

# Immunization Newsletter

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## Update: The Immunization Program in the Context of the COVID-19 Pandemic

(Version 2: 24 April 2020)

Following the declaration of the COVID-19 pandemic on 11 March 2020, the Pan American Health Organization (PAHO) recommended maintaining vaccination in the context of the pandemic, along with other essential health services. On 26 March 2020, PAHO published the first version of the document: **The Immunization Program in the Context of the COVID-19 Pandemic**<sup>a</sup>, which was consulted on within the organization with various departments, and externally with the Technical Advisory Group (TAG) on Vaccine-preventable Diseases.

This document was presented and discussed in a webinar in which managers of immunization programs of the Region of the Americas, members of the TAG, members of National Immunization Technical Advisory Groups (NITAGs), and immunization program partners.

Due to the constant development of new evidence regarding transmission of the new coronavirus (SARS-CoV-2) and its implications for public health, PAHO determined that the document would be updated, as necessary. To this end and considering new evidence, the second version was published on 24 April 2020<sup>b</sup>, in which the following topics were added or updated:

### - Importance of maintaining the population's trust in vaccination services

Independently of scenario, a personalized communication strategy must be implemented to disseminate precise health information, address concerns from the community, improve community ties and promote the continued use of immunization services.

### - Update on the use of masks

The use of medical/surgical masks by immunization personnel (in health units, mobile posts or community brigades) should be determined by each country/department/locality based on criteria established by the WHO (purpose of using the mask, risk of exposure to SARS-CoV-2, vulnerability, community characteristics, feasibility and type of mask), and following recommendations on how to put on, take off, and discard the masks.<sup>c</sup> Priority use of medical/surgical masks should always be given to health personnel responsible for the care of patients (suspected and confirmed) of COVID-19.<sup>d</sup>

### - Importance of hepatitis B vaccination during first 24 hours of life

As institutional births will continue, vaccination of newborns must remain a priority in all settings. It is especially important to vaccinate against hepatitis B during the first 24 hours of life to reduce the risk of vertical transmission.

### - Periodic and systematic registry of the population pending vaccination

It is important to maintain a periodic and systematic registry of the population pending vaccination, including newborns that have not received the corresponding doses, with the aim of planning how to complete their schedules as soon as the situation allows.

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<sup>a</sup> Accessible at <https://iris.paho.org/handle/10665.2/51992>

<sup>b</sup> For complete document published on 24 April 2020, please visit <https://iris.paho.org/handle/10665.2/52056>

<sup>c</sup> World Health Organization. Advice on the use of masks in the context of COVID-19. 6 April 2020 [Available at: [https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-\(2019-ncov\)-outbreak](https://www.who.int/publications-detail/advice-on-the-use-of-masks-in-the-community-during-home-care-and-in-healthcare-settings-in-the-context-of-the-novel-coronavirus-(2019-ncov)-outbreak)]

<sup>d</sup> Pan American Health Organization. Ethics guidance for the use of scarce resources in the delivery of critical health care during the COVID-19 pandemic. April 2020. [Available at: <https://www.paho.org/en/documents/ethics-guidance-use-scarce-resources-delivery-critical-health-care-during-covid-19>]

## In Memory of Dr. Louis Z. Cooper (1931-2019)

By Jon Kim Andrus, MD

Dr. Louis Z. Cooper was a tireless, life-long advocate for children's causes around the world. Over the years, I personally witnessed first-hand his passion for the elimination of rubella and congenital rubella syndrome (CRS), which is how I met him years ago while working at the Pan American Health Organization (PAHO) as the chief of the immunization team. Later, we worked extensively on childhood advocacy issues like Helping Babies Breathe, an initiative of the American Academy of Pediatrics, and newborn hearing screenings. I feel very blessed to have had the honor to work with him and to call him a dear friend. I have been asked by PAHO to share a few of my own perspectives on the life of Dr. Cooper. Sadly, he died at age 87 in early October 2019 after a full and illustrious career. He was a loving father, a tireless community member, and a dear friend to many.

Dr. Cooper, or Lou, as his many friends called him, was Professor Emeritus at Columbia University School of Physicians and Surgeons, past Chairman of Pediatric Services of St. Luke's/Roosevelt Hospital Center, past President of the American Academy of Pediatrics and a Captain in the United States Air Force. Dr. Cooper earned his undergraduate and medical degrees from Yale.

Early in his career, Dr. Cooper was a member of the team that developed the rubella vaccine leading to the elimination of CRS in many parts of the world. He was in the right place at the right time when outbreaks

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## - Vaccinating a person infected with COVID-19 (suspected or confirmed) and contacts

### • Person infected with COVID-19 (suspected or confirmed)<sup>e</sup>

- ▮ There are no known medical contraindications to vaccinate a person infected with COVID-19. To minimize the risk of COVID-19 transmission, people with suspected or confirmed COVID-19 should be isolated and attended based on the WHO guide.
- ▮ If the person with COVID-19 (suspected or confirmed) is not in a health establishment or hospitalized, getting vaccinated may increase the spread of the disease to others. For this reason, vaccination should be deferred until symptoms go away, preferably after two consecutive negative COVID-19 tests (conducted with 24 hours difference). If confirmation through laboratory is not feasible, WHO recommends postponing vaccination for 14 days after symptoms resolve.
- ▮ If the person with COVID-19 (suspected or confirmed) is in a health establishment/hospitalized, they should be vaccinated according to the national vaccination schedule at the moment of recovery and before being discharged, respecting the appropriate measures for infection prevention and control.

