

**Data for action: achieving high   
uptake of COVID-19 vaccines**

# *Gathering and using data on the**behavioural and social drivers of vaccination*

# A guidebook for immunization programmes and implementing partners

Interim Guidance

1 April 2021

This guidebook and the associated surveys and qualitative interview guides were developed by a multi-disciplinary group of global experts and partners as a branch of an existing expert group developing similar tools to measure behavioural and social drivers (BeSD) of childhood vaccination. These tools for COVID-19 vaccination are grounded in the overall BeSD group expertise and existing research on vaccine uptake. The objective of BeSD is to boost the availability, quality and use of local and global data on vaccine acceptance and uptake.

Please note that these tools for COVID-19 have not yet been formally validated. However, cognitive interviews and psychometric validation is planned in the near future. WHO will provide ongoing updates to this guidebook and the tools in 2021.

To enable the World Health Organization (WHO) and partners to gather learning, insights and feedback on the use of these tools, please inform the Demand and Behavioural Science Team at WHO headquarters ([COVID19vaccineresources@who.int](mailto:menningl@who.int)) if you use any of these tools.

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The members of the BeSD COVID-19 working group are: Neetu Abad (United States Centers for Disease Control); Helena Ballester Bon (United Nations Children’s Fund [UNICEF]); Cornelia Betsch (University of Erfurt, Germany); Noel Brewer (University of North Carolina, United States of America); Melissa Gilkey (University of North Carolina, United States of America); Julie Leask (University of Sydney, Australia); Abdul Momin Kazi (Aga Khan University, Pakistan); Ana Lisa Ong-Lim (University of the Philippines, Manila); Aaron Scherer (University of Iowa, United States of America); Holly Seale (University of New South Wales, Australia); Smita Singh (Gavi, the Vaccine Alliance); Gillian SteelFisher (Harvard University, United States of America); Kerrie Wiley (University of Sydney, Australia); Charles Wiysonge (Cochrane South Africa).

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**Conflicts of interest**

For the development of this document, a global and multidisciplinary group was established by WHO consisting of individuals with expertise spanning multiple areas of specialization and regional representation (see above list of names and affiliations). Many of the group members have a long-standing affiliation with WHO as members of a related and broader working group on measuring BeSD of childhood vaccination. For the latter group, declarations of interest have been collected from all external contributors and assessed for any conflicts of interest. Potential conflicts of interest have been managed according to WHO’s policies and procedures.

Terms of reference for both groups described the required set of duties and contributions of the members, in addition to scope, objectives and expected outputs. In the process of developing this guidebook, it was recognized that working group members acted in good faith and in the best interests of the group, WHO and its purposes. All procedures were followed in accordance with ethical standards. The document was developed via a cyclical, iterative, open and transparent process of development and review, with the full working group being offered the opportunity to comment at the end of reach round of revisions.

All working group members contributed in their individual capacity and no one member was ever given added preference. At each stage of content development, inputs were collectively reviewed by the working group or a subgroup of the broader group. It was expected that group members acted honestly and fairly in the interests of WHO, as was the case. Discussions were managed by the working group chair in a manner to ensure that scientific integrity, process and reputation were sustained.

These actions together helped to ensure that working group members brought their best experience, expertise and commitment to the discussions.

# **Abbreviations**

**BeSD** behavioural and social drivers

**CI** confidence interval

**HCW** health care worker

**KAP** knowledge, attitude, practices

M&**E** monitoring and evaluation

**ODK** Open Data Kit

**OR** odds ratio

**UNICEF** United Nations Children’s Fund

**WHO** World Health Organization

**WHO SAGE** Strategic Advisory Group of Experts on Immunization

# **Introduction**

This guidebook supports the use of tools to understand people’s intentions to get a COVID-19 vaccine. It is intended for immunization programme managers, researchers and others engaged in collecting, analysing and using data for COVID-19 vaccine programme planning and evaluation.

There are four tools (available in Annex 1) in this guidebook. They are targeted towards populations prioritized for COVID-19 vaccines, based on the WHO Strategic Advisory Group of Experts on Immunization (SAGE) *Roadmap for prioritizing uses of COVID-19 vaccines in the context of limited supply*:[[1]](#footnote-2)

**Survey for adults**

**Survey for health workers**

**Summary of the process**

**Plan**

☐ Establish a core team

☐ Draft a research plan and budget

☐ Create a timeline

☐ Identify research questions

☐ Select data collection tools

☐ Adapt and test the tools

**Investigate**

☐ Identify a sample

☐ Develop a data collection protocol

☐ Obtain approvals for the research

☐ Collect data

☐ Clean and analyse data

☐ Summarize and report findings

**Act**

☐ Map findings to intervention areas

☐ Select specific interventions

☐ Develop framework for monitoring  
and evaluation, including indicators

☐ Implement, learn and improve

**Qualitative interview guide for adults**

* **Qualitative interview guide for health workers**

The surveys and interview guides can be used separately or together. They are designed to easily integrate with other data collection activities so there are different angles for insights, and they can be used together with other assessments or surveys.

This guide is structured across three steps: **1) Plan; 2) Investigate;** and **3) Act.** It outlines the methods and best practices to support implementation of the surveys and interview guides, including local adaptation of materials, and recommendations for data collection and analysis. It also includes a basic decision tool to help inform country planning and the design of interventions to increase vaccine uptake.

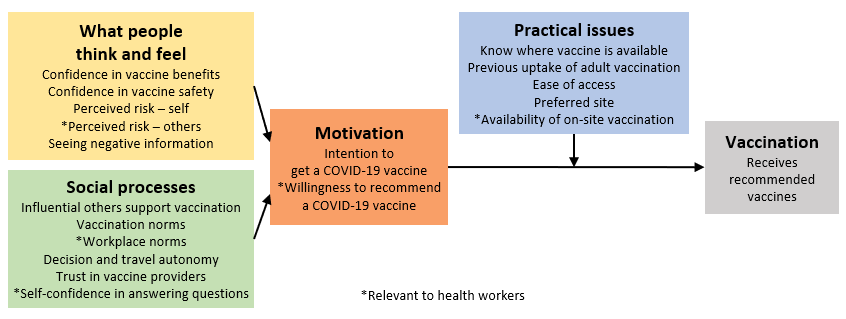
These tools do not support assessments of drivers of COVID-19 vaccination of children. Children are not prioritized as a population group for reasons outlined in the above-mentioned WHO SAGE roadmap. Behavioural and social drivers can offer separate tools for measuring drivers of routine immunization – please contact the authors for more information on these.

**Why assess the behavioural and social drivers (BeSD) of vaccination?**

It is vital for countries to gather local data on how people think, feel and act in relation to vaccination to inform the development of strategies to generate acceptance and uptake for the vaccines. Gathering and using quality data on the BeSD of vaccination will enable programmes to design, target and evaluate interventions to achieve greater impact with more efficiency, and to examine and understand trends over time. Routinely gathering and using such data will offer insights into how to continually improve implementation strategies and tailor communication approaches. These data on health workers will be particularly important, given their critical role in relation to vaccination.

**BeSD measures four domains** that influence vaccine uptake:[[2]](#footnote-3) what people **think and feel** about vaccines; **social processes** that drive or inhibit vaccination; individual **motivations** (or hesitancy) to seek vaccination; and **practical factors** involved in seeking and receiving vaccination. Assessing all domains will enable more comprehensive planning and evaluation.

**Fig 1.1 The BeSD of COVID-19 vaccination framework**



*Source:* Based on the “increasing vaccination” model (Brewer et al., 2017).

# **Plan to use the BeSD tools**

## **2.1 Establish team, budgeted research plan and timeline**

It is recommended that you begin by establishing a small core team of appropriate immunization staff, partners and others with the necessary research expertise. Involve this group – and any local community representatives – on an ongoing basis throughout the process. At the outset, develop a data collection and analysis plan, engage research expertise and ensure adequate funding is available to support this process. Establish a realistic timeline, accounting for the different phases of work involved. Obtain the required permits and/or ethical approvals prior to data collection.

A dedicated research agency, academic unit or company may be engaged to carry out the data collection and analysis; however, the core team will still need to carry out basic planning and coordinate with the researchers and other stakeholders throughout the process. Once analysed, findings can be shared widely, and used for briefs, presentations and discussions to inform the design and prioritization of interventions; and advocate for resources for implementation.

## **2.2 Select the data collection tools**

**The BeSD surveys:** thesecan be implemented as either a stand-alone assessment or integrated with other data-collection activities. If used within another activity, make sure the BeSD COVID-19 questions for health workers are only administered to health workers. Data collection methods may consist of telephone or in-person interviews (at a home or other location, e.g. workplace) or an online survey.

**The BeSD qualitative interview guides:** the interviews may take place as a stand-alone assessment in a specific population or alternatively to complement the survey. The latter could take the form of pre-survey exploratory enquiry or post-survey analysis to explore in further depth, the findings of the survey, for example, why one demographic group is more likely to not intend to vaccinate. In the latter case, respondents may be a sub-sample of the survey respondents who have agreed to be interviewed after completing the survey. The qualitative guides can be used for in-depth interviews with an individual or to structure focus group discussions with two or more respondents (or a combination of both).

**Main differences between the tools**

|  |  |
| --- | --- |
| **Survey** | **Qualitative interview guides** |
| * **Provides quantifiable data on specific drivers of vaccination** * **Designed to represent populations at a broad level** * **Larger sample size, e.g. 300+** * **Closed-ended responses** * **Little flexibility for adaptation** * **Measures and compares prevalence** * **Data collected then analysed** * **-Data may be collected multiple times to analyse patterns over time** | * **Provides textual data on how people experience and understand the drivers of vaccination** * **Designed to provide rich, in-depth descriptions and explanations** * **Smaller sample size, e.g. 15–30** * **Open-ended responses** * **Greater flexibility for adaptation** * **Facilitates in-depth probing; a discussion** * **Data collected in cycles with analysis midway, continuing until saturation** |

## **2.3 Adapt and test the tools to match the local needs and context**

The BeSD questions were carefully developed by a global group of experts. It is strongly recommended that **certain questions (see below for more information) and response options remain unaltered** to maintain standardization for comparisons across countries. However, countries may choose to add new questions of relevance to the local context. To assist with local translation, please see [Annex 1](#_Annex_A._Survey) for details on the rationale for each question and related descriptions.

Adaptation of the tools can be done via two steps, ideally with the involvement of national and subnational stakeholders, as well as the appropriate local research expertise:

1. **Translation** into local language(s) with careful review by stakeholders to ensure the intended meaning of concepts is retained (in some cases back-translation may also be carried out to ensure fidelity).
2. **Rapid testing** (or pre-testing) to ensure the tools are well understood and match the local social/cultural context.

Rapid testing will help to enhance data quality and can be done on a small scale for each tool:

* **The** **survey** must be tested through a technique called **cognitive interviewing**,involving two rounds of interviews with four to eight respondents per round. This ensures survey items (each question and its response options) are well translated and convey the intended meanings. See Annex 2for more details on cognitive interviewing.
* **The qualitative interview guides** should be **piloted** via two to three interviews (minimum) with the target population. This aims to make sure the questions flow well and are understood in the local context.
* **Data collection procedures** may also be tested to guide refinements to tools and processes.

