



EXECUTIVE SUMMARY: Guidelines to assess timeliness of COVID-19 vaccination in rural areas and vulnerable populations

Local Health System Sustainability Project (LHSS)
Task Order I, USAID Integrated Health Systems IDIQ

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Local Health System Sustainability Project (LHSS)

The Local Health System Sustainability Project (LHSS) is a USAID initiative being implemented under the Integrated Health Systems IDIQ. Its goal is to help low and middle-income countries move to sustainable, self-funded health systems as a means of supporting universal health coverage. The project works together with partner countries and local stakeholders to reduce financial barriers to health care and treatment, ensure equitable access to essential health services, and improve the quality of health services. Led by Abt Associates, the five-year, \$209 million project will build local capacity to maintain a strong performance of the health system, supporting countries on their path to self-sufficiency and prosperity. In Colombia, this project is known as "*Comunidades Saludables*."

Submitted to: Scott Stewart, COR
Office of Health Systems
Bureau for Global Health

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EXECUTIVE SUMMARY

I. DESCRIPTION

Objective

Adapt the standards provided in the national vaccination guidelines, created by the Ministry of Health and Social Protection (MSPS), to monitor COVID-19 vaccination to enable the national government and territorial entities to develop vaccination monitoring strategies.

Methodology

The methodology used to adapt the guidelines for the rapid monitoring of COVID-19 vaccination includes an analysis of the structure of the National Vaccination Plan (PNV as per the Spanish acronym), prioritization of populations to be vaccinated, and distribution of the vaccine according to its availability throughout the country. The next step was to establish the guidelines and scope of the monitoring process, estimate the size of the population to be monitored, taking into account the population estimate prepared by the National Statistics Department (DANE as per the Spanish Acronym), and define the responsibilities of monitoring staff. Additionally, this process will identify inclusion criteria for survey respondents in order to obtain accurate data on vaccination status and to assess the vaccination strategies employed in the monitored area. Accordingly, this process will define the data collection instruments.

To establish a structure for the adapted guidelines, LHSS collaborated with the MSPS's Expanded Program on Immunizations (PAI as per the Spanish acronym) and the territorial entities. Focus groups identified key issues with and strategies for executing monitoring activities. For example, some territorial entities had staff designated to work exclusively on the monitoring and analysis of results in the field, which enabled the development of new strategies throughout the country.

Estimating the target population

The population estimates will be based on projected data provided by the National Statistics Departments (DANE), which were based on the 2018 Population Census.

Procedure proposed to estimate the population

Age is considered a guiding variable to determine population size as it is used as the core variable to shape the stages of the country's COVID-19 PNV, and it can be considered alongside other conditions for prioritization. To determine the age variable, the project used the DANE's population estimates for 2021, which were prepared according to the 2018 census. The population was selected according to the vaccination stages, including extensions for age groups 12-15 and 3-11 years old.

In order to identify the individuals subject to monitoring, the expected population was identified at the municipal level and subsequently organized by age groups pursuant to the five vaccination stages, thus obtaining the estimated number of individuals that should be vaccinated per each municipality. For the monitoring process, the analysis units were determined using 100% of the target population, as indicated by the WHO (2021) in the document issued regarding the monitoring of COVID-19 vaccination.

An ascending percentage weight was assigned to determine the number of individuals subject to monitoring. This percentage weight ranged between 0.5% for populations of 100,000 to a maximum of 4% for municipalities with a smaller population, allowing for representativeness while considering the management capacity of the monitoring group in the field.

The number of monitoring zones or points was determined using the quotient between the number of individuals corresponding to the municipality and the assigned denominator.

Factors to determine the areas to be prioritized in the monitoring process

It is possible to determine demographic risk based on the work performed with the different territorial entities. To develop a monitoring plan, some risk considerations should be considered for prioritization. Within the general criteria to select COVID-19 vulnerability areas in each territorial entity, four types of zones were identified: 1. Areas where there is a high concentration of people with occupations that impact the respiratory system and/or with occupations carrying high risk of infection due to circulating viruses in the environment; 2. Areas with high morbidity or mortality risk due to social conditions; 3. Border areas with people in vulnerable societal conditions due to migration, and 4. Areas with poor infrastructure and availability of goods and services where people are at high risk of infection, such as groups with little and/or poor access to health care services.