### • Contacts (people exposed to suspected or confirmed COVID-19 case)<sup>e</sup>

- ▮ There are no known medical contraindications to vaccinate contacts.
- ▮ If the contact is not in a health establishment/hospitalized, complete 14 days of isolation to avoid the risk of COVID-19 transmission to others, if the contact does not develop COVID-19 symptoms after 14 days of isolation, then this person can be vaccinated.
- ▮ If the contact is in a health establishment or hospitalized, the person should be vaccinated according to the national vaccination schedule, prior to being discharged, respecting the appropriate measures for infection prevention and control.

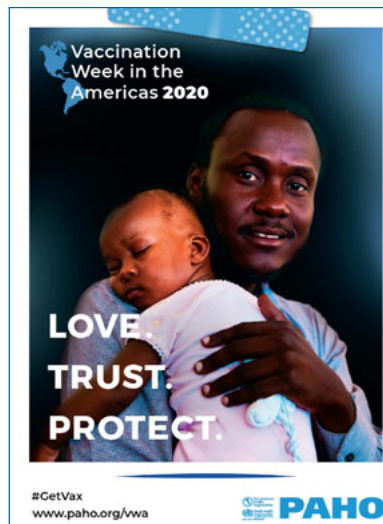
## - Efficacy of BCG and OPV Vaccines in Preventing COVID-19

- **BCG:** There is no evidence that the BCG vaccine protects people against infection with the SARS-CoV-2 virus. Two clinical trials addressing this topic are underway, and WHO will evaluate the evidence when it becomes available. In the absence of evidence, WHO does not recommend the BCG vaccine for the prevention of COVID-19. WHO continues to recommend neonatal BCG vaccination in countries or settings with a high incidence of tuberculosis.<sup>f</sup>
- **OPV:** There is no evidence that the OPV vaccine protects people against infection with the SARS-CoV-2 virus. A clinical trial to address this issue is planned to be conducted in the United States. WHO will evaluate the evidence when it becomes available. In the absence of evidence, WHO does not recommend the OPV vaccine for the prevention of COVID-19. WHO continues to recommend the administration of OPV to prevent polio and as part of global efforts to eradicate this disease.<sup>g</sup> ■

## Vaccination Week in the Americas 2020 in the Context of COVID-19

This year's celebration of Vaccination Week in the Americas (VWA) was unlike any previous celebration, as it took place during the ongoing global COVID-19 pandemic. Because of this, one of the main focuses of the campaign was to encourage countries to maintain vaccination against vaccine-preventable diseases, with a special focus on vaccination against measles and influenza, during the pandemic. The 18th VWA campaign took place 25 April-2 May 2020 with the slogan "Love. Trust. Protect. #GetVax." Since 2003, more than 806 million people of all ages have been vaccinated against a wide range of dangerous diseases under the regional initiative promoted by PAHO.

Immunization continues to be an essential service that must continue to keep people healthy and reduce burdens on health services so they can respond more effectively to COVID-19. Vaccinating to prevent serious respiratory illness from flu and stop measles outbreaks, which Argentina, Brazil, and Mexico are currently facing, to protecting people while helping health systems focus on the response to COVID-19. Some 17 countries in the Americas had reported they were using the VWA platform to vaccinate against influenza, and another 17 planned to vaccinate against measles,



planning to reach over 100 million people using innovative approaches to vaccination, such as drive-through vaccination or setting up vaccination clinics at empty schools or banks where retirees collect their pensions. Special efforts are being made to vaccinate high-risk groups, including vaccination brigades visiting retirement homes and jails. PAHO reminded countries of the need to follow guidelines on physical distancing while conducting vaccination activities.

PAHO underlined the importance of all health

care workers being up-to-date with their vaccines, and it has laid out a series of recommendations vaccine services can follow to protect workers and community members, including offering outdoor vaccination, exclusive vaccination sessions for high-risk groups, and limiting the number of people accompanying the person to be vaccinated.

Countries are also including messages related to COVID-19 prevention as part of their VWA campaigns, such as the importance of good hand hygiene and respiratory etiquette, and dispelling myths and misinformation about the disease. With virtual launches suggested by PAHO as a safe way to celebrate vaccines, Paraguay recently held a symbolic launch of the campaign with the president and minister of health that was shared on social media.

Regarding social media, VWA posts and messages shared this year in the context of the COVID-19 pandemic helped PAHO increase the number of followers on each platform. PAHO also hosted a tweet chat with the #ImmunizationDuringCovid hashtag, where participants had the chance to get their questions on vaccination during the pandemic answered by PAHO experts. To learn more information about this year's VWA campaign, please visit [www.paho.org/vwa](http://www.paho.org/vwa). ■

<sup>e</sup> World Health Organization. Immunization in the context of COVID-19 pandemic Frequently Asked Questions (FAQ), April 2020 [Available at: [https://apps.who.int/iris/bitstream/handle/10665/331818/WHO-2019-nCoV-immunization\\_services-FAQ-2020.1-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/331818/WHO-2019-nCoV-immunization_services-FAQ-2020.1-eng.pdf)]

<sup>f</sup> World Health Organization. Bacille Calmette-Guérin (BCG) vaccination and COVID-19. Scientific Brief, 12 April 2020. [Available at: [https://www.who.int/news-room/commentaries/detail/bacille-calmette-gu%C3%A9rin-\(bcg\)-vaccination-and-covid-19](https://www.who.int/news-room/commentaries/detail/bacille-calmette-gu%C3%A9rin-(bcg)-vaccination-and-covid-19)]

<sup>g</sup> World Health Organization. The use of oral polio vaccine (OPV) to prevent SARS-CoV-2. April 2020. [Available at: <http://polioeradication.org/wp-content/uploads/2020/03/Use-of-OPV-and-COVID-20200421.pdf>]

# Vaccination of Newborns in the Context of the COVID-19 Pandemic

Version 1: 19 May 2020

**\*\*Preliminary recommendations subject to revision as new evidence becomes available\*\***

## Objective

- Provide guidance regarding vaccination of newborns with hepatitis B and BCG vaccines in the context of the COVID-19 pandemic, in order to maintain high vaccination coverage.

