, conducted studies evaluating the possible impact of the work (interventions, projects, campaigns, policies, practices)?
- If no, please state why.
- If yes, please describe in detail.

39. Concerning your answers to the two previous questions, **please provide reference** or copy of reports, if possible(all
languages are welcome).

40. What is the latest programme/activity you have conducted at your organisation aimed at increasing vaccine confidence and uptake?

41. Concerning your answer to the previous questions, **please provide reference** and/or copy of the strategy (all
languages are welcome).

42. Are there any examples of where you have supported cross border initiatives on the development of vaccine information materials, including vaccine safety information and information to healthcare workers? *

- ◯ Yes
- ◯ No
- ◯ I do not know

43. If yes, please explain your motivation for supporting cross border initiatives.
Please provide a list of any cross border partners and links to vaccine information materials.

44. Please describe any other collaboration (excluding the EU Joint Action on Vaccination) where you are supporting cross border initiatives relating to work on addressing barriers and drivers of vaccination.
- In your experience, what could be done to encourage more cross border collaboration?

45. Concerning your answers to the previous questions on supporting cross border initiatives, please provide references and/or copy of the report(s) (all languages are welcome).

46. Are there **examples of vaccine hesitancy and/or uptake related work** at your organisation that could be presented as constructive examples of either successful or unsuccessful actions, practices and decisions? *

- ◯ Yes. If yes, please explain what and why. [ ]
- ◯ No

47. Would you be willing to **present this work**, for example, in the form of an article, podcast or video lecture/webinar that could be published on an online platform specifically designed for providing guidance for developing practices and policies for maintaining good vaccine uptake and confidence? (Or, if the work has been conducted by another actor, would you be willing to organise a presentation of their work?) *

- ◯ Yes. Please explain how. [ ]
- ◯ No. Please explain why. [ ]

48. Is there **anything** else you would like to tell us?

Annex 2: Data Description

Quantitative Data Description

Quantitative data is defined here by the information gathered from questions that required a response with the multiple-choice, Likert scale-type questions, or yes/no questions. The scale-type questions can be interpreted as statements that ask the respondents to what extent they agreed with the claim made by the question.

The responses to the scale type questions were the following:

- *not at all*
- *only to a limited extent*
- *to some extent*
- *to a great extent*
- *I do not know*

. The yes/no questions had 3 options: *= yes, no*and *I do not know.*

Quantitative Data Analysis

We analyzed the quantitative data through several methods:

- Summation calculations,
- Frequencies, and
- Comparing medians

In Likert scale-type questions, answers were coded as follows: 0 = not at all; 1 = only to a limited extent; 2 = to some extent; 3 = to a great extent, while "I do not know" answers were dropped from this summation. Lastly, the total sum of each item on the Likert scale became known as the "total extent score" for that item.

Total extent scores were calculated in the same manner for both country and stakeholder respondents. Due to the difference in the number of respondents, a raw sum is not reported in the analysis. Rather, each total extent score is converted into a percentage of a maximum possible score given the number of responses to the respective survey item. For example, in instances where every respondent answered the survey item, the maximum extent score for the country respondents could achieve was 84 (3, corresponding to "yes, to a great extent," multiplied by 28 respondents), while the maximum extent score for stakeholder respondents was 24 (3 multiplied by 8 respondents).

We reported the results from yes/no questions in a frequency count, also in percentages. In these questions, responses of "I do not know" were not dropped in the calculation of frequencies.

In addition to percentages, we visualized the median response in the vaccination communication section. This was done mostly to provide an easier-to-read visualization of the comparison of the different questions (general vs. safety information communication strategies) that had the same response options. When analyzing medians, the likert scale values were coded from 1 (Not at all) to 4 (To a great extent). Once again, any instances of respondents answering "I do not know" were dropped from the analysis.

Due to the small sample sizes from both survey groups, the quantitative data did not undergo any rigorous statistical testing to observe any differences between questions or between respondents. However, trends in the quantitative data were discussed in detail in this report.

We visualized the quantitatve data in several ways:

- Bar charts – for visualizing and comparing total extent scores in Likert scale questions
- Maps – for both Likert scale and yes/no questions, with every possible response (or lack of response) given a different shade of a color to geographically see the distribution of resposnes
- Radar charts – for the comparison of median scores in the vaccine communication section

Qualitative Data Description

Qualitative data is defined here by any questions that involve free-text responses. The free text was entered either as a specification for a quantitative question or in response to a standalone question, usually after an initial question. Not every question was mandatory leading to some missing data, especially in the questions that required a free text response. Responses to questions asking for citations or references to studies, forms, and websites, for example, were not analyzed in this report. Instead, the focus is on the standalone free-text responses and when specifying vaccines, VPDs, or providing an example of some sort. In order to obtain exhaustive answers and to avoid misunderstandings, some countries were asked to complete their answers based on this review work. This revision work was conducted by experts from the EC, Joint Research Center (JRC), FOHM and THL.

Qualitative Data Analysis

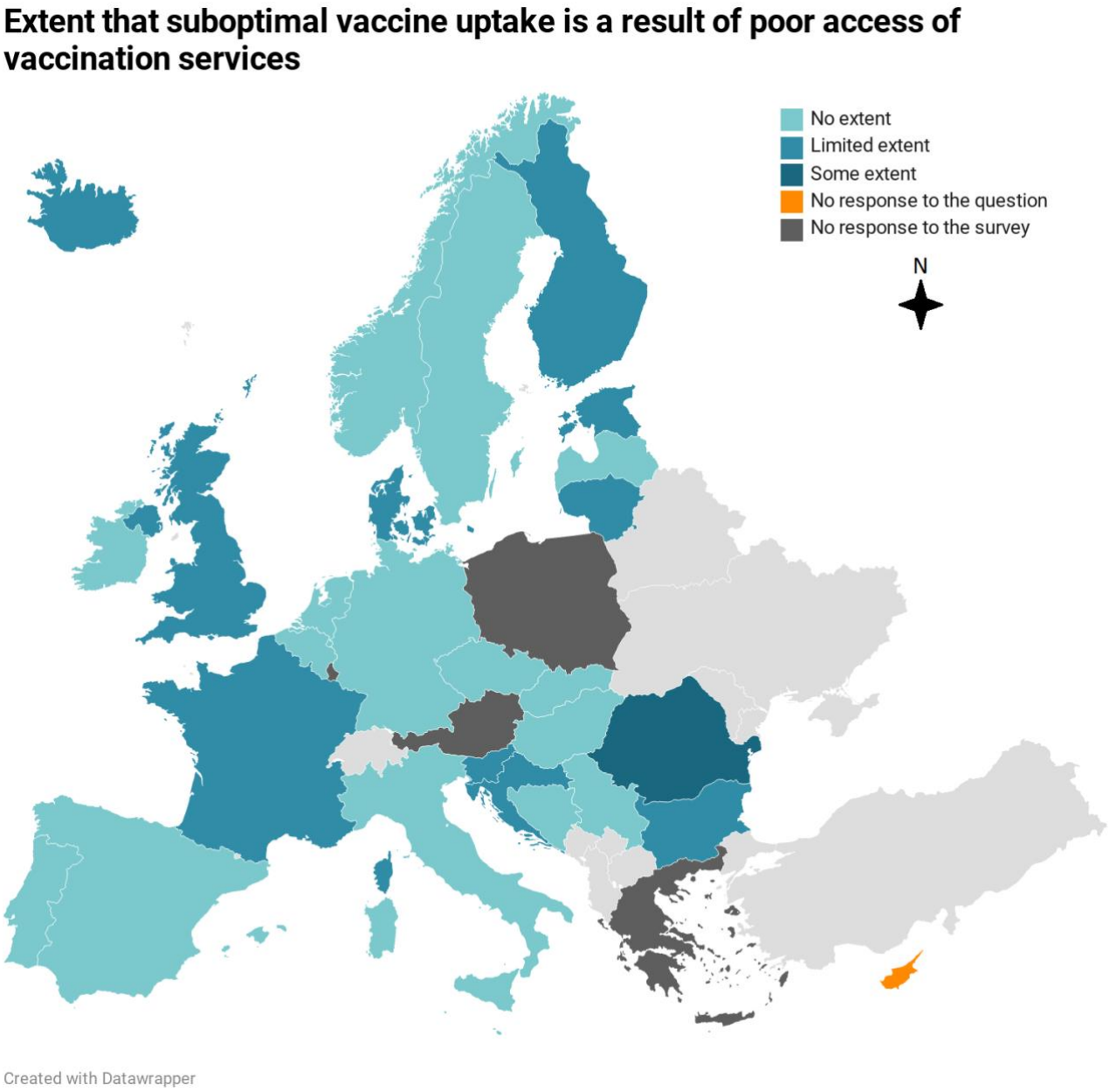
When asking for these specification questions, a primary content analysis was used. If enough responses were gathered for a specific survey item, the responses were first counted. Repeat responses or ones that overlapped sufficiently were counted for each instance the response appeared in that survey item. Overlapping responses were grouped into higher categories when necessary. This was most evident in vaccine examples. Due to the many formulations and types of vaccines, responses were categorized by their most inclusive product. For example, when at least one respondent mentioned the hexavalent vaccine (diphtheria, tetanus, pertussis, poliovirus, Haemophilus B, and Hepatitis B), any response that used the individual components or a combination of several, but not all of the components, of the vaccine was coded as the hexavalent vaccine. However, when the most inclusive response in a survey item was the trivalent vaccine, DTaP or TDaP, any other response that mentioned an individual component would be coded as the trivalent vaccine.

The category-level data was then visualized in bar charts, with percentages and the total observation count listed on the chart. If there were insufficient responses, or an insufficient variety of responses, across all the respondents, the data was not analyzed or visualized. There was no threshold on the number of responses or diversity of responses that made the data sufficient to analyze, rather the decision was made on a question-by-question basis.

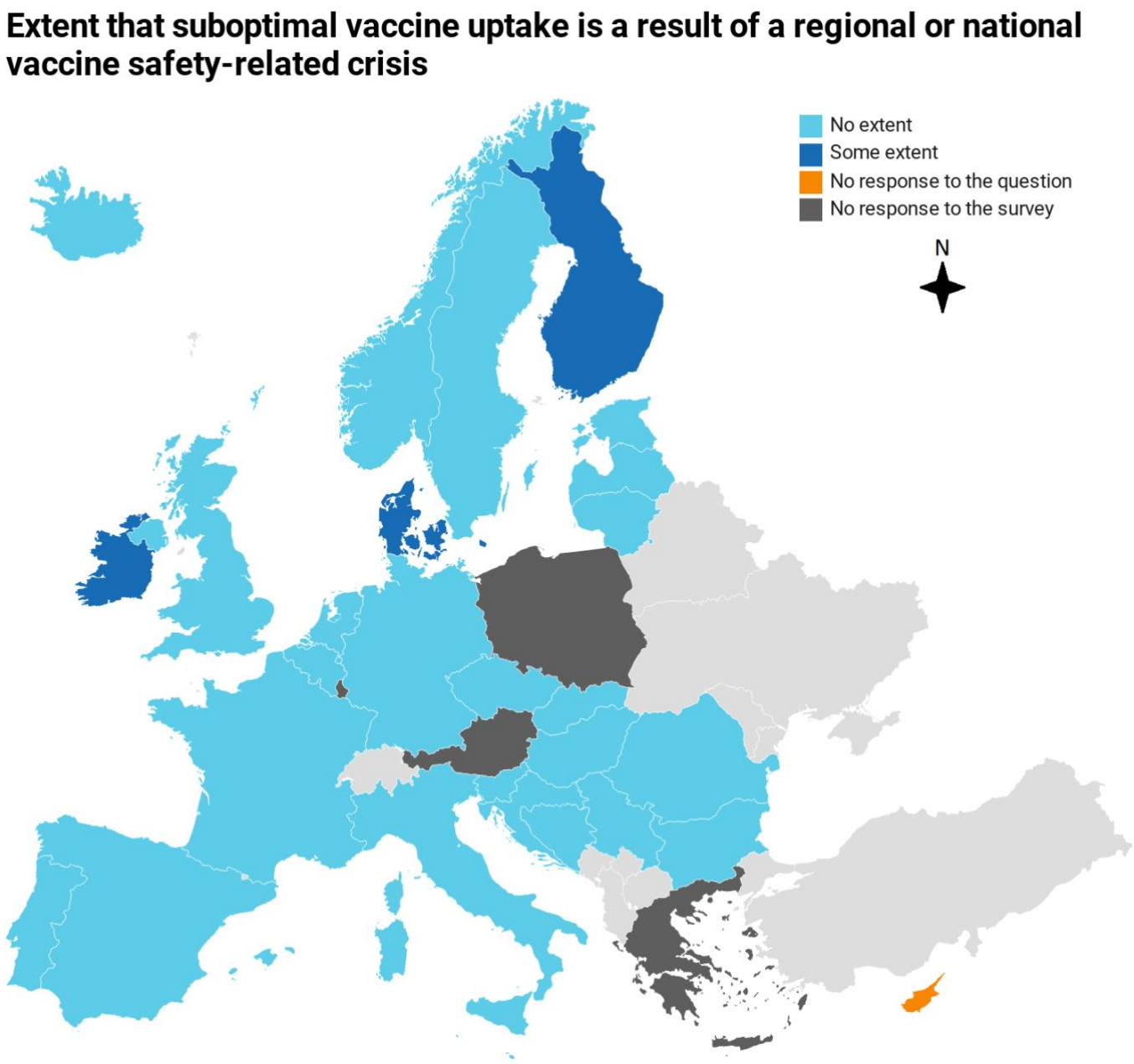
On other scale-type questions, the survey did not ask the respondent to specify vaccines or, but instead asked to clarify or specify, for example, the types of collaborating institutions or methods of communicating information. The same method was carried out as already described. Standalone free text questions were analyzed in a similar method.

Annex 3: Additional Figures

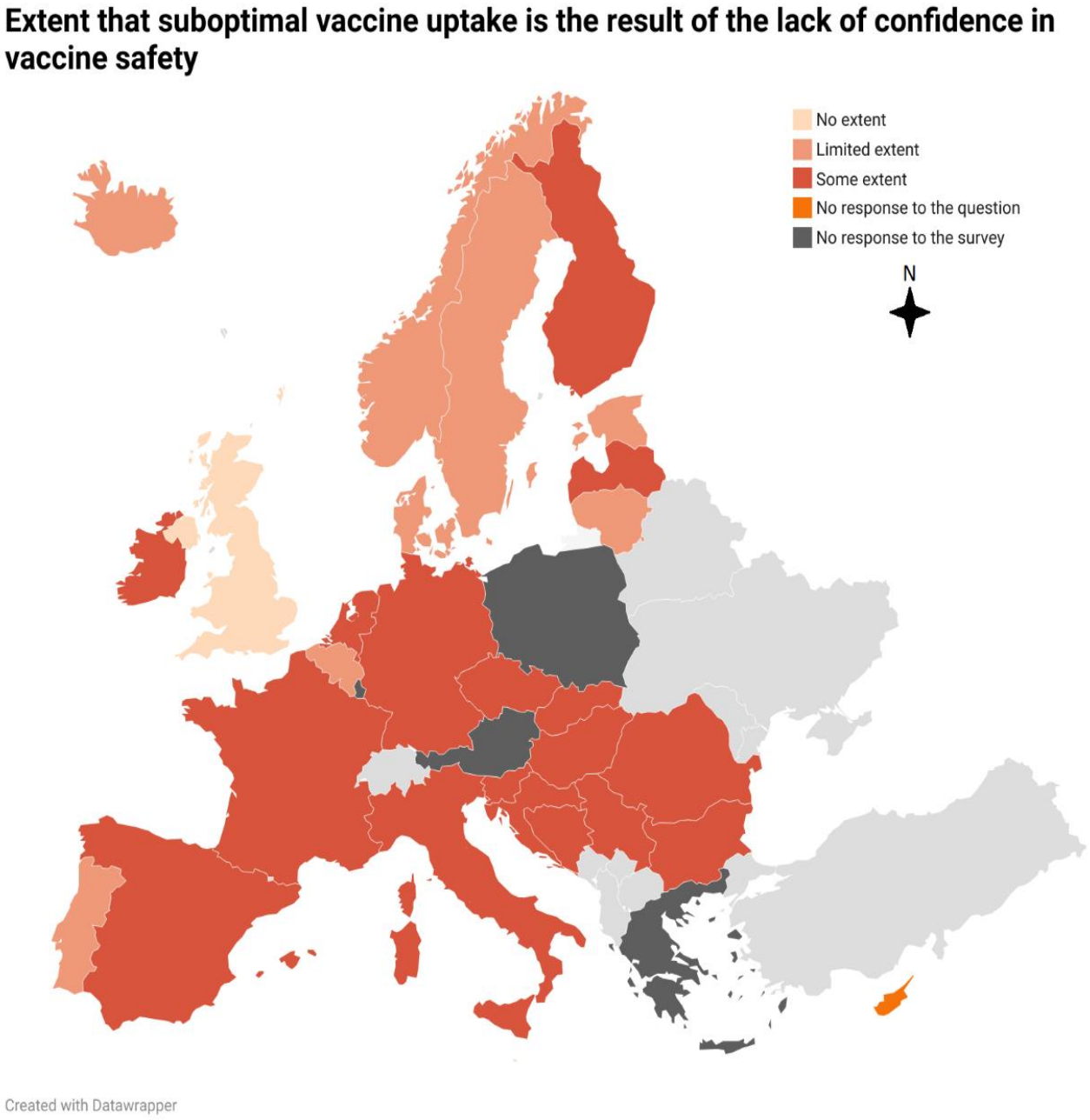
Additional Figure 1: Map of Suboptimal Vaccine Uptake due to Poor Access of Vaccination Services