In adapting the survey for local needs, consider the following:

* Use the findings from the cognitive interviews to inform any adjustments to survey item wording to **improve the accuracy of the translation while retaining the same meaning as the original item.**
* Be consistent in response scale wording and direction from positive to negative responses.
* Do not add or remove options from the four-point scale, these must be maintained for balance and symmetry. BeSD has developed a visual four-point scale to assist in comprehension of the response options ([Annex 1](#_Annex_A._Survey)).
* When translating an item (question and response options) keep its intended meaning as per the item rationale ([Annex 1](#_Annex_A._Survey)).
* Align any new survey items you may wish to add with the four BeSD domains (Fig. 1.1). Consider aligning response options of new survey items to BeSD response option patterns where possible.
* The order of items should follow the principle of “facts” before “opinions”, and “attitudes” before “intentions”.
* Adapt the demographic section of the survey to suit the target population and any local terminology. If the survey is to be administered to health care workers, it is important to capture relevant information including occupation, location of practice (primary or tertiary care), and years of practice, etc. Consider your analysis plan and ensure you are asking the minimum necessary demographic questions to support disaggregation of results.

The qualitative interview guides have been developed to mirror the domains in the survey. However, if a topic needs deeper exploration it can be expanded in the interview. For further information on adapting the qualitative interview guides in response to a local context, please see [Annex 3](#_Annex_C._Guidance).

# **Investigate the drivers: data collection, analysis and reporting**

## **3.1 Preparing to collect data**

This section outlines steps to support the collection of quality data through the use of the survey and qualitative interview guides and offers frameworks to facilitate data analysis. For both tools, data collection may take place using pen and paper, or digital tools, e.g. using the Open Data Kit (ODK) application. In the process of gathering and using the data associated with these tools, consider policies on data ownership and sharing. Obtain the required permits and/or ethical approvals prior to data collection, and anonymize all data and respect local principles of data protection. Note the ethical principles of the [Helsinki Declaration](https://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/) for medical research. For reference, the WHO policy on data sharing is available in Annex 4.

## **3.2 Determine a sampling plan and data collection methods**

Once you have identified your target population (e.g. health care workers, adults over 65, etc.), there are several ways to identify and sample members of a population to participate in a study. For example:

1. **Population-based sampling** is probability-based and is designed to provide data representative of the population of interest. Thus, it provides the strongest evidence by sampling survey respondents so that the results are generalizable to the population for which inferences are being made. Consider inserting BeSD items into existing population-based surveys in your area.
2. **Convenience sampling** is a non-probability-based data collection method where people are approached because it is easy to find them. It is typically used for quantitative data collection in situations where it is impossible to conduct probability-based sampling. A researcher can survey people as they walk by on the street, or as they exit a health clinic, for example. Convenience sampling is not ideal for representing the population and it is subject to biases due to the location and other factors that bring you in contact with the people. However, it is a rapid and very feasible method. Bias can be reduced with strategies such as only approaching every fifth person.
3. **Purposive sampling** involves inviting a specific population to join in-person or online qualitative data collection. It is less prone to bias, but data collectors must ensure good methods for reaching the targeted community.

**Table 3.1 Target population and sampling methods**

|  |  |
| --- | --- |
| **Example target population** | **Example sampling methods** |
| Adults over the age of 65 | * Sample by integrating BeSD module into an existing population-based survey (e.g. Demographic and Health Survey). |
| Health care workers | * Sample by posting flyers and posters at health clinics. * Sample by advertising in professional associations or societies. * Sample health care workers who exit a selected health clinic during a pre-determined timeframe. |
| Individuals with underlying health conditions | * Sample by using a national chronic disease registry. * Sample all individuals attending an outpatient clinic for visits related to underlying health conditions of interest during a pre-determined timeframe. |

For the **qualitative interviews or focus groups,** purposive sampling is recommended to intentionally select the most suitable respondents for the research objectives.

Sampling or data collection can be conducted using face-to-face, internet-based methods, or a combination of both. For example, you may circulate an online survey using health care worker professional associations and collect responses online. Alternatively, you may conduct in-person surveys with health care workers at clinics.

If you choose to use internet-based methods for sampling for data collection, you will need to consider if individuals who have access to the internet and can take part in your study may be systematically different than those that do not (e.g. higher socioeconomic status, higher education, etc.). If this difference exists, your conclusions may not be generalizable to the broader population.

Regardless of the sampling and data collection methods, it is important to describe in the research protocol:

* How potential subjects will be identified.
* What attempts will be made to contact them.
* Who will approach them.
* How consent will be obtained and anonymity of data protected.
* How the response rate will be measured (the number of people who take the survey divided by the total number of people asked to take the survey).
* How the completion rate will be measured (the number of questions answered divided by the total number of questions asked in your survey).
* How the sample demographics will be compared with the overall target population demographics, where possible.

Consult with a social researcher in the development of the research protocol to ensure the correct data collection approaches are used.

## **3.3 Analysis of data of the quantitative surveys**

There are different types of statistical analyses that can be used to answer different types of questions. General descriptions of broad analytical approaches are summarized below but it is strongly advised that you consult a statistician or other researcher for help with developing a statistical analysis approach most appropriate for the specific data collection. This will help to ensure that data are collected and analysed appropriately.

**Descriptive statistics** provide information about a variable or a summary of a variable. Examples of descriptive statistics include percentages (example: number of women in a sample/total number of respondents), ranges (e.g. youngest respondent was 18 years old and the oldest was 95 years old), and means/averages (adding up all of the responses and dividing the total by the number of respondents to find the average of the responses).

**Bivariate analyses** provide information about comparisons or relationships between two variables. Examples include Chi-squared analyses for measures with categories (e.g. a table with gender and education level) and correlations for measures with linear/numeric responses (e.g. relationship between age and vaccination intentions).

**Multivariate analyses** are used to determine the relationships between an outcome variable with another variable, controlling for the potential influence of other variables. An example is using linear regression to determine if age is associated with vaccination intentions controlling for gender, income and education. These types of analyses can help you determine if a factor is actually associated with vaccination intentions or whether the relationship is the result of another factor (e.g. if gender was no longer associated with vaccination intentions if you consider differences in income between men and women).

## **3.4 Analysis of data from the qualitative interviews and/or focus groups**

There are many approaches to qualitative data collection and analysis. For the purposes of this guidance, a **framework analysis** approach is suggested, and templates are provided later in this section. The framework analysis approach is well-suited to a team with varied levels of qualitative research experience. It is recommended that at least one team member has experience in such methods.

For more information on the framework methodology, including an illustrative example, please refer to:

* Gale NK, Health G, Cameron E, Rashid S, Redwood S (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Medical Research Methodology. 13(117) (<https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-13-117>).
* Furber C (2013). Framework analysis: a method for analysing qualitative data. African Journal of Midwifery and Women’s Health. 4(2) (<https://www.researchgate.net/publication/272449955_Framework_analysis_A_method_for_analysing_qualitative_data>).

For a general overview of how qualitative approaches differ from epidemiologic approaches see:

* Carter SM, Ritchie JE, Sainsbury P (2009). Doing good qualitative research in public health: not as easy as it looks. NSW Public Health Bulletin. 20(7-8) (<https://pubmed.ncbi.nlm.nih.gov/19735621/>).

Qualitative data collection and analysis occur in cycles. To begin, conduct two or three interviews using the qualitative semi-structured interview guide and follow stages 1 to 4 below. Once the analytical framework is developed, proceed with more interviews and analysis under the framework, revisiting the themes after every four or five interviews to make any adjustments.

The main stages in the framework analysis process are as follows:

**Stage 1: Transcribe and familiarize.** This involves converting the interview into a format for analysis using verbatim notes from a recording, or detailed notes taken during the interview, usually by a second person. Immersion in the data will build familiarity with them. This occurs through reading and re-reading, reflection and taking notes (memos) on thoughts about the interview.

**Stage 2: Develop codes.** Codes are used to formally organize concepts in the data. Codes are simply a label given to data units. For example, if someone mentions their concerns about vaccine safety, the line of text in the interview transcript that covers that could be labelled as “safety concerns”, and all lines in the remaining interviews that describe similar concerns expressed by other participants are also coded as “safety concerns”. This allows for a systematic comparison of the codes across all of the interviews, and can be done using comments or annotation functions in a Word document, or using specialized software such as Dedoose, QSR NVivo, ATLAS.ti or MAXQDA. After a few interviews, patterns may emerge where the same codes appear in several interviews. Ideally, for rigour, several members of the team should independently code the first few interviews to facilitate comparisons and agreement on what codes will be applied.

**Stage 3:** **Develop and apply an analytical framework.** After the reoccurring codes are identified, similar or related codes may be grouped into defined categories. This framework can be used for subsequent interviews and revised until it covers all of the concepts arising from the interviews. Building on the example above, the “safety concerns” code might include more granular categories such as “side-effects,” “testing”, “newness” and “vaccine components”. To facilitate interpretation, a summary spreadsheet can be developed with an interview per row, and data charted across codes and categories per column (see template below for an example).

**Stage 4: Interpret the data.** Themes are generated from the data by viewing the codes in the summary spreadsheet and drawing connections across participants and categories. Interpret the data to develop themes, which may offer explanations for what has emerged in the interviews. This could involve creating typologies (or classifications) and mapping relationships between themes.

It is also vital that all researchers involved in interviewing and data analysis keep a **researcher diary** (sometimes called a memo). This is a place for the researcher to record their impressions from the interviews and analysis and document their thinking and ideas as they occur. This helps in the analysis and enhances reflexivity (i.e. acknowledging and addressing how one’s thoughts and actions affect the research process).

**A template to assist the framework analysis is available to support this analysis. If needed, please contact the Demand and Behavioural Science team:** [**COVID19vaccineresources@who.int**](mailto:menningl@who.int)

The template provides an example of how the framework for analysis can be structured. Each interview occupies a row, and the themes and categories identified in Stages 2 and 3 above are represented in the columns. A brief summary describing the coding of each interview/focus group transcript is entered under each identified category or theme. The template contains themes and categories that may be present, based on the interview questions. As they are identified, add other categories or themes that might be present in a given study.

An example of how such an analysis might be done can be found in:

* Gale NK, Health G, Cameron E, Rashid S, Redwood S (2013). Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Medical Research Methodology. 13(117) (<https://bmcmedresmethodol.biomedcentral.com/articles/10.1186/1471-2288-13-117>).

## **3.5 Reporting on the survey findings**

**One of the most important goals of BeSD is to provide data that decision-makers can use to plan the COVID-19 immunization programmes. Start by sharing data on:**

The percentage of respondents who report willingness to accept a COVID-19 vaccine.

The most commonly reported facilitators and barriers to vaccination.

**Further analyses can assess variation in these estimates by attitudinal and demographic factors.**

**The goal of analysing and reporting the survey data is that they can be easily understood and that they are useful for the target audience. In the planning stages of the survey, carefully consider the plan for data analysis. Take statistical advice from the outset of your research, e.g. work with a researcher to understand who is least willing to take up vaccination or most likely to experience barriers. Example tables have been provided below to facilitate analysis.**

To ensure the rigour of the data collection process, clearly document the number of potential participants contacted and whether people who agreed to participate differ from those who refused, with regards to specific characteristics (i.e. gender, age, features of health). Determine whether the participant group is different in any way compared with the population of interest more generally.

