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Policy brief

Addressing COVID-19 vaccine hesitancy among healthcare workers in the Caribbean

HRH - ACTION TASK FORCE

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List of Abbreviations

3 Cs (<i>model</i>)	Confidence, Complacency, and Convenience (<i>model of vaccine hesitancy</i>)
BeSD	Behavioural and Social Drivers
CARICOM	Caribbean Community
CMS	CARICOM Member State
COHSOD	Council for Human and Social Development
COVID-19	Coronavirus disease of 2019
HCW	Healthcare Worker
HRH	Human Resources for Health
HRH-ATF	Human Resources for Health Action Task Force
ICfi	Interpersonal Communication for Immunization
PAHO	Pan American Health Organization
RCCE	Risk Communication and Community Engagement
SAGE	Strategic Advisory Group of Experts (<i>on Immunization</i>)
VHM	Vaccine Hesitancy Matrix
WHO	World Health Organization

Policy Brief Executive Summary

Addressing COVID-19 vaccine hesitancy among healthcare workers in the Caribbean

KEY INFORMATION

Healthcare workers (HCWs) are a COVID-19 vaccine priority group, as well as important and respected influencers of health-related attitudes and behaviours in the public sphere.

A PAHO led study identified:

COVID-19 vaccine hesitancy among healthcare workers (HCW) in the Caribbean was 23%.

Only 4% of all participants stated an intention to refuse a COVID-19 vaccine altogether (8% male vs. 3% female).

COVID-19 vaccine acceptance differs among various categories and specialties of HCW, being higher among nurses (34%) than physicians, and among younger age groups.

COVID-19 vaccine hesitancy varies among the vaccines available and is influenced by local, regional, and global events. It also varies with time.

48% of respondents stated the country of manufacture of a COVID-19 vaccine shaped their opinion on a COVID-19 vaccine, and 47% of respondents agreed that development of COVID-19 vaccines may be rushed, or that the vaccines have not been thoroughly tested.

30% of respondents agreed that they do not yet know enough about the vaccine to decide whether to get vaccinated or not.

30% of respondents reported that information they have seen on social media shaped their opinion of a COVID-19 vaccine.

Purpose

Contribute to increasing vaccination acceptance and improving vaccine confidence among healthcare workers in the Caribbean, therefore enabling programmes to design, target, and evaluate interventions to achieve greater impact with more efficiency, and to examine and understand comparable trends over time.

A policy recommendation stands out strongly for CARICOM and its member states to consider in addressing COVID-19 vaccine hesitancy among HCW.

RECOMMENDATION

Strengthen COVID-19 vaccination promotion among HCW by targeting vaccine hesitancy drivers and enablers

The policy recommendation includes three components that are described below:

- 1. Systematically monitor the facilitators of, and barriers against COVID-19 vaccination acceptance among HCW.**
- 2. Targeted interventions promoting vaccination acceptance among HCW in the Caribbean:**
 - a. Interpersonal communication training for HCW on vaccine-related issues.**
 - b. Understanding behavioural and social drivers.**
 - c. Risk communication and community engagement targeting HCW.**
- 3. Evaluating the impact of the interventions.**

The WHO SAGE Working Group on Vaccine Hesitancy calls for recognizing that behaviour change is at the heart of addressing vaccine hesitancy among HCW. It also highlights that influencing this behaviour is similar to the complexities of addressing poor compliance in the management of chronic diseases such as hypertension, or diabetes. Given this, addressing COVID-19 vaccine hesitancy among HCW in the Caribbean should be grounded in behaviour change approaches.

Evidence indicates that context-relevant integrated multi-component strategies achieve greater effects on vaccine uptake. Passive interventions such as posters, radio announcements, websites and media releases, that did not have an additional engagement component(s) were shown to be less effective.

This three-component recommendation draws from sound evidence-base of promoting COVID-19 vaccine acceptance through Risk Communication and Community Engagement (RCCE) and Behavioural and Social Drivers (BeSD) of vaccine acceptance.

- Interventions based on Risk Communication and Community Engagement (RCCE) models shall seek to increase trust and social cohesion among HCW with the goal of increasing COVID-19 vaccine acceptance among HCW. Such interventions are people-centered and community led. They are grounded in four strategic approaches:
 - Facilitating HCW-led assessment of the needs related to COVID-19 vaccine acceptance. This includes HCW participating in the analysis, planning, design, implementation, monitoring and evaluation of local responses to COVID-19 vaccine acceptance among HCW.

- Ensuring that the evidence to guide interventions is disaggregated by sex, age, and by other potential drivers of vulnerability or exclusion (e.g. disability).
 - Emphasizing local expertise to engage HCW such as local institutions and organizations, building on existing relationships and established trust, cognizant of local community culture, knowledge, and history.
 - Interventions to increase COVID-19 vaccine acceptance should facilitate partnerships with community-based organizations, non-governmental organizations, private sector, and communities themselves.
- Interventions based on Behavioural and Social Drivers (BeSD) of COVID-19 vaccination acceptance allow for engaging a three-step process of planning, investigating, and acting.(3) Through these steps, the BeSD approach allows for measuring as well as designing tailored interventions related to:
- What HCW think and feel about COVID-19 vaccine(s)/vaccination.
 - The social processes that drive or inhibit COVID-19 vaccination among HCW.
 - Individual HCW motivations or hesitancy to seek vaccination.
 - Practical factors that shape the experience of seeking and receiving vaccination.

Why this policy recommendation:

1. Vaccine acceptance remains a concern despite CARICOM member states (CMS) having used a spectrum of communication tools to influence HCW towards accepting the COVID-19 vaccine. These tools have included mass media, social media, engaging religious/influential leaders to promote vaccination among HCW, as well as reminder-recall activities with the aim of increasing knowledge and awareness about COVID-19 vaccines and vaccination proven to be useful in practice.
2. Vaccine acceptance remains a concern despite attempts to improve convenience and HCW access to vaccination.
3. Mass vaccination campaigns (as in the current pandemic) can provoke hesitancy. There is value for promoting COVID-19 vaccination as a new social norm among HCW.
4. The value of social media in addressing COVID-19 vaccine decision-making among HCW is poorly understood. Social media interventions need to be embarked on with caution because of inherent complexities.

Value added by implementing this recommendation:

1. Interventions target specific groups of HCW with low vaccine acceptance.
2. Increased efficiency and effectiveness of resources allocated for promoting COVID-19 vaccination.
3. Successes and lessons learnt can be applied to strengthen national immunization programmes in addressing vaccine hesitancy in the wider public.

Risks/Challenges:

1. Addressing COVID-19 vaccine hesitancy alone does not proportionally increase demand for a COVID-19 vaccine or vaccine coverage among HCW.² The unit within CMS Ministries of Health which may be recruited to lead the in-country design and implementation of intervention may have competing priorities and limited resources.

Other implementation considerations:

1. Boosting efficiency of CMS existing resource allocations can create fiscal space to further support implementation of these three components.
2. Securing external grants may be required to support implementation.

CARICOM gains from addressing COVID-19 hesitancy among HCW in the Caribbean

- A health workforce resilient to COVID-19.
- Sustained health services delivery during COVID-19 and other pandemics.
- Strengthened health systems to respond to COVID-19 and other pandemics
- Health protection and health security of CARICOM peoples, including against other vaccine-preventable diseases as national immunization programs are strengthened.
- Strengthened regional and national security.

Benefits extend beyond COVID-19 pandemic...

Does PAHO support the use of incentives to promote COVID-19 vaccination?

Individuals should make informed decisions regarding vaccination, including against COVID-19. The decision to include vaccination strategies, including the offer of incentives for vaccination, is the decision of each country.