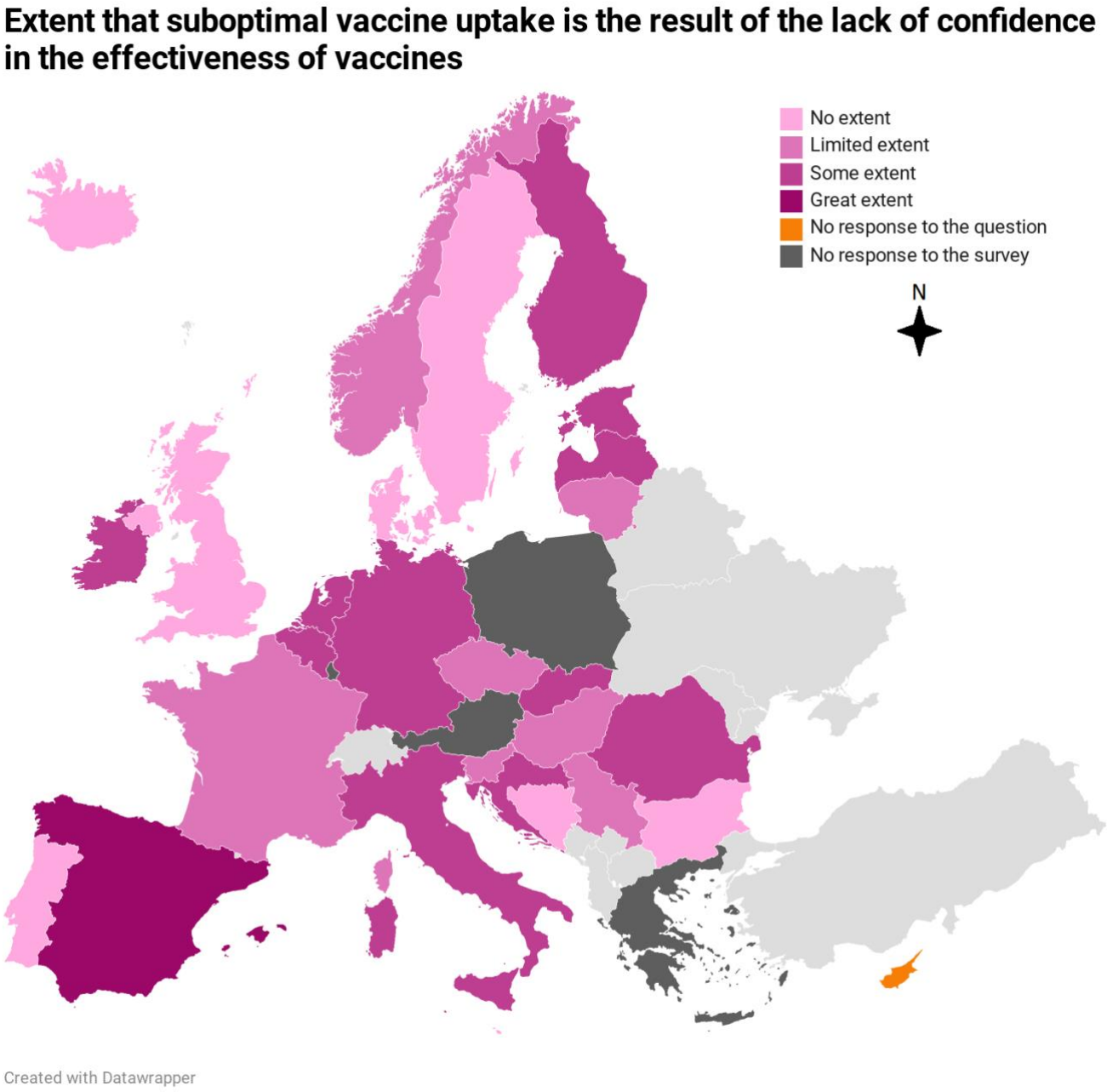
Additional Figure 2: Map of Suboptimal Vaccine Uptake due to a Regional or National Vaccine Safety-Related Crisis



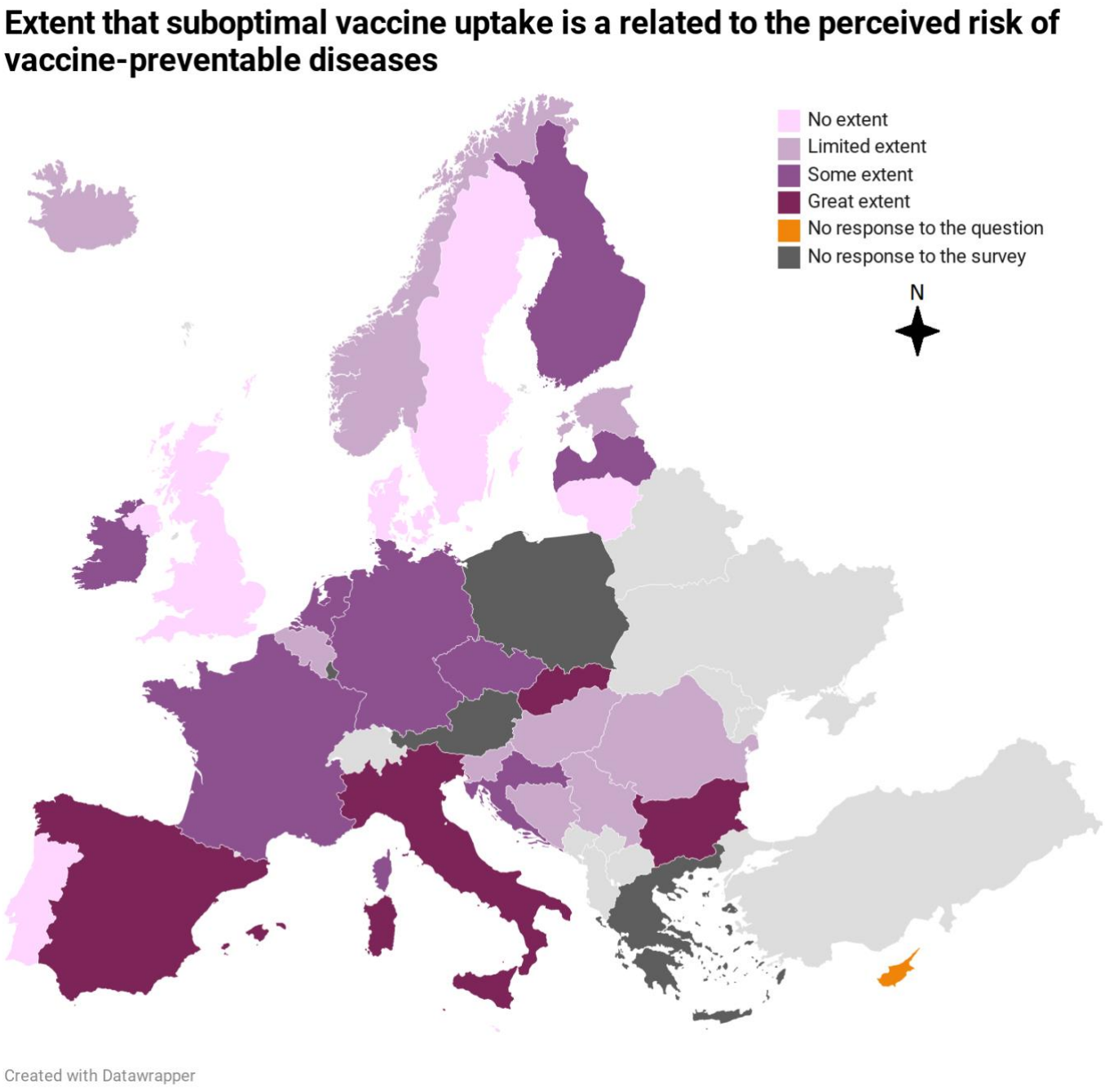
Additional Figure 3: Map of Suboptimal Vaccine Uptake due to a Lack of Confidence in Vaccine Safety



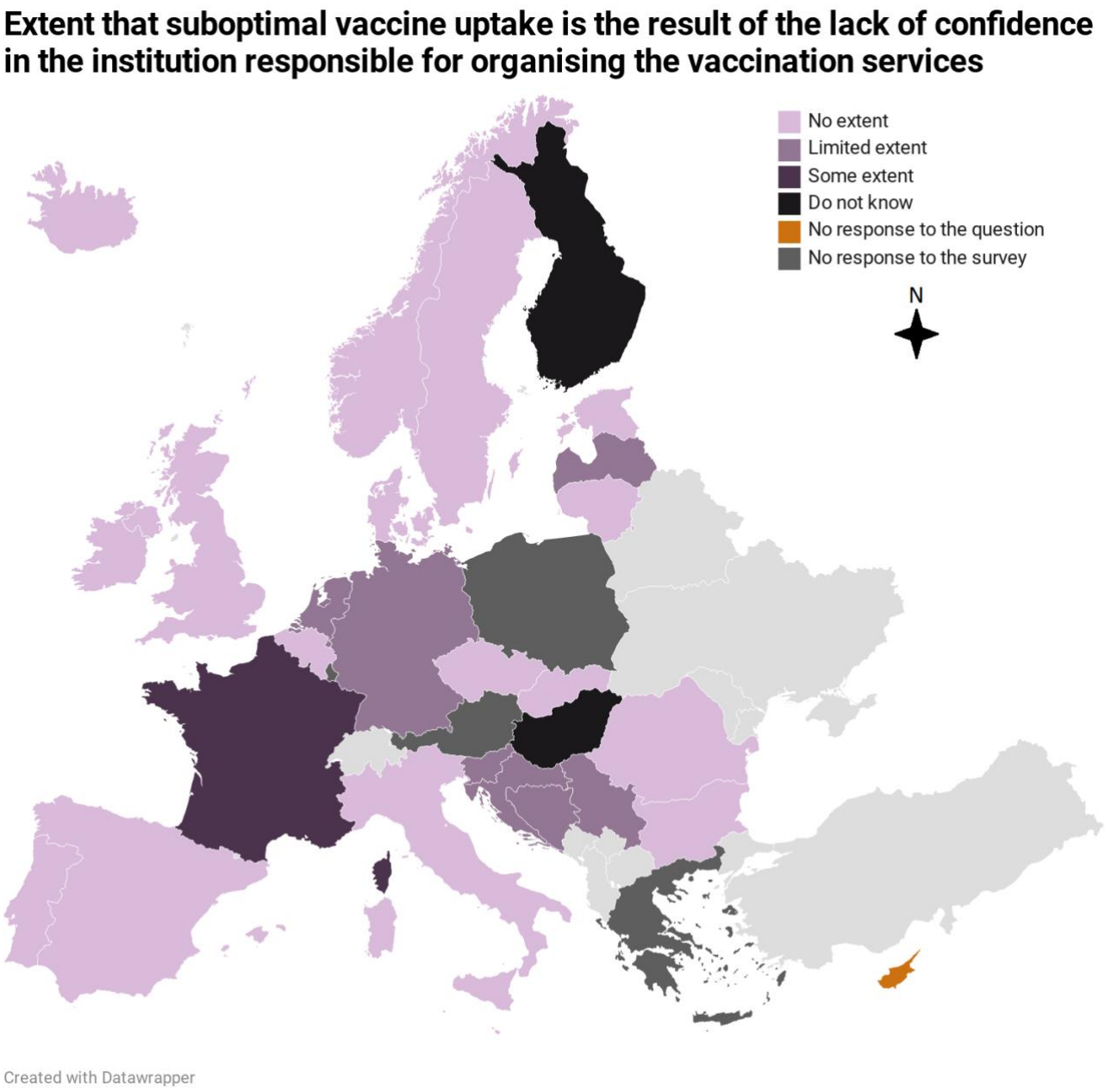
Additional Figure 4: Map of Suboptimal Vaccine Uptake due to a Lack of Confidence in Vaccine Effectiveness



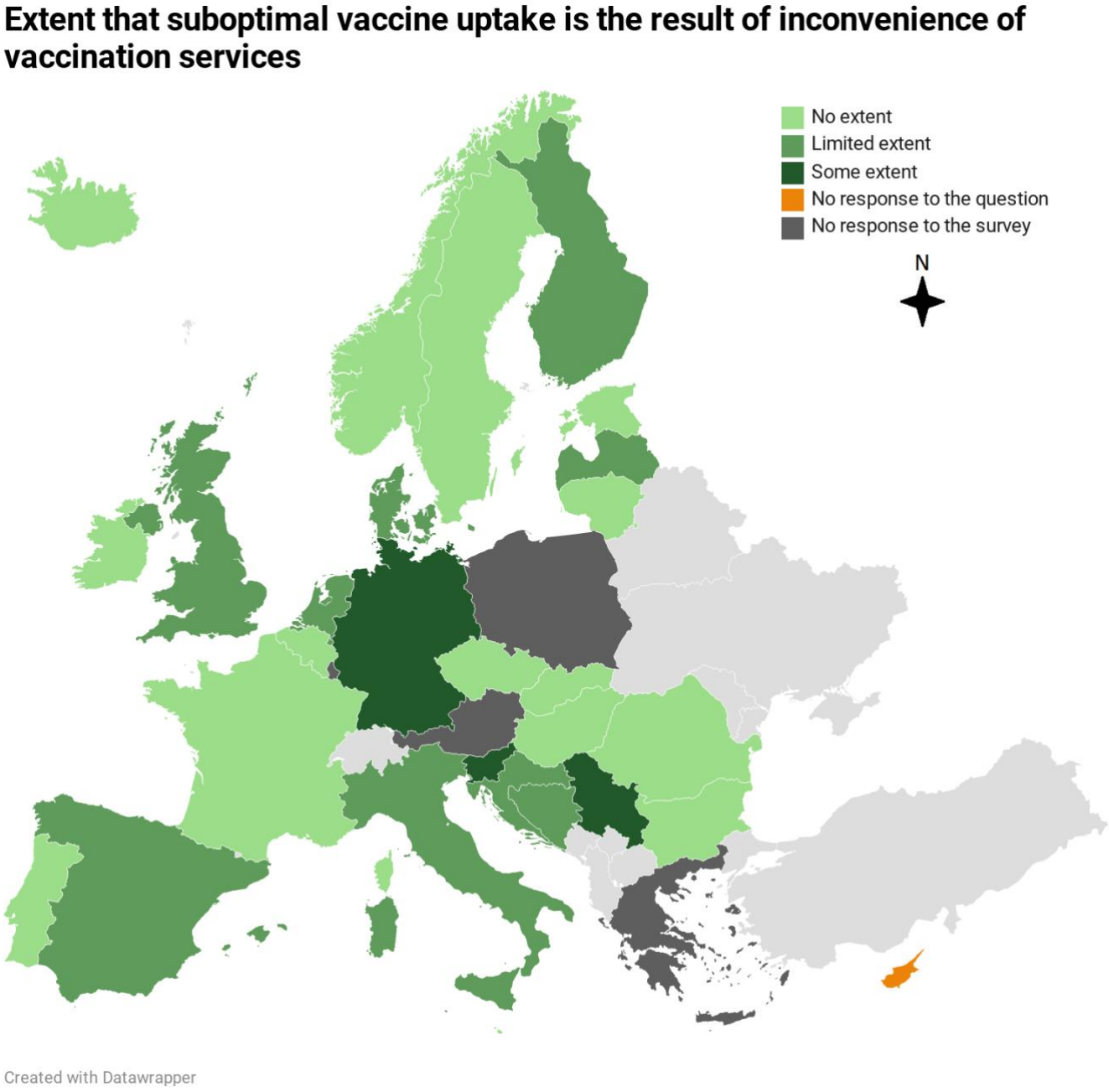
Additional Figure 5: Map of Suboptimal Vaccine Uptake due to the Perceived Risk of VPDs



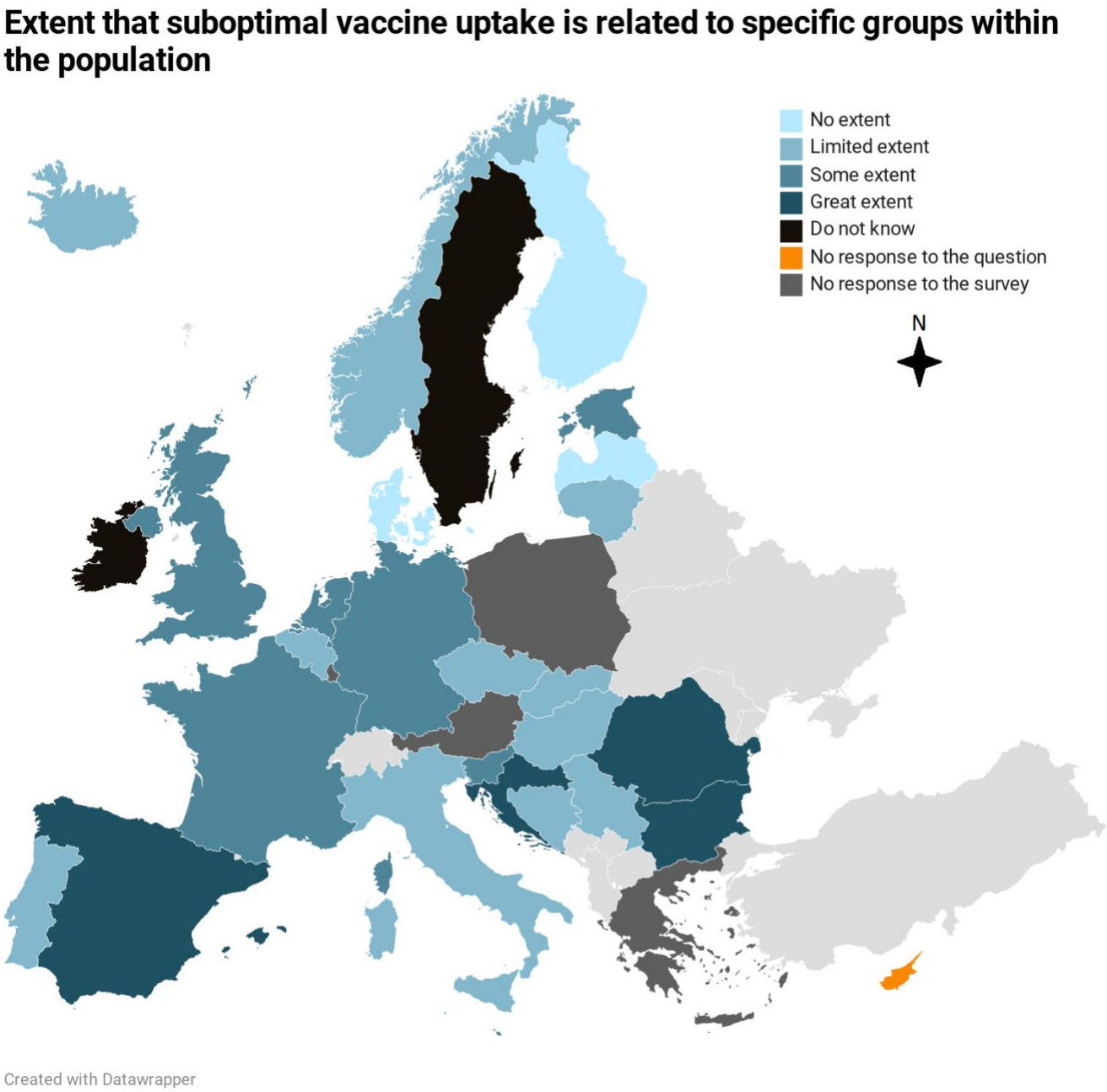
Additional Figure 6: Map of Suboptimal Vaccine Uptake due to Lack of Institutional Confidence