Ensure that results are clear, factual and concise. Directly address the research questions posed, and do not extend the conclusions beyond the data. Provide information about the response rate (the number of questionnaires distributed; the number of returned questionnaires completed in part or in full), the representativeness of the sample; and how missing data were handled. Report data as percentages in every instance. In instances where the sample size is small, the percentage may be supplemented with the raw numbers e.g. (n=12). [Annex 5](#_Annex_E._Examples) contains some initial examples for data reporting and presentation.

Some suggestions for reporting:

* Don’t analyse and report on every question within your questionnaire. There is no need to repeat all the data captured in tables into the body of the text.
* Present data visually, when possible to make interpreting the results easier (e.g. use images or icons to show percentages of the sample that are women and men).
* Do not simply provide the frequencies or percentages; interpret the results for your audience so they can see why a result is important.
* If comparing results, make sure they are displayed using the same y-axis (e.g. y-axis in both figures goes from 1 to 10) so that any differences are easy to see.
* Report non-significant results; these can be as important as significant results because they sometimes challenge assumptions.

Resources that may assist in reporting the data:

* Improving the quality of web surveys: the checklist for reporting results of internet e-surveys (CHERRIES) (<https://www.equator-network.org/reporting-guidelines/improving-the-quality-of-web-surveys-the-checklist-for-reporting-results-of-internet-e-surveys-cherries/>).
* Boynton PM. Administering, analysing, and reporting your questionnaire [published correction appears in BMJ. 2004 Aug 7;329(7461):323]. BMJ. 2004;328(7452):1372-1375. doi:10.1136/bmj.328.7452.1372 (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC420299/>).

**Example table: COVID-19 vaccine acceptance across socio-demographic characteristics**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Total**  **n=**  **n (%)** | **“Willingness” to receive COVID-19 vaccine**  **N (%)** | **P value** |
| Gender  Woman  Man  Non-binary/transgender  Declined to respond |  |  |  |
| Age (years)  18–29  30–49  50–69  70+ |  |  |  |
| District |  |  |  |
| Employment  Health worker  Essential services worker  Educator  Other worker  Not currently in paid work  Retired |  |  |  |
| Chronic illness  Yes  No |  |  |  |

**Example table: Univariate analysis and multivariate logistic regression model of vaccine acceptance and demographic variables**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **COVID-19 vaccine acceptance n (%)** | **Unadjusted ORs**  **(95% CI)** | **P value** | **Adjusted ORs**  **(95% CI)** | **P value** |
| Gender  Woman  Man  Non-binary/transgender  Declined to respond |  |  |  |  |  |
| Age (years)  18–29  30–49  50–64  65+ |  |  |  |  |  |
| District |  |  |  |  |  |
| Employment  Health worker  Essential services worker  Educator  Other worker  Not currently in paid work  Retired |  |  |  |  |  |
| Chronic illness  Yes  No |  |  |  |  |  |

## **3.6. Reporting on the qualitative research findings**

Reporting qualitative research findings involves constructing a representation of the social occurrences and experiences based on the accounts of the people who were interviewed. Writing up findings also forms part of the qualitative analytical process, which starts with the researcher diary (see section 3.4). There are a number of ways to report qualitative data, and many good references are available.[[3]](#footnote-4) Below are a set of general steps to guide reporting of qualitative data.

* **Identify who the main audience is:** Who are the people who have an interest in these data? What is the best way to present these data to them?
* **Decide on a structure:** What is the best way to tell the story of this research to the audience? The most straightforward way to structure results is an explanation of the key concepts that were found and how they answer or relate to the research question.
* **Describe the methods:** It is important to clearly state the methods used in data collection and analysis, including:
  + overall research design, and sampling approach with justification
  + recruitment methods
  + how the interviews were conducted and recorded
  + analytical approach
  + ethical considerations and approval.
* **Describe the results of the study:** Start by describing how many interviews were undertaken and over what time period. Tell the story of the results, and how they relate to the research questions. Focus on the concepts and themes, and how they relate to the research questions. If links between the themes and concepts were identified, describe these links also, but take care to justify how and why these links were made, using the data as evidence.
* **Avoid using numerical statements:** Avoid sentences that describe how many participants had a certain trait or described a certain attitude. Qualitative data are not about prevalence, but about understanding *why* or *how* something is happening. The purposive method of sampling and the smaller sample sizes mean that statements such as, “25% said they were worried about vaccine safety” can be misleading. When reporting qualitative results, it is best to focus on the concept rather than how many people said it. For example, the previous statement could be better phrased as “the safety of the vaccine was a concern among the participants…”.
* **Use quotes to illustrate the concept or theme being reported:** Quotes should be carefully de-identified, short and to the point.
* **Where possible, illustrate the range or diversity in the findings:** When discussing the concepts, be sure to discuss any opposing findings, and include illustrative quotes where appropriate.

# **Act on the data: moving from findings to interventions**

## **4.1 Behaviourally informed interventions**

The BeSD COVID-19 tools are designed to guide users towards options for increasing uptake of vaccines. These are broadly represented by the four BeSD domains (Fig. 1.1).

This section outlines the steps to use the data and insights to identify problem areas and develop interventions to respond, with the objective to increase acceptance and uptake (please see the three tables in [Annex 6](#_Annex__F:). Tables A6.1 and A6.2 list survey indicators and group interventions corresponding to each of the BeSD domains that they measure and address. Table A6.1 lists suggested interventions for health care workers and Table A6.2 lists suggested interventions for adults 65+ and adults with pre-existing conditions.

The contents of the tables in Annex 6 are informed by a systematic literature review on Medline using search criteria that included papers discussing vaccination, behavioural insights and interventions. We retrieved 14 427 studies based on this search, which we narrowed down to 663 based on a title and abstract review and then a full text review. We then evaluated those papers to include only those with interventions targeting one of three priority populations: health care workers, older adults, and adults with pre-existing conditions. This gave us a final sample of 41 papers, 25 of which corresponded to the BeSD domains and can be found in the list of [references](#_References).

Interventions were broadly classified as being an educational campaign, on-site vaccination, incentives, free/affordable vaccine, institutional recommendation, provider recommendation, reminder and recall, message framing, and vaccine champion. Some interventions fell outside these categories and are noted as such. Table A6.3 presents both the strength of the interventions graded based on best practices, as outlined by the Oxford Centre for Evidence Based Medicine and Cochrane Review, and the likely impact of the intervention from findings described in a meta-analysis.

## **4.2 Translating findings into interventions**

Once BeSD surveys results have been analysed and the team has identified problem areas where indicators do not meet expectations, these problem areas can be matched up to interventions for health workers, adults 65+, and adults with pre-existing health conditions.

If there are multiple interventions to choose from that have similar feasibility, it is best to choose the intervention with high likely impact, high strength of evidence, and one that fits the local context. Work with local partners and stakeholders to review and select interventions; potentially also consider factors such as relevance, cost and sustainability.

The interventions offered have been classified according to scientific evidence, but further detail can be found by accessing the reference list at the end of the tables. Not all indicators have a direct evidence-based intervention, but as evidence emerges, we will add to this list. Limited implementation data were available to allow us to evaluate the feasibility of the interventions. Hence, use local knowledge to evaluate whether the intervention is feasible in specific contexts. Many of the interventions were implemented as part of a package of interventions. Therefore, we suggest packaging interventions together to address different aspects of the immunization process.

Interventions should generally follow patterns of influence:

* Interventions that correspond to indicators for “what people think and feel” should increase risk perception of COVID-19 and acceptance of COVID-19 vaccine safety and efficacy.
* Interventions that correspond to indicators for “social processes” should reinforce the norm that most people want to get vaccinated, and there is social support for vaccination.
* Interventions that correspond to indicators for “motivation” should increase intentions and overall motivation to vaccinate.
* Interventions that correspond to indicators for “practical factors” should decrease barriers to vaccination that are structural or systems-oriented.

To facilitate monitoring and evaluation (M&E) of interventions that are eventually implemented, please see the framework in [Annex 7](#_Annex_G._Sample). This example framework also offers key indicators that correspond with the BeSD survey items; we recommend prioritizing use of these items in surveys and tracking these indicators to monitor changes over time.

## **4.3 Using BeSD indicators**

The BeSD survey indicators can be particularly helpful if you are planning to monitor changes over time or measure the impact of your interventions. The BeSD indicators are framed around immunization programme gains, to align with existing immunization indicators such as coverage. **When the percentage value corresponding with an indicator is low, the indicator is faring poorly, and an intervention action is recommended**.

Deciding when an indicator is performing poorly enough to require action is at the discretion of each country, and can be decided based on local knowledge and in consultation with key stakeholders. Work to establish the full range of conditions required to facilitate high uptake in target populations, noting that COVID-19 vaccine is new and may require a comprehensive approach.

## **4.4 Selecting interventions without using data from the BeSD tools**

****It is highly recommended that data be collected using the BeSD tools ahead of intervention design (even if just a small number of items to support tracking of indicators). However, if you are unable to collect data using the BeSD survey tools, country teams can use locally available data to evaluate whether there are problem areas for demand. Examples of existing data sources include coverage surveys; knowledge, attitude, practices (KAP) studies with target populations; in-depth interviews with stakeholders; or traditional or social media monitoring data. If local data are not available, use local knowledge to select interventions based on feasibility and need. Select interventions based on local expert and stakeholder consensus, including community representatives, behavioural scientists, and programme managers. Care must be taken not to ascribe one’s own hunches or anecdotal stories as a diagnosis of the problem in place of measurable indicators.