1: Introduction

Healthcare workers represent a fundamental element of national and regional response to COVID-19. They are one of the “*most trusted source of information on vaccination.*”¹

The 39th meeting of the Council for Human and Social Development (COHSOD) in November 2020 mandated the Caribbean Community (CARICOM) Secretariat in collaboration with PAHO to establish a Human Resources for Health Action Task Force (HRH-ATF) to advise and monitor the development of public policy in the countries and territories of the Caribbean.³ The launch of the HRH-ATF on April 20, 2021 established a platform for concerted regional action towards health workforce resiliency in the evolving COVID-19 pandemic, sustaining health service delivery and securing the health of Caribbean peoples. It was established that PAHO will act as Secretariat.

Subsequently, ministers of health of CARICOM through the 41st Meeting of the COHSOD agreed to the strengthening COVID-19 vaccine promotion among healthcare workers (HCW) by targeting vaccine hesitancy drivers through three policy actions. The objective of this policy brief is to provide CARICOM member states (CMS) with a practice-oriented review of these three policy actions with the aim of developing shared understanding and action among CMS on the core approaches, tools, frameworks, models, and perspectives related to COVID-19 vaccine promotion among HCW.

CARICOM gains from strengthening COVID-19 vaccine promotion among HCW in the Caribbean

- A health workforce resilient to COVID-19.
- Sustained health services delivery during COVID-19 and other pandemics.
- Strengthened health systems to respond to COVID-19 and other pandemics
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- Strengthened regional and national security.

Benefits extend beyond COVID-19 pandemic...

The policy brief begins with highlighting key characteristics of the problem related to COVID-19 vaccine hesitance and vaccine acceptance among HCW in the Caribbean. This sets the stage for the policy options in Section 2. Section 3 provides an understanding of important terms related to taking policy action. The overarching policy recommendation agreed to by COHSOD along with an exploration of the approaches, tools, frameworks, models, and perspectives related to each of the three policy actions recommended to strengthen COVID-19 vaccine promotion among HCW is presented in Section 4. The policy brief ends with an overview of key general implementation considerations, broad CARICOM gain, and value added through interventions aligned to the three policy actions.

2: Describing the problem

Healthcare workers represent a fundamental element of national and regional response to COVID-19. HCW play a vital role in supporting COVID-19 vaccination efforts to the wider public especially given that they are cited as one of the “*most trusted source of information on vaccination.*”¹ At the same time HCW are vulnerable to the same set of drivers related to vaccine acceptance as the general public.¹ A 2021 mixed methods study conducted by PAHO on HCW concerns, attitudes and intended practices to COVID-19 vaccination among 14 Caribbean countries highlighted the following:

- COVID-19 vaccine hesitancy among healthcare workers (HCW) in the Caribbean was 23%, being higher among nurses (34%) than physicians, and among younger age groups.¹
- Only 4% of all participants stated an intention to refuse a COVID-19 vaccine altogether (8% male vs. 3% female).¹
- COVID-19 vaccine acceptance differs among various categories and specialties of HCW. It varies among the vaccines available and is influenced by local, regional, and global events. It also varies with time.¹
- Figure 1 below demonstrates the variation in ‘intention to get the COVID-19 vaccine’ among HCW subcategory among the 14 Caribbean countries.

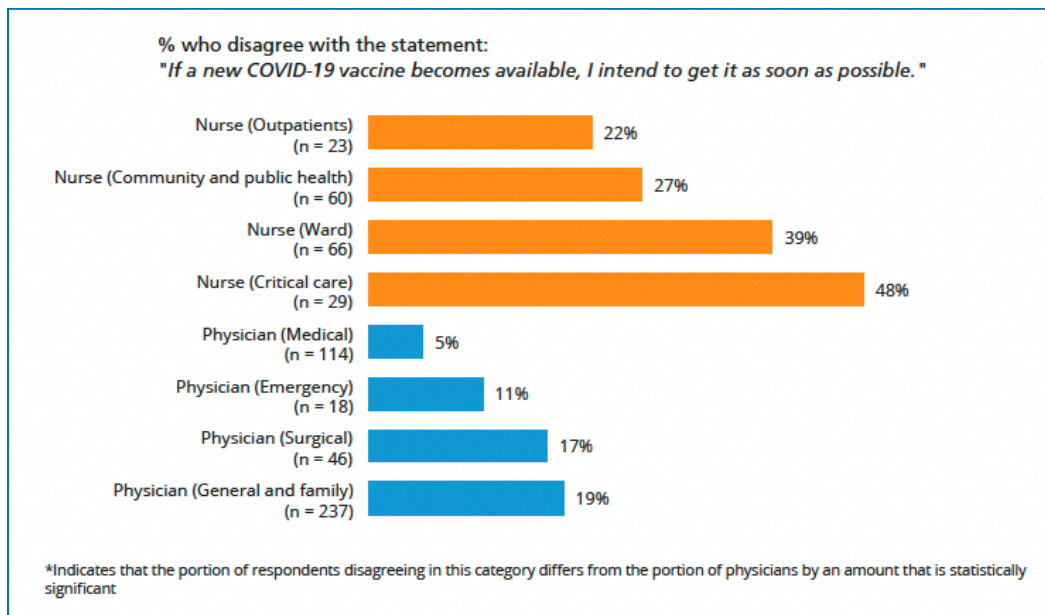


Figure 1: Variation in COVID-19 vaccine hesitancy among HCW subcategories across 14 Caribbean countries.

Source: Pan American Health Organization. *Concerns, attitudes and intended practices to COVID-19 vaccination among 14 Caribbean countries. 2021.*

- 48% of respondents stated the country of manufacture of a COVID-19 vaccine shaped their opinion on a COVID-19 vaccine, and 47% of respondents agreed that the development of COVID-19 vaccines may be rushed or that the vaccines have not been thoroughly tested.¹
- 30% of respondents agreed that they do not yet know enough about the vaccine to decide whether to get vaccinated or not.¹

- 30% of respondents reported that information they have seen on social media shaped their opinion of a COVID-19 vaccine.¹
- Figure 2 demonstrates variation in ‘intention to get the COVID-19 vaccine’ among different age groups and sex of HCW. Collectively, these demonstrate that COVID-19 vaccine promotion among HCW would require closer examination of the drivers from the perspectives of HCW subcategory, age, and sex in the least.

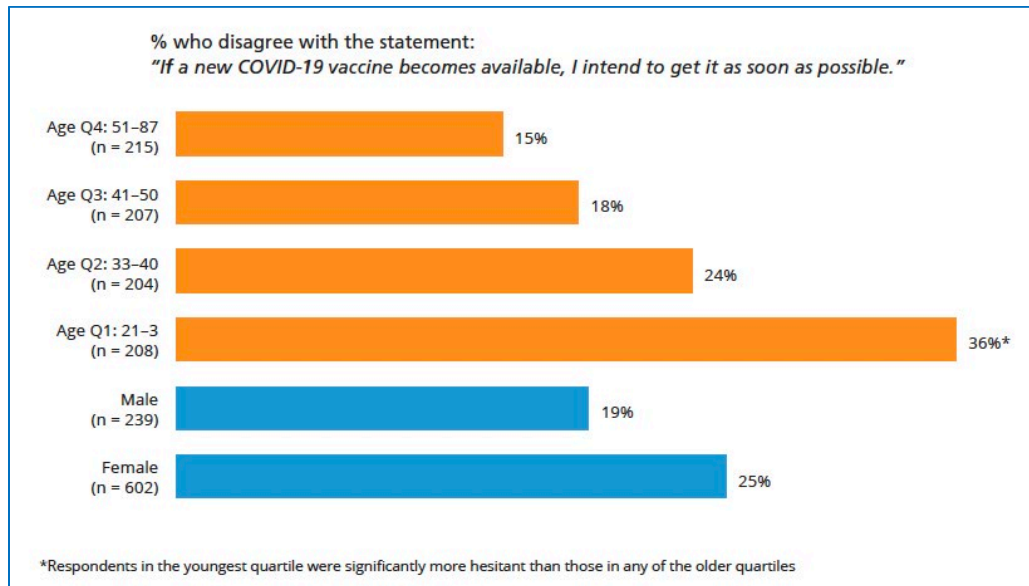


Figure 2: Variation in COVID-19 vaccine hesitancy among HCW age category and sex across 14 Caribbean countries.