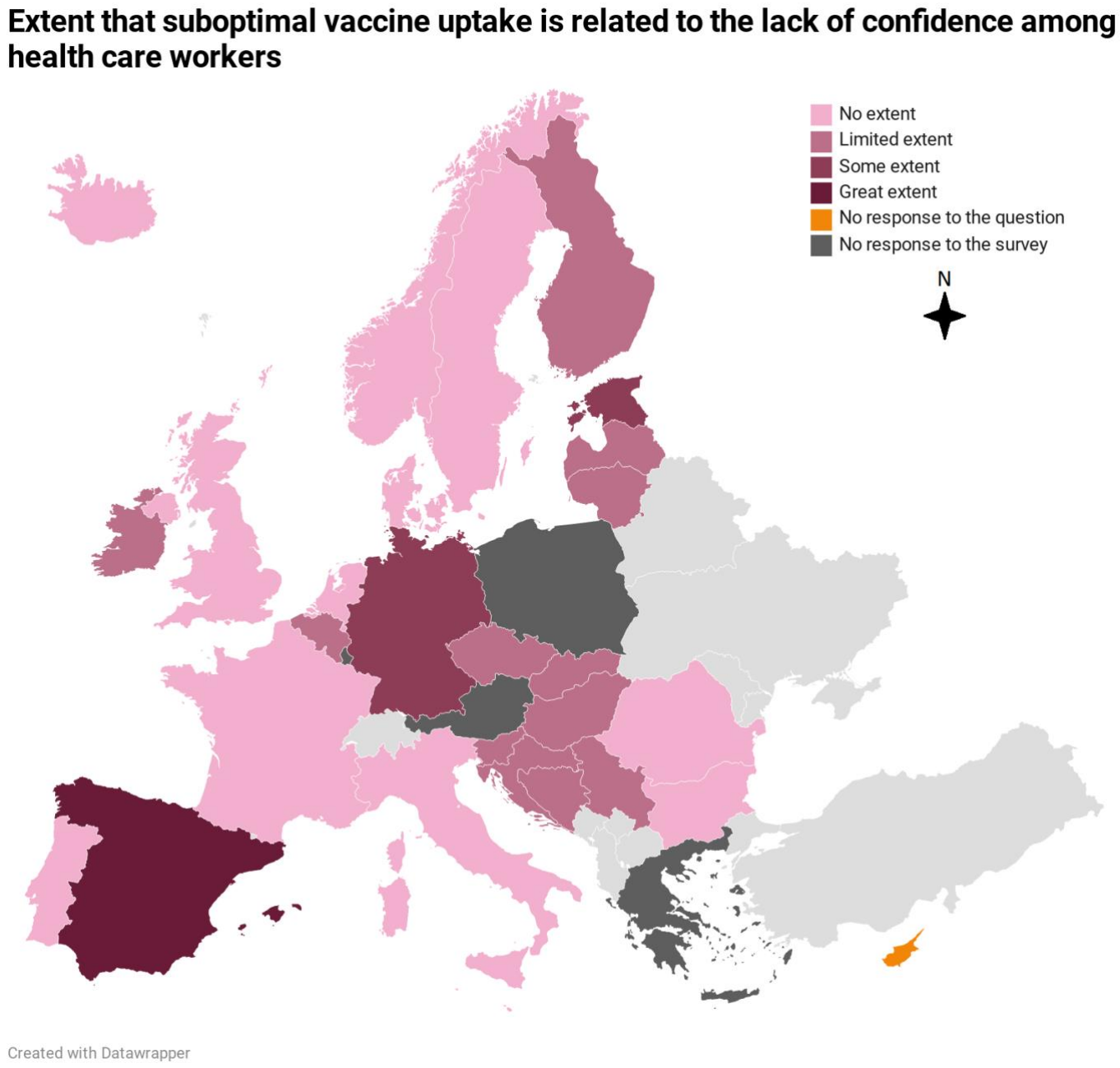
Additional Figure 7: Map of Suboptimal Vaccine Uptake due to the Inconvenience of Vaccination Services



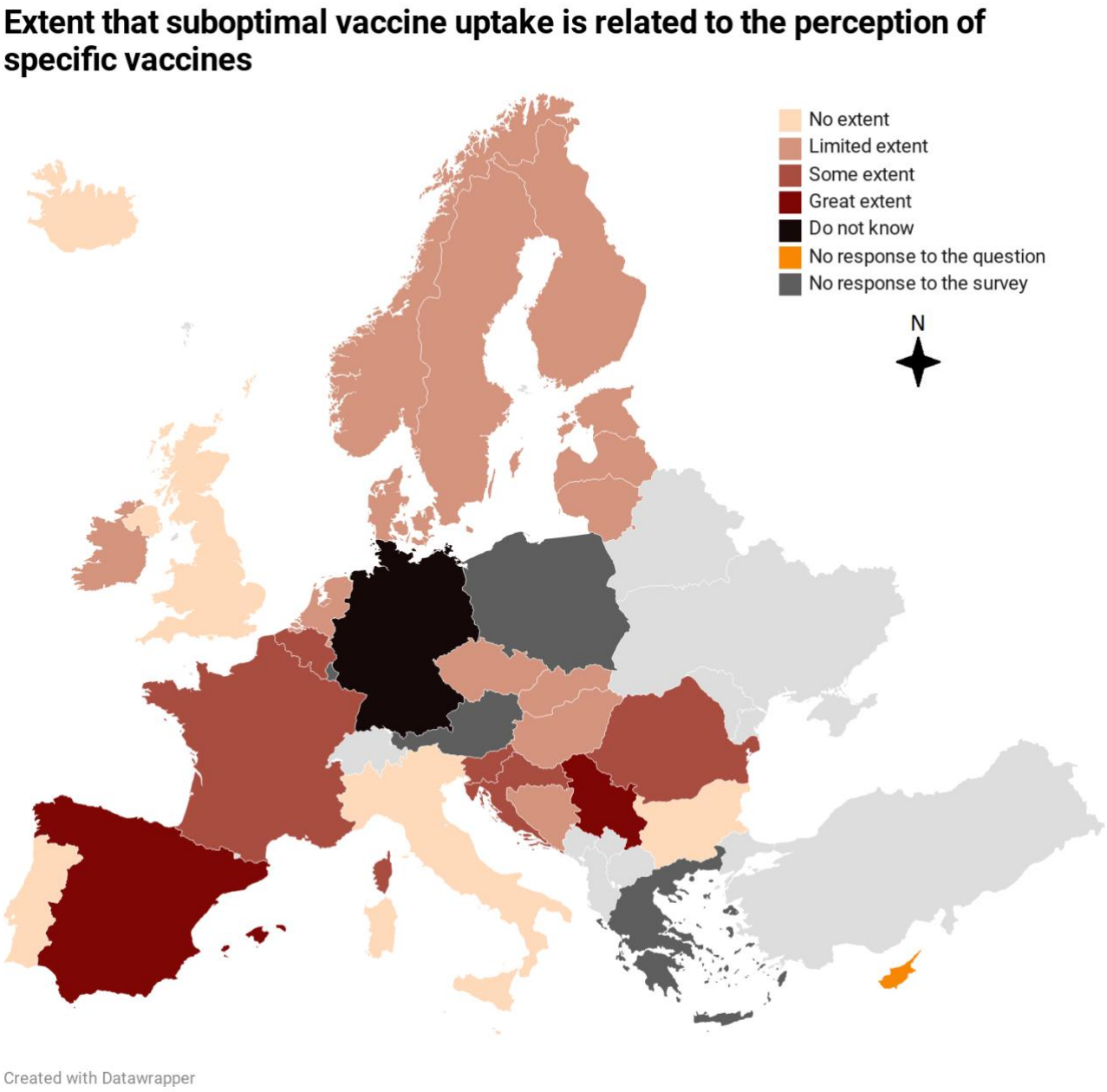
Additional Figure 8: Map of Suboptimal Vaccine Uptake due to Specific Groups within the Population



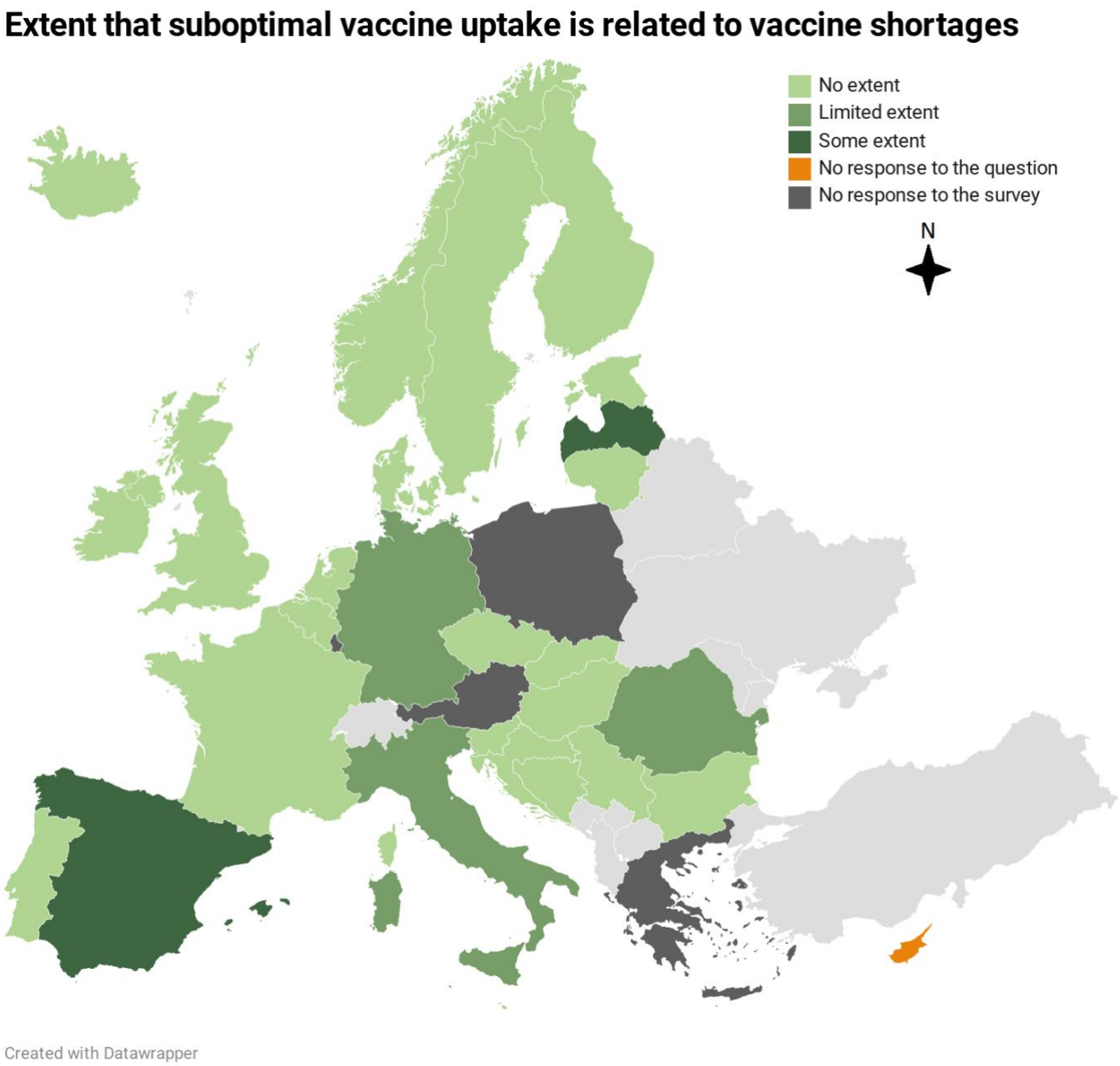
Additional Figure 9: Map of Suboptimal Vaccine Uptake due to the Lack of Confidence among HCWs



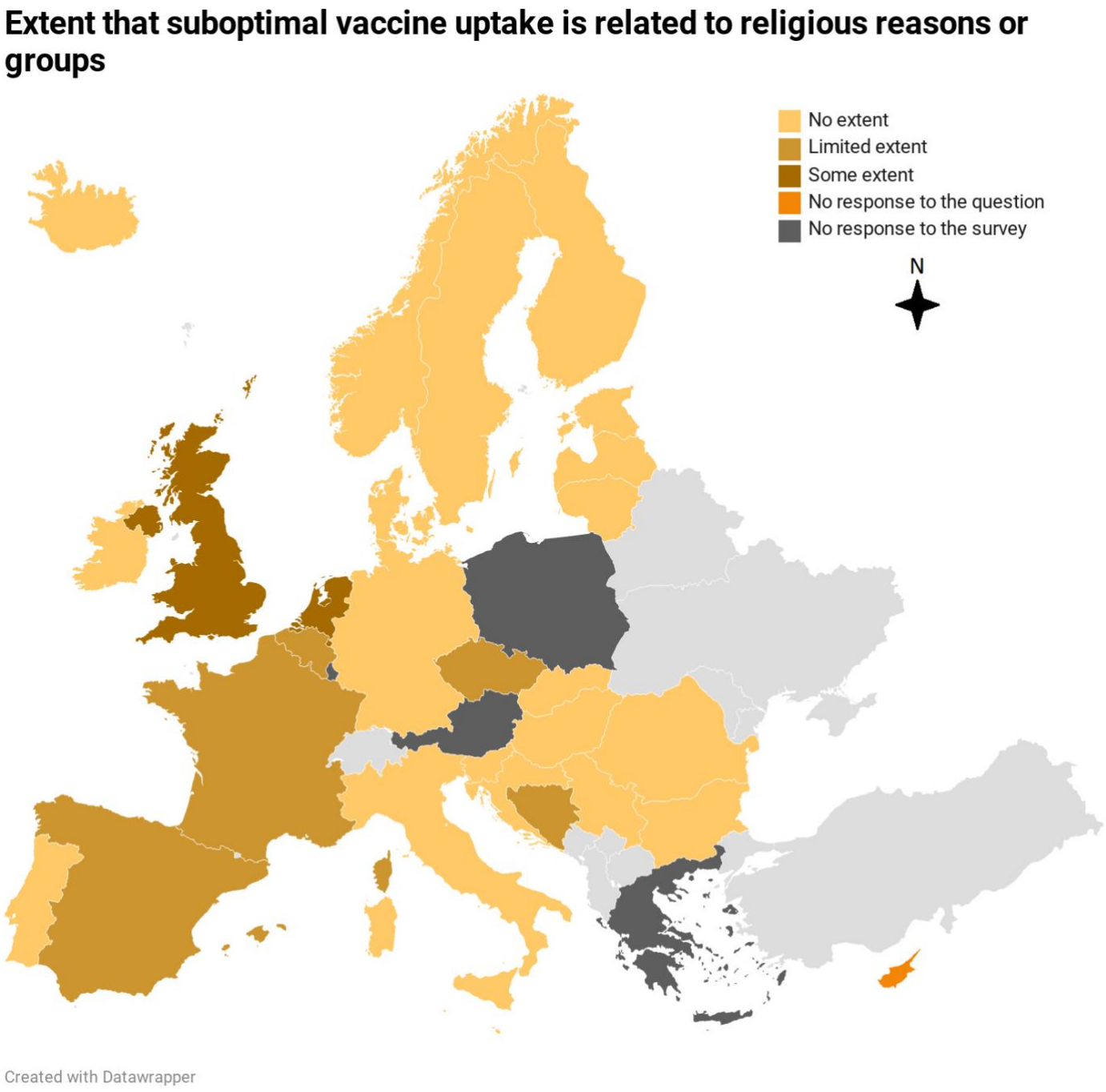
Additional Figure 10: Map of Suboptimal Vaccine Uptake due to the Perception of Specific Vaccines