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# **Annex 1: Survey and interview guides**

## **Surveys and item rationale**

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| The table below compiles survey items for both adults and health workers. Table cell colours are indicative of the domain  (thinking and feeling, social processes, motivation and practical issues).  A total of 21 BeSD items apply to adults, and up to 28 BeSD items can apply to respondents who are health workers. To supplement the BeSD COVID-19 items, included below are also recommended consent script (S0) with adaptable fields for countries to modify and use as appropriate, and six socio-demographic items (S1–S6) for country adaptation. These supplementary items (S0–S6) are considered the minimum necessary for quality data collection and analysis. These can be used and adapted as needed to support the research objectives.  Researchers may also carefully choose to add specific new socio-demographic items to support more granular interpretation of the data. The survey flow adopts the logic of “facts” before “attitudes”, and “attitudes” before “intentions”, and moves from general immunization items to COVID-19 vaccine specific items. The column “item rationale” contains important information for translation and local adaption of items, including how to adapt items for post-vaccine introduction.  Wording in [square brackets] is to indicate terminology that will likely need to be locally adapted.  Text all in CAPITALS is an instruction for the interviewer and must not be read aloud for participants. |

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|  | **Construct** | **Item rationale** | **Adult item** | **Health worker item** |
| S0 | **Consent** | This item serves as an example of text to be included to capture respondent’s informed consent to their participation in the study.  The wording in [square brackets] can be adapted at the local level to reflect accurate information in the relevant fields.  Text in ALL CAPITALS is an instruction for the interviewer and must not be read aloud for participants. | Hello, I am [INTERVIEWER’S NAME] with [INSTITUTION OR ORGANIZATION NAME]. We are interviewing people to help improve vaccination services in [NAME OF COUNTRY].  I know you are busy, so this will take only a few minutes. Your participation is completely voluntary and anonymous. If you do not want to answer a question or wish to stop the interview, just let me know.  Would you be willing to take the survey?   * Yes * No   IF “YES” TO S0: Thank you very much. Do you have any questions for me before we begin?  PROCEED TO SURVEY SCREENER AFTER ADDRESSING ANY QUESTIONS.  IF “NO” TO S0: Thank you very much. END INTERVIEW. | [same as Adult] |
| S1 | **Age** | Item collects age in number of completed years, this will allow for stratified analysis by age of respondents. This item can also serve to screen in or screen out participants for inclusion based on the study sampling methodology. | How old are you?  \_\_\_\_\_\_\_\_\_ years | [same as Adult] |
| S2 | **Gender** | Item collects gender identity of respondents to allow for stratified analysis. The third response option can be included in contexts where specific third gender categories are culturally recognized; this response option can be adapted as appropriate based on in-country considerations or consultation. | What is your gender?   * Woman * Man * Non-binary or transgender * Prefer not to say | [same as Adult] |
| S3 | **Occupation** | This item enables sorting of respondents for the right survey as needed. Inclusion of this item will allow analysis for intentions to be stratified by whether someone is a priority occupational group or not.  This item can also serve to screen in or screen out participants for inclusion based on the study sampling methodology.  “Essential services worker” refers to other non-health frontline workers (e.g. police, transport service workers, grocery store staff, etc.).  The categories may be locally adapted to ensure they are appropriate to the specific context and allow for disaggregated data as needed. Some countries may choose to delineate between frontline and non-frontline health workers. | Which of the following best describes your work during the COVID-19 pandemic?   * Health worker * Essential services worker * Educator * Other worker * Not currently in paid work * Retired * None of the above | [same as Adult] |
| S4 | **Health worker role** | This item allows for categorization of health workers into common roles or functions within the health system. If included, this item enables more detailed analysis of health worker role and stratification of results.  The response options offered should be adapted in-country at national or even subnational level to reflect the most appropriate role categorizations based on the types of health workers most likely to be at risk of COVID-19 infection/most exposed to COVID-19. | n/a | What is your current role?   * Doctor * Nurse * Paramedic/first responder * Allied health * Community health worker * Traditional healer * Other health worker |
| S5 | **Comorbidities or underlying conditions** | This item assesses whether the respondent has any underlying illness, comorbidities or health conditions that make the respondent a higher priority for vaccination. Inclusion of this item would allow for stratification of results by comorbidities.  This item can also serve to screen in or screen out participants for inclusion based on the study sampling methodology. | Do you have a chronic illness?   * Yes * No * Not sure | [same as Adult] |
| S6 | **Previously diagnosed with COVID-19** | Previous infection with COVID-19 can be perceived as a reason to not vaccinate, and countries may want to stratify data on intentions to be vaccinated according this. This item can also serve to screen in or screen out participants for inclusion based on the study sampling methodology.  When a COVID-19 vaccine becomes available in-country, researchers may choose to include an item to assess whether the respondent has received a COVID-19 vaccine. If several are available in the country, an item to ask which vaccine the respondent received may also be added. | To your knowledge, are you, or have you been, infected with COVID-19?   * Yes * No   IF “YES”:  Was it mild or severe?   * Mild * Severe   Was it confirmed by a test?   * Confirmed by a test * Not confirmed by a test | [same as Adult] |

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| 1 | **General vaccination – been to vaccination facility** | This item assesses whether the respondent has ever received any vaccine (including e.g. seasonal influenza vaccine) as an adult. This refers to existing vaccines, already on the immunization programme schedule in countries where a life course approach is taken. A “not sure” response option is included here as it is likely some older adults may not easily be able to recall such information.  When a COVID-19 vaccine becomes available in your country, the item may be adapted to:  Have you ever received a COVID-19 vaccine?  Yes  No  Not sure | Have you ever received a vaccine as an adult?   * Yes * No * Not sure | [same as Adult] |
| 2 | **General vaccination – know where to get vaccination** | This item assesses whether the respondent knows where to go for vaccination. The item is about knowing that the facility or vaccine provider exists and where it is located. The item is not about ability to access or use the services.  When a COVID-19 vaccine becomes available in your country, the item may be adapted to:  Do you know where to go get a COVID-19 vaccine for yourself?  Yes  No | Do you know where to go to get yourself vaccinated?   * Yes * No | [same as Adult] |
| 3 | **General vaccination – on-site vaccination availability** | This item assesses availability or existence of vaccination services at work (on site) for health workers only. This item can also be applied to adults in countries where it is not uncommon to offer adult vaccines in workplaces. A “not sure” response option is included here as some may not be aware of the presence of any on-site vaccination in their place of work.  When a COVID-19 vaccine becomes available in your country, the item may be adapted to:  Is a COVID-19 vaccine available for you to get at your place of work?  Yes  No  Not sure | n/a | Have any vaccines ever been available for you to get at your place of work?   * Yes * No * Not sure |
| 4 | **General vaccination – ease of access**  **INDICATOR:**  % of adults/HCWs who believe that accessing vaccination for themselves is "very” or “moderately" easy | This item assesses the degree to which vaccination is easy to get for themselves. The item looks at ease of access in general and leads into the next question.  “Easy” refers to achievable, possible without great effort, not hard, and not difficult.  “Vaccination services” refers to access to vaccination.  When a COVID-19 vaccine becomes available in your country, the item may be adapted to:  How easy is it to get a COVID-19 vaccine for yourself?  Not at all easy   * A little easy * Moderately easy * Very easy | How easy is it to get vaccination services for yourself? Would you say…   * Not at all easy * A little easy * Moderately easy * Very easy | [same as Adult] |