## Key Considerations

- The COVID-19 pandemic is having a significant economic, social and health impact on the population, as well as placing a burden on health services. Based on currently available information, older adults and people of any age who have underlying medical conditions might be at higher risk for severe illness from COVID-19.
- Only a few cases of COVID-19 have been reported among newborns. Currently, there is no

evidence of vertical transmission of SARS-CoV-2 from infected pregnant women to their fetuses<sup>1,2</sup> and the virus has not been found in samples of breastmilk<sup>2</sup>. However, screening studies of pregnant women who gave birth in two hospitals during the peak of the epidemic in New York City (United States), showed that between 15%-20% were infected with COVID-19, although more than two-thirds of these infected women had no symptoms<sup>3,4</sup>. To avoid infected women from spreading COVID-19 to their newborns during the postpartum period, it is necessary to implement preventive measures, such as wearing a mask when breastfeeding<sup>3-5</sup>.

- The case series of newborns with COVID-19 published to date show that most neonates were

asymptomatic and a minority presented mild clinical symptoms (in very few cases moderate) and outcomes were favorable<sup>6</sup>.

- These recommendations for vaccination of newborns in the context of the COVID-19 pandemic complement the guidance for immunization programs issued by PAHO<sup>7</sup> and WHO<sup>8,9</sup>. They have been prepared by PAHO's Comprehensive Family Immunization Team in collaboration with PAHO's Latin American Center for Perinatology/Women's and Reproductive Health (CLAP/SMR) and PAHO's Incident Management System for COVID-19. Members of the Technical Advisory Group (TAG) on Vaccine-preventable Diseases and experts from PAHO collaborating centers were also consulted.

**Table 1. Recommendations for vaccination of newborns in the context of the COVID-19 pandemic**

Scenario	Mother <sup>k</sup>	Newborn	Institutional/hospital birth	Home birth
<b>A</b>	No clinical suspicion of COVID-19 infection	No clinical suspicion of COVID-19 infection	Considering the national vaccination schedule, the following is recommended: → <b>Proceed</b> to hepatitis B vaccination (within first 24 hours of life) → <b>Proceed</b> to BCG vaccination (at birth or as soon as possible)	Considering the national vaccination schedule and the most appropriate vaccination delivery strategy <sup>15</sup> , the following is recommended: → <b>Proceed</b> to hepatitis B vaccination (within first 24 hours of life or as soon as possible) → <b>Proceed</b> to BCG vaccination (at birth or as soon as possible)
<b>B</b>	Clinical suspicion but without laboratory confirmation of COVID-19 infection	No clinical suspicion of COVID-19 infection <sup>m</sup>		
<b>C</b>	With laboratory confirmation of COVID-19 infection (with or without clinical suspicion)	Without laboratory confirmation of COVID-19 infection (with or without clinical suspicion)	The <b>newborn</b> should be considered as a <b>contact of a confirmed case</b> (the mother), who could transmit COVID-19 to others. <b>C.1) If the newborn is asymptomatic:</b> → <b>Proceed</b> to hepatitis B vaccination (within first 24 hours of life) → <b>Proceed</b> to BCG vaccination (at birth or as soon as possible) <b>C.2) If newborn presents symptoms compatible with COVID-19:</b> → <b>Proceed</b> to hepatitis B vaccination (within first 24 hours of life) → <b>Postpone</b> BCG vaccination until discharge	The <b>newborn</b> should be considered a <b>contact of a confirmed case</b> (the mother), who could transmit COVID-19 to others. <b>C.3) If the newborn is asymptomatic</b> and the COVID-19 pandemic context allows, offer vaccination in the home: → <b>Proceed</b> to hepatitis B vaccination (within first 24 hours of life or as soon as possible) → <b>Proceed</b> to BCG vaccination (at birth or as soon as possible) <b>C.4) If newborn presents symptoms compatible with COVID-19:</b> → If the COVID-19 pandemic contexts allows, <b>offer</b> vaccination in the home of hepatitis B (within first 24 hours of life or as soon as possible) → <b>Postpone</b> BCG vaccination until 14 days after resolution of symptoms <sup>n</sup>
<b>D</b>	With laboratory confirmation of COVID-19 infection (with or without clinical suspicion)	With laboratory confirmation of COVID-19 infection (with or without clinical suspicion)	The <b>newborn</b> should be considered as a <b>confirmed case</b> , who can transmit COVID-19 to others. <b>D.1) If the newborn with COVID-19 is asymptomatic or presents a mild clinical picture:</b> → <b>Postpone</b> hepatitis B vaccination until discharge, except <b>infants born to HBsAg/HBeAg-positive mother, proceed</b> with hepatitis B vaccination within first 24 hours or as soon as possible → <b>Postpone</b> BCG vaccination until discharge <b>D.2) If the newborn with COVID-19 presents a moderate or severe clinical picture:</b> → <b>Postpone</b> hepatitis B vaccination until discharge, except <b>infants born to HBsAg/HBeAg-positive mother, in which, if the clinical situation allows, proceed</b> to hepatitis B vaccination within first 24 hours or as soon as they are clinically stable → <b>Postpone</b> BCG vaccination until discharge	The <b>newborn</b> should be considered as a <b>confirmed case</b> , who can transmit COVID-19 to others. <b>D.3) If the newborn with COVID-19 is asymptomatic or presents a mild clinical picture:</b> → <b>Postpone</b> hepatitis B and BCG vaccination until completing 14 days since diagnostic by laboratory confirmation <sup>o</sup> . In the case of <b>infants born to HBsAg/HBeAg-positive mother, offer</b> vaccination in the home with hepatitis B within first 24 hours or as soon as possible <b>D.4) If the newborn with COVID-19 presents a moderate or severe clinical picture:</b> → <b>Refer</b> to a health service and postpone vaccination according to <b>"D.2"</b> recommendations

<sup>k</sup> Clinical suspicion and/or laboratory confirmation of a mother's COVID-19 infection refers to the immediate pre-partum and peri-partum period.