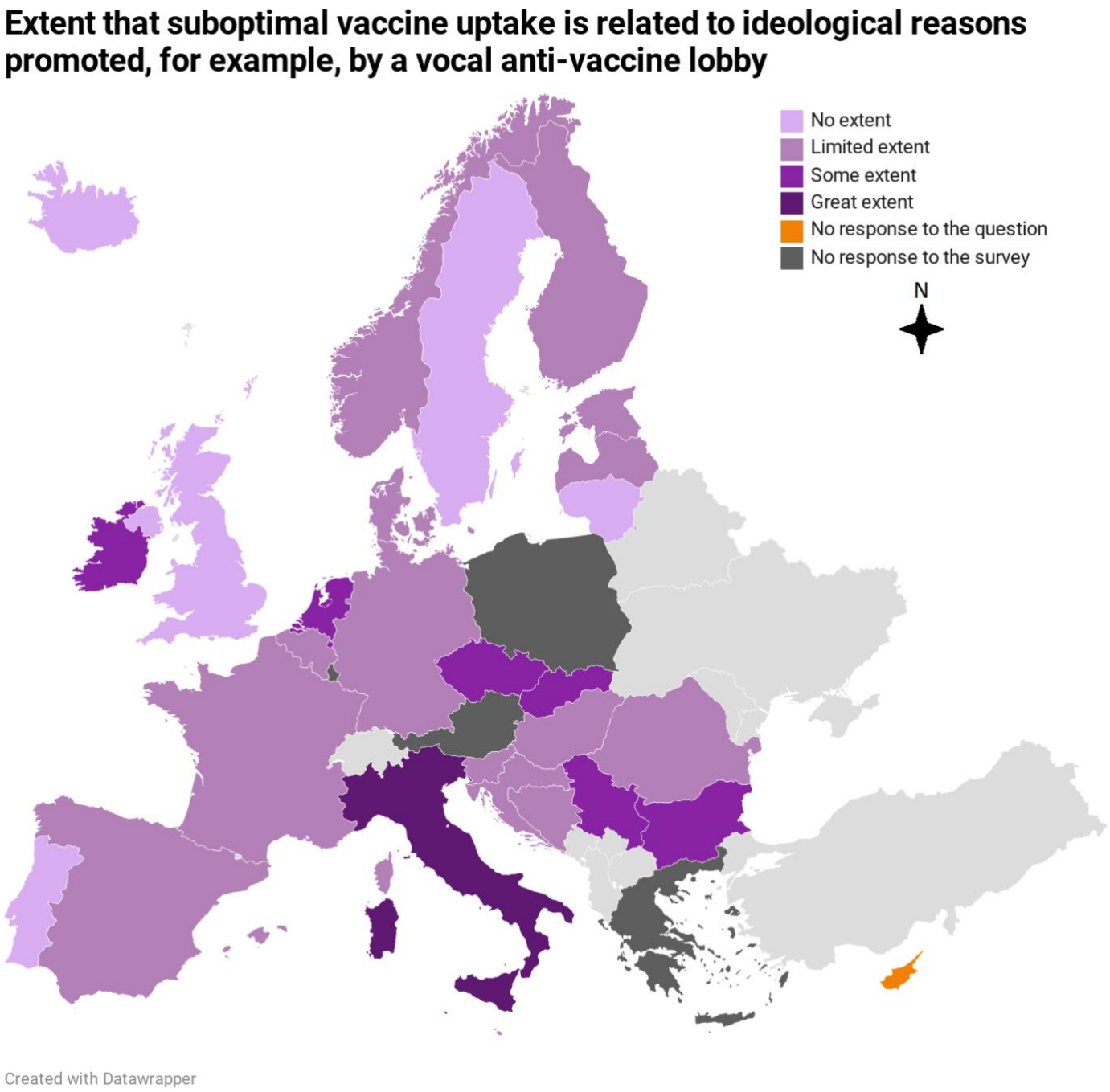
Additional Figure 11: Map of Suboptimal Vaccine Uptake due to Vaccine Shortages



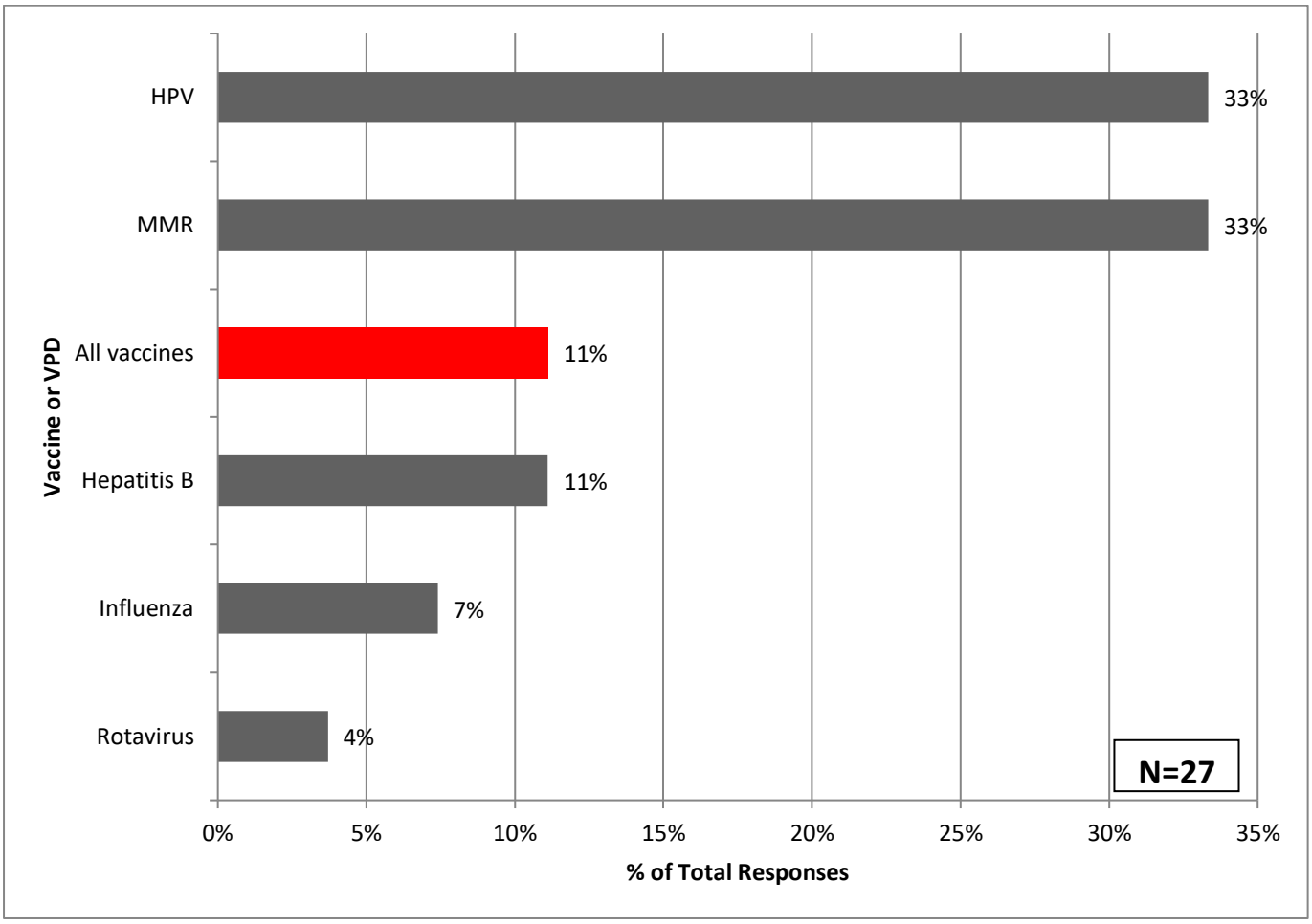
Additional Figure 12: Map of Suboptimal Vaccine Uptake due to Religious Reasons or Groups



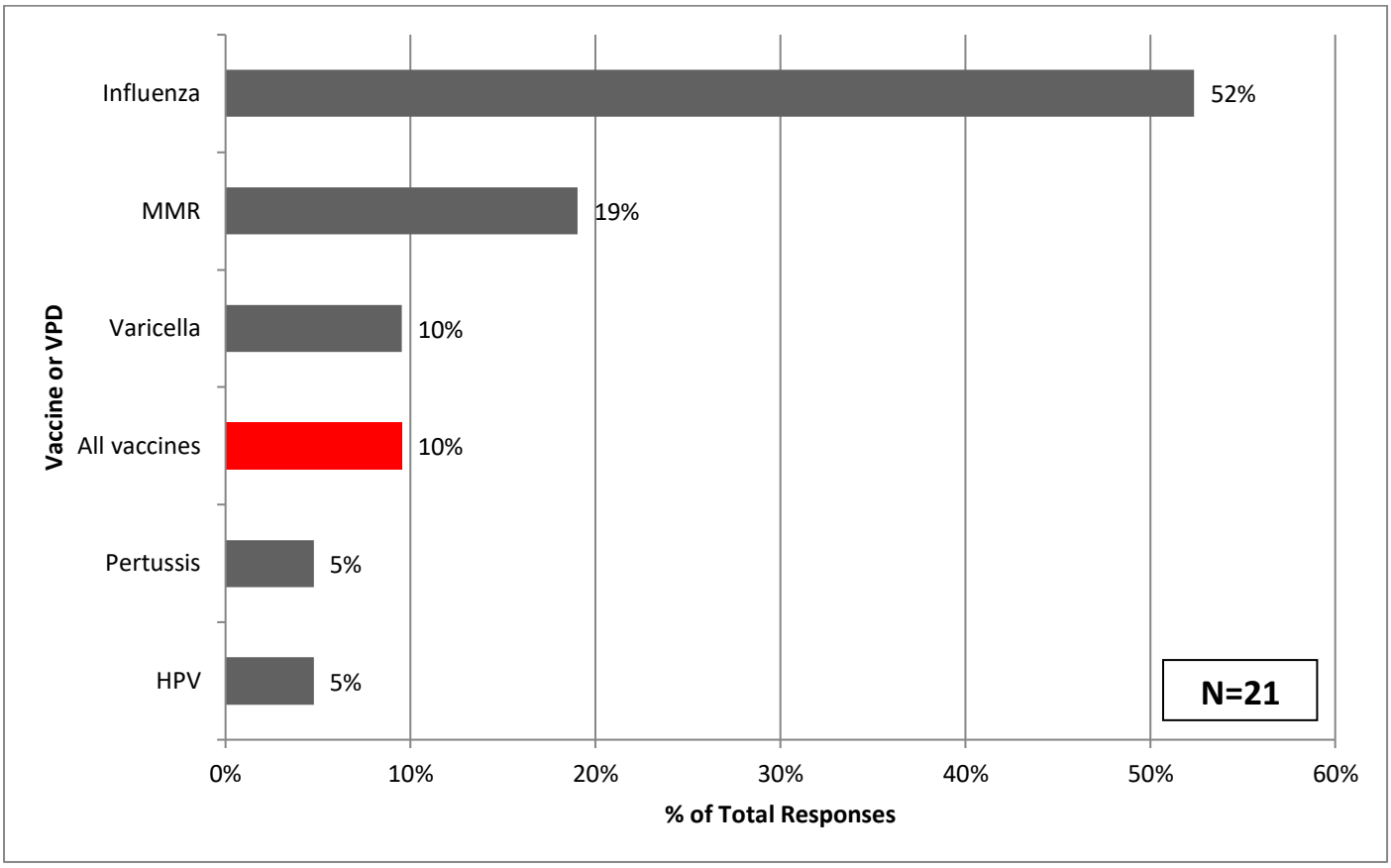
Additional Figure 13: Map of Suboptimal Vaccine Uptake due to Ideological Reasons Promoted, for example, by a Vocal Anti-Vaccine Lobby



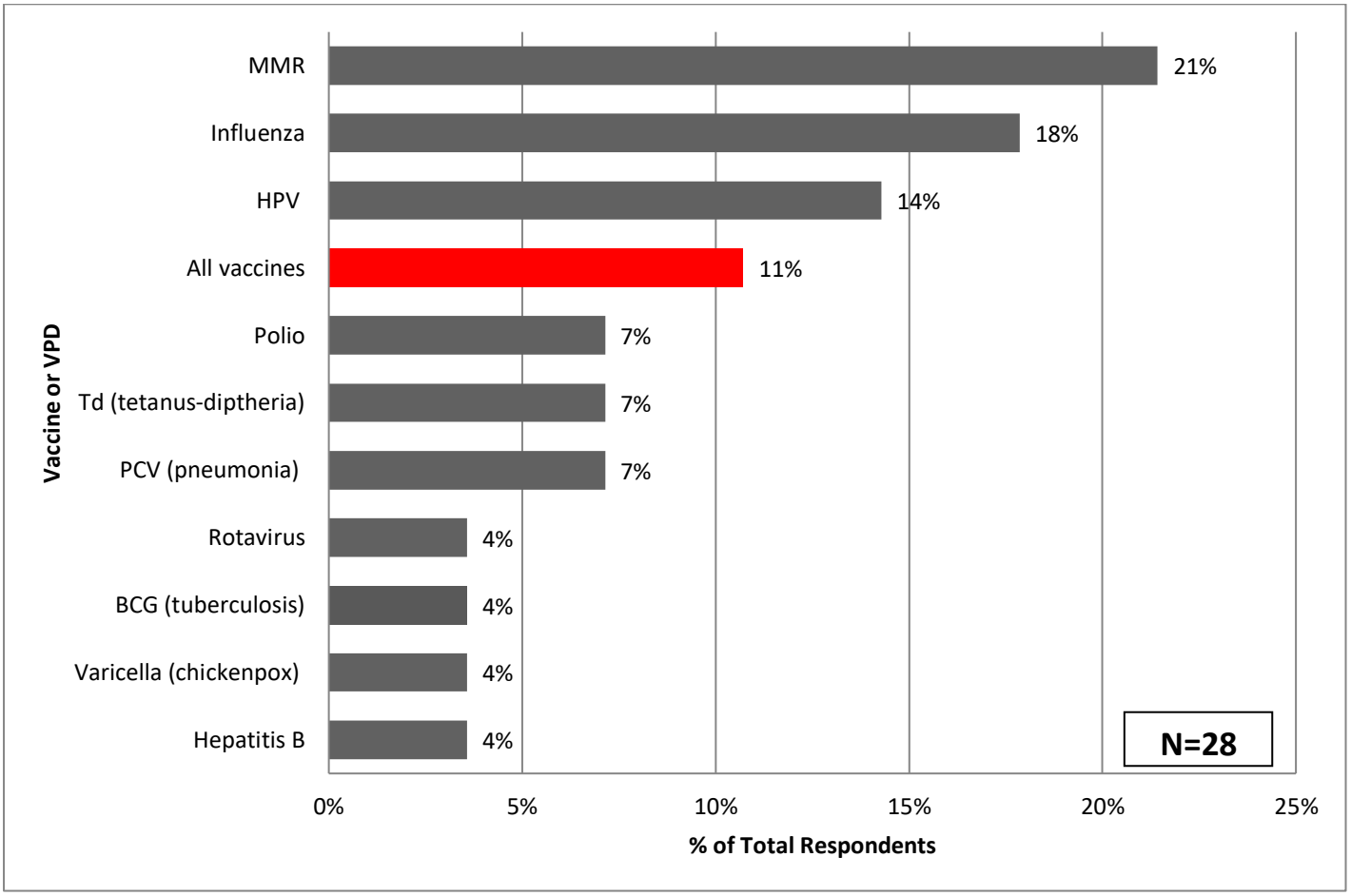
Additional Figure 14: Suboptimal Vaccine Uptake as the Result of the Lack of Confidence in Vaccine Safety



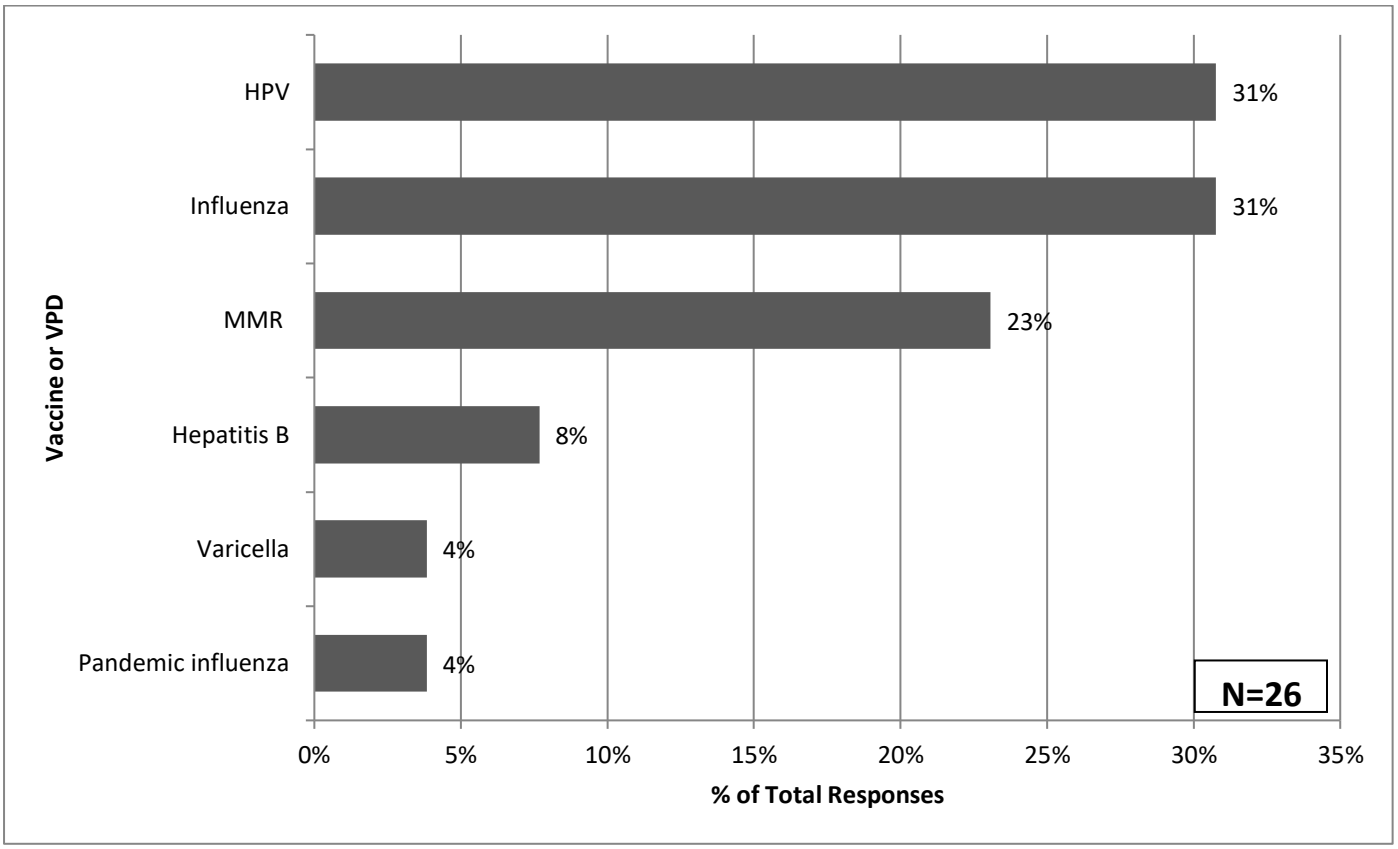
Additional Figure 15: Suboptimal Vaccine Uptake Related to the Lack of Confidence in the Effectiveness of Vaccines