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| 5 | **General vaccination – reasons for low access**  **INDICATOR:**  % of adults/HCWs endorsing each reason for vaccination being hard | This item assesses the reasons why vaccination is difficult to get. Respondents can choose multiple response options here. There is no skip logic for this item, it must be asked of all respondents.  Response options explained:   * “I can’t go on my own” is to capture people with mobility impairment who cannot travel without assistance. * “Too far away” refers to geographical distance. * “Inconvenient” refers to opening hours that do not suit the respondent. * “Turns people away” refers to sending people, who came specifically for vaccination, home without vaccination. * “Takes too long” refers to the waiting times at the place of vaccination. * “Costs too much” refers to the cost of the vaccine as well as any additional costs associated with vaccination (transport, the cost of taking time away from work, or payments to the vaccine provider/clinic). * “Unable to leave work duties” refers to the health worker being unable to make time for vaccination along their work responsibilities. * “No on-site vaccine” addressed here as a barrier to vaccination to allow for discrete analysis within this item. * “Mobile vaccination” refers to outreach immunization services for health workers in the community.   When a COVID-19 vaccine becomes available in your country, the item may be adapted to:  What makes it hard for you to get a COVID-19 vaccine? Choose all that apply.  INCLUDE CURRENT RESPONSE OPTIONS, AND ADD: COVID-19 vaccination is not yet available for me | What makes it hard for you to get vaccines?  Check all that apply.   * Nothing. It’s not hard * Vaccination costs too much * I can’t go on my own (I have a physical limitation) * The vaccination site is too far away * The opening times are inconvenient * People are turned away without vaccination * The waiting time is too long * Something else, please specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | What makes it hard for you to get vaccines?  Check all that apply.   * Nothing. It’s not hard * Vaccination costs too much * The opening times are inconvenient * I am unable to leave work duties * There is no on-site vaccination at my place of work * Mobile vaccination is not available * The waiting time is too long * Something else, please specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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|  | ***Prime*** | This is text to introduce the next set of questions and facilitate the flow of the survey.  When a COVID-19 vaccine becomes available in your country this prime can be removed. | The next questions are about COVID-19 and a COVID-19 vaccine. | * [same as Adult] |
| 6 | **Perceived risk – self** | This item assesses the degree to which the respondent perceives a risk of getting COVID-19 themselves. “Concern” is similar to worry or thinking about a problem; it is not directly about fear or anxiety or emotion. | How concerned are you about getting COVID-19?   * Not at all concerned * A little concerned * Moderately concerned * Very concerned | * [same as Adult] |
| **7** | **Perceived risk – family and friends** | This item assesses the degree to which the respondent perceives a risk of giving COVID-19 to their close family and friends; the people in their immediate social circles, with whom they have frequent and close contact. This item only applies to health care workers. “Concern” is similar to worry or thinking about a problem; it is not directly about fear or anxiety or emotion. | n/a | * How concerned are you about your close family and friends getting COVID-19 from you? * Not at all concerned * A little concerned * Moderately concerned * Very concerned |
| 8 | **Perceived risk – patients** | This item assesses the degree to which the respondent perceives a risk of giving COVID-19 to their patients. This item only applied to health care workers. “Concern” is similar to worry or thinking about a problem; it is not directly about fear or anxiety or emotion. | n/a | How concerned are you about your patients getting COVID-19 from you?   * Not at all concerned * A little concerned * Moderately concerned * Very concerned |
| 9 | **COVID-19 vaccine – stigma** | This item assesses whether a health worker believes they have been treated negatively, discriminated against, or stigmatized because of their job as a health worker during the COVID-19 pandemic. This could include treatment such as harassment or even social exclusion (the belief that others avoid them because they are at risk of getting and infecting others with COVID-19). | n/a | Have you been treated poorly during the COVID-19 pandemic because you are a health worker?   * Yes * No * Not sure |
| 10 | **COVID-19 vaccine – trust in new vaccine**  **INDICATOR:**  % of adults/HCWs who would trust the new COVID-19 vaccine “moderately” or “very much” | This item assesses whether the novelty of the COVID-19 vaccine, its “newness” is a factor in respondents’ confidence in a COVID-19 vaccine benefits.  This item is not about safety or efficacy of a vaccine, this item is about confidence in a *new* vaccine. | How much would you trust the new COVID-19 vaccine if it were available for you now?   * Not at all * A little * Moderately * Very much | [same as Adult] |
| 11 | **COVID-19 vaccine – confidence in benefits**  **INDICATOR:**  % of adults/HCWs who think a COVID-19 vaccine is “very” or “moderately” important for their health | This item assesses positive attitude toward COVID-19 vaccination. The main idea is that vaccination is good, important and valuable. A related idea is that vaccination is effective, prevents disease, saves lives and protects those vaccinated. | How important do you think getting a COVID-19 vaccine will be for your health? Would you say…   * Not at all important * A little important * Moderately important * Very important | [same as Adult] |
| 12 | **COVID-19 vaccine – confidence in protecting others** | This item assesses belief in herd immunity. The main idea is that the benefits of vaccination spill over to people *not* vaccinated, and that vaccinating themselves against COVID-19 protects other people because it reduces the spread of disease.  “Community” is similar to neighbourhood, district, area, village or town. It can also refer to a subgroup defined by race or national origin. Community suggests people the respondent knows by name and other people known less well but encountered in public places like markets or on the street. | How much do you think getting a COVID-19 vaccine for yourself will protect other people in your community from COVID-19?   * Not at all * A little * Moderately * Very much | [same as Adult] |
| 13 | **COVID-19 vaccine – confidence in vaccine safety (safe)** | This item assesses negative attitude toward COVID-19 vaccination for themselves. The main idea is the belief that the vaccine is safe and is not dangerous or harmful.  BeSD offers two items (13 & 14) that assess this general concept, acknowledging that the word “safety” may not translate well across all languages. Countries should choose whether they want to include one or both. If the concept “safety” translates satisfactorily we recommend use of this question (13) over question 14. | How safe do you think a COVID-19 vaccine will be for you? Would you say…   * Not at all safe * A little safe * Moderately safe * Very safe | [same as Adult] |
| 14 | **COVID-19 vaccine – confidence in vaccine safety (harms)** | This item assesses negative attitude toward COVID-19 vaccination for themselves. The main idea is the belief that vaccination is unsafe, dangerous, and will harm them. “Concern” is similar to worry or thinking about a problem; it is not directly about fear or anxiety or emotion.  This item assesses the same construct as the previous item (13), but its meaning may come across differently in field-testing and in some case may spark concern by sensitizing respondents. Choose whether to include one or both these items. | How concerned are you that a COVID-19 vaccine could cause you to have a serious reaction? Would you say…   * Not at all concerned * A little concerned * Moderately concerned * Very concerned | [same as Adult] |
| 15 | **COVID-19 vaccine – intention**  **INDICATOR:**  % of adults/HCWs who will get a COVID-19 vaccine if it is available to them | This item assesses intention to receive a COVID-19 vaccine, if a medical professional advises them to do so.  Countries can add an open text follow up question if desired:  What is the main reason for your answer?  [OPEN TEXT RESPONSE] | If a COVID-19 vaccine is available to you, will you get it?   * Yes * No * Not sure | [same as Adult] |
| 16 | **COVID-19 vaccine – extent of Intention** | This item assesses the extent of the respondents’ willingness to or intention to accept a COVID-19 vaccine for themselves. This relates to the previous question, but in asking “how much” this item measures their commitment to see their decision through about vaccination. | How much do you want to get a COVID-19 vaccine? Would you say…   * Not at all * A little * Moderately * Very much | [same as Adult] |
| 17 | **COVID-19 vaccine – willingness to recommend**  **INDICATOR:**  % of HCWs who would recommend a COVID-19 vaccine to eligible individuals | This item assesses health workers’ willingness to recommend, or promote a COVID-19 vaccine to persons who are eligible candidates for COVID-19 vaccines.  When a COVID-19 vaccine becomes available in your country, the item may be adapted to:  Would you recommend a COVID-19 vaccine to eligible patients?  Yes  No  Not sure | n/a | Would you recommend a COVID-19 vaccine to eligible individuals, when it becomes available?   * Yes * No * Not sure |
| 18 | **COVID-19 vaccine – preferred site for vaccination** | This item assesses respondents’ preferred location to receive a COVID-19 vaccine. There is no skip logic for this item, it must be asked of all respondents.  Response options must be locally adapted to reflect the sites or locations most likely to be considered for the administration or delivery of a COVID-19 vaccine. | Where would you prefer to get a COVID-19 vaccine?   * Hospital * Health centre/clinic * Workplace * Pharmacy * Community centre, meeting hall, or local shop * Somewhere else, please specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ * I don’t want the vaccine | [same as Adult] |
| 19 | **COVID-19 vaccine – capacity to support information needs** | This item measures positive attitude of health workers’ capacity to support patients with their information needs about a COVID-19 vaccine once it becomes available.  When a COVID-19 vaccine becomes available in your country, adapt the item to:  How confident are you that you could answer patient questions about getting a COVID-19 vaccine?  Not at all confident  A little confident  Moderately confident  Very confident | n/a | How confident are you that you could answer patient questions about getting a COVID-19 vaccine once it is available?   * Not at all confident * A little confident * Moderately confident * Very confident |
| 20 | **COVID-19 vaccine – decision autonomy** | This item assesses whether respondents have autonomy or joint decision-making abilities for COVID-19 vaccination. “Final say” refers to the last word, the main decider, a decision that no one else in the family can easily override.  Data can be stratified by gender to assesses women’s role in decisions about vaccination. | In your family, who will have the final say about whether you get a COVID-19 vaccine?   * Me * My spouse/partner * My mother * My father * My mother-in-law * My father-in-law * My daughter(s) * My son(s) * Someone else, please specify: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | [same as Adult] |
| 21 | **COVID-19 vaccine – travel autonomy** | This item assesses freedom of the respondent to leave the home to get a COVID-19 vaccine.  Data can be stratified by gender to assesses women’s travel autonomy. | If it was time for you to get a COVID-19 vaccine, would you need permission to go and get it?   * Yes * No | [same as Adult] |
|  | ***Prime*** | This is text to introduce the next set of questions and facilitate the flow of the survey. | For the next questions, imagine that a COVID-19 vaccine is recommended for you. | [same as Adult] |
| 22 | **COVID-19 vaccine – family norms**  **INDICATOR:**  % of adults/HCWs who think most of their close family and friends would want them to get a COVID-19 vaccine | This item assesses injunctive social norms— beliefs about what close social contacts want the respondent to do.  “Close family and friends” include people with opinions the respondent would listen to or feel some degree of pressure to heed. | Do you think most of your close family and friends would want you to get a COVID-19 vaccine?   * Yes * No * Not sure | [same as Adult] |
| 23 | **COVID-19 vaccine – community and religious leader norms** | This item assesses injunctive social norms—beliefs about what opinion leaders want the respondent to do.  “Community” may refer to a neighbourhood or region or a social group defined by a characteristic such as race or national origin.  “Community leader” includes people who represent a neighbourhood, region or subgroup of people.  “Religious leader” includes priests, clerics, imams, rabbis and others in similar roles. | Do you think your community leaders or religious leaders would want you to get a COVID-19 vaccine?   * Yes * No * Not sure | [same as Adult] |
| 24 | **COVID-19 vaccine – descriptive social norms** | This item assesses descriptive social norms—beliefs about what other people are doing.  “Most adults you know” includes friends, people at work, and people in the neighbourhood who they may not have close social ties to. It does not include people they have never met.  This item does not apply to health workers, a specific health worker item is offered below to correspond. | Do you think most adults you know will get a COVID-19 vaccine, if it is recommended to them?   * Yes * No * Not sure | n/a |
| 25 | **COVID-19 vaccine – workplace norms**  **INDICATOR:**  % of HCWs who think most of the people they work with will get a COVID-19 vaccine | This item assesses descriptive social norms—beliefs about what other people are doing.  “Most people you work with” includes all colleagues and people at their place of work who could be eligible for a COVID-19 vaccine.  This item does not apply to adults, a specific adult item is offered above to correspond. | n/a | Do you think most of the people you work with will get a COVID-19 vaccine?   * Yes * No * Not sure * I am not currently working |
| 26 | **COVID-19 vaccine – safe to see friends** | This item assesses whether freedom to see family and friends safely could be a motivator to get a COVID-19 vaccine. “Safely” refers to the lack of worry or concern for exposing family and friends to the virus once vaccinated. | Do you think that getting a COVID-19 vaccine will allow you to safely see your family and friends again?   * Yes * No * Not sure | [same as Adult] |
| 27 | **COVID-19 vaccine – confidence in providers** | This item assesses confidence in the people responsible for recommending and administering vaccines.  “Trust” refers to belief that the provider will be competent, reliable and give good health care.  “Health care provider” will need local adaptation to indicate the medical professionals responsible for recommending and/or administering adult vaccination (i.e. general practitioner, or primary health care physician and assisting nurses or vaccinators). | How much do you trust the [health care providers] who would give you a COVID-19 vaccine? Would you say you trust them…   * Not at all * A little * Moderately * Very much | [same as Adult] |
| 28 | **COVID-19 vaccine – negative information** | This item assesses exposure to negative rumours and misinformation about any COVID-19 vaccine.  “Seen” could include viewing something in traditional media like TV news show, exposure through social media, and reading a story in a newspaper.  “Heard” could also include what people heard from family, friends, strangers, organizations, or the media.  “Anything bad about vaccines” includes negative, inaccurate, and misleading information about vaccines.  The item is not about how the rumours or misinformation may have influenced the person, but statistical analysis these data and intention data can allow for calculation of these correlates. | Have you seen or heard anything bad aboutCOVID-19 vaccines?   * Yes * No | [same as Adult] |

## **Visual response scale**

The following visual response scale may also be useful in certain settings to facilitate understanding of the four-point response options.



## **Qualitative interview guide**

* The questions below are designed to be asked in a context where a COVID-19 vaccine is available. In contexts where multiple vaccines are available for use, questions should be modified and refer to “the COVID-19 vaccine**s**” accordingly. In this instance it may be useful to understand whether perceptions, norms and willingness to accept a COVID-19 vaccine is dependent on which vaccine is being offered; interviewers should use probes for all vaccines available in the local context.

If these questions are to be used in a context where a COVID-19 vaccine is not yet available, then the questions will need to be modified accordingly. For example, the COVID-19 vaccine confidence question, “How do you feel about the COVID-19 vaccine” would be modified for a pre-vaccine rollout context by adjusting the wording to, “How do you think you’ll feel about the COVID-19 vaccine when it becomes available?”.

* Some questions will be worded differently, depending on whether the interviewee has had the vaccine or not. In these questions wording for both scenarios is included. Choose the wording that is appropriate for the interviewee.
* Table cell colours are indicative of the domain (thinking and feeling, social processes, motivation and practical issues).