<sup>l</sup> The following can be considered: vaccination in the health service, vaccination in the home, vaccination posts, brigades or mobile teams.

<sup>m</sup> Newborns born to a mother with clinical suspicion of COVID-19 but without laboratory confirmation (pending results or unavailable tests) are not considered suspected cases<sup>17</sup>.

<sup>n</sup> Period to prevent risk of COVID-19 transmission to others<sup>8</sup>.

<sup>o</sup> Period to prevent risk of COVID-19 transmission to others<sup>8</sup>.

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## Recommendations

- Vaccination of newborns is considered an essential service. Given that institutional deliveries will continue to take place in the context of the COVID-19 pandemic, vaccination of newborns with hepatitis B vaccine and BCG vaccine (according to each country's national immunization schedule) should remain a priority.
- There are no known medical contraindications to vaccinating suspected<sup>15</sup> or confirmed<sup>16</sup> cases of COVID-19 or to vaccinating contacts.<sup>19</sup> This applies to vaccination of newborns. Table 1 describes four scenarios according to the status of the mother and the newborn in relation to COVID-19 infection, with specific vaccination recommendations for newborns delivered in a hospital setting and those delivered at home. In all scenarios, preventive measures for COVID-19 transmission should be implemented for health personnel taking care of the newborn and

administering the vaccine<sup>10</sup>, for the nursing mother, and for the newborn).

- Hepatitis B vaccine is an inactivated vaccine. Its administration during the first 24 hours of life decreases the risk of vertical transmission of hepatitis B, which is especially important in the case of neonates born to a mother positive for the hepatitis B surface antigen (HBsAg)/hepatitis B e antigen (HBeAg). If hepatitis B vaccine is administered after 24 hours but during the first week of life, a late birth dose has some effectiveness in preventing vertical transmission (although effectiveness declines progressively in the days after birth). If administered after first week of life, it can still be effective in preventing horizontal transmission of hepatitis B and therefore remains beneficial<sup>11-12</sup>.
- BCG vaccine is a live attenuated vaccine to prevent tuberculosis. BCG administration is recommended at birth. If it cannot be given

at birth, it should be given at the earliest opportunity thereafter. Pre-term infants with gestational age >31 weeks and low birth weight infants (<2500 g) who are healthy and clinically stable may receive BCG at birth, or at the latest, upon discharge<sup>13</sup>.

- Co-administration of hepatitis B birth dose and BCG vaccine is safe and recommended by PAHO/WHO<sup>11,13</sup>.
- The general vaccination recommendations indicate that presenting a mild acute illness, such as low-grade fever, upper respiratory infection, cold, otitis media or mild diarrhea, are not a contraindication to vaccination on schedule. Only in case of a moderate or severe acute illness, as a precaution, is it recommended to postpone vaccination, particularly with live attenuated vaccines such as BCG, until the patient has recovered from the illness<sup>14</sup>. ■

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# Framework for Decision-making: Implementation of Mass Vaccination Campaigns in the Context of COVID-19<sup>P</sup>

Interim Guidance 22 May 2020

## Background

Mass vaccination campaigns to prevent or respond to outbreaks of vaccine-preventable diseases and high impact diseases (VPD/HID) are effective strategies to reduce deaths and disease. Yet many countries have had to postpone such vaccination campaigns due to the physical distancing measures implemented to reduce COVID-19 transmission.

For countries affected by both VPD/HID and COVID-19 outbreaks, determining the best course of action may be challenging. Weighing the benefits of a safe and effective intervention that reduces mortality and morbidity against the risks of increasing transmission of a new disease that may burden essential health services can be complex. The starting point for such considerations is a risk-benefit analysis that reviews in detail the epidemiological evidence and weighs the short- and medium-term public health consequences of implementing or postponing mass vaccination campaigns, weighed against a potential increase in COVID-19 transmission.<sup>1</sup>

In the context of the COVID-19 pandemic, this document:

- outlines **a common framework** for decision-making for the conduct of preventive and outbreak response campaigns;
- offers principles to consider when deliberating the implementation of **mass vaccination campaigns for prevention of increased risk of VPD/HID among susceptible populations**; and
- details the risks and benefits of conducting vaccination campaigns to respond to VPD/HID outbreaks.**

This document is complemented by an annex (Annex 1) that provides guidance on how to safely organize a mass vaccination campaign, and is supplemented by a range of technical materials on prevention, response and control measures for COVID-19, including the Guiding principles for immunization activities during the COVID-19 pandemic;<sup>2</sup> the Frequently Asked Questions: Immunization in the context of COVID-19 pandemic;<sup>3</sup> and the Polio eradication programme continuity: implementation in the context of the COVID-19 pandemic.<sup>4</sup> This interim guidance should also be used in conjunction with existing disease-specific WHO prevention and control guidelines.