Source: Pan American Health Organization. *Concerns, attitudes and intended practices to COVID-19 vaccination among 14 Caribbean countries. 2021.*

3: Understanding key terms

COVID-19 vaccine acceptance decisions and behaviours sit at the core of policy action

Addressing the problem of vaccine acceptance among HCW requires an understanding of key terms used in the local and global discourse related to this problem. This section describes these terms and highlights considerations vital to orienting policy action. As such, they set the foundation for the policy recommendations presented in this brief.

A prominent term is vaccine hesitancy. Vaccine hesitancy provides a construct for first understanding (through research) and subsequently addressing the problem of vaccine acceptance decisions (related to delays or refusal of vaccination despite the availability of vaccination services) within a given population.⁴ It is formally defined as: “*Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccine services. Vaccine hesitancy is complex and context specific, varying across time, place, and vaccines. It is influenced by factors such as complacency, convenience, and confidence.*”²

Vaccine hesitancy is therefore not singular. It is an umbrella, encompassing the spectrum of vaccine acceptance decisions and behaviours between refusal and delay in receiving a vaccine and the dynamics within a given population relevant to an individual getting vaccinated.

“Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccine services. Vaccine hesitancy is complex and context specific, varying across time, place, and vaccines. It is influenced by factors such as complacency, convenience, and confidence.”²

Recognising that vaccine acceptance decisions and behaviours sit at the core of this term sets the primary tone for taking policy action. Orienting and informing policy action from the perspective of influencing vaccine acceptance detracts the complexities of the vaccine hesitancy label. It also brings into focus the attention on addressing vaccination acceptance over time, cognizant of population context. Doing so, highlights that addressing the set of decisions and behaviours among HCW related to COVID-19 vaccination, given the evolving COVID-19 pandemic, requires a systematic and iterative approach to investigating and addressing the problem – a system for monitoring, intervening, and evaluating. Appreciating this contribution to taking policy action is vital.

It is also important to consider nuances inherent in the terms vaccine and vaccination and their value to policy action. While the term vaccine refers to a product or technology, vaccination connotes activity related to a set of products, and by extension, the related decisions and behaviours. Therefore, it is necessary to recognise that the word vaccine can potentially convey a focus on the product and vaccination may convey a more multidimensional focus, inclusive of the vaccine administrator (health systems) and the recipient (HCW). These subtle features present leverage points for CMS to integrate into policy action, especially coupled with HCW-centered lenses to inform policy action.

Vaccine demand is another term used in the discourse which provides valuable contribution to orienting policy action. Drawing from strategic objective 2 of the Global Vaccine Action Plan (GVAP) which directs action towards individuals and communities demanding “immunization as both their right and responsibility”, highlights its multidimensional perspective.² Vaccine demand includes the dynamics between communities conveying their vaccine needs and perspectives on how vaccine programs are delivered, and health systems supporting the development of value for vaccines at the individual and community levels.² Vaccine demand is not synonymous with vaccine hesitancy or with vaccination acceptance, but another umbrella term. As with vaccine hesitancy, the vaccine demand perspective is also not singular. Towards orienting and informing policy action to address the problem, it brings to attention the value of including HCW demand-related factors and dynamics related to COVID-19 vaccination.

The term vaccine coverage is also found in discussions related to the problem of vaccination acceptance. Vaccine coverage describes the proportion of a given population who have been vaccinated or the rates at which persons within a population are being vaccinated. These proportions or rates are influenced by vaccination acceptance decisions and behaviours, but they are also driven by factors related to supply chain and other programmatic issues.² While vaccine

coverage provides valuable insight into which HCW groups are vaccinated and which are not, it does not represent an understanding of only vaccination acceptance.

Given this context, it is desirable that policy recommendations should adopt the decisions and behaviour-based vaccine acceptance perspective (as opposed to vaccine hesitancy only), outline systematic and iterative mechanisms for monitoring, data-driven targeted intervening and evaluating, and be grounded in the HCW context.

Policy actions should:

1. Embrace the perspective of vaccine acceptance.
2. Be driven by data related to the local HCW context.
3. Outline systematic and iterative mechanisms for monitoring and evaluating interventions.

4: The policy recommendation and actions

Arising out of the 41st COHSOD meeting in October 2021, CARICOM Ministers of Health unanimously agreed to strengthen COVID-19 vaccine promotion among HCW by targeting vaccine hesitancy drivers. COHSOD urged that member states take policy action in three areas:

Policy action 1: Systematically monitor drivers of COVID-19 vaccine acceptance among HCW.

Policy action 2: Targeted interventions promoting vaccine acceptance among HCW in the Caribbean.

Policy action 3: Evaluating the impact of the interventions.

Figure 3 presents the three policy actions aligned to the 41st COHSOD recommendation.

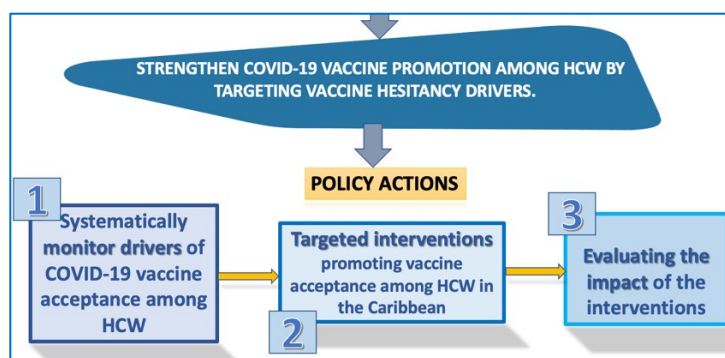


Figure 3: Schematic presentation of the 41st COHSOD recommendation on addressing COVID-19 vaccine acceptance and the three policy actions.

Value added by implementing this recommendation

- Interventions target specific groups of HCW with low vaccine acceptance.
- Increased efficiency and effectiveness of resources allocated for promoting COVID-19 vaccination.
- Successes and lessons learnt can be applied to strengthen national immunization programmes in addressing vaccine hesitancy in the wider public.

Benefits extend beyond COVID-19 pandemic...

The following is an exploration of these three policy actions highlighting key elements and approaches relevant to addressing vaccine acceptance among HCW in the CARICOM context.

Policy action 1: Systematically monitor drivers of COVID-19 vaccination acceptance among HCW.

Applying effective policies to promote COVID-19 vaccine acceptance among HCW requires an in-depth understanding of its drivers (facilitators and barriers) within the CARICOM context. Four considerations underpin developing this understanding²:

- Drivers vary among sub-groups within a given population. HCW comprise a diverse group of professions and occupations. Layered on this diversity is the socio-cultural heterogeneity of the persons within these professions. Recalling Figure 1 above, the Caribbean-based findings reflect that using broad categories of HCW such as physicians and nurses to assess vaccine hesitancy is insufficient as variability exists among subcategories of nurses and physicians.¹ These characteristics spotlight the value of developing this in-depth understanding while being cognizant that HCW represent a complex group.
- Drivers vary for each specific COVID-19 vaccine available. Several named COVID-19 vaccines are available to HCW within CARICOM member states. The need for exploring vaccine-specific drivers adds another valuable layer in developing an in-depth understanding of vaccine acceptance barriers and facilitators.
- Drivers vary over time. Undoubtedly, following the introduction of COVID-19 vaccines among CARICOM member states, vaccine acceptance among HCW has changed. Studies have demonstrated that COVID-19 vaccine acceptance can be influenced by events occurring on the local and international stage as the COVID-19 pandemic evolves. The independent nature of time as a variable influencing vaccine drivers, underscores the need for routinely updating any understanding of these. This in turn, highlights the need for systematically monitoring these facilitators and barriers to allow for comparison over time.