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| **Construct** | **Adult** | **Health worker** | **Rationale** |
| **General** | Tell me a little about yourself | Tell me a little about yourself  Tell me a little about your role | * Warm-up question * Orients interviewer to participant’s situation |
| **Thoughts and feelings** | | | |
| Perceived COVID-19 risk – self | Tell me, how concerned are you about getting COVID-19?  Probe:   * Why do you feel that way? * How likely do you think it is? * How severe do you think it would be? | Tell me, how concerned are you about getting COVID-19?  Probe:   * Why do you feel that way? * How likely do you think it is? * How severe do you think it would be? | * Understand the participant’s perceived risk due to COVID-19 (disease, not vaccine) * Will tie in with later question about getting COVID-19 vaccine when available |
| Perceived risk – to patients | n/a | Tell me what you think about the risk that you could give COVID-19 to your patients? | * Understand participant’s perceived risk of infecting others |
| COVID-19 stigma  **(social pressures)** | n/a | Being a health care worker, how are you usually treated by others in the community?  Probe:   * Have you noticed anything different in how you’re treated since the pandemic? | * Enables probing for the presence of/experience of stigma, which will tie in with vaccine question below |
| COVID-19 vaccine information | What have you heard about the COVID-19 vaccine(s)?  Probe:   * Have you heard anything that worries you? * Who did you hear this from? * Do you think it’s true? Why? * Have you heard anything that makes you feel positive about the vaccines that are being developed? | What have you heard about the COVID-19 vaccine(s)?  Probe:   * Have you heard anything that worries you? * Who did you hear this from? * Have you heard anything that makes you feel positive about the vaccines that are being developed? | * Ask what they know about the vaccine – enables probing for positive or negative information |
| COVID-19 vaccine confidence | How do you feel about the COVID-19 vaccine(s)?  Probes:   * If multiple vaccines available, what are the perceptions of each? * Relate back to perceived COVID-19 risk, and how important it is * Importance in protecting others * Alignment with spiritual or religious beliefs (ask for all COVID-19 vaccines available) * What are your thoughts about the safety of the vaccine? (ask for all COVID-19 vaccines available) * Newness * Thoughts on whether it works (ask for all COVID-19 vaccines available) | How do you feel about the COVID-19 vaccine(s)?  Probes:   * If multiple vaccines available, what are the perceptions of each? * Relate back to perceived COVID-19 risk, and how important it is * Importance in protecting others * Alignment with spiritual or religious beliefs (ask for all COVID-19 vaccines available) * What are your thoughts about the safety of the vaccine? (ask for all COVID-19 vaccines available) * Newness * Thoughts on whether it works (ask for all COVID-19 vaccines available) | * Elicits the participant’s confidence in the vaccine, probe questions will cover the different aspects, such as safety, importance etc. |
| COVID-19 vaccine confidence in providers | n/a | n/a | Trust in health providers will be covered in service satisfaction below |
| **Motivation** | | | |
| COVID-19 vaccine intention | Have you thought about getting a COVID-19 vaccine? What did you decide? (Why?)*…..Follow on to next question (combine)* | Have you thought about getting a COVID-19 vaccine? What did you decide?? (Why?) *….. Follow on to next question (combine)* | * Elicits what their intentions and decisions are towards the vaccine. “Why” probe may be repetitive of questions answered above, might be a good point to triangulate their responses |
| **Social processes** | | | |
| COVID-19 vaccine – decision process | Take me through how you will or have decided whether to get a COVID-19 vaccine  Probe:   * Was there anyone else involved in the decision? * Who else did you discuss it with? | Take me through how you will or have decided whether to get a COVID-19 vaccine  Probe:   * Was there anyone else involved in the decision? * Who did you discuss it with? * Is it a requirement from your employer? | * Covers decision autonomy, but also the decision-making process more broadly, with a view to understanding what kinds of social processes might be involved |
| COVID-19 vaccine – safe to see family and friends | (if already had the vaccine) Has getting a COVID-19 vaccine changed things for you? (If haven’t had the vaccine) How do you think getting a COVID-19 vaccine might change things for you?  Probe:   * See family and friends * going out in public * Going back to work | (if already had the vaccine) Has getting a COVID-19 vaccine changed things for you? (If haven’t had the vaccine) How do you think getting a COVID-19 vaccine might change things for you?  Probe:   * See family and friends * Going out in public | * This covers the item in the survey, but has been expanded to look for unexpected ways a COVID-19 vaccine might impact people |
| COVID-19 vaccine stigma | n/a | (If they answered in the affirmative to the stigma question above): Do you think having the COVID-19 vaccine will help / has helped with the stigma we spoke about earlier? Why? | This question is really only relevant if the participant describes any kind of stigma in the question above. Suggest not asking if they don’t report having experienced or heard of it happening |
| COVID-19 vaccine – travel autonomy | n/a | n/a | Travel autonomy covered in practical factors below |
| COVID vaccine   * Descriptive social norms * Family norms * Religious leader norms * Workplace norms | If a COVID-19 vaccine is recommended by health care workers, what do you think other people will do?  Probe:   * Family and friends * Religious or community leaders recommend? * If more than one vaccine available; is this true for all COVID-19 vaccines or does it depend on which vaccine is recommended? | If a COVID-19 vaccine is recommended by health care workers, what do you think other people will do?  Probe:   * Family and friends * Religious or community leaders recommend? * What do you think your work colleagues will do? * If more than one vaccine available; is this true for all COVID-19 vaccines or does it depend on which vaccine is recommended? | * Elicits what they anticipate will be the social norms regarding uptake of COVID-19 vaccination |
| Provider recommendation | What do you think your health care provider’s recommendation will be to you about the COVID-19 vaccine(s)? | What do you think your health care provider’s recommendation will be to you about the COVID-19 vaccine(s)? | * Anticipated recommendations |
| General provider recommendation (any adult vaccine) | n/a | n/a | General provider recommendation covered in practical issues below |
| **Practical issues** | | | |
| Ever gone to get vaccines | Did you have any vaccines as a child? What do you remember about it?  Probe:   * Experiences, good and bad   Have you ever had a vaccine as an adult? Have you ever had one recommended to you by a health care worker?  (If previously vaccinated as an adult): Thinking about when you got that vaccine, what did you think was good about what happened in the clinic? Was there anything that wasn’t good? | Have you ever had a vaccine as an adult? Have you ever had one recommended to you by a health care worker? What about your employer?  (If previously vaccinated as an adult):  When you got that vaccine, what did you think was good about what happened in the clinic? Was there anything that wasn’t good? What do you think might work better for you next time? | * Start with past general vaccination experiences, including, if applicable, service satisfaction in past experiences |
| COVID-19 vaccine –   * On-site vaccine availability * access * General vaccination – know where to get vaccines * Vaccination availability * General vaccine – affordability * General vaccine – service satisfaction * General vaccine – service quality | Can you take me through how you would get / how you got a COVID-19 vaccine? Start at the beginning  Probe:   * Would / did you need to ask permission? * Where would / did you go to get it? * How would / did you get there? * What other things would / did you need to do (e.g. find care for young children, find someone to take care of livelihood/get up earlier to take care of household duties) * Would there be / was there any cost involved for you (not just for vaccine, but things like transport) * How much do you trust the health care worker who will give you the vaccine?   What would make it easy for you to get a COVID-19 vaccine if it was recommended and available? / What would make it easier for you to get a COVID-19 vaccine? | Can you take me through how you would get / how you got a COVID-19 vaccine? Start at the beginning  Probe:   * Would / did you need to ask permission? * Where would / did you go to get it? (Is the vaccine available at your workplace?) * How would / did you get there? * Would / did you have to do it in your own time (not while you’re on duty)? * Would there be / was there any cost involved for you (not just for vaccine, but things like transport) * How much do you trust the health care worker who will give you the vaccine?   What would make it easy for you to get a COVID-19 vaccine if it was recommended and available? / What would make it easier for you to get a COVID-19 vaccine? | * Ask for a narrative of how they might access the vaccine, covering things like cost, missed workdays, transport, any permissions needed etc. * Also cover what they feel might make accessing the vaccine easier for them |
| **Close** | Is there anything else you’d like to say? | Is there anything else you’d like to say? | Leave option for unexpected findings, or elaboration on things expressed previously. |

# **Annex 2: Guidance for adapting the BeSD survey**

The aim of the BeSD project is to develop a set of standardized and globally comparable tools to measure the drivers of vaccination and inform programme planning. **Quality translation from English to other languages and careful local adaptation is important to ensure the survey is understood the same way across cultures and languages, and measures the same concepts in a globally comparable manner.**

To enhance the quality of data, test the BeSD tools following translation. The tools may then be adapted with minor revisions to suit the local setting, before data collection. For the qualitative interview guides, use pilot study insights to inform any refinements to the interview questions, probes and flow. For the BeSD survey, a process of cognitive interviewing is recommended to improve the quality of translations and support careful adaption to survey items.

**How to carry out cognitive interviewing to test and locally adapt the survey?**

This is a brief guide to using cognitive interviewing to improve the BeSD COVID-19 survey. **Cognitive interviewing is a process for improving the quality of a survey**, to ensure questions and response options are understood as intended, are well-adapted to a local context, and measure what they are designed to measure. **Recruit** **participants for cognitive interviewing from the target population.** In this case, this may be health workers or other adults who may qualify to receive a COVID-19 vaccine.

Schedule separate interviews with participants and follow the steps below for each survey item (each survey question and its corresponding response options), one item at a time. Assume 2–3 minutes’ interview length per item. Where possible, aim to conduct two rounds of interviews with four to eight respondents per round. However, conducting even one round of interviews with as few as four people can offer meaningful insights to improve the survey significantly.

1. Ask the respondent the question (including response options) and allow them to answer.
2. Ask the respondent about the question they just answered, using probes to understand if…

* **The question is easy to understand and it makes sense:**

*“In your own words, what is this question asking?”* or *“What does this question mean to you?”* to check the item was well understood*.*

* **The ideas or words in the question and response options are easy to understand:**

Ask generally, “*Did this question make sense to you? Why/why not?”* or probe around specific words or concepts that may be difficult to understand. *“What do you think of when you hear the phrase ‘getting vaccines’?”*

* **The response options make sense and allow for meaningful answers:**

*“Do the response options fit in with the sort of answer you want to give?”*

* **There are any response options that are missing:**

“*Was there anything missing from the list of response options*?” to check the options are adequate.

* **The question and response options are relevant in the country or region:**

Ask generally, “*Did the response options offered make sense to you? Why/why not?*” or probe around specific words or concepts that could be interpreted differently *“What do you think of when you hear the phrase ‘vaccination clinic’?”*

If using **the visual response scale,** if questions are being asked in-person (not self-administered), the interviewer should point to the correspondingpart of thevisual analogue scalewhen that response option is being verbalized. This helps respondents understand the meaning and the connection with the circles.

After conducting the first round of cognitive interviews, review the feedback from participants. Were the items understood as intended? Did the response options allow them to answer meaningfully? Are the items appropriate in the local setting? If needed, adapt questions and response options using the insights. Table A2.1 below offers an example for organizing items and cognitive interview insights when considering revisions. Document the findings and recommendations or adaptions made.

**Table A2.1 Example cognitive interview probes, findings and recommendations**

|  |  |  |  |
| --- | --- | --- | --- |
| **Survey item** | **Probes** | **Findings** | **Recommendations** |
| How safe do you think a COVID-19 vaccine will be for you? Would you say…  Not at all safe  A little safe  Moderately safe  Very safe | * What does the word “safe” mean to you? * Did the response options offered make sense to you? Why/why not? | * “Safe” did not translate so well; respondent 3: “I think it is totally harmless – 100% good” * Respondents not sure of the degree of difference on the response scale * - Visual scale very helpful | * Be sure interviewers have a printed visual scale to use at every interview |
| How much do you trust the [health care providers] who would give you a COVID-19 vaccine? Would you say you trust them  Not at all  A little  Moderately  Very much | * What does the term “health care provider” mean to you? * Who would normally give you your vaccines? | * “Health care provider” associated with clinic management * “Vaccinator” suggested by ¾ respondents as more appropriate term | * Rephrase item: How much do you trust the **vaccinators** who would give you  a COVID-19 vaccine? Would you say you trust them… * Not at all * A little * Moderately * Very much |

To ensure the intended meanings are maintained in the process of translation and item adaption, please refer to the item rationale provided with the BeSD surveys. The rationale provides a description of the item to clarify its intended meaning and item specific recommendations for local adaptions.

It is also essential to test the modified questions and responses by conducting a second round of cognitive interviews with a new group of participants, repeating the process until the questions and response options are understood as intended.