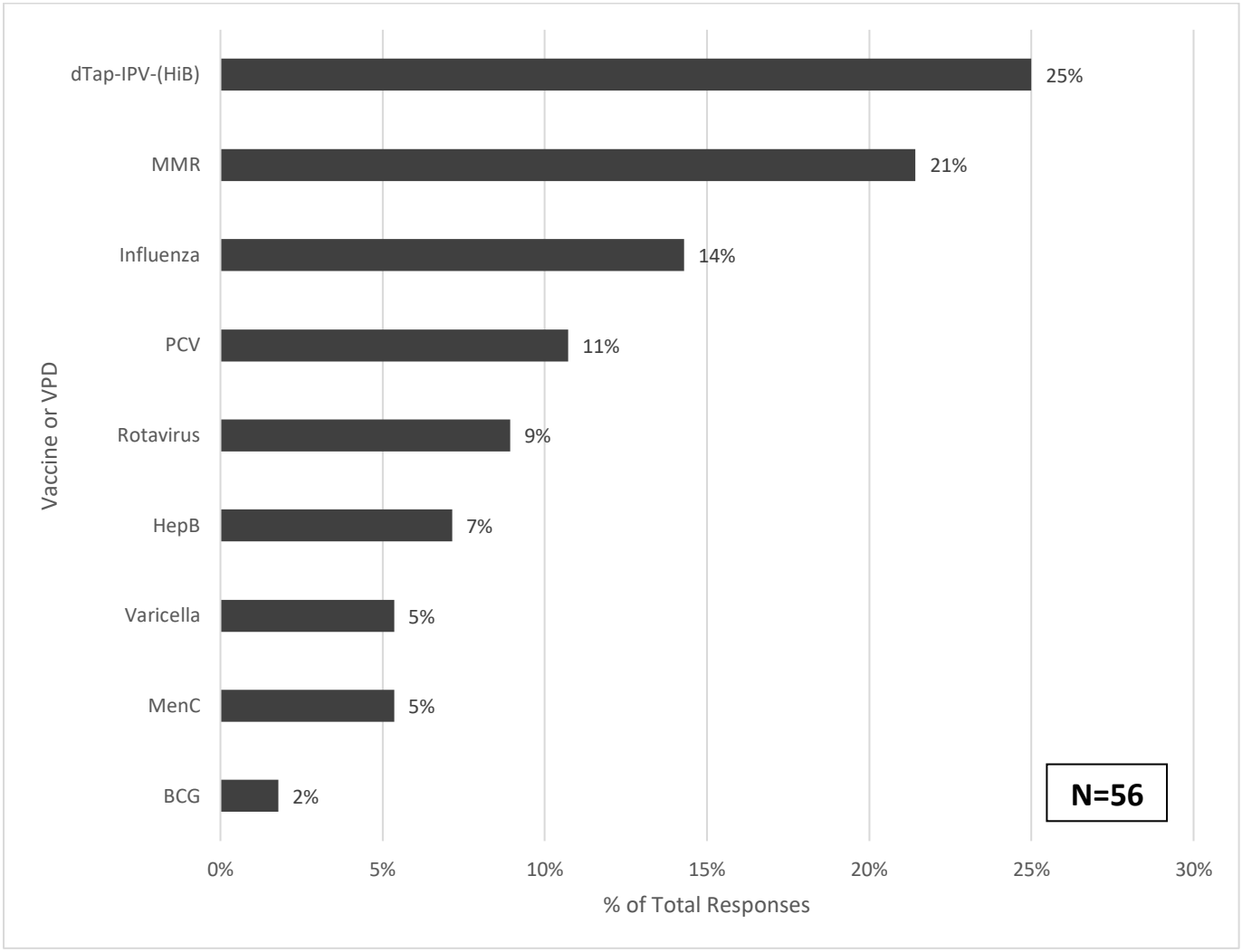
Additional Figure 16: Suboptimal Vaccine Uptake Related to the Perceived Risk of VPDs



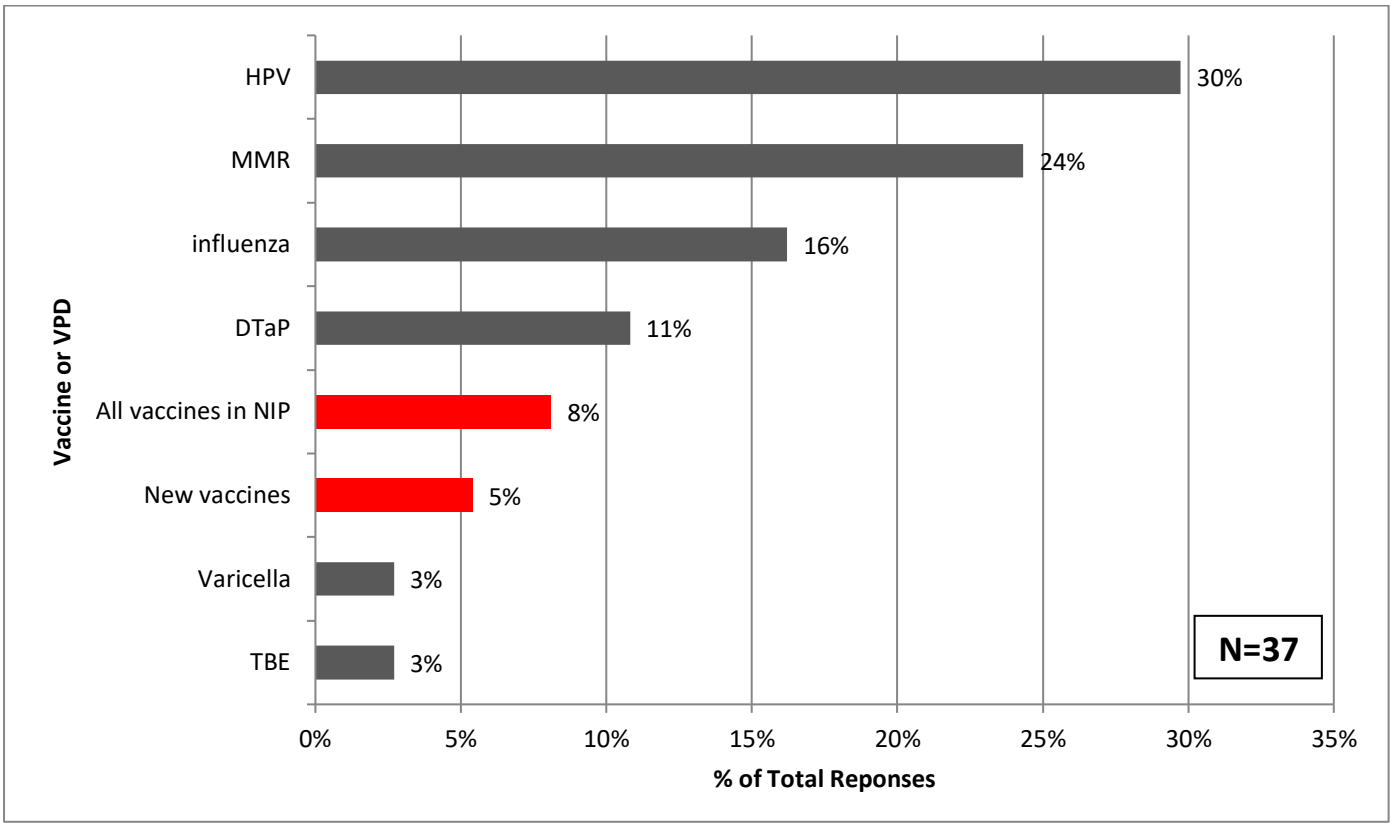
Additional Figure 17: Suboptimal Vaccine Uptake Related to the Public Perception of Specific Vaccines



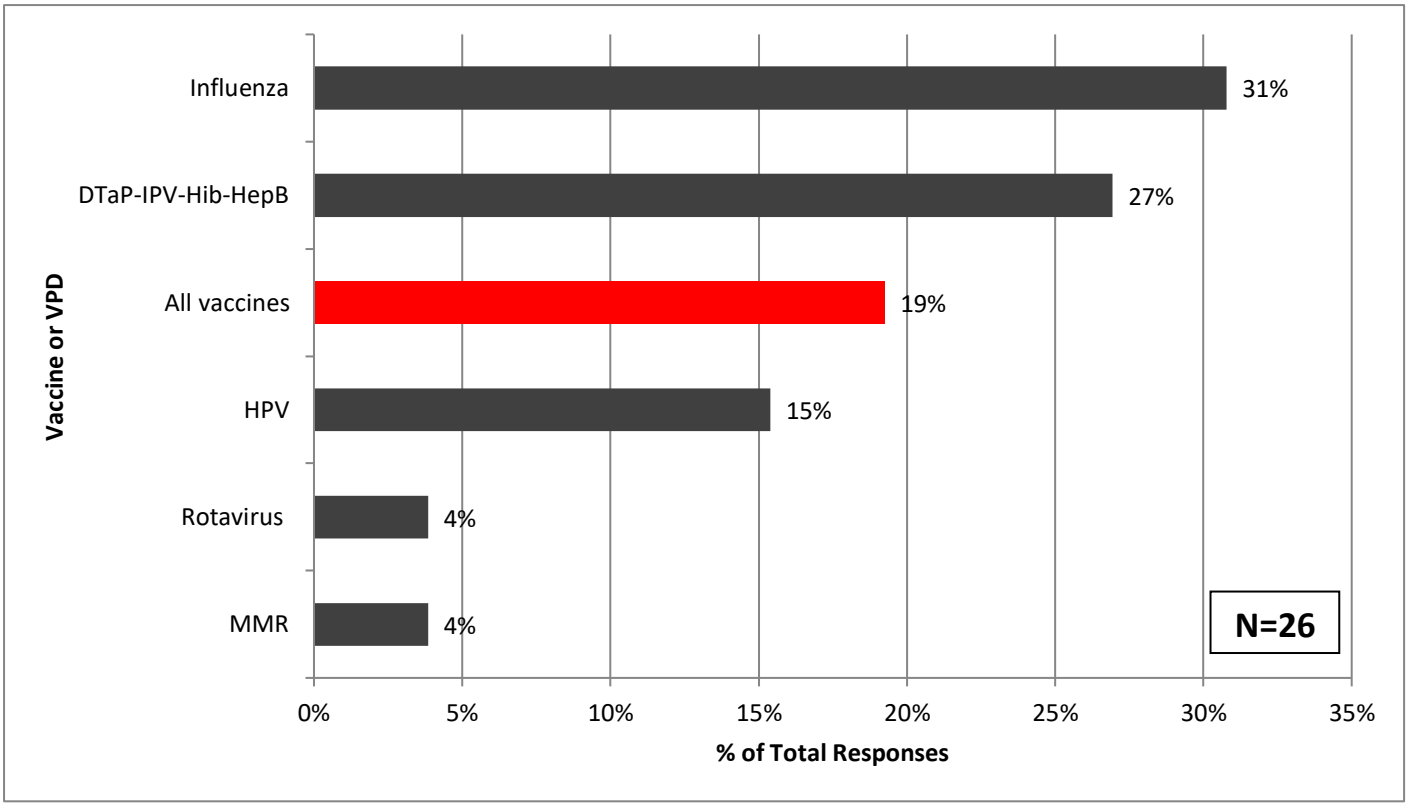
Additional Figure 18: Vaccines with Lowest or Decreasing Coverage



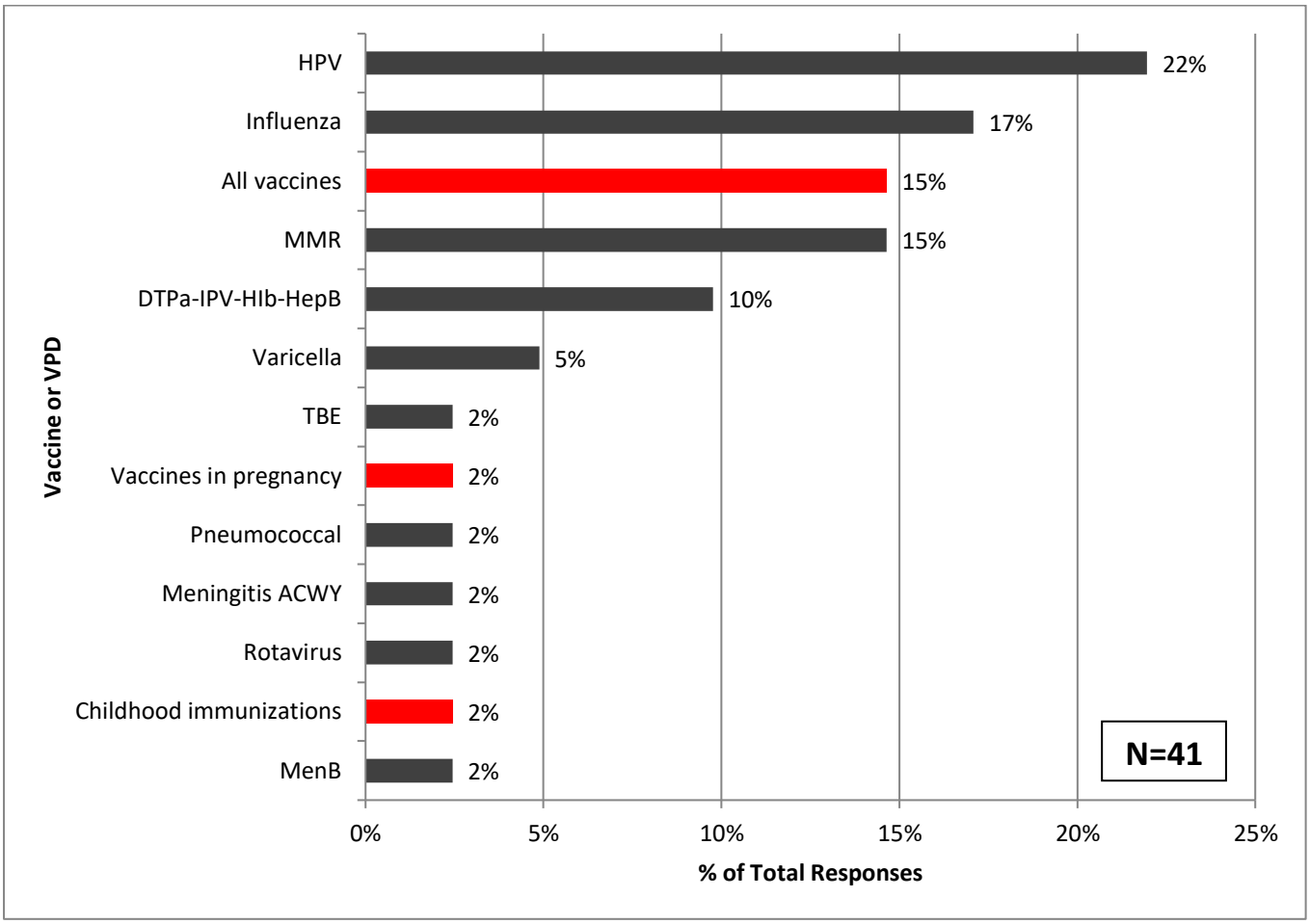
Additional Figure 19: Target of Work that is Vaccine or Antigen-Specific