Policy action 1 is grounded in these considerations and responds to the four layers of complexities outlined above. Figure 4 conceptualises the dynamics among these layers applicable to framing an in-depth understanding of COVID-19 vaccine acceptance drivers among HCW. Applying socio-ecological lenses to these four layers allows for conceiving porous boundaries among the layers through which ‘lived experiences’ percolate and variably influence each other. It is this compounded influence that policy action 1 seeks to generate, specific to the CARICOM context.

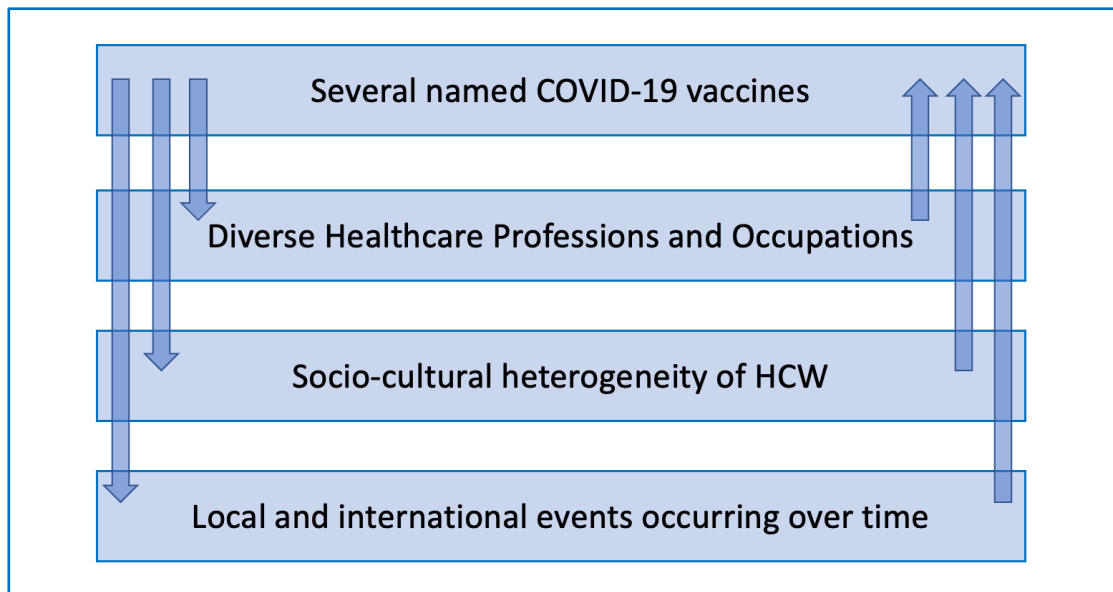


Figure 4: Layers of complexities influencing COVID-19 vaccine acceptance drivers among HCW in CARICOM.

The following highlights three key elements for monitoring the facilitators and barriers related to COVID-19 vaccine acceptance among HCW.

Key element 1. Measure COVID-19 vaccine coverage among HCW:

Using the spectrum of professions and occupations as a base, vaccine coverage among disaggregated sub-groups provides an understanding of the ‘who are’ vaccinated and ‘who are not’. Disaggregating these measures further by demographic characteristics and by specific COVID-19 vaccine, provide for a deeper understanding of these sub-groups and thus creates the room for targeted interventions.

1. It is important to note that measures of vaccine coverage may not proportionally reflect vaccine acceptance.² Acceptance of a COVID-19 vaccine can be viewed as necessary for receiving a COVID-19 vaccine, but not sufficient. Additional factors such as ease of accessing a vaccine, influences of the workplace/employer, and the influence of travel restrictions also influence vaccine coverage. Adopting policy action 1, specifically through the approaches described in point 2 below, provides for a CARICOM-centered understanding of these factors.

Key element 2. Measure the facilitators and barriers influencing COVID-19 vaccine acceptance:

Knowledge of the facilitators and barriers of vaccine acceptance, in general, is evolving and continues to draw from a variety of disciplines and theories. Four evidence-based approaches provide a spectrum of frames for generating CARICOM-centered knowledge on these facilitators and barriers namely:

1. The Behavioural and Social Drivers (BeSD) of COVID-19 vaccination model.
2. The COVID-19 Global Risk Communication and Community Engagement (RCCE) Framework.
3. The Vaccine Hesitancy Matrix (VHM).
4. The Confidence, Complacency, and Convenience model of vaccine hesitancy (3 Cs model).

Each approach is supported by a theoretical base and proposed indicators (for identifying and monitoring the facilitators and barriers). More importantly, each also provides guidance on translating the monitoring findings into targeted interventions backed by peer-reviewed literature on its practical value. This feature of each approach is applicable to policy action 2 and is presented later.

The following is a description of each approach from the perspective of its value for identifying and monitoring the drivers of COVID-19 vaccine acceptance among HCW in the CARICOM context. For each, the theoretical base is summarised first, followed by an outline of the approach to monitoring vaccine acceptance.

Approach 1. The Behavioural and Social Drivers (BeSD) of vaccination approach proposes that **motivation to get vaccinated is influenced by thoughts and feelings, as well as social processes.**⁵

In 2020, a tailored version of the BeSD was developed to support achieving high uptake of COVID-19 vaccines, with a focus on HCW. This version provides a platform for constructing an understanding of “*how people think, feel and act in relation to a vaccine*” by measuring four domains of drivers.⁶ The first assesses “*what people think and feel about vaccines*” by examining “*confidence in vaccine benefits, confidence in vaccine safety, perceived risk to self, perceived risk to others, and seeing negative information.*”⁶ The second domain assesses “*social processes that drive or inhibit vaccination*” by examining “*influential others (who) support vaccination, vaccination norms, workplace norms, decision and travel autonomy, trust in vaccine providers, and self-confidence in answering questions.*”⁶ The third domain assesses “*individual motivations (or hesitancy) to seek vaccination*” by examining “*intention to get a COVID-19 vaccine, and willingness to recommend a COVID-19 vaccine.*”⁶ The fourth domain assesses “*practical factors that shape the experience of seeking and receiving vaccination*” by examining “*knowledge on where the vaccine is available, previous uptake of*

adult vaccination, ease of access, preferred site, and availability of on-site vaccination.”⁶ Appendix I illustrates the linkages among these four domains and the indicators proposed for this model.

Approach 2. The COVID-19 Global Risk Communication and Community Engagement (RCCE) framework proposes that **community engagement and risk communication are fundamental** to addressing the COVID-19 pandemic.⁷

The tailored COVID-19 RCCE approach seeks to understand communities within their context in influencing decisions and behaviours. Taking the perspective that “*no one-size-fits-all*”, COVID-19 RCCE seeks to assess “*people’s (within their communities) changing perceptions and attitudes, and the barriers and enablers influencing their ability and motivation to adopt and/or sustain positive health behaviours.*”⁷ The challenges of vaccine acceptance are thus understood within the broader frame of the COVID-19 pandemic lived experience of a given community.

While COVID-19 RCCE is designed to influence the set of decisions and behaviours to control and prevent the spread of COVID-19, and not dedicated to promoting vaccine acceptance (as with the BeSD approach), its value in identifying and monitoring the facilitators and barriers to vaccine acceptance is highlighted through two strategic approaches. The first seeks to facilitate HCW-led assessment of the needs related to COVID-19 vaccine acceptance. This includes HCW participating in the analysis, planning, design, implementation, monitoring and evaluation of local responses to COVID-19 vaccine acceptance among HCW. The second seeks to ensure that the evidence to guide interventions is disaggregated by sex, age, and by other potential drivers of vulnerability or exclusion (e.g. disability).

Each strategic approach supports applying indicators related to information and communication, knowledge and understanding, perceptions, practices, social environment, and structural factors. Through adapting these indicators to measure variables specific to COVID-19 vaccine acceptance, CARICOM member states can develop an in-depth understanding of the drivers of COVID-19 vaccine acceptance. Appendix II presents the RCCE model.