Procedure to prioritize risk areas for monitoring

The following steps should be considered to prioritize the zones:

The information on the social, economic, demographic, and cultural characterization of the area should be considered together with the interdisciplinary team responsible for managing the pandemic in each territory. Additionally, the geographical unit of analysis should be identified, for example: commune, neighborhood, or municipal rural settlement (*vereda*), to indicate the type of existing zones, and then assign scores to each geographical unit according to the type of risk zone. Scores are assigned using at least one of the conditions characterizing each zone. If the condition is not present, the score shall be 0. If any of the conditions are present, the score shall be defined as follows: 3 points for zones 1 and 2, and 2 points for zones 3 and 4. Ten points is the maximum score that a unit can obtain. Once the scores have been assigned, the totals should be added and then the list of the prioritized zones shall be drafted according to the risk, from the highest to the lowest score. Then, data collection may start in the field.

Collaboration

This deliverable is a tool to enable the MSPS and the Health Secretariats to assess vaccination strategies. The use of this tool is aimed at the Health Care Service Providers (IPS as per the Spanish acronym), Benefit Plan Management Companies (EAPB as per the Spanish acronym), and the teams managing and operating the vaccination at the national territory. Field monitoring requires coordination with other sectors for the management of different issues such as the logistics to deploy teams to the field, the provision of vehicle-mounted loudspeaker services, and the dissemination of the strategy to raise awareness among the population regarding the monitoring process, all of which will optimize the timing for data collection.

2. RECOMMENDATIONS

1. With regards to the selection of the target population, Annex 7 proposes a national-level sample size for monitoring. The sampling criteria is as follows: confidence level of 95% ($k = 1.96$), error percentage of 5% ($e = 0.05$) and positive and negative variability of 50% respectively ($pq = 0.25$) and with a population size corresponding to the total population projected for those ages represented in the stages

of the PNV and its extensions (12 to 80+ years old) for the year 2021), with a minimum of 70% of the population needing to be vaccinated to achieve herd immunity. Therefore, a sample size of 323 multiplied by the number of municipalities in the country (1,122) leads to a final sample size of 362,406 people to be monitored throughout the country.

For sampling, a proportional calculation was made by strata at the departmental and municipal levels. This distribution is contained in Annex 7 and is submitted for consideration by the MSPS.

2. A second recommendation to determine the size of the population subject to monitoring is to determine a probabilistic sampling based on the criteria established in recommendation 1, but in this case, the population size of the smallest geographical unit is taken into account. A sample size is determined for each municipality and when added together, it determines the population size for each Department and therefore the entire country.

A disadvantage of this recommendation is that there is no significant variation in the sample size according to population size, and there will therefore be cases where populations with more than one million inhabitants have a sample size of 384, while a population of 50,000 inhabitants will have a sample size 370. This is due to the principle that variations in the value of population size N do not add up to sample size n . This distribution is presented in Annex 8.

Conclusions

COVID-19 vaccination was assumed by the country, in a responsible and equitable manner, as a primary health care strategy. Given the differing needs in each territorial entity, this strategy requires monitoring activities to be conducted in the field to guarantee its proper development and the inclusion of all people living in the country.

The MSPS, as the governing body, delivers a systematic and organized process including proper knowledge management proceedings for vaccination, which has served as support in managing the COVID-19 pandemic. This response capacity was deployed upon developing the vaccination plan for the territorial entities, with the MSPS acting not only as the manager of this process, but also as the guarantor and guiding party, steering the suitable response at the territorial level.

3. SUSTAINABILITY / USE OF THE DELIVERABLE

The document aims to adapt the standards for monitoring COVID-19 vaccination. These standards are based on the PAI's experience and guidelines upon developing rapid vaccination monitoring. This monitoring plan, which is being implemented by every departmental, district, and municipal health secretariat, appraises the vaccination strategies targeting 95% vaccination coverage, thus avoiding the presence of vaccine-preventable events.

The contents of these guidelines were validated by the National PAI team and the PAI COVID-19 teams of the territorial entities of Buenaventura, Sucre, Norte de Santander, Caldas, Cesar, Casanare, Santa Marta, Valle del Cauca, Nariño, Cartagena, Antioquia, Meta, Bogotá, Barranquilla, and Riohacha. These guidelines collected technical considerations, and, specifically, identified the problems and issues that every territory is facing, the coverage achieved, the effectiveness of the vaccination strategy or strategies used, as well as the user's perception regarding the COVID-19 vaccination.

The annual MSPS's national guidelines addressing the PAI management and operation include a follow-up and monitoring component describing the competence of departments, municipalities, health care service

providers, and the EAPB upon developing ongoing vaccination monitoring. Accordingly, it is expected that the development of the new monitoring standards will be included by the MSPS in its annual guidelines to monitor the coverage of the COVID-19 vaccination.

Finally, it is paramount to adapt the COVID-19 vaccination and monitoring guidelines/recommendations in each territorial entity, thus enabling the assessment of results and the search for new strategies to improve both access and rate of vaccination.