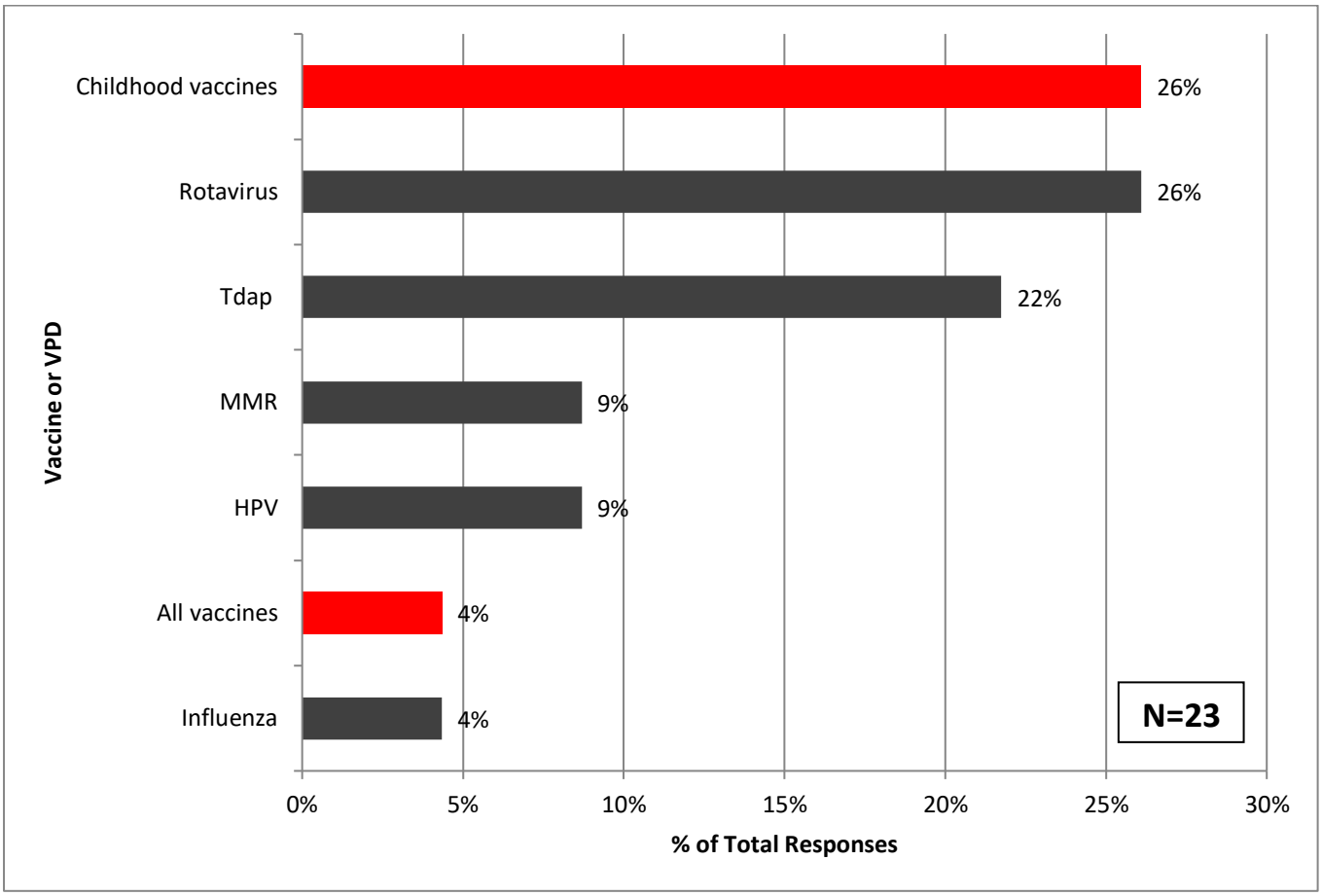
Additional Figure 20: Target of Work that is Related to HCWs



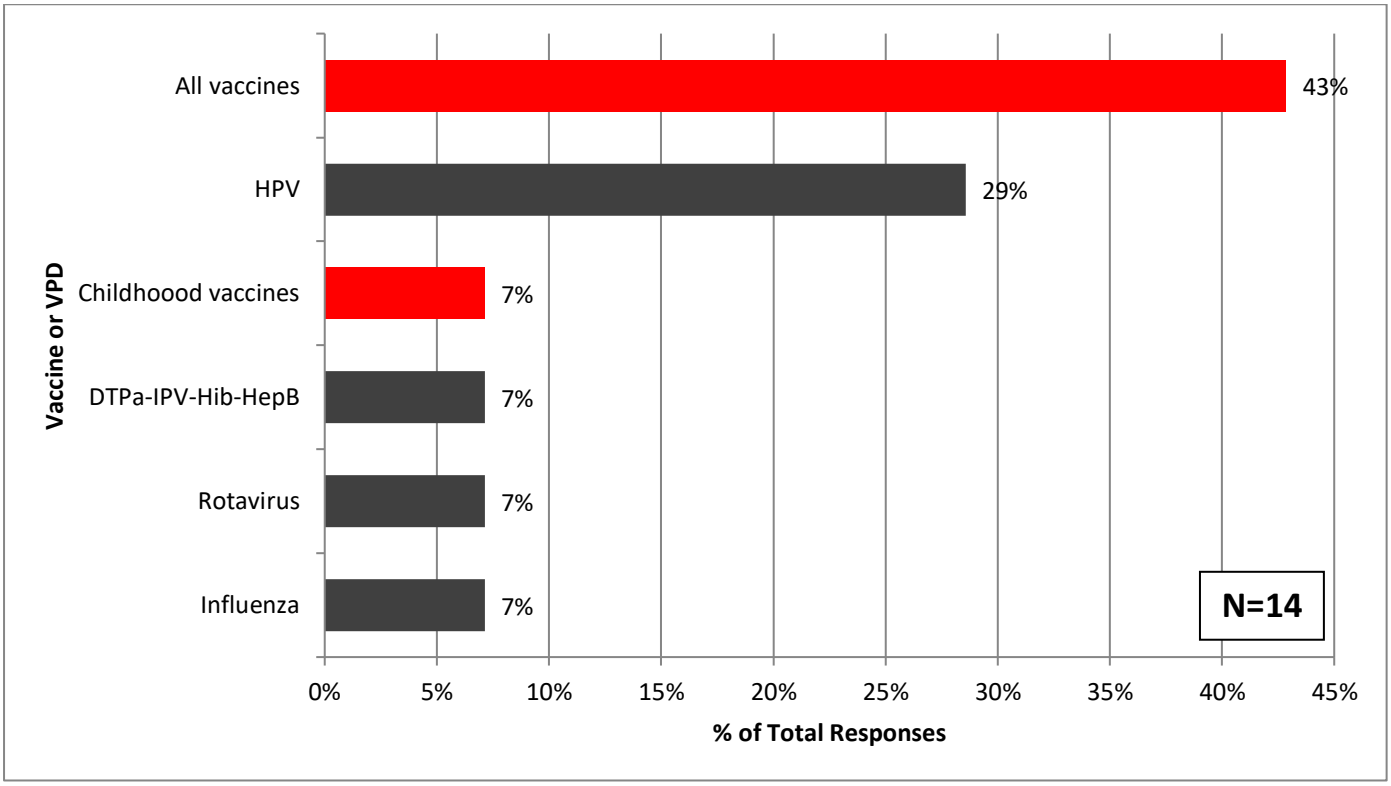
Additional Figure 21: Target of Work that is Carried Out through Communication Activities



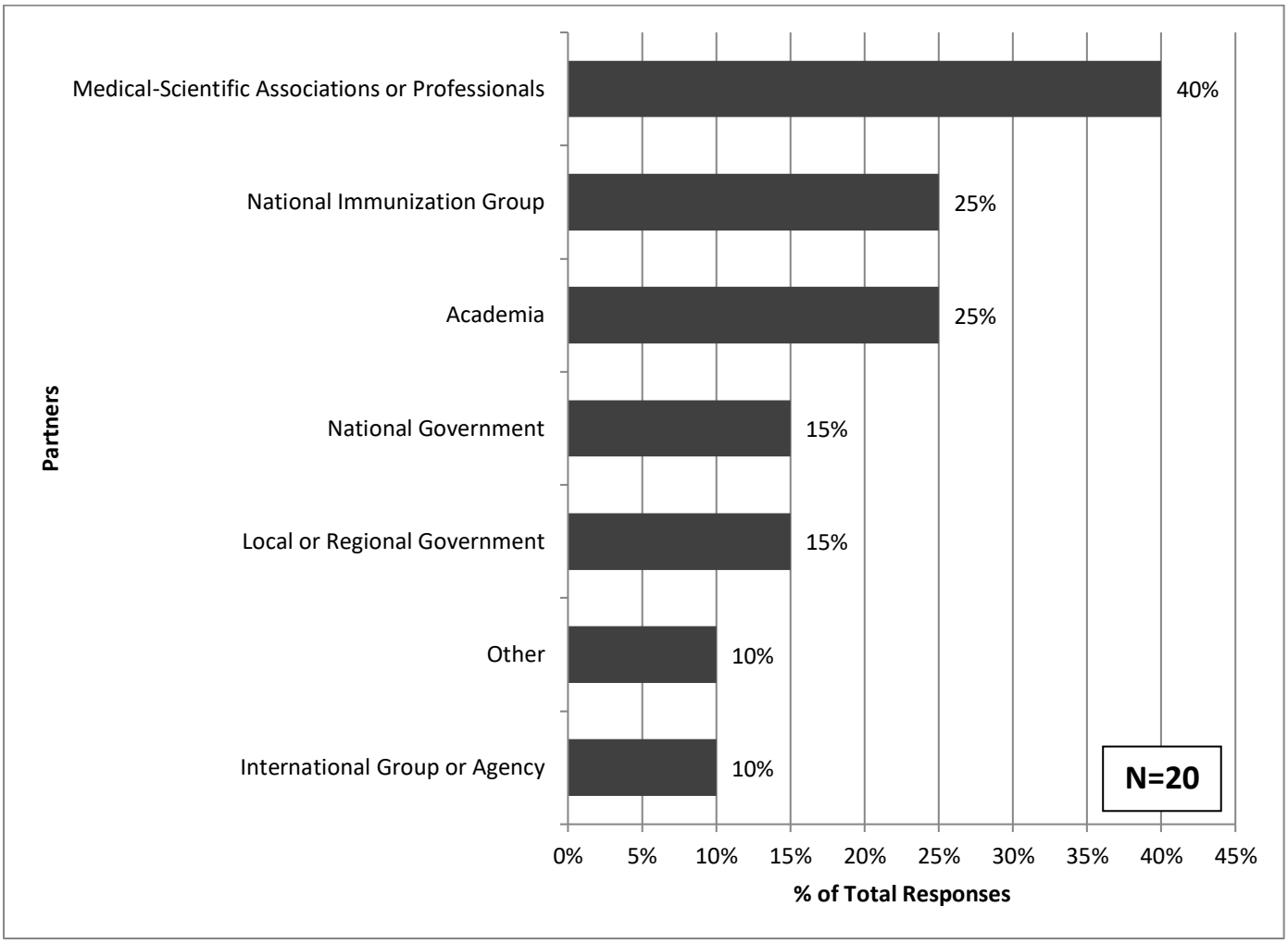
Additional Figure 22: Target of Work that is Conducted in Cooperation of Government Bodies



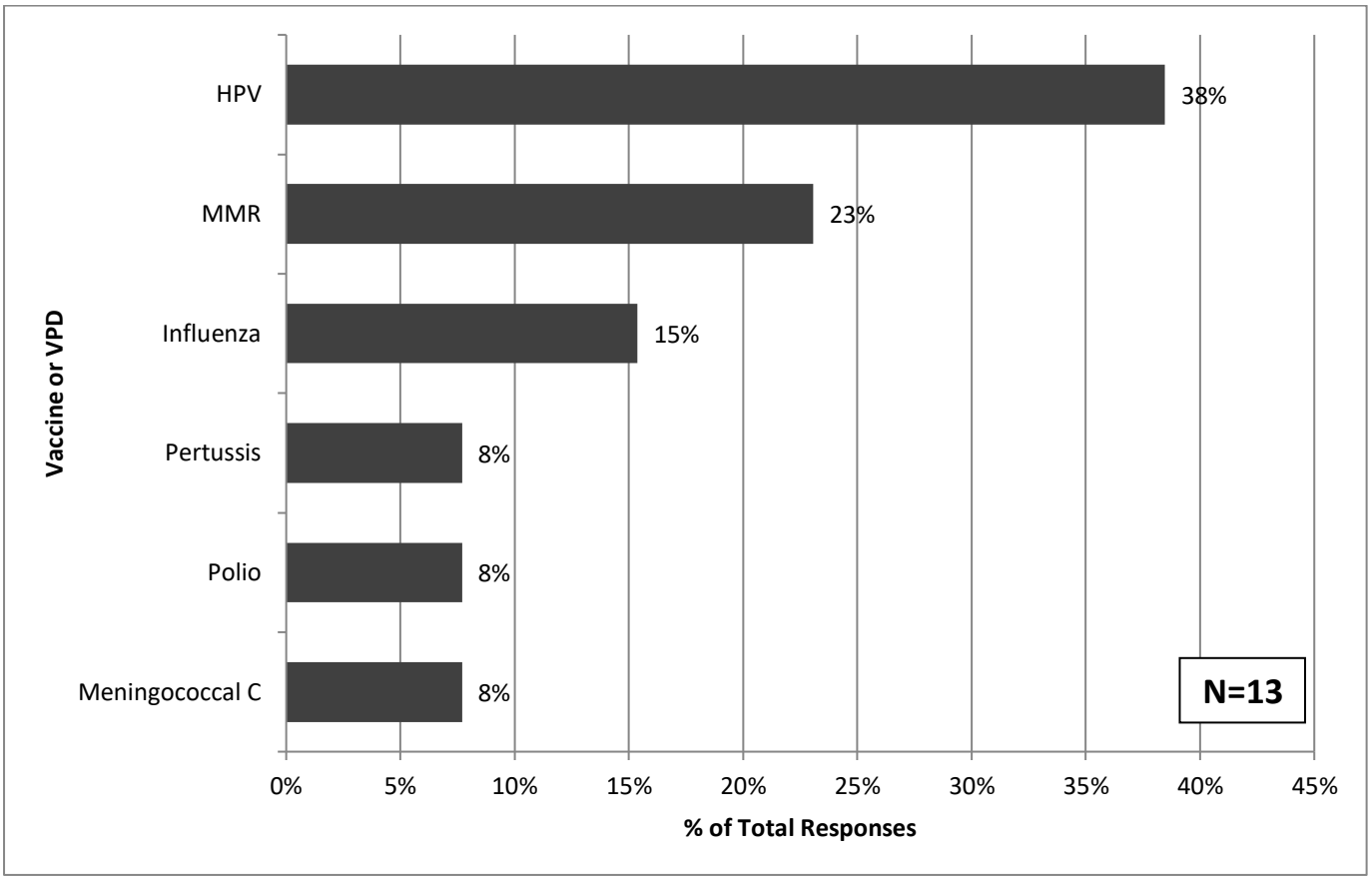
Additional Figure 23: Target of Work that is Conducted in Cooperation with Other Partners and Stakeholders (Vaccines/VPDs)



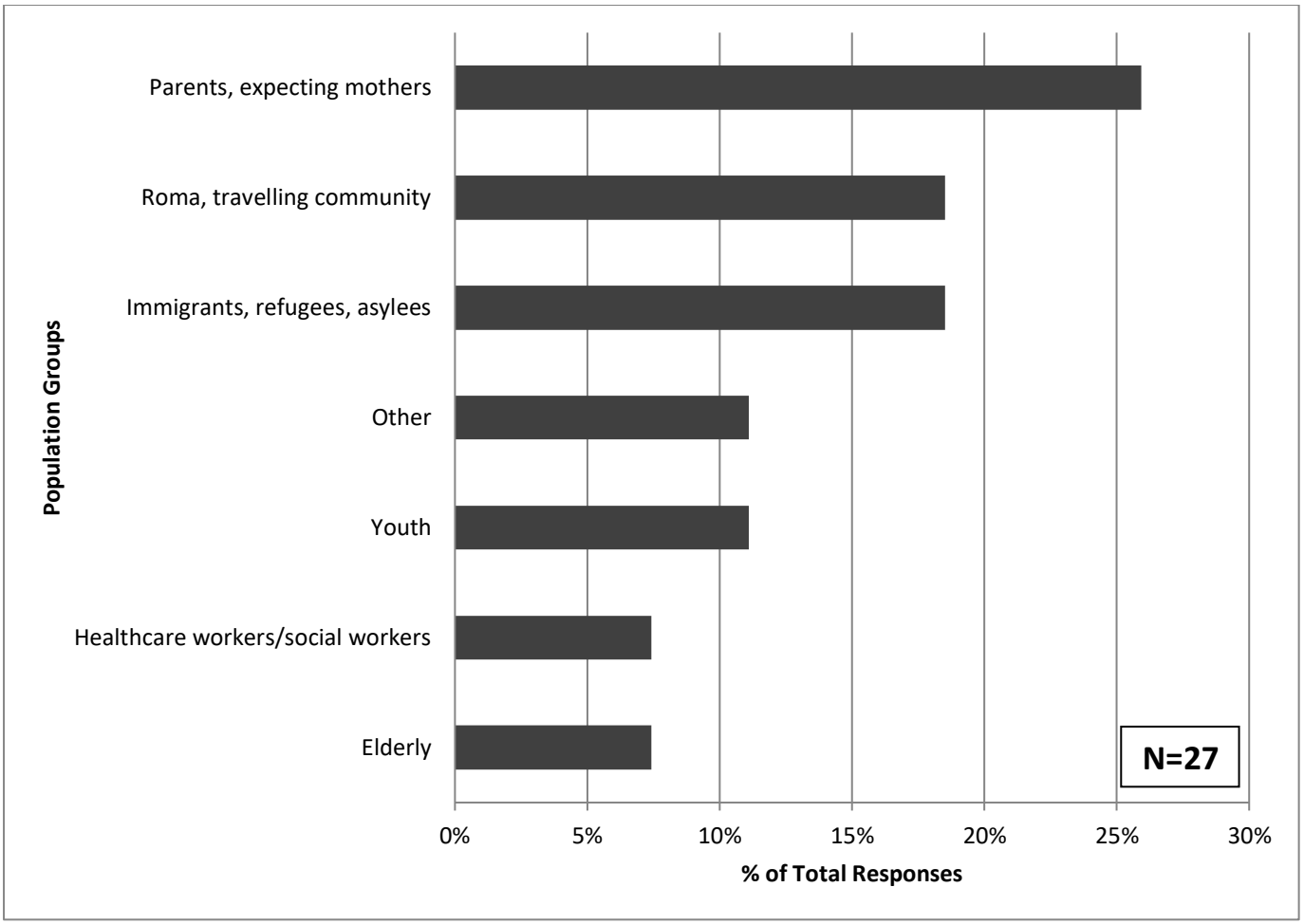
Additional Figure 24: Target of Work that is Conducted in Cooperation with Other Partners and Stakeholders (Partners)