# **Annex 3: Guidance for adapting the BeSD qualitative interview guide**

The series of questions offered in the BeSD COVID-19 qualitative interview guide are designed as a kind of “menu” for researchers to choose from, depending on what topics require deeper understanding. Keep in mind, using all of the questions listed in the guide will result in an interview that may be almost 2 hours in length, resulting in a significant time commitment from participants and large amounts of data to analyse. Choose questions that will best answer the specific research question for the project.

****Try to order the questions in such a way that the interview flows more like a conversation than a survey. The order of questions in the suggested interview guide results in a fairly conversational interview in English, and follows a general order of starting with a “warm-up” question, followed by thoughts and feelings, what they think they will do, the social processes involved, and practical factors. This will change, depending on the language and cultural setting.

Once a draft qualitative interview guide is developed, pilot test it with two or three people who are fluent in the language that the interview will be conducted in. During these pilot interviews be mindful of whether the interview flows well (like a conversation), and adjust the order of questions if needed.

More information on interview guide development can be found in:

* Roberts RE (2020). Qualitative interview questions: guidance for novice researchers. The Qualitative Report. 25(9):3185–3203.
* Kvale S & Brinkmann S (2015). Interviews: learning the craft of qualitative research interviewing   
  (third edition). Thousand Oaks (CA): Sage.

# **Annex 4: WHO policy on use and sharing of data**

**Policy on use and sharing of data collected in Member States by the WHO outside the context of public health emergencies**

Data are the basis for all sound public health actions and the benefits of data sharing are widely recognized, including scientific and public health benefits. Whenever possible, WHO wishes to promote the sharing of health data, including but not restricted to surveillance and epidemiological data.

In this connection, and without prejudice to information sharing and publication pursuant to legally binding instruments, by providing data to WHO, the Ministry of Health of your Country confirms that all data to be supplied to WHO have been collected in accordance with applicable national laws, including data protection laws aimed at protecting the confidentiality of identifiable persons;

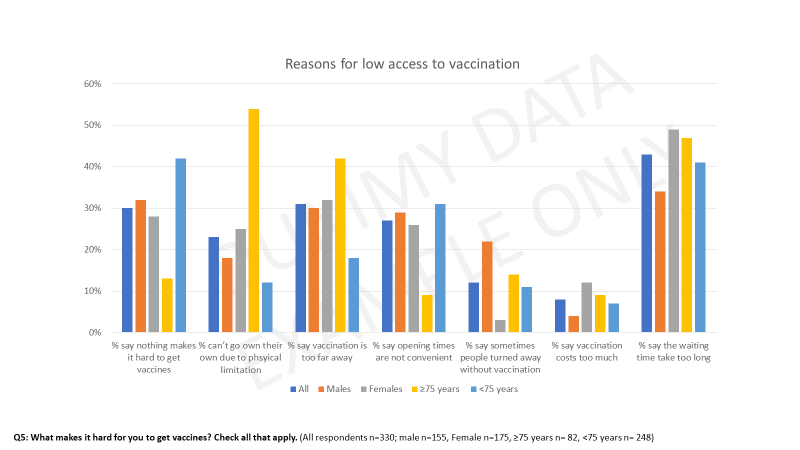
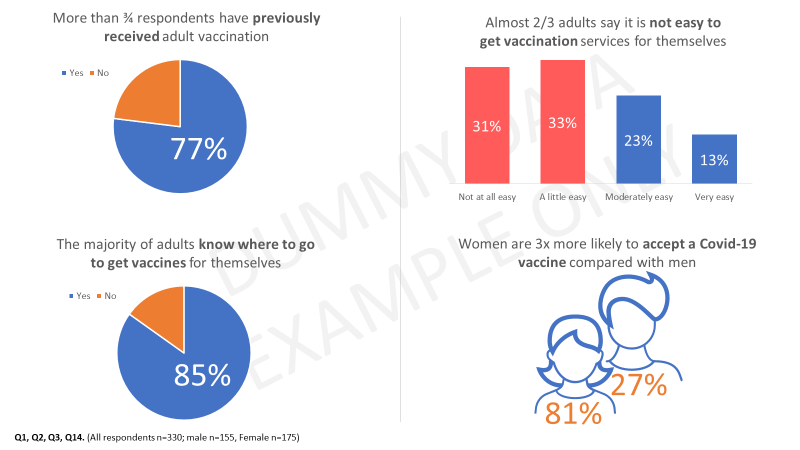
Agrees that WHO shall be entitled, subject always to measures to ensure the ethical and secure use of the data, and subject always to an appropriate acknowledgement of your Country:

* + To publish the data, stripped of any personal identifiers (such data without personal identifiers being hereinafter referred to as “the Data”) and make the Data available to any interested party on request (to the extent they have not, or not yet, been published by WHO) on terms that allow non-commercial, not-for-profit use of the Data for public health purposes (provided always that publication of the Data shall remain under the control of WHO);
  + To use, compile, aggregate, evaluate and analyse the Data and publish and disseminate the results thereof in conjunction with WHO’s work and in accordance with the Organization’s policies and practices.

Except where data sharing and publication is required under legally binding instruments (IHR, WHO Nomenclature Regulations 1967, etc.), the Ministry of Health of your Country may in respect of certain data opt out of (any part of) the above, by notifying WHO thereof, provided that any such notification shall clearly identify the data in question and clearly indicate the scope of the opt-out (in reference to the above), and provided that specific reasons shall be given for the opt out.

# **Annex 5: Visualizations of findings: examples**

The charts below offer some initial examples of ways in which data may be represented visually. (Each visualization should also have the sample size indicated, as not all participants may answer all question items.)

****

# **Annex 6: Intervention categories per indicator**

Please note that these interventions would only be suggested when the indicators are faring poorly, for example, when the indicator corresponding to the construct general vaccination knowledge (no. 2) shows a high percentage of adults who do not know where to get vaccines for themselves.

Adapt selected interventions to target populations, considering who/what trusted sources of information are for each population, and what will be feasible and effective given local context.

Tables A6.1 and A6.2 compile both adult and health worker items developed for the BeSD COVID-19 surveys, with indicators and corresponding survey items cited. Table cell colours are indicative of the domain (thinking and feeling, social processes, motivation, and practical issues).

The numbers in brackets under the "Intervention category and description" column correspond to the publications cited in the [Reference](#_References) section below.

**Table A6.1** **Suggested interventions to increase demand for COVID-19 vaccines among** **health workers**

|  |  |  |
| --- | --- | --- |
| **Domain** | **Indicator**  **(problem areas)** | **Intervention category and**  **description** |
| **What people think and feel** | % of HCWs who would trust the new COVID-19 vaccine “very much” or “moderately” (item 10)  % of HCWs who think a COVID-19 vaccine is “very” or “moderately” important for their health (item 11) | **1**. **Educational campaign:**  a. Educational campaign consisting of informational posters with disease risk, letters, educational materials, group educational session highlighting disease salience and importance of vaccine *(1,2).*  b. Educational campaign consisting of posters encouraging vaccination to protect yourself and patients *(1).*  c. 15-minute in-service educational seminar; personalized education of vaccine *(3).*  d. Lectures/posters, employee education *(4).*  e. Health education with all relevant personnel in a health facility/hospital *(5).*  f. Educational programme for health care providers using a train the trainer model *(6).*  g. Decision aid that guides HCW through decision-making process for vaccination *(7).*  **2**. **Institutional recommendation:**  a. Institutions, such as hospitals, encourage vaccination and vaccination  stickers *(2,8-10).*  **3.** **Not categorized:**  a. HCW vaccination campaign consisting of a *mandatory declination policy* where HCW sign a form saying they are declining the vaccine and understand the risks of non-vaccination to themselves and others *(10).* |
| **Social processes** | % of HCWs who think most of the people they work with will get a COVID-19 vaccine (item 25)  % of HCWs who think most of their close family and friends would want them to get a COVID-19 vaccine (item 22) | 1. **On-site vaccination:**  a. Increase convenient access and affordability of vaccine by providing vaccination on site or at work *(4).*  **2.** **Institutional recommendation:**  a. Health care facility recommends vaccine *(5,8-10)* and encourages vaccinated by providing “I vaccinated” stickers *(5,10).*  **3.** **Not categorized:**  a. System to disclose vaccination status to managers *(10).* |
| **Motivation** | % of HCWs who would recommend a COVID-19 vaccine to eligible individuals (item 17)  % of HCWs who would get a COVID-19 vaccine if it was available to them (item 15) | 1. **Educational campaign:**  a. 15-minute in-service educational seminar; personalized education of vaccine and building interpersonal communication skills of HCW *(3).*  b. Decision aids that guides HCW through decision-making process for vaccination *(7).*  **2.** **Reminders and recall:**  a. Letter and telephone reminders *(9).*  b. E-mail reminders *(11).*  **3.** **Incentives:**  a. Incentives for vaccination including free lunches, raffles, lottery tickets, and cash prizes *(4).*  b. Monetary incentives for vaccination *(10).*  **4.** **Institutional recommendation:**  a. Institutional recommendation *(5,8-10).*  **5. Vaccine champions:**  a. Vaccine champions *(11).*  **6.** **Not categorized:**  a. Process for considering non-compliance with vaccination as part of routine employee performance reviews *(10).* |

|  |  |  |
| --- | --- | --- |
| **Practical issues** | % of HCWs who believe that accessing vaccination for themselves is "very” or “moderately" easy (item 4)  % of HCWs endorsing each reason for vaccination being hard (item 5) | 1. **On-site vaccination:**  a. Increasing vaccination access with vaccination offered near hospital/clinic entrances; mandatory masks for the unvaccinated *(10).*  b. Increasing vaccine accessibility on work site/high traffic areas *(8).*  c. Vaccination at clinics, conferences, and house staff lounges *(9).*  d. Increasing vaccination access near hospital/clinic entrances *(10).*  e. Increasing accessibility (e.g. mobile carts, during night and weekend shifts)*(1,4).*  f. Longer access to vaccination for HCWs, wider offer of on-site vaccination *(5).*  g. Vaccination offered on site/at work *(2,12).*  2. **Free/affordable vaccines:**  a. Free vaccines *(2,4,12),* free vaccination. |