## Audience

This interim guidance is to be used by public health authorities (and subnational where appropriate), together with immunization programme partners.

## Common framework for decision-making

While the urgency and public health imperative for conducting a preventive mass immunization campaign or an outbreak-response vaccination campaign may differ, the decision-making method is similar. The framework outlined here is generally applicable to both scenarios and proposes that the comparative assessment of the relative risks and benefits is evaluated on a case-by-case basis, taking a stepwise approach.

**Figure 1** shows a decision-making flowchart that illustrates the five steps:

**Step 1:** Assess the potential impact of the VPD/HID outbreak using key epidemiological criteria (see detail, Table 1<sup>P</sup>).

**Step 2:** Assess the potential benefits of a mass vaccination campaign and the country capacity to implement it safely and effectively (see detail, Table 2).

<sup>15</sup> WHO definition of suspect case<sup>15</sup>: a patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g.: cough, shortness of breath), AND a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset; OR a patient with any acute respiratory illness, AND having been in contact with a confirmed or probable COVID-19 case in the last 14 days prior to symptom onset; OR a patient with severe acute respiratory illness, AND requiring hospitalization in the absence of an alternative diagnosis that fully explains the clinical presentation.

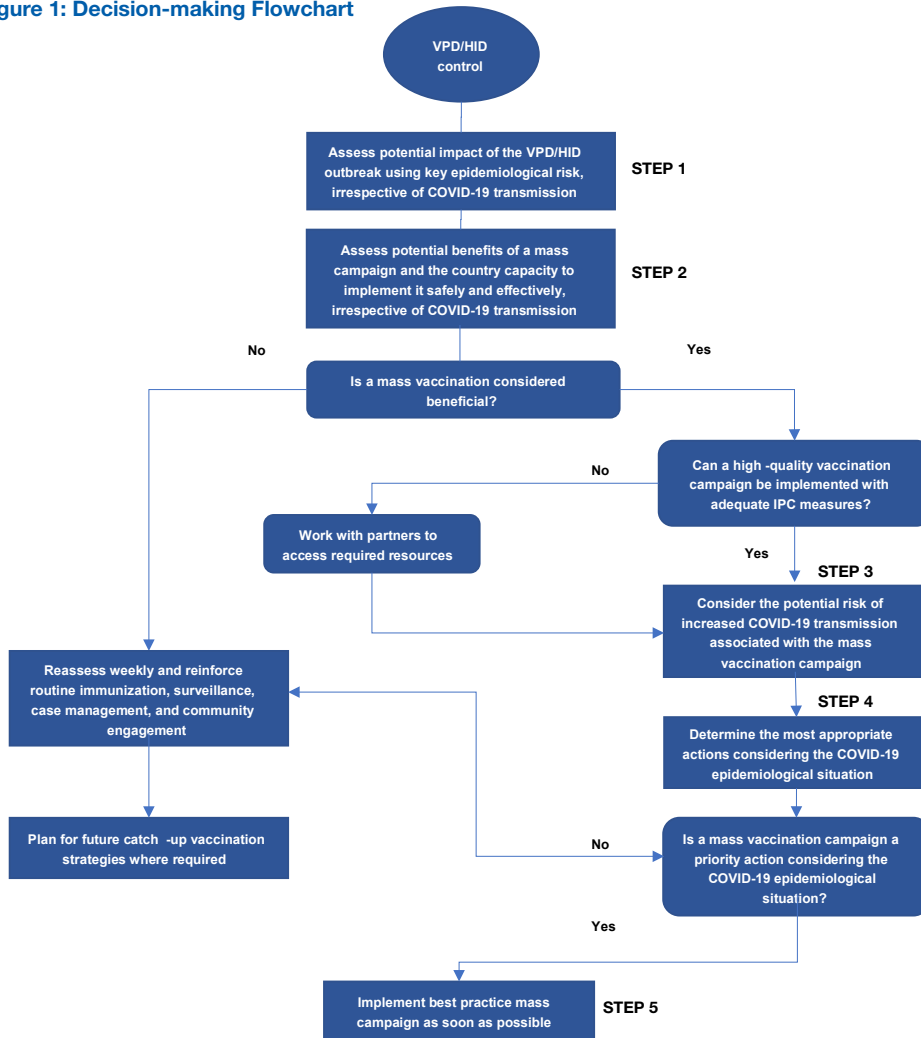
<sup>16</sup> WHO definition of confirmed case<sup>16</sup>: a person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

<sup>17</sup> WHO definition of contact<sup>17</sup>: a person who has been exposed during the 2 days before and the 14 days after the onset of symptoms of a probable or confirmed case.

<sup>P</sup> This text is from a document published by WHO. To see the complete version of the document in its original format, please visit [https://apps.who.int/iris/bitstream/handle/10665/332159/WHO-2019-nCoV-Framework\\_Mass\\_Vaccination-2020.1-eng.pdf?sequence=1&isAllowed=y](https://apps.who.int/iris/bitstream/handle/10665/332159/WHO-2019-nCoV-Framework_Mass_Vaccination-2020.1-eng.pdf?sequence=1&isAllowed=y)

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Figure 1: Decision-making Flowchart



**Step 3:** Consider the potential risk of increased COVID-19 transmission associated with the mass vaccination campaign.

**Step 4:** Determine the most appropriate actions considering the COVID-19 epidemiological situation (see detail, Table 3).