Approach 3. The Vaccine Hesitancy Matrix (VHM) proposes that vaccine acceptance is related to **contextual influences, individual and group influences and vaccine/vaccination specific issues.**²

The VHM seeks to understand drivers of COVID-19 vaccine acceptance from the perspective of three dimensions: contextual influences, individual and group influences, and vaccine/vaccination specific issues. Within this approach, contextual influences refer to those “*arising due to historic, socio-cultural,*

*environmental, health system/institutional, economic or political factors.*² Individual and group influences refer to those “*arising from personal perception of the vaccine or influences of the social/peer environment.*”² Vaccine/vaccination-specific issues refer to those “*directly related to a vaccine or vaccination.*”² Within this model, a number of determinants are listed within each of these three categories providing opportunities for measuring them within HCW subgroups, beginning with the low-vaccine coverage groups and then extending to groups with higher coverage. Appendix III presents this matrix illustrating the organisation of determinants among the three categories.

Approach 4. The Confidence, Complacency, Convenience (3 Cs) Model of Vaccine Hesitancy proposes that vaccine acceptance is influenced by factors related to confidence, complacency, and convenience.

The 3 Cs model allows for applying three lenses for developing an understanding of the facilitators and barriers related to ‘being vaccinated’ and is ‘not being vaccinated’.² The first lens (Confidence) allows for relating the extent to which a given population trusts “*the effectiveness and safety of vaccines, the system that delivers them, and the motivation of the policy-makers who decide on the needed vaccines.*”² The second lens (Complacency) allows for constructing an understanding, from a given population’s perspective, of the risks associated with vaccine-preventable diseases.² The self-efficacy construct features within this lens. The third lens (Convenience) allows for measuring the “*extent to which physical availability, affordability, and willingness-to-pay, geographical accessibility, ability to understand (language and health literacy) and appeal of immunization.*”² Appendix IV presents the 3 Cs model.

Table 1 below presents a comparison of characteristics of the 4 approaches presented above

Table 1: Comparison of 4 evidence-based approaches for measuring the facilitators and barriers of COVID-19 vaccine acceptance.

The BeSD approach	The RCCE framework	The VHM	3 Cs Model
Values local context.			
Provides model indicators that can be tailored to local context.			
Provides model interventions (<i>which can be tailored</i>) linked to variables measured.			
Seeks to understand “ <i>how people think, feel and act in relation to a vaccine.</i> ” ⁶	Seeks to understand “ <i>people’s (within their communities) changing perceptions and attitudes, and the barriers and enablers influencing their</i>	Seeks to understand the contextual influences, individual and group influences, and vaccine/vaccination specific issues related	Seeks to understand facilitators and barriers of COVID-19 vaccine acceptance through 3 groups: confidence,

	<i>ability and motivation to adopt and/or sustain positive health behaviours.”⁷</i>	to COVID-19 vaccine acceptance.	complacency, and convenience.
Examines and measures <u>4 domains of behavioural and social drivers.</u>	Examines and measures drivers of vaccine acceptance through <u>2 strategic approaches.</u>	Examines 3 dimensions of influences: <u>contextual influences, individual and group influences, and vaccine/vaccination specific issues.</u>	Examining <u>confidence</u> allows for relating the extent to which a given population trusts “ <i>the effectiveness and safety of vaccines, the system that delivers them, and the motivation of the policy-makers who decide on the needed vaccines.</i> ” ²
<u>Domain 1</u> examines “ <i>confidence in vaccine benefits, confidence in vaccine safety, perceived risk to self, perceived risk to others, and seeing negative information.</i> ” ⁶	<u>Strategic approach 1</u> applies HCW-led assessment of the needs related to COVID-19 vaccine acceptance.	<u>Contextual influences</u> refer to those “ <i>arising due to historic, socio-cultural, environmental, health system/institutional, economic or political factors.</i> ” ²	Examining <u>complacency</u> allows for constructing an understanding, from a given population’s perspective, of the risks associated with vaccine-preventable diseases. ²
<u>Domain 2</u> examines “ <i>influential others (who) support vaccination, vaccination norms, workplace norms, decision and travel autonomy, trust in vaccine providers, and self-confidence in answering questions.</i> ” ⁶	<u>Strategic approach 2</u> utilises evidence disaggregated by sex, age, and by other potential drivers of vulnerability or exclusion (e.g. disability), to guide interventions.	<u>Individual and group influences</u> refer to those “ <i>arising from personal perception of the vaccine or influences of the social/peer environment.</i> ” ²	Examining <u>convenience</u> allows for measuring the “ <i>extent to which physical availability, affordability, and willingness-to-pay, geographical accessibility, ability to understand (language and health literacy) and appeal of immunization.</i> ” ²
<u>Domain 3</u> examines “ <i>intention to get a COVID-19 vaccine, and willingness to recommend a COVID-19 vaccine.</i> ” ⁶		<u>Vaccine/vaccination-specific issues</u> refer to those “ <i>directly related to a vaccine or vaccination.</i> ” ²	

<p>Domain 4 examines “<i>knowledge on where the vaccine is available, previous uptake of adult vaccination, ease of access, preferred site, and availability of on-site vaccination.</i>”⁶</p>			
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Key element 3. Integrate findings in the design and implementation of activities to promote COVID-19 vaccine acceptance.

This element seeks to bring together the assessment of COVID-19 vaccine coverage among HCW and the understanding of the drivers of COVID-19 vaccine acceptance in this population. Placing these at the centre of designing and implementing activities with the target of increasing vaccine acceptance allows for contextualising interventions to HCW sub-groups. This element also supports efficiency in the use of limited resources. This element extends itself directly into policy action 2.

Policy action 2: Targeted interventions promoting vaccine acceptance among HCW in the Caribbean

Building on the in-depth understanding of the facilitators and barriers to vaccine acceptance among HCW, policy action 2 calls for systematically and iteratively intervening to influence decisions and behaviours, situated in a firm understanding of the HCW context – Targeted interventions.

The literature relating the effectiveness of interventions aimed at increasing vaccine acceptance provides the following valuable insights for designing and implementing interventions among HCW:

1. It highlights that the following features typify high positive-effect interventions²:
 - a. Directing interventions at unvaccinated groups or those with low vaccine coverage.
 - b. Increasing “*knowledge and awareness about vaccines and vaccination.*”
 - c. Improving “*convenience and access to vaccination.*”
 - d. Mandating vaccination or “*imposing sanctions for non-vaccination.*”
 - e. Employing “*reminders and follow-up.*”
 - f. Engaging “*religious and other influential leaders to promote vaccination.*”
2. It also highlights that “*multi-component strategies*” have demonstrated higher effectiveness compared to “*single-component interventions.*”²
3. There is “*moderate quality*” evidence in support of “*social mobilisation, mass media, communication tool-based training for health care workers, non-financial incentives, and reminder-recall activities.*”²

Underpinning these insights is the understanding that behaviour change and communication (as a tool) sit at the core of vaccine acceptance and thus interventions designed to increase vaccine acceptance should be grounded in relevant concepts and constructs.² Three such approaches available to guide the design of interventions to promote COVID-19 vaccine acceptance are described below, spotlighting key elements which can be tailored to HCW within their context.

3 approaches to designing interventions

- BeSD - Behavioural and Social Drivers.
- RCCE - Risk Communication and Community Engagement.
- ICfI - Interpersonal communication for immunization.

Approach 1. The Behavioural and Social Drivers (BeSD) model presented in policy action 1 as a frame for monitoring drivers of vaccine acceptance also provides guidance on designing and implementing interventions. The guidance is organised according to the four domains (what people think and feel, social processes, motivation, and practical issues) such that they correspond to the understanding developed through the monitoring indicators, themselves organised according to these domains. A suite of evidence-based interventions (identified through a systematic literature review, graded based on best practices and likely impact) are matched to vaccine acceptance-related indicators among the four domains of vaccine acceptance drivers.⁶ These interventions are broadly classified into “*educational campaigns, on-site vaccination, incentives, free/affordable vaccine, institutional recommendation, provider recommendation, reminder and recall, message framing, and vaccine champion.*”⁶ The grouping of interventions among the four domains of drivers provides for choice in selecting an intervention. COVID-19 BeSD guides that in the face of the availability of multiple, similarly feasible interventions, the choice should be informed by the likely impact of the intervention, the strength of evidence, and applicability to the local context.