**Table A6.2 Suggested interventions to increase demand for COVID-19 vaccines among adults aged 65+ and adults with   
pre-existing conditions**

|  |  |  |
| --- | --- | --- |
| **Domain** | **Indicators**  **(problem areas)** | **Intervention category and**  **description** |
| **What people** **think and feel** | % of adults who would trust the new COVID-19 vaccine “very much” or “moderately” (item 10)  % of adults who think a COVID-19 vaccine is “very” or “moderately” important for their health (item 11) | 1. **Educational campaign:**  a. Health risk appraisal questionnaire for patients that assess health behaviours and uptake of preventive care, and educational session for health care workers *(13).*  b. Educational campaign consisting of personal letter inviting adult to get vaccine; health risk appraisal (assessing health risk behaviours and uptake of preventive care) *(14).*  c. TV/media ads to raise awareness about disease and response efficacy for a specific population (65+ and 50+) *(15).*  **2.** **Provider recommendation:**  a. Provider recommendation with health risk appraisal that assesses health risk behaviours and uptake of preventive care *(16).* |
| **Motivation** | % of adults who would get a COVID-19 vaccine if it was available to them (item 15) | **1.Provider recommendation:**  a. Provider recommendation with health risk appraisal that assesses health risk behaviours and uptake of preventive care *(16).*  **2.** **Reminder and recall:**  a. Mail reminder followed by outreach and making appointment *(17).*  **3.** **Message framing:**  a. Messaging that emphasizes the disadvantages of not getting vaccinated with COVID-19 vaccine *(18).*  **4.** **Not categorized:**  a. Over the phone offer of immunization appointment *(19).* |
| **Practical issues** | % of adults who believe that accessing vaccination for themselves is "very” or “moderately" easy (item 4)  % of adults endorsing each reason for vaccination being hard (item 5) | **1.** **On-site vaccination:**  a. Offer an option of getting the vaccination at home *(14).*  **2.** **Message framing:**  a. Messaging that emphasize the disadvantages of not getting vaccinated (loss framing for low vaccine efficacy) *(18).*  b. Letters/messaging that emphasize norms of vaccination that most people get vaccinated *(20).*  **3.** **Reminder and recall:**  a. Reminders, standing orders that allow staff to vaccinate patients without first obtaining a physician order, and walk-in clinics *(21).*  b. Outreach to patients by mail to eligible individuals, followed by outreach and making appointment; patient tracking; provider reminders, and patient reminders and recall *(17).*  **4.** **Free/affordable vaccine:**  a. Provide free vaccinations *(22).*  **5.** **Not categorized:**  a. Questionnaire to elicit question behaviour effect, meaning simply asking a question can change behaviour *(23).*  b. Make immunization appointments over the phone *(19).* |

*Note:* There were no studies that overlapped with any social process indicators among adults 65+ and adults with pre-existing conditions.

**Table A6.3 Intervention categories, likely impact on vaccine uptake and strength of evidence   
of available studies for specific adult populations\***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | **Strength of evidence** | | | | | |
|  |  |  |  | **Broad outcome measures** | | | | |  |
|  | **Intervention category** | **No. of studies** | **Likely impact** | **Attitudes and knowledge** | | **Vaccine intent** | | **Vaccine uptake** | **Strength of evidence (general)** |
| 1 | **Educational campaign*1,3-9,11,15,21,24-29*** | 16 |  | | 3 | | 2 | 3 | 3 |
| 2 | **On-site vaccination*1,2,4,5,8,10,12,24,30*** | 9 |  | | 3 | | 0 | 3 | 3 |
| 3 | **Incentives*4,10,29,31-33*** | 6 |  | | 3 | | 2 | 3 | 3 |
| 4 | **Free/affordable vaccine*4,12,21,22,27*** | 5 |  | | 3 | | 0 | 3 | 3 |
| 5 | **Institutional recommendation*2,4,8-10,24*** | 6 |  | | 2 | | 0 | 3 | 3 |
| 6 | **Provider recommendation*16*** | 1 |  | | 0 | | 1 | 1 | 1 |
| 7 | **Reminder and recall*9,11,17,21,34*** | 5 |  | | 2 | | 0 | 3 | 3 |
| 8 | **Message framing*20,35-37*** | 4 |  | | 4 | | 3 | 4 | 4 |
| 9 | **Vaccine champion*1,22,27,38*** | 4 |  | | 3 | | 0 | 3 | 3 |

\* **Health care workers, adults 65+, and adults with high-risk conditions**

|  |  |  |
| --- | --- | --- |
| **Likely impact** | : No impact (summary OR not significant) | |
|  | : Little impact (summary OR between 1 and 1.25) | |
|  | : Moderate impact (summary OR between 1.25 and 1.5) | |
|  | : Substantial impact (summary OR > 1.5) | |
|  |  |  |
| **Strength of evidence** | 0: No evidence (no studies) | |
|  | 1: Little evidence (no high-quality study [all studies are grade 3]) | |
|  | 2: Some evidence (1 to 2 grade 2 studies) | |
|  | 3: Moderate evidence (> 2 grade 2 studies or 1 to 2 grade 1 studies) | |
|  | 4: Substantial evidence (> 2 grade 1 studies) | |

# **Annex 7: Sample monitoring and evaluation framework**

The following table offers an outline of a monitoring and evaluation (M&E) framework for selected key indicators that correspond with the BeSD survey items. The corresponding survey item numbers are provided in brackets in the first column. The numbers provided in the second column reference the studies evaluated in table A6.3, more information on these can also be found in the [reference](#_References) section below.

This sample M&E framework may be helpful to establish a larger and more targeted framework for specific findings of interest.

**Table A7.1 Monitoring and evaluation framework for selected key indicators that correspond with BeSD survey items**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Domain and indicators** | **Intervention** | **Inputs** | **Activity/outputs** | **Outcomes** |
| **What people think and feel**  % of adults/HCWs who would trust the new COVID-19 vaccine “moderately” or “very much” (item 10)  % of adults/HCWs who think a COVID-19 vaccine is “very” or “moderately” important for their health (item 11) | **Educational campaign**  Informational posters with disease risk, letters, educational materials, group educational session highlighting disease salience and importance of vaccine*.* **1,2,13** | Ensure contextually appropriate design and development of all educational materials.a (Yes/No)  Develop plan for dissemination of materials to the target audience. (Yes/No)  a Educational materials include posters, information letters, educational seminars, public service announcements, dedicated TV and radio slots, and employee education, as listed in the intervention column to the left. | Educational materials are ready, on schedule, pilot-tested, revised and ready for roll-out/ dissemination. (Yes/No)  Materials are distributed/disseminated according to plan. (Yes/No) | 1. Greater proportion of HCW who are knowledgeable about COVID-19 vaccine than baseline.  2. Greater proportion of HCW who trust the new COVID-19 vaccine “moderately” or “very much” than baseline.  3. Greater proportion of HCW who think a COVID-19 vaccine is “very” or “moderately” important for their health. |
| **Motivation**  % of adults/HCWs who would get a COVID-19 vaccine if it was available to them (item 15)  % of HCWs who would recommend a COVID-19 vaccine to eligible individuals (item 17) | **Provider recommendation**  Provider recommendation with risk appraisal*.16*  **Message framing**  Loss framed messaging*,18* e.g. messaging for at-risk persons that emphasizes risk or cost of *not* receiving a vaccine (“if you decide not to get the vaccine you may increase your chance of contracting the potentially deadly corona virus”). | Ensure development of a risk appraisal questionnaire for adults/HCWs suited to country priority target population for COVID-19 vaccination. (Yes/No)  Develop a detailed plan for rolling out risk appraisal questionnaire (e.g. available during appointments, mailed out to homes, given to all HCWs in a facility).  Ensure development of supporting materialsb for HCWs to implement risk appraisal questionnaire, including communication strategies and message framing based on risk appraisal results. (Yes/No)  b Supportive materials include any training/job aids needed for HCWs to be prepared for communicating the purpose of the risk appraisal, questionnaire results and what the results mean for the client. | Risk appraisal questionnaires have been pilot tested and ready to be distributed according to plan. (Yes/No)  The necessary channels for distribution of the risk appraisal, resources and other supportive materials are available and ready to be put into action. (Yes/No)  Vaccinators are knowledgeable/capable of interpreting results and communicating with clients based on risk appraisal results. (Yes/No)  Vaccinators understand how to frame messages about COVID-19 vaccination based on risk appraisal results and client attitude to vaccination. (Yes/No) | 1. Greater proportion of patients demonstrate enhanced health literacy on COVID-19 risks and vaccine benefits than baseline.  2. Greater proportion of adults/HCWs with favourable attitudes and intentions to COVID-19 vaccination than baseline.  3. Enhanced HCW capacity to recommend COVID-19 vaccination for eligible persons based on risk appraisals.  4. Greater proportion HCWs who would recommend a COVID-19 vaccine to eligible patients than baseline. |
| **Practical issues**  % of adults/HCWs who believe that accessing vaccination for themselves is "very” or “moderately" easy (item 4)  % of adults/HCWs endorsing each reason for vaccination being hard (item 5) | **Improve access to vaccination**  Mailing information followed by outreach and making appointment*.17* Over the phone offer of immunization appointment*,* reminders, standing orders and walk in clinics*.19,21*  Direct offer of vaccination at home/work/health centre/clinic*.2,12,14* | Ensure development of messages to invite adults/HCWs for immunization, reminder messages, follow up messages and COVID-19 vaccination information. (Yes/No)  Ensure mechanisms are established for the delivery of personal invitationsc to discuss and get COVID-19 vaccine. (Yes/No)  c These can be mail, e-mail, phone call or SMS message platform for sending invites and reminders. (May include house to house visits conducted by social mobilizers in specific settings.)  Establish or enhance mobile vaccine clinics and resources needed to reach target groups at home/work/health centre/clinic. (Yes/No) | Messages are ready on schedule, and pilot-tested, revised and ready for roll-out/dissemination. (Yes/No)  Mechanisms and related channels for delivering messages are available and ready to be put into action. (Yes/No)  Mobile clinics are available, well-resourced and ready to reach the target population in the desired locations. (Yes/No) | 1. Increased proportion of adults/HCWs who know where to get vaccines for themselves.  2. Increased proportion of HCWs for whom on-site vaccination is available at their place of work.  3. Decreased proportion of adults who report having a barrier to access vaccination.  4. Increased proportion of adults/HCWs who believe that accessing vaccination for themselves is "very” or “moderately” easy. |
| **Social processes**  COVID  % of adults/HCWs who think most of their close family and friends would want them to get a COVID-19 vaccine (item 22)  % of HCWs who think most of the people they work with will get a COVID-19 vaccine (item 25) | **Institutional recommendation**  Institutional recommendation by encouraging vaccination*,5,8-10*and system to disclose vaccination status*10* (HCWs only).  **Vaccine championing**  “I vaccinated” stickers*.5,10* | Ensure contextually appropriate design and development of materialsd institutions can use to convey support for COVID-19 vaccination and where appropriate recommendation to vaccinate. (Yes/No)  d These can be “I vaccinated” stickers, posters, flyers and messaging to be delivered by institutions.  Establish a dissemination plan for materials developed. (Yes/No)  Establish or enhance systemse to trace vaccination of health care workers; including first and second dose recording to enable follow up where needed. (Yes/No)  e These can be a digital database, or simple adaptable logbook for record keeping. | Materials and messaged developed, tested with a focus group and ready to be disseminated/rolled out to the appropriate target group. (Yes/No)  Availability of stickers or other wearable or visual materials for vaccinators to give to just-vaccinated persons to promote COVID-19 vaccination among peers. (Yes/No)  Logbook or database established and ready to track vaccination status of all employees in health facilities/clinics. Responsible staff trained in using the system and how to follow up with un-vaccinated persons. (Yes/No) | 1. Increased proportion of adults who reporting seeing promotional material that signals COVID-19 vaccination as a positive social norm.  2. Increased proportion of HCWs who think most of the people they work with will get a COVID-19 vaccine.  3. Increased proportion of adults who think most other adults they know will get a COVID-19 vaccine if it is recommended to them.  4. Increased proportion of adults/HCWs who trust the health care providers who would give COVID-19 vaccines "very much” or “moderately". |

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