**Step 5:** If a decision is made to proceed with a mass vaccination campaign, implement best practice. This should take account of:

- The coordination; planning; infection prevention and control (IPC); vaccination strategy approaches; community engagement; and equitable access to supplies. (see detail, Table 4),
- The conduct of the campaign in accordance with: WHO's disease-specific guidance for outbreak control, WHO guidelines for IPC in the context of COVID-19 outbreaks, and local COVID-19 prevention and control measures and regulations.<sup>5-9</sup>

These five steps are generally implemented in sequence but are not strictly chronological. A certain degree of overlap in the stepwise process can be expected.

**Conduct of preventive mass vaccination campaigns**

As countries gain a better understanding of local transmission of the COVID-19 virus and given the increased risk of morbidity and mortality resulting from the disruption of immunization services,

countries are considering further postponement of mass vaccination campaigns and exploring options for their eventual implementation.

Health authorities are advised to adopt a systematic decision-making process, as illustrated in Figure 1, to determine whether and how a mass vaccination campaign should be pursued and to engage their National Immunization Technical Advisory Groups (NITAGs) in providing advice on the suspension and/or reinstatement of mass vaccination strategies.

The list below, while not exhaustive, provides key principles to consider before lifting any temporary suspensions on preventive mass vaccination campaigns. Further detail is referenced and can be found in Section III of the document. In the context of COVID19 transmission, countries are strongly urged to:

- a) continually monitor the growing risk of VPD/HID outbreaks associated with the disruption of essential health services and routine immunization caused by the COVID-19 pandemic;
- b) execute only high-quality preventive vaccination campaigns that can be conducted under safe conditions, without undue harm to health workers and the community;
- c) evaluate the country's capacity to implement a mass vaccination campaign – national or sub-national - safely and effectively in spite of a COVID-19 outbreak by assessing: the

adequacy of human resources; cold chain capacity; logistical and transport barriers; capability for infection, prevention and control adherence; flow of material; and financial needs (see detail, Table 2);

- d) understand health-seeking behaviours of the community in the context of COVID-19 and engage community leaders in the decision-making, design, and planning of activities to assure high demand and uptake while at the same time developing tailored risk-communication strategies; (see detail, Table 2);
- e) establish strong coordination and oversight mechanisms to jointly plan with COVID-19 task teams non-traditional vaccination strategies that respect physical distancing requirements. This novel approach may require extending the duration of the campaign, increasing the number of health workers involved or adapting communication strategies (see detail, Table 4);
- f) where feasible, seek to achieve efficiencies through integrated service delivery and adopt context-specific approaches to best address community needs or concerns;
- g) ensure that materials for meeting IPC requirements can be obtained in adequate supply, are accessible to all health workers at all levels, and closely monitor their proper application (see detail, Table 4);
- h) prioritize training of health workers including vaccinators to strictly adhere to infection, prevention and control recommendations for the organization at vaccination sites and sessions (see Annex 1);
- i) ensure the establishment of a strong supervision system and an effective monitoring system that captures adverse events following immunization.

**Conduct of outbreak response mass vaccination campaigns**

Building on the flowchart for decision-making illustrated in Figure 1, this section provides further detail on each of the five steps as described in Section I, in the context of an acute VPD/HID outbreak.

**Step 1: Assess the potential impact of the VPD/HID outbreak using key epidemiological criteria**

Table 1 presents key criteria that should be considered by health authorities when assessing the impact of VPD/HID outbreaks. The list is not exhaustive and is intended to guide decision-making. Although the criteria are applicable to any VPD/HID, the assessment should consider the specificities of each VPD/HID as well as the VPD/HID historical trends in the affected area.

**Step 2: Assess the potential benefits of a mass vaccination campaign and the country capacity to implement it safely and effectively**

Wherever possible, provision of immunization to vulnerable populations at increased risk of morbidity and mortality due to VPD/HID should be prioritized. However, countries should conduct a careful risk-benefit assessment before deciding if a mass vaccination campaign is the most appropriate response during the COVID-19 pandemic. To facilitate decision-making, Table 2 provides decision-makers with key considerations against risk-benefit criteria.

**Step 3. Consider the potential risk of increased COVID-19 transmission associated with the mass vaccination campaign**

Large gatherings during mass vaccination

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**Table 2. Key considerations when assessing the risk-benefit for implementing mass vaccination campaigns, irrespective of COVID-19 transmission scenarios**

Risk-Benefit Criteria	Key Considerations
<b>Assess the impact of the mass vaccination campaign on VPD/HID transmission</b>	<p>Estimate the potential effect on interruption of VPD/HID transmission</p> <p>Estimate the level of potential morbidity and mortality reduction</p> <p>Estimate the potential to induce herd protection</p> <p>Consider the impact of COVID-19 on VPD surveillance</p>
<b>Determine country's capacity to implement a high-quality mass vaccination campaign</b>	<p>Assess human resources capacity and availability including mapping of trained staff (e.g., polio), and development partners, NGOs and CSOs.</p> <p>Determine material resource needs and evaluate procurement and logistics capabilities: availability of sufficient and adequate resources including masks and additional personal protective equipment (PPE) as required<sup>9-11</sup> (Annex 1).</p> <p>Consider potential disruptions in supply freight transportation due to COVID-19 restrictions.</p> <p>Estimate economic and financial capacity including funds needed and available.<sup>9</sup></p> <p>Determine monitoring needs for surveillance of adverse events following immunization, and for COVID-19 surveillance post-vaccination campaigns.</p>
<b>Estimate the public health impact of not conducting a mass vaccination campaign</b>	<p>Estimate risk of excess morbidity and mortality and increased risk of rapid amplification and spread.</p> <p>Consider the strain on health services due to excess VPD/HID disease burden and the indirect effect on mortality from other diseases (e.g. increase on deaths from malaria, measles, HIV/AIDS and TB deaths observed during 2014-2015 Ebola outbreak because of disruption of health services).<sup>12</sup></p> <p>Consider disruption of essential health services and diversion of resources away from routine programs and from COVID-19 response.</p> <p>Estimate increased risk of exposure to COVID-19 infection because of increased demand on health care by VPD/HID cases.</p>
<b>Assess the strength of community engagement</b>	<p>Determine how the community and target population perceive the risks associated with COVID-19 and with the VPD/HID outbreak.</p> <p>Consider engaging community representatives on the decision-making process and on planning and implementation of interventions.</p> <p>Consider tailoring community engagement and communication strategies to inform the public on the potential benefits and potential risks associated with the adopted control measures.</p> <p>Understand the risk-communication needs in case of an adverse event following immunization or an aggravation of COVID-19.</p>