COVID-19 BeSD highlights that interventions “*should follow patterns of influence*” and leverage “*but not try to change what people think and feel.*”^{5,6} In this regard, interventions to address “*what people think and feel, should increase risk perception of COVID-19 and acceptance of COVID-19 vaccine safety and efficacy.*”⁶ Interventions to address the “*social processes, should reinforce the norm that most people want to get vaccinated, and there is social support for vaccination.*”⁶ Interventions to address “*motivation, should increase intentions and overall motivation to vaccinate.*”⁶ Interventions to address “*practical factors, should decrease barriers to vaccination that are structural or systems-oriented.*”⁶ Appendix I presents a sample of interventions related to the four domains as well as a link to access additional details via the internet.

Approach 2. Risk Communication and Community Engagement (RCCE) also provides an evidence-based approach for responding to the COVID-19 pandemic. RCCE for COVID-19 builds on extensive understanding of the role and impact of engaging

communities in understanding and communicating risk to influence decisions and behaviours.⁷ The RCCE COVID-19 tailored approach seeks to shift away from “*directive, one-way communication, towards community engagement and participatory approaches*” which have demonstrated effectiveness in past infectious disease outbreaks.⁷ This approach recognises the role of understanding communities within their context and the evolving COVID-19 pandemic when intervening to promote vaccine acceptance.⁷

Applying RCCE to address the problem of vaccine acceptance among HCW would seek to increase “*trust and social cohesion*” among HCW through people-centered and community led interventions with the goal of increasing COVID-19 vaccine acceptance among them.⁷ Two broad strategies guide RCCE interventions.⁷ The first emphasises using local expertise to engage HCW such as local institutions, organizations, and associations building on existing relationships and established trust, cognizant of local community culture, language, knowledge, and history. The second strategy guides facilitating partnerships with community-based organizations, non-governmental organizations, private sector, and communities themselves. Appendix II presents the RCCE guiding principles as well as a link to access additional details, including interventions and indicators, via the internet.

Approach 3. *Interpersonal communication for Immunization (ICfI)* provides a framework for reinforcing demand for COVID-19 vaccine among HCW by identifying and addressing “*fears, concerns, myths, misconceptions, improve the understanding of vaccines used, disease prevented, potential side effect and how to address them.*”⁸ ICfI interventions engage a series of steps including listening, responding, and checking understanding to support vaccination initiatives. Each step is accompanied by a set of tools and techniques to support the interpersonal discussion.^{8,9} This approach provides CMS with opportunity to leverage HCW who support COVID-19 vaccine acceptance within their professional networks to connect with HCW who are hesitant to COVID-19 vaccine acceptance. Details of the steps involved in ICfI indicating the spectrum of tools and techniques which the approach provides can be explored using the link: <https://www.unicef.org/eca/media/8576/file/interpersonal-communication-participant.pdf>

[Policy action 3: Evaluating the impact of the interventions](#)

Measuring the outputs and outcomes of interventions are key to understanding the value gained by actions taken. Recalling that the actions taken are informed by policy action 1 (monitoring the facilitators and barriers to vaccination acceptance among HCW) and appreciating the changing characteristics as the COVID-19 pandemic evolves on the local and global stage, spotlights the need for evaluation. Policy action 3 seeks to connect interventions to context-specific feedback, setting the stage for reformulating interventions as towards achieving targets. This feedback loop iteratively strengthens actions towards increasing vaccine acceptance among HCW. Policy action 3 builds on policy actions 1 and 2. It recommends that the data collected from monitoring the facilitators and barriers be systematically used to inform and adapt the continuation of interventions. Therefore, policy action 3 requires health systems to consciously engage with

feedback related to actions taken and progress achieved thereby continuously strengthening interventions.

5: Broader implementation considerations

The necessity for interventions tailored to the context of individual CMS is a core value inherent in the policy recommendation of strengthening COVID-19 vaccine acceptance among HCW. Considering this, three additional implementation-related factors require consideration when taking policy action.

First, addressing COVID-19 vaccine hesitancy alone does not proportionally increase demand for a COVID-19 vaccine or vaccine coverage among HCW.² Assessing the success of interventions based only on these two measures can mask benefits gained. Thus, it is important that policy maker and health leadership use appropriate outcome and impact evaluation frameworks relevant to the approaches outlined under policy actions 1 and 2 above.

Second, awareness of the presence of competing priorities within health authorities and across the wider set of actors involved in developing and implementing policy interventions is vital. Multiple units/departments across multiple Ministries within CMS may be called upon to participate in the development and implementation of the policy action targeting COVID-19 vaccine promotion among HCW. While approaches call for embracing networks and stakeholder engagement, this can be accompanied by the competing priorities and limited resources within these actors. Identifying and capitalising on opportunities to support stakeholder engagement can reduce the weight of this factor on progress.

Third, the availability of CMS resources, including financing, to develop, implement and evaluate these policy actions may be limited. Recognising this potential challenge, it is important to explore the approaches presented for the policy actions to identify opportunities to leverage existing resources. Capitalising on mechanisms utilising recurrent expenditure within HCW-based institutions, organisations and associations can provide such opportunities. Applying broader lenses of creating fiscal space to the financing of expanded programs on immunization can also support policy action.

6: Concluding thoughts

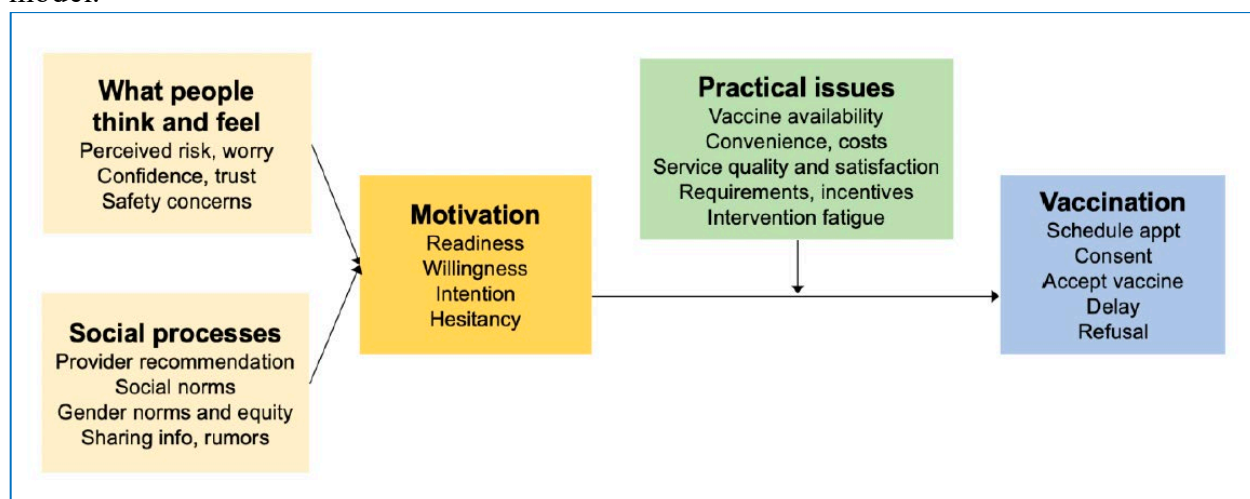
Addressing the current patterns of COVID-19 vaccine acceptance among HCW is vital for protecting the health of Caribbean peoples today and for the future. Notwithstanding the role of HCW to this end, the potential gains from policy action as outlined above undoubtedly extend beyond the ongoing COVID-19 pandemic. CMS acting in alignment with the evidence-based approaches and tools presented above resonates with the values of CARICOM regionalism and strength.

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Appendix I

The figure below is a schematic illustrating the linkages among the four domains of the BeSD model.