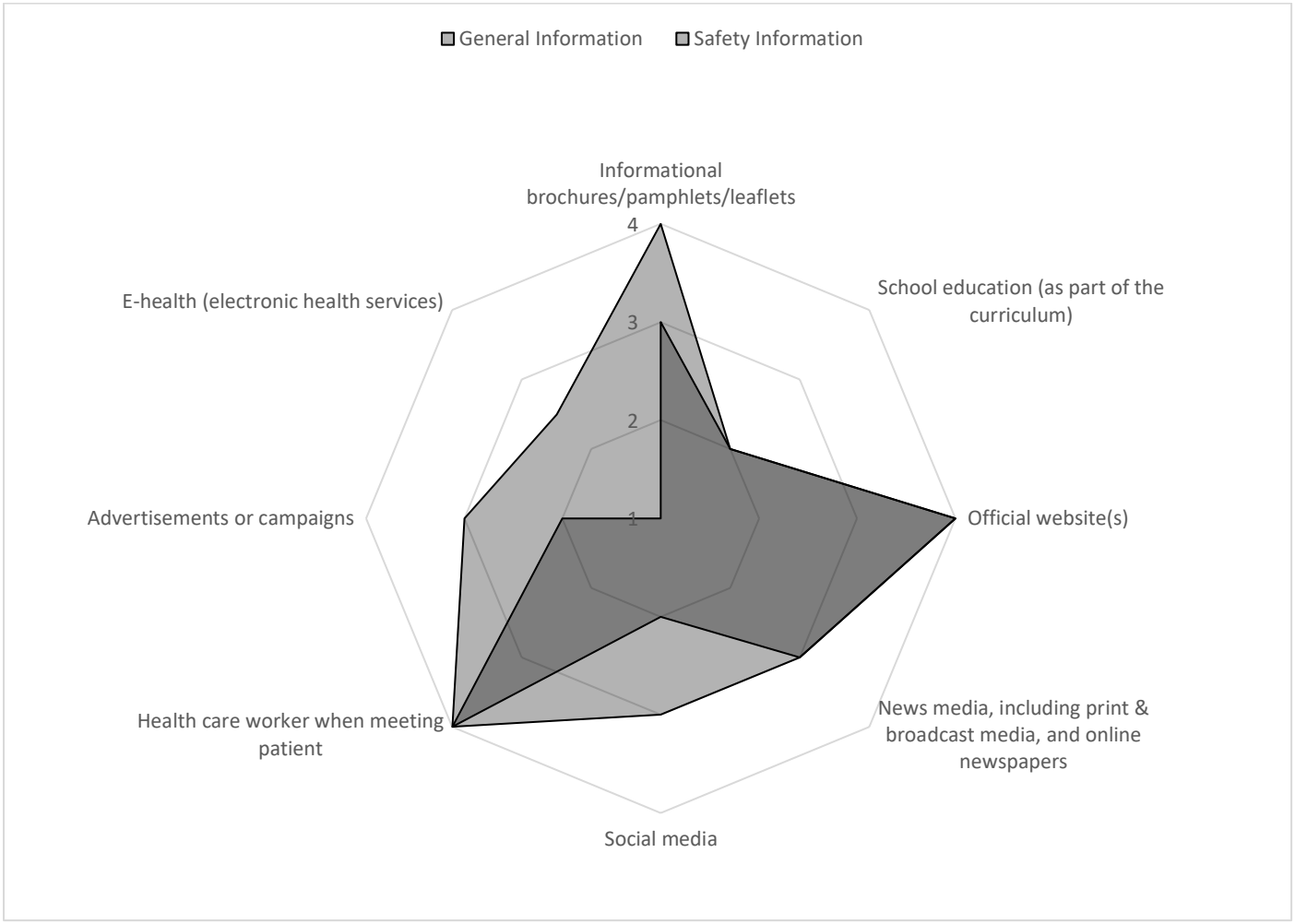
Additional Figure 25: Target of Work Related to Specific Population Groups (Vaccines)



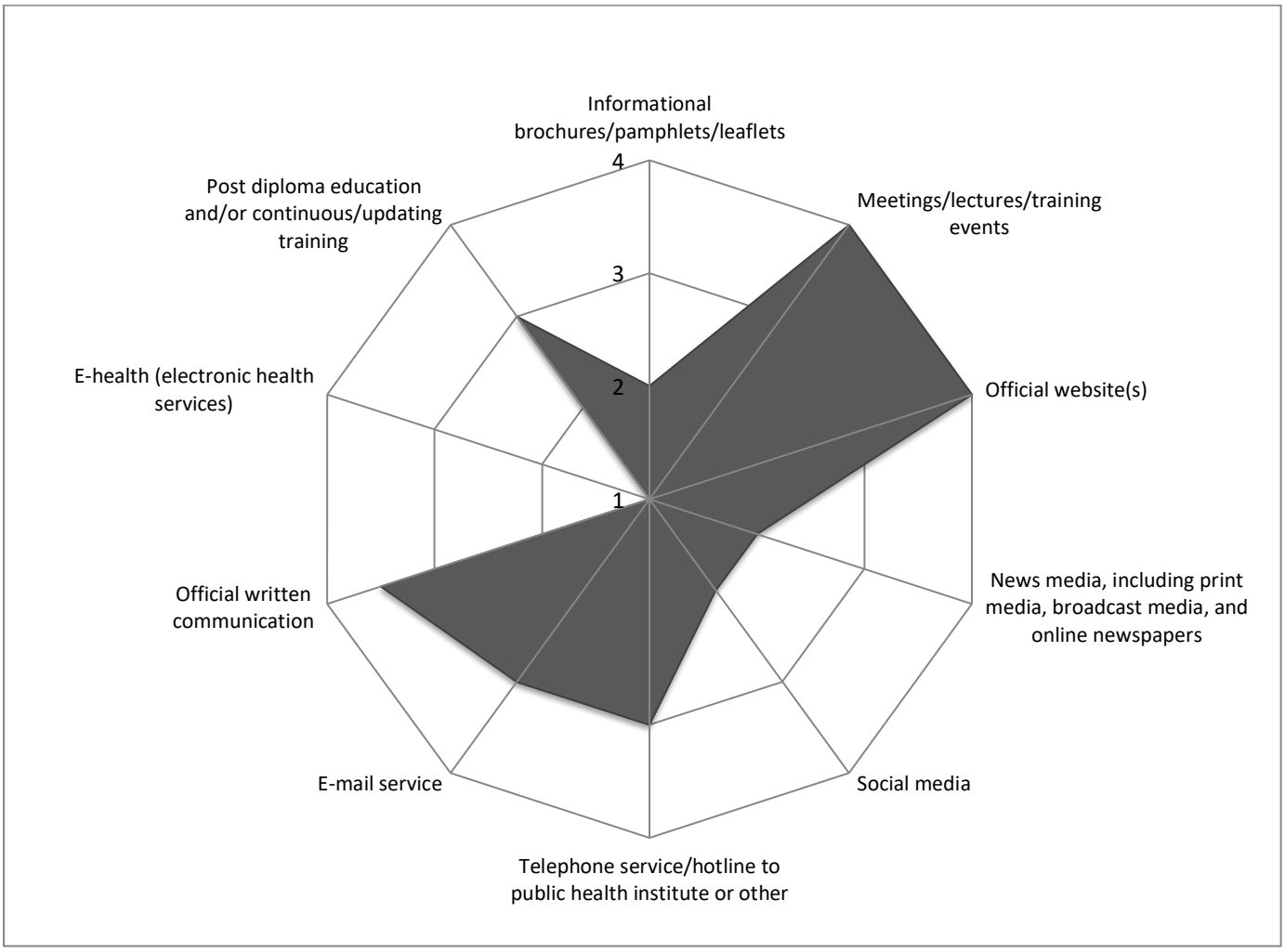
Additional Figure 26: Target of Work Related to Specific Population Groups (Population Groups)



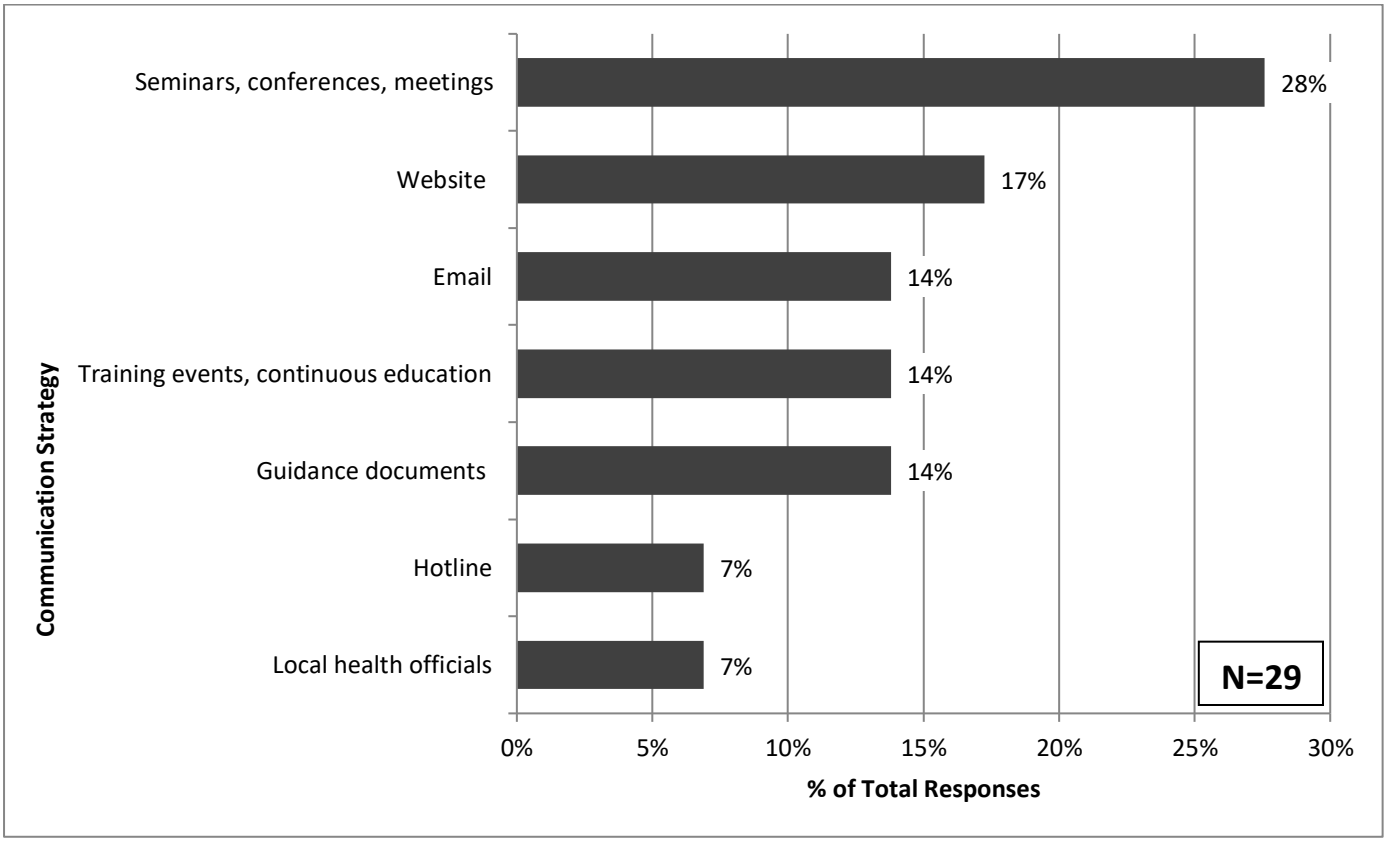
Additional Figure 27: Median Extent Scores of Public Communication Strategies



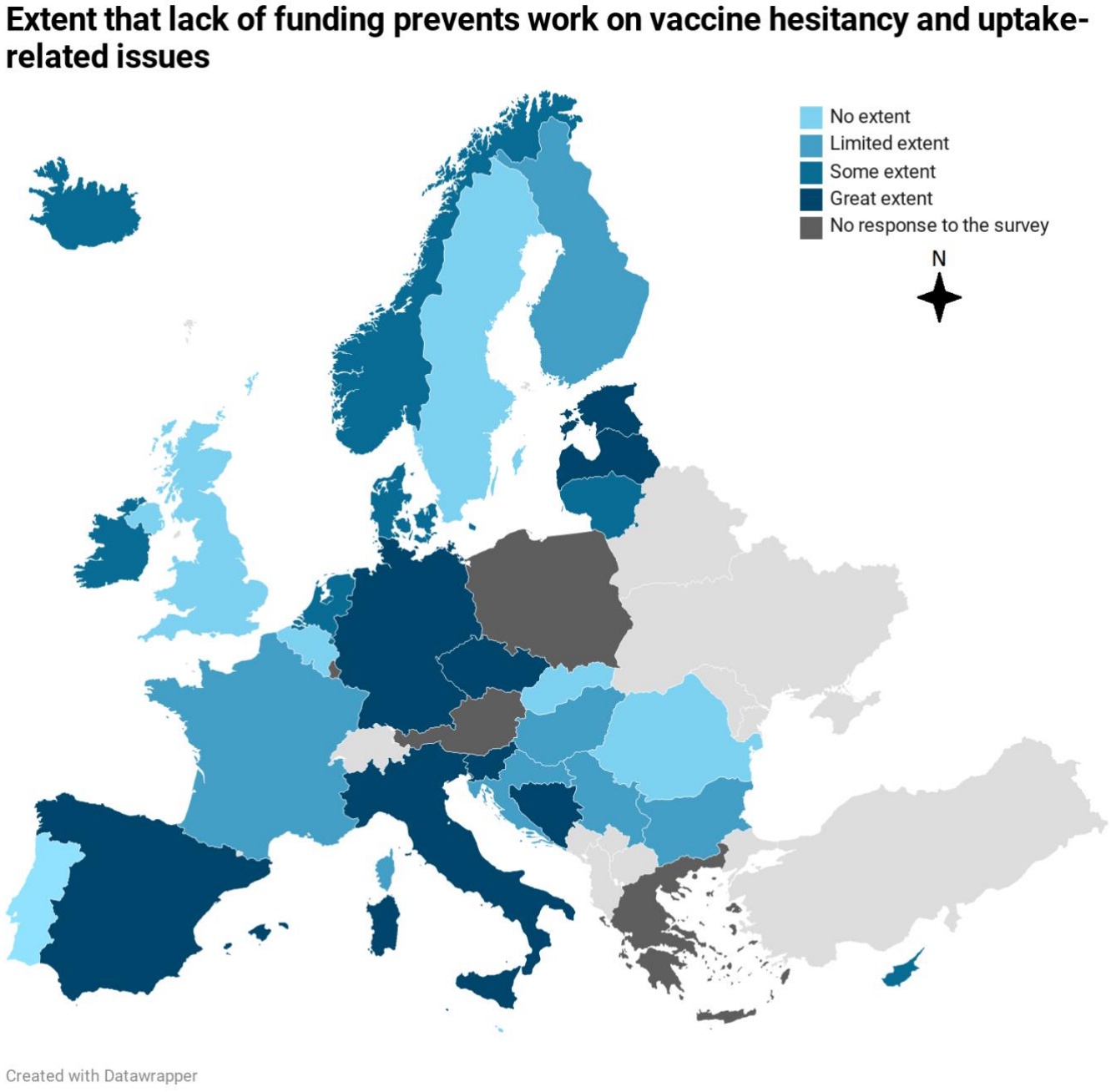
Additional Figure 28: Median Extent Scores of Vaccine Communication Strategies for HCWs



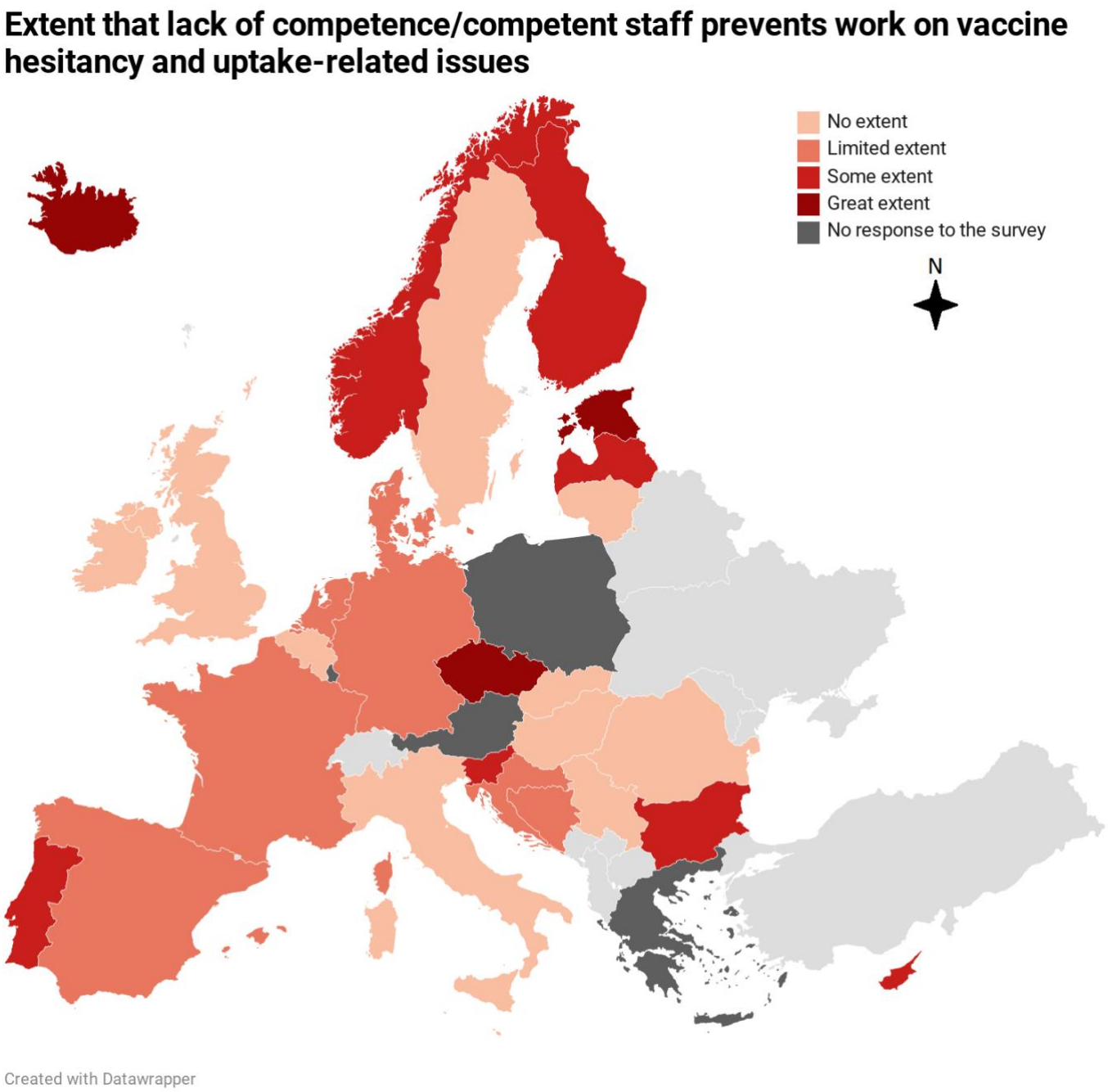
Additional Figure 29: Strategies for Communicating with HCWs – Free Text Responses