campaigns may increase the risk of introduction of COVID-19 or amplify person-to-person transmission of COVID-19 in communities and among health workers.<sup>13</sup> The magnitude of that risk is not yet well understood, but results of ongoing modelling studies may soon provide more evidence to further inform decision-making. Meanwhile, when assessing the potential risk of COVID-19 transmission associated with the conduct of a mass vaccination campaign, countries are strongly advised to consider the following:

**a) The COVID-19 transmission scenario in the country and areas affected.**<sup>14</sup>

**b) The type and level of control measures and interventions imposed by governments and the community adherence to those measures:** The risk of COVID-19 transmission during mass vaccination may be different in areas with strong and well-enforced confinement measures than in areas where confinement measures are either not practiced by the population or are weakly implemented.

**c) The vaccination strategies and the type of vaccine administration:** The risk of COVID-19 transmission could be reduced by (i) decen-

tralizing vaccine delivery through advanced posts or mobile sites and/or increasing the number of vaccination sites to limit large gatherings, and (ii) supervised self-administration or directly-observed delivery of oral vaccines in mono-dose vials (e.g. oral cholera vaccine) which limits the contact between vaccinators and recipients.

**d) The capacity to implement rigorous COVID-19 IPC measures during the campaign and to communicate and engage effectively with the community:** The risk of COVID-19 transmission can be reduced with implementation of appropriate COVID-19 screening, respect of physical distancing between campaign attendees and the vaccination teams (1 meter), adherence to IPC practices and adequate availability of masks and additional PPE as required.<sup>9,10</sup> (see Annex 1). Vaccination campaigns will be more effective if communities are confident in IPC and public health measures taken.

#### Step 4. Determine the most appropriate action considering the COVID-19 epidemiological situation

Based on the risk-benefit analysis conducted in Steps 1-3, health authorities can then determine the most appropriate action according to the epidemiolog-

**Table 3. Recommended interventions according to VPD/HID outbreak epidemiological risk and COVID-19 scenario<sup>14</sup>**

Epidemiological characteristics of the VPD and HID outbreak	Covid-19 transmission scenarios <sup>*</sup>				Recommended actions (All scenarios: strengthen routine immunization)
	No cases	Sporadic cases	Clusters of cases	Community transmission	
Low risk					Implement outbreak response vaccination with standard IPC precaution measures
Moderate risk					Re-assess weekly, implement VPD/HID outbreak control measures, consider preventive vaccination campaign,
High risk					Re-assess weekly and implement VPD/HID outbreak control measures
					Both implementation or postponement of the campaign could have a negative impact. Decision should be made on a case by case basis

**Low risk:** sporadic cases in a geographically localized area where herd immunity is present

**Moderate risk:** cluster of cases in a geographically localized area with no/low herd immunity

**High risk:** risk of rapid increase in cases, two or more districts affected, fragile-conflict settings and vulnerable populations

<sup>9</sup> For GAVI eligible countries vaccine supply and operational costs for outbreak response campaigns (up to a ceiling) are covered for cholera, meningococcal meningitis, typhoid, and yellow fever. For measles vaccine, costs are covered by the M&RI Outbreak Response Fund.

<sup>14</sup> WHO COVID-19 transmission scenarios were developed to classify countries and can also be applied at sub-national level.

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ical risk of the VPD/HID outbreak and the COVID-19 transmission scenario being experienced by the country. The graphic in Table 3 guides the recommended interventions in response to the dual risk.

**Step 5: If the decision is made to proceed with a mass vaccination campaign, implement best practice**

Several strategies are suitable for delivering mass vaccination campaigns. Countries are thus encouraged to explore alternate, nontraditional or mixed vaccination approaches at early on in the planning

stage, and to follow WHO recommendations on the organisation of high-quality immunization campaigns in the context of COVID-19, with the support of local, regional and international stakeholders (Annex 1)

Where appropriate and feasible, a mass vaccination campaign could be considered a “window of opportunity” for other interventions including multi-antigen vaccination campaigns, or integrated delivery of other health interventions, such as vitamin A, deworming and insecticide-treated bed

nets. However, the anticipated positive impact and feasibility of integrated interventions must be carefully assessed as such integration may significantly increase crowd size, extend implementation time and increase duration of contact between health-care workers and the recipients. The quality of the mass vaccination campaign should not be heavily compromised.