Source: WHO. Data for Action: Achieving high uptake of COVID-19 Vaccines. Interim guidance. Gathering and using data on the behavioural and social drivers of vaccination. A guidebook for immunization programmes and implementing partners. 2021.

The table below is extracted from the above source. It presents a sample “*outline of a monitoring and evaluation (M&E) framework for two selected indicators*” for the BeSD domains. It also presents a sample of interventions relevant to this model. Further details related to the BeSD can be obtained at: <https://apps.who.int/iris/handle/10665/339452>

Domain & 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” % of adults/HCWs who think a Covid-19 vaccine is “very” or “moderately” important for their health	Educational campaign Informational posters with disease risk, letters, educational materials, group educational session highlighting disease salience and importance of vaccine ^{13,14}	Ensure contextually appropriate design and development of all educational materials*. (Yes/No) Develop plan for dissemination of materials to the target audience. (Yes/No)	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.

		*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.		3. Greater proportion of HCW who think a Covid-19 vaccine is “very” or “moderately” important for their health.
<p>Motivation</p> <p>% of adults/HCWs who would get a Covid-19 vaccine if it was recommended to them</p> <p>% of HCWs who would recommend a Covid-19 vaccine to eligible patients</p>	<p>Provider recommendation</p> <p>Provider recommendation with risk appraisal³</p> <p>Message framing</p> <p>Loss framed messaging⁷, e.g. messaging for at-risk persons that emphasizes risk or cost of <i>not</i> receiving a vaccine (“if you decide not to get the vaccine you may increase your chance of contracting the potentially deadly corona virus”)</p>	<p>Ensure development of a risk appraisal questionnaire for adults/HCWs suited to country priority target population for Covid-19 vaccination. (Yes/No)</p> <p>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).</p> <p>Ensure development of</p>	<p>Risk appraisal questionnaires have been pilot tested and ready to be distributed according to plan. (Yes/No)</p> <p>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)</p> <p>Vaccinators are knowledgeable / capable of interpreting results and</p>	<p>1. Greater proportion of patients demonstrate enhanced health literacy on Covid-19 risks and vaccine benefits than baseline.</p> <p>2. Greater proportion of adults/HCWs with favorable attitudes and intentions to Covid-19 vaccination than baseline.</p> <p>3. Enhanced HCW capacity to recommend COVID-19 vaccination for eligible persons based on risk appraisals.</p>

		<p>supporting materials* for HCWs to implement risk appraisal questionnaire, including communication strategies and message framing based on risk appraisal results. (Yes/No)</p> <p>* 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.</p>	<p>communicating with clients based on risk appraisal results. (Yes/No)</p> <p>Vaccinators understand how to frame messages about COVID-19 vaccination based on risk appraisal results and client attitude to vaccination. (Yes/No)</p>	<p>4. Greater proportion HCWs who would recommend a Covid-19 vaccine to eligible patients than baseline.</p>
<p>Practical Issues</p> <p>% of adults/HCWs who believe that accessing vaccination for themselves is "very" or "moderately" easy</p>	<p>Improve access to vaccination</p> <p>Mailing information followed by outreach and making appointment.⁵ Over the phone offer of immunization appointment,⁴ Reminders, standing orders</p>	<p>Ensure development of messages to invite adults/ HCWs for immunization, reminder messages, follow up messages and COVID-19 vaccination information. (Yes/No)</p>	<p>Messages are ready on schedule, and pilot-tested, revised and ready for roll-out/ dissemination. (Yes/No)</p> <p>Mechanisms and related channels for delivering</p>	<p>1. Increased proportion of adults/ HCWs who know where to get vaccines for themselves.</p> <p>2. Increased proportion of HCWs for whom on-site vaccination is available at their place of work.</p>

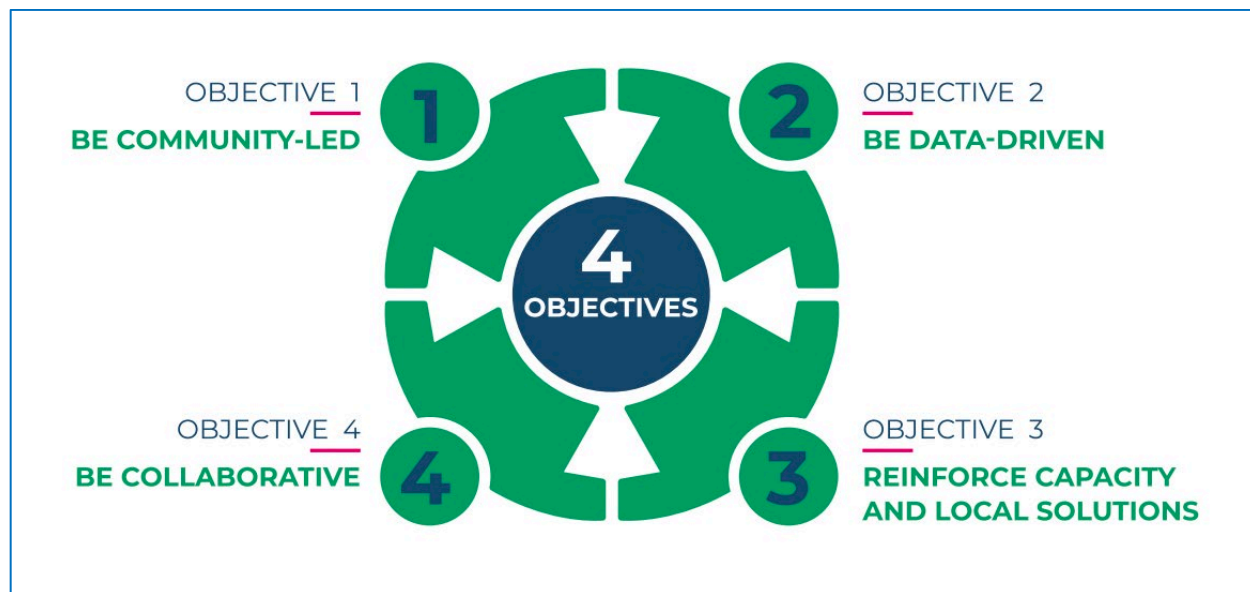
	<p>and walk in clinics.¹⁰</p> <p>Direct offer of vaccination at home / work/ health center/clinic.²</p> <p>Direct offer of vaccination during previous existing health worker/doctor's appointment.¹²</p>	<p>Ensure mechanisms are established for the delivery of personal invitations* to discuss and get covid-19 vaccine. (Yes/No)</p> <p>*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.)</p> <p>Establish or enhance mobile vaccine clinics and resources needed to reach target groups at home / work/ health center/clinic. (Yes/No)</p>	<p>messages are available and ready to be put into action. (Yes/No)</p> <p>Mobile clinics are available, well-resourced and ready to reach the target population in the desired locations. (Yes/No)</p>	<p>3. Decreased proportion of adults who report having a barrier to access vaccination.</p> <p>4. Increased proportion of adults/HCWs who believe that accessing vaccination for themselves is "very" or "moderately" easy.</p>
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<p>Social Processes</p> <p>% of HCWs who think most of the people they work with will get a Covid-19 vaccine</p> <p>% of adults who think most other adults they know will get a Covid-19 vaccine if it is recommended to them</p>	<p>Institutional recommendation</p> <p>Institutional recommendation by encouraging vaccination¹⁹⁻²², and system to disclose vaccination status²² (HCWs only)</p> <p>Vaccine championing</p> <p>I vaccinated stickers^{19,22}</p>	<p>Ensure contextually appropriate design and development of materials* institutions can use to convey support for COVID-19 vaccination and where appropriate recommendation to vaccinate. (Yes/No)</p> <p>*These can be “I vaccinated” stickers, posters, flyers and messaging to be delivered by institutions.</p> <p>Establish a dissemination plan for materials developed. (Yes/No)</p> <p>Establish or enhance systems** to trace vaccination of healthcare workers; including first and second dose recording to enable follow up where needed. (Yes/No)</p>	<p>Materials and messages developed, tested with a focus group and ready to be disseminated / rolled out to the appropriate target group. (Yes/No)</p> <p>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 unvaccinated persons. (Yes/No)</p> <p>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)</p>	<p>1. Increased proportion of adults who reporting seeing promotional material that signals COVID-19 vaccination as a positive social norm.</p> <p>2. Increased proportion of HCWs who think most of the people they work with will get a Covid-19 vaccine.</p> <p>3. Increased proportion of adults who think most other adults they know will get a Covid-19 vaccine if it is recommended to them.</p> <p>4. Increased proportion of adults/ HCWs who trust the health care providers who would give Covid-19 vaccines "very much" or "moderately".</p>
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		<p>*These can be a digital database, or simple adaptable logbook for record keeping.</p>		
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Appendix II

The figure below is a schematic illustrating the four RCCE priority areas and their overarching objectives.