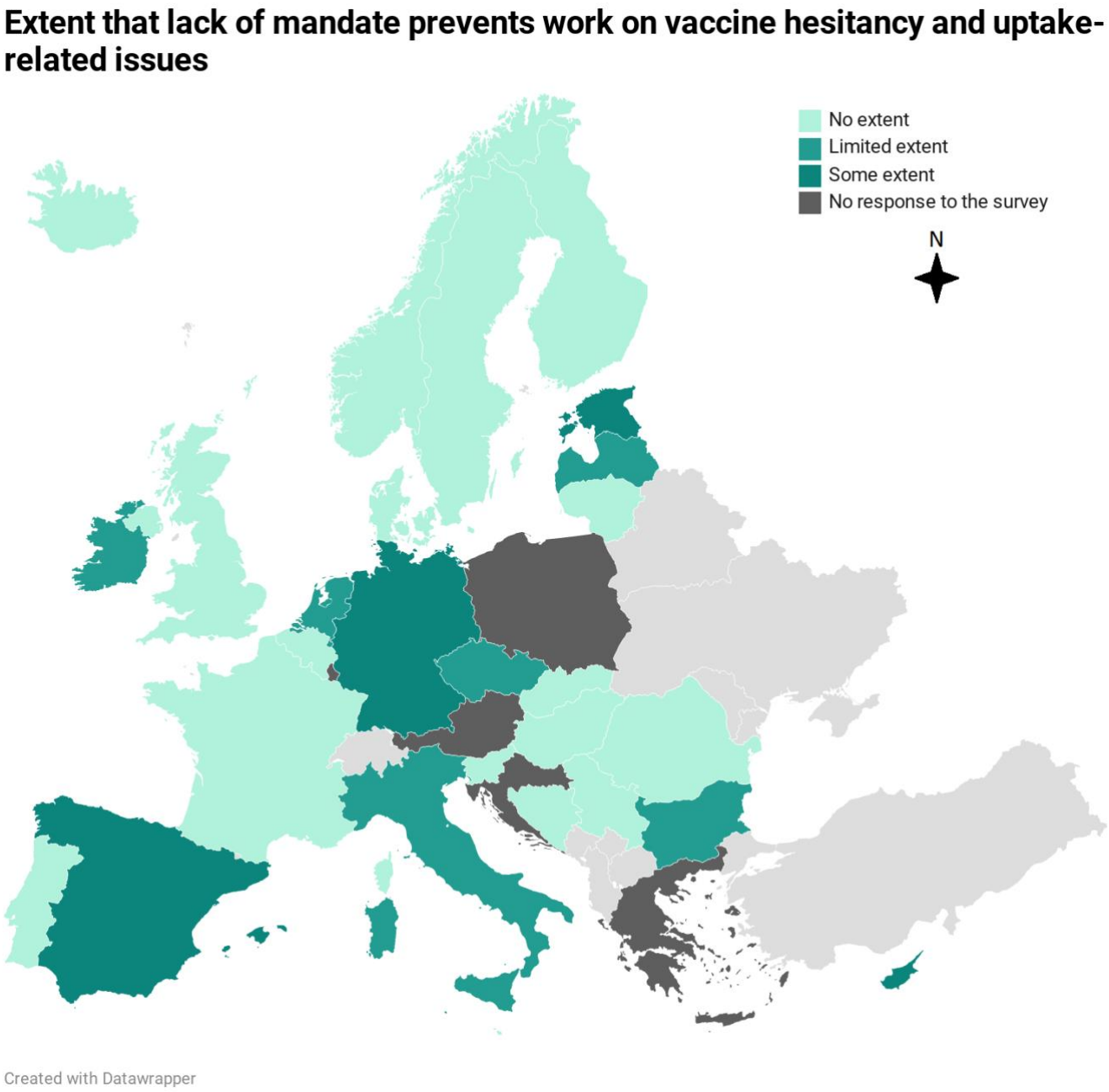
Additional figure 30: Map of funding reported as barrier to work on vaccine hesitancy and uptake related issue



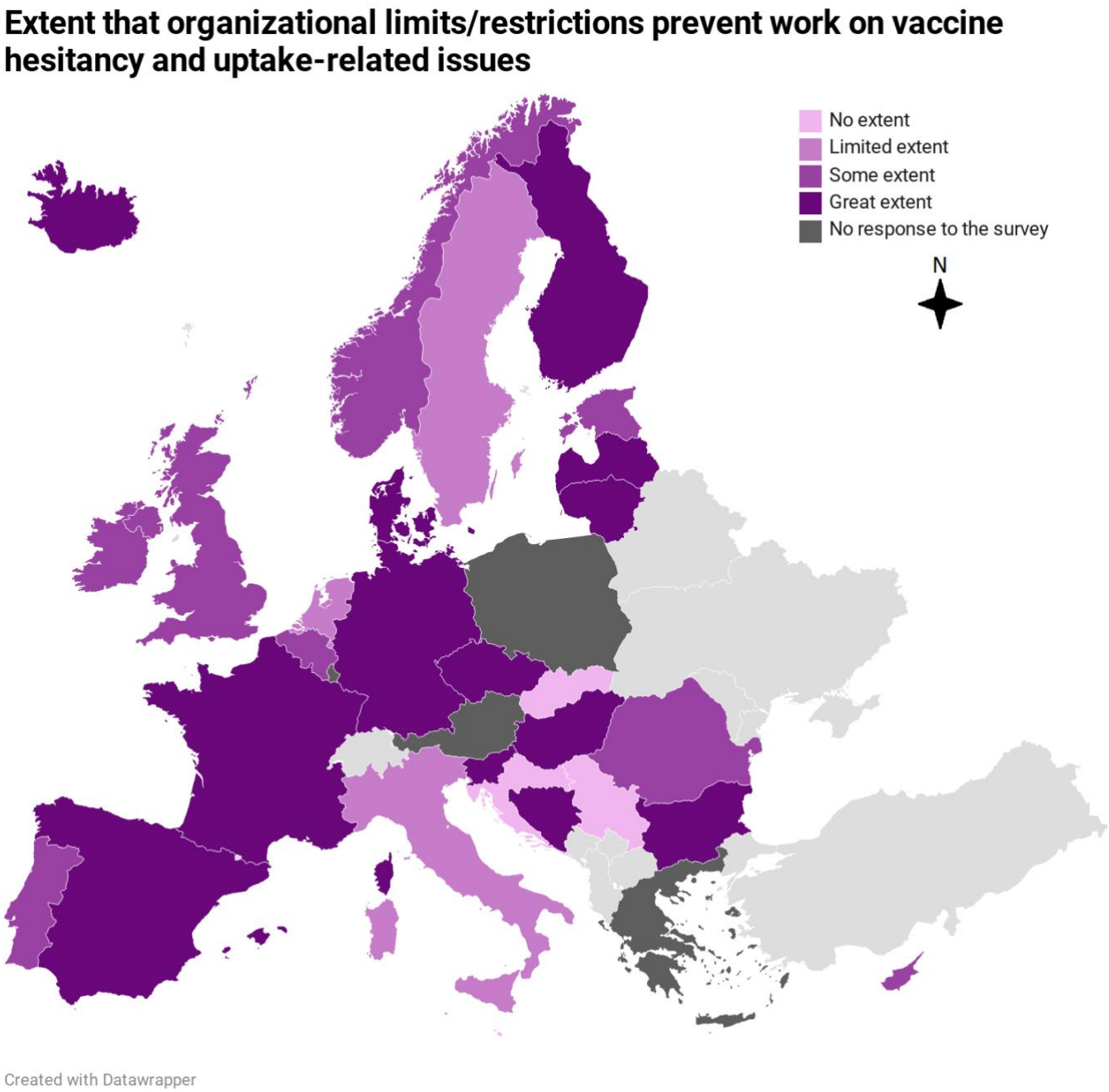
Additional figure 31: Map of Barriers – Lack of Competence/Competent Staff



Additional figure 32: Map of Barriers – Lack of Mandate



Additional figure 33: Map of Barriers – Organizational Limits/Restrictions



Annex 4: European commission directorate-general for health and food safety: Communication about COVID-19 Vaccines - Actions, Concerns and Challenges

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY

Public health
Health security and Vaccination

Report

Communication about COVID-19 Vaccines - Actions, Concerns and Challenges

The Commission Communication from 15 October 2020 regarding the preparedness for COVID-19 vaccination strategies and vaccine deployment highlighted that effective, consistent and transparent wide-reaching communication on vaccines and their availability will be crucial[1]. To find out more about the work of EU Member States and other countries The Commission, together with the European Centre for Disease Prevention and Control (ECDC) and the Joint Action on Vaccination (JAV) carried out a survey in December 2020.

The survey was designed with the inputs of the Commission (DG Sante Unit C.3 and JRC Units F.1 and I.2), the ECDC/VPI team and the JAV. The JAV (WP 8 leader, Finnish Institute for Health and Welfare prepared the electronic version of the survey, contacted the countries and collected the answers. DG SANTE and JRC analyzed the replies.

Executive Summary

Eighteen (18) countries responded to the questionnaire and sent their feedback between the end of November and beginning of December 2020.

The survey highlighted the following fundamental matters:

- Safety and efficacy remain key challenges in addressing public confidence in future COVID-19 vaccines;
- Information, disinformation and misinformation management are high in the priority list in communication strategies;
- Communication strategies can be more or less structured in terms of channels used, targeted groups and stakeholders groups, as well as monitoring tools; and
- Support, in terms of common EU communication strategies and well-designed communication material, would be greatly appreciated by countries and very helpful in the creation and management of communication plans.

This document lists the questions and summarizes findings for each.

[1] https://ec.europa.eu/health/sites/health/files/vaccination/docs/2020_strategies_deployment_en.pdf

Three countries (NL, LU, IT) reported their plans are already published or are available to share with the European Commission.

If yes, is the plan published or available for sharing with the European Commission? Open text answers
IT - http://www.salute.gov.it/imgs/C_17_notizie_5202_1_file.pdf

If available, please attach document here.
NL - https://api.webropolsurveys.com/File/GetStoredFile?storedFileId=cc2180e3-e887-440d-8c97-835854ff3917

Is your country experiencing any challenges in the planning of your communication activities for the COVID-19 vaccines where you would need support mechanisms?
Six countries (FI, SE, SI, CY, BA, LV) reported experiencing **challenges** in the planning of the communication activities for the COVID-19 vaccines.

If yes, please describe the type of challenges and the type of support that would be useful.
Among the six countries, the type of challenges reported were the following:

- **Uncertainty of the distribution date** of the vaccine and how the vaccination process will look like (SI)
- **Misinformation** from social media, and limited data on the **efficacy and safety** of vaccines and different types of vaccines (CY, BA, LV)

The type of support that would be useful to support the mechanisms were the following:

- **A common EU communication campaign** for COVID-19 vaccines with key messages on vaccine safety that can be adapted by each EU country (FI, SE, SI) as well as **support for communication material** based on evidence-based data (BA, LV)
- Regular platforms for discussion and sharing of key messages, campaign material, and other best practices (SE)
- Support the development of networks of academics in each country/region (SE)

Please briefly describe some key lessons learned, good practices and/or innovative approaches from communication on already existing vaccines (against seasonal influenza, HPV, Measles, Mumps & Rubella (MMR) etc.) that you think are important to incorporate in the communication around future COVID-19 vaccines.

The countries reported different types of lessons learned, good practices, and/or innovative approaches from communication on already existing vaccines such as:

- How to **improve** and **monitor** their communication strategies, and how to address the general and professional public (DK, NO, MT, SI, IE, BA, EL)
- How to build a network and use the **opinion of leaders** and **role models** as well as cooperating with **GPs** (DK, MT, CY, SE)
- How to address doubts, and concerns and how to fight against **misinformation** and **myths** around the vaccine (NL, MT, SE, IE, LV)
- How to use **testimonials** and **storytelling** to communicate messages on the vaccines (NL, IE)

- An interactive map on where to get vaccinated (NO)
- How to keep and update a **knowledge base** to have facts easily available (NO, LV, BA, IE)
- How to maintain availability of the vaccine and **vaccine distribution** to clinics (MT)
- Being aware of what is going on in other countries to avoid the spread of **misinformation** (SE)
- **Training** of healthcare professionals and how to communicate on vaccines (BA)
- How to carry out **studies** to understand vaccine hesitancy and address communication (ES)

Are studies being carried out in your country to assess acceptance of future COVID-19 vaccines?
Fourteen countries (BA, CY, DK, ES, FI, FR, IE, IT, LU, NL, NO, SE, SI, EL) reported that studies are carried out to assess the acceptance of a future COVID-19 vaccine. Two (LV and MT) currently do not have such studies, and two (IS and HU) report reported not knowing about these activities.

If yes, please briefly describe:- Is this work conducted or commissioned by the public health authorities, or is the work being done independently by universities or marketing research companies?- What methods are being used to gather insights (e.g. surveys, focus groups, interviews, social media monitoring)?- What is the frequency of such studies (range, every x weeks, monthly, one study only)?
Most countries are currently carrying out **surveys** and most are **recurring** at regular intervals (weekly, biweekly and monthly). Generally these are carried out by public health authorities or ministries of health/science (BA, CY, DK, ES), however some countries also indicate that surveys are rolled out by marketing companies or independent research institutes (FI, LU, NO, EL), or both (FR, NL, IT, SE, SI – it is unclear however if these are done in collaboration or as separate initiatives). Some countries (DK, FR, IT) are also including social media monitoring as a tool for assessing vaccine acceptance levels and their evolution over time.

The following links to surveys and related results were provided:
IT – https://ec.europa.eu/eusurvey/runner/CNR-Ethics_Vaccino-Covid19
SE – https://www.kantarsifo.se/rapporter-undersokningar/allmanhetens-tillit-tankar-och-beteende-under-coronakrisen-19-nov and https://www.gu.se/som-institutet/resultat-och-publikationer/som-undersokningen-om-coronaviruset

Do you plan to have mechanisms in place to continuously monitor public perceptions, misinformation and disinformation regarding COVID-19 vaccines once deployed?
All countries except one (IS) confirmed that they have mechanisms to monitor public perceptions, misinformation and disinformation.

If yes, what are these mechanisms (surveys, social media monitoring, focus groups, hotlines, etc.).
Most countries use a combination of **surveys** and **social media monitoring** (the two most mentioned mechanisms), but it is clear that some countries try to cover a broader range of social listening methods by following a mixed methods approach, in particular:

- Social media monitoring (BA, CY, DK, FI, FR, IE, IT, LV, MT, NL, NO, SE, SI) [*13*]
- Surveys (CY, DK, ES, FI, FR, IE, IT, LU, LV, NL, NO, SE, SI, EL) [*14*]
- Hot lines (FI, LU, MT, NO, SE, SI) [*6*]
- Focus groups (FI, SE) [*2*]
- Contact us queries (IE, SE) [*2*]
- Web searches (IE) [*1*]
- Big data (NL) [*1*]

If you have ongoing communication activities aimed at building public confidence in possible future COVID-19 vaccines, are these communication activities focusing on specific target groups?
Following up on what the previous question highlighted, a number of countries have more structured strategies also regarding group targeting. In particular, ten countries (CY, ES, FR, LU, LV, NL, NO, SE, SI, EL) say reported their communication activities will target specific groups

If yes, please specify these population groups (you can choose several).
Healthcare providers are the target shared by all countries; while, as it can be expected, elderly and medically vulnerable are another key target. In particular, the breakdown by target is as follows:

- Health Care Providers (CY, ES, FR, LU, LV, NL, NO, SE, SI, EL) [*10*]
- Elderly (CY, FR, LU, NL, SE, SI, EL) [*7*]
- Medically vulnerable (CY, FR, LU, NL, SE, SI, EL) [*7*]
- Other vulnerable (FR, NL, SE, SI, EL) [*5*]
- Critical workers (other than HCP) (SE, SI, EL) [*3*]
- Other: minorities, pregnant women

Please note that some countries also mentioned the public as a target group, which we did not include in the above breakdown (since it is not a subgroup of the population).

Are you planning to engage with other stakeholder groups, partners, organisations, professional associations or community groups for the development and implementation of the communication activities on COVID-19 vaccines?
All countries except FR will engage with other stakeholder groups for the development and implementation of their communication activities.

If yes, which?
Healthcare workers and their associations, representatives of the medical-scientific communities, and institutes that are directly involved in the vaccination process (i.e. national medicines agencies, research institutes, etc.) are the key stakeholders that will be engaged (BA, DK, ES, FI, HU, IS, IT, LV, MT, NL, NO, EL).
However, citizens associations and groups are also largely mentioned (labour unions, patients associations, children and elderly associations, minorities groups, underserved communities, religious communities,) (ES, FI, IS, LU, SE).
SE, NO, NL, EL mention also local government and other governmental agencies as key stakeholders to engage (Civil Contingency Agency, Governors, Municipalities; other Ministries). SI adds to its list also influencers and other public figures. CY has a plan under development.