Table 4 characterises areas of best practice required to successfully implement a mass vaccination campaign in the context of COVID-19.■

**Table 4. Key considerations to implement best practice for mass vaccination campaigns**

Areas for Best Practice	Key Considerations
<b>Coordination</b>	Establish strong coordination and oversight mechanism to work in conjunction with the COVID-19 task teams along with immunization programme partners, civil society organizations, community leaders, international health agencies, and donors.
<b>Planning</b>	Detailed planning should include: updated information on target population (such as internal migration, such as shifts from urban to rural sector before/during confinement), best estimates for mask and additional personal protective equipment (PPE) requirements, and adequate measures for both infection prevention and control (IPC) and for waste management. <sup>9,10,15</sup> Consider additional human and financial resource needs to ensure implementation of a high-quality campaign, considering the implications of physical distancing or specific COVID-19 prevention and control measures. Ensure updated standard operating procedures and training on IPC, use of PPE, and any modified vaccination approaches.
<b>Infection, prevention and control<sup>9,10</sup></b>	Activities should be undertaken only if aligned with existing WHO COVID-19 guidance on minimizing transmission. Adhere rigorously to IPC good-practices including adequate access to appropriate IPC supplies, such as masks, hand sanitizer or hand washing units with soap and water, to ensure application of standard and transmission-based precautions to protect health workers not only against COVID-19, but also other pathogens potentially transmitted via person-to-person contact or needlestick injuries, as per WHO recommendations. <sup>16</sup>
<b>Vaccination strategies</b>	Tailor strategies to enable the safest, most effective delivery of the vaccination campaign. Consider increasing the timeframe and the number of vaccination sites, so that fewer people can be vaccinated per site/ day in line with physical distancing efforts. Consider tailored targeted campaigns in high-risk areas and/or high-risk groups. Consider decentralizing vaccination sites with mobile and advanced vaccination posts, use empty public or private premises as vaccination sites, such as schools and stadiums. House-to-house vaccination could be considered if adequate human resources, and logistical and IPC capacities are available. Use non-traditional or novel operational measures to deliver vaccine. For example, oral cholera vaccine (OCV) is administered using a single-dose vial and is thermostable. It does not require skilled personnel for administration and can be provided through directly observed self-administration, avoiding physical contact between vaccinators and recipients.
<b>Community engagement</b>	Involve community leaders and other trusted community actors in vaccination campaign planning, health message dissemination (for example community radio and social media) on COVID-19 prevention and encourage individuals to seek care if they experience potential symptoms of COVID-19. <sup>10, 17</sup> Build public trust and confidence in campaign’s ability to avoid increasing the risk of COVID-19 infection. Work closely with the community to minimize the risk of COVID-19 transmission during the vaccination campaign, for example people with fever and respiratory symptoms should be encouraged to seek health care before getting vaccinated
<b>Equitable access</b>	Ensure that emergency vaccine stockpiles for responding to cholera, measles, meningitis, polio and yellow fever outbreaks are readily available. Allow for rapid and equitable access to vaccine supply and to operational costs for the organization of mass vaccination campaigns. <sup>5</sup>

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<sup>5</sup> The cholera, meningitis and yellow fever emergency stockpiles are managed by the International Coordinating Group (ICG) and financed by GAVI, The Vaccine Alliance. Measles vaccine is available through the M&RI Outbreak Response Fund <https://measlesrubellainitiative.org/resources/outbreak-response-fund/>. The Global stockpile of Type 2 Oral Polio Vaccine (OPV) is governed by the World Health Organization (WHO) on behalf of its Member States. An advisory group, comprising representatives of the Global Polio Eradication Initiative partners (CDC, WHO, UNICEF, BMGF) and independent members, advises WHO’s Director-General on release of this vaccine from the global stockpile.

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# PAHO

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of CRS ravaged the New York City area in the 1960s. He was actively involved in investigating those outbreaks. To my students, I often refer to him as the grandfather of CRS epidemiology. In addition, his work with this disease greatly enhanced access and educational services for disabled children that led to the establishment of the Handicapped Children's Education Act (Individuals with Disabilities Education Act). His wife, Mady, an expert on childhood disabilities, and Lou were a dynamic duo. Lou was incredibly active in the local, state, national, and international arenas. He embodied the phrase, "Think globally and act locally." To that end, Lou worked to establish New York's Child Health Insurance Program which has allowed thousands of children to obtain health insurance and the vital medical care that should be theirs by right.

The last time I saw Lou was when I visited him and Mady at their home in NYC. He knew he had cancer and did not have much more time to live. I had a meeting at UNICEF with Robin Nandy, their chief of immunization. Lou had graciously invited me to stay in their home the night before the meeting. I asked him, "Have you ever visited UNICEF?" He had not and was delighted when I insisted that he come along with me the next day. We would work out the



Dr. Louis Cooper and wife Mady.

building-entry security issues. We had a great time; Robin was very gracious and gave Lou a quick tour.

Prior to the meeting, I went with Lou to walk his dog in Central Park. It was a beautiful morning. He received a call on his cell phone and carried on a conversation for some minutes bumping into other dog walkers, whom I am sure he had known for many years. While carrying on his

phone conversation, he slipped in a few hellos to his dog owner friends, asking them between breaths and the phone conversation, how they were doing. With the person on the phone, I overheard him manage to arrange a breakfast meeting for the next day. Lou said to the person on the phone, "Do you know of a place where they serve grits? I love grits." I found out later that the person on the phone was a man from the South who was on an early release program from jail, for which Lou volunteered as a mentor. I remember thinking here is a man dying of cancer, and he is going to carve out precious remaining time that he had left on this planet to have breakfast with a person newly released from jail. This was someone whom he had never met. But to Lou, that someone was a human being. With a twinkle in his eye, he confided to me that he was looking forward to meeting and discussing the meaning of life and its challenges, hopefully to provide some insight and assistance to this person in need. He whispered to me that it made him feel good. That was Lou, more than all his accomplishments and accolades. That was Lou, a good neighbor, a wonderful friend, a humble champion of the human spirit. What an incredible privilege and honor to have known him. ■