Source: UNICEF. COVID-19 Global Risk Communication and Community Engagement Strategy. 2020-2021.

The following figure is extracted from the above source. It presents the guiding principles of Risk Communication and Community Engagement (RCCE) model.

Further details related to RCCE, including the interventions, and indicators can be obtained at: <https://www.unicef.org/media/90706/file/COVID-19-Global-Risk-Communication-and-Community-Engagement-Strategy.pdf>

Table presenting RCCE guiding principles

	NATIONALLY-LED — The responsibility to implement RCCE lies with national governments. However, they are supported by local, national and international civil society ⁵¹ and the communities themselves. Risk communications is a core function that WHO Member States must fulfil, as signatories to the International Health Regulations (2005). ⁵²
	COMMUNITY-CENTRED — Effective RCCE starts with understanding the knowledge, capacities, concerns, structures and vulnerabilities of different groups in communities – enabling adaptation of approaches, improving outcomes and impact. It is necessary to take a holistic, humanitarian approach that addresses the risk of COVID-19, but also includes other community needs, including protection, water and sanitation, economic stability, mental health and psychosocial support and broader development issues. ⁵³
	PARTICIPATORY — Communities (with priority given to at-risk or vulnerable groups) should be supported to lead in the analysis, planning, design, implementation, and monitoring and evaluation of RCCE activities. ⁵⁴ Where there is no capacity to lead, response partners (including local civil society) can facilitate the process through participatory approaches. ⁵⁵
	TRUST BUILDING — Community trust in governments and institutions and organizations responding to the pandemic is vital to control an outbreak. Trust in scientific advice and recommended behaviours is also important. Reasons for mistrust are varied and related to structural, historical and cultural factors. Understanding them is key to developing trust-building strategies.
	OPEN AND TRANSPARENT, EVEN IN UNCERTAINTY — Timely, audience-tailored, science-based communications, adapted to the local context, language and culture, are critical to mitigating risk and engaging communities. Acknowledging and communicating transparently, about what is known and not known, is critical to allaying the stress and fear of the uncertainty that the pandemic creates. ⁵⁶
	INFORMED BY DATA — Data should be generated and analysed to enable it to inform RCCE approaches, and the response more broadly. There should be a balance between data about individuals, and data about social and structural factors that drive behaviours e.g. social norms and economic pressures. ⁵⁷
	INTEGRATED — RCCE should be integrated and harmonized within the public health, humanitarian and development responses to COVID-19. At a programmatic level, RCCE should be mainstreamed across all sectors to ensure participation and to improve effectiveness. ⁵⁸
	COORDINATED — COVID-19 impacts many aspects of the community beyond health. It also affects, access to food; water, sanitation and hygiene; livelihoods; security; and education. Coordinating RCCE efforts across technical specialties avoids duplication and gaps in coverage, helps ensure consistency in approaches, and maximizes efficiency and impact. ⁵⁹
	INCLUSIVE — Support should be prioritized to the most vulnerable, marginalized or at-risk groups. RCCE approaches must be accessible, culturally appropriate and gender-sensitive. ⁶⁰ The representation of all groups in local decision-making should be prioritized; it will contribute positively to transformative power structures and community dynamics, and will ensure the broadest possible range of community knowledge and skills are represented and drawn upon. ⁶¹
	ACCOUNTABLE — In responding to COVID-19, public health, humanitarian and development actors must be accountable and transparent to affected communities. RCCE approaches should ensure communities can access information about and participate in decision-making about the response. They should also document and respond to community feedback on the response.

Source: UNICEF. COVID-19 Global Risk Communication and Community Engagement Strategy. 2020-2021.

Appendix III

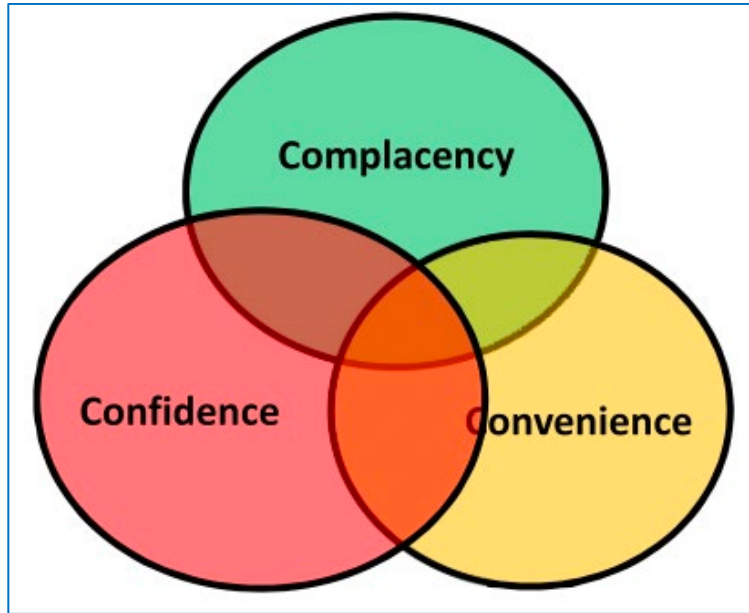
The figure below presents the determinants comprising the Vaccine Hesitancy Matrix.

<p><u>CONTEXTUAL INFLUENCES</u> Influences arising due to historic, socio-cultural, environmental, health system/institutional, economic or political factors</p>	<ul style="list-style-type: none"> a. Communication and media environment b. Influential leaders, immunization program gatekeepers and anti- or pro-vaccination lobbies. c. Historical influences d. Religion/culture/ gender/socio-economic e. Politics/policies f. Geographic barriers g. Perception of the pharmaceutical industry
<p><u>INDIVIDUAL AND GROUP INFLUENCES</u> Influences arising from personal perception of the vaccine or influences of the social/peer environment</p>	<ul style="list-style-type: none"> a. Personal, family and/or community members' experience with vaccination, including pain b. Beliefs, attitudes about health and prevention c. Knowledge/awareness d. Health system and providers-trust and personal experience. e. Risk/benefit (perceived, heuristic) f. Immunisation as a social norm vs. not needed/harmful
<p><u>VACCINE/ VACCINATION-SPECIFIC ISSUES</u> Directly related to vaccine or vaccination</p>	<ul style="list-style-type: none"> a. Risk/ Benefit (epidemiological and scientific evidence) b. Introduction of a new vaccine or new formulation or a new recommendation for an existing vaccine c. Mode of administration d. Design of vaccination program/Mode of delivery (e.g., routine program or mass vaccination campaign) e. Reliability and/or source of supply of vaccine and/or vaccination equipment f. Vaccination schedule g. Costs h. The strength of the recommendation and/or knowledge base and/or attitude of healthcare professionals

Source: The SAGE Working Group on Vaccine Hesitancy. Report of the SAGE Working Group on Vaccine Hesitancy. 2014.

Appendix IV

The figure below presents the 3Cs (Confidence, Complacency, Convenience) model of vaccine hesitancy.



Source: The SAGE Working Group on Vaccine Hesitancy. Report of the SAGE Working Group on Vaccine Hesitancy. 2014.