



# DPCP SNAPSHOT

## INFORMATION GAPS IN DECISION-MAKING ON VACCINE PRESENTATION IN 3 FRANCOPHONE AFRICAN COUNTRIES

A study by the Dose Per Container Partnership (DPCP) in three Francophone African countries (Benin, Côte d'Ivoire, and the Democratic Republic of Congo, or DRC) examined the vaccine selection process and found that:

1. Decisions on changes in vaccine presentations are heavily influenced by market availability and procurement agencies, with limited input from the Ministry of Health (MOH) or other country-level actors.
2. Procedures for deciding on changes in dose per container (DPC) are insufficiently defined; and in-country program leaders lack the information and evidence they need to examine these changes comprehensively.
3. Actors across all three countries had similar views of the potential advantages of a change to a lower-DPC presentation: decreased wastage and increased coverage—weighed against the potential disadvantages of increased management complexity and cold chain capacity requirements.

### THE TAKEAWAY

Decision-making on vaccine policy and presentation in three Francophone African countries is characterized by a lack of clarity in the roles of decision-makers and an incomplete view of the system-wide impacts of choices about and changes in DPC. Countries and donors should clarify their respective roles in decision-making on vaccine presentation, develop a more inclusive process for making decisions on DPC, and facilitate the flow of information about vaccine presentation options.

### THE STUDY

In 2016, a DPCP study team visited Benin, Côte d'Ivoire, and DRC to examine the selection process for vaccine presentation and countries' role in choosing the vaccine presentations. The study team reviewed policy and planning documents, records, and monitoring and evaluation reports; and interviewed 33 interviewees involved in vaccine management or vaccine regulation/procurement—government officials, the Expanded Program on Immunization (EPI) team, National Immunization Technical Advisory Groups (NITAG) members, the United Nations Children's Fund (UNICEF), the World Health Organization (WHO), and a health care worker (HCW) from each country.

### DPCP: EXAMINING THE EFFECTS OF MULTIDOSE VACCINE PRESENTATIONS

The widespread use of multidose vaccine containers in low- and middle-income countries' immunization programs is assumed to offer benefits and efficiencies for health systems, such as reducing the purchase price per vaccine dose and easing cold chain requirements.

Yet the broader impacts on immunization coverage, costs, and safety are not well understood. It is also unclear what processes governments typically go through to determine their choices about DPC, and what information decision-makers have or use when determining DPC.

To add to the limited evidence base on this topic, the Dose Per Container Partnership, or DPCP, is undertaking a series of activities to explore current decision-making on DPC options and better understand the relationship between DPC and immunization systems, including operational costs, timely coverage, safety, product costs/wastage, and policy/correct use.

# Trade-offs in Multiple-Dose Presentation

The DPCP seeks to better understand how changes in DPC could affect other components of immunization programs:



**COVERAGE RATES**  
(including timeliness)



**WASTAGE RATES**



**SAFETY**



**COSTS PER DOSE**  
and child vaccinated



**SUPPLY CHAIN**



**HCW BEHAVIOR**  
(including willingness to open  
a multidose vial no matter  
how many children present)

**FOR ESTABLISHED VACCINES,  
PRESENTATION DECISIONS  
ARE NOT REVISITED;  
COUNTRIES OFTEN DO NOT  
REALIZE THAT THEY HAVE  
ADDITIONAL OPTIONS  
FOR VACCINE PRESENTATION.**

## STOCKOUTS

Stockouts in Côte d'Ivoire (for YF and BCG) and in DRC (BCG) have affected coverage of these vaccines. National stockouts often are not due to vaccine management gaps, but rather to events in global vaccine markets or national budgetary procedures.

Country-reported data on stockouts focus on the central level. Data at the intermediate and peripheral levels are incomplete, suggesting a need to ensure full data visibility for improved monitoring. Dialogue among national supply chain managers, financial services, and technical officers occurs only sporadically, during exceptional situations such as a vaccine introduction or national stockout.

## FINDINGS

**Sources of vaccines:** Gavi, the Vaccine Alliance, co-finances the purchase of new vaccines (Penta, PCV, and YF<sup>1</sup>) in all three countries; and all three countries fully finance the purchase of traditional vaccines (BCG, MCV, OPV, and TT)<sup>2</sup>. UNICEF procures all EPI vaccines. The three countries plan to introduce several new vaccines into their immunization programs over the next one to two years.

**Vaccine ordering process:** Countries estimate their annual vaccine needs each year, and EPI conducts quantification exercises with UNICEF partners, usually in September. UNICEF Supply Division then informs the country about the availability of the vaccines requested, including new vaccines. Subsequently (in November), all parties agree on quantities, costs, financing, and delivery schedules. The roles of specific institutions and country actors are not well-defined, or are not widely known. Interviewees had limited knowledge about the ordering process or when reordering takes place.

**Country roles in vaccine presentation decisions:** All three countries depend on UNICEF for procurement and supply. Global availability of specific presentations—rather than countries' preferences—often determines the vaccine presentation selection. Interviewees said that EPI, WHO, and UNICEF managers develop specifications for new vaccines. EPI and technical support partners propose the vaccine presentation. National-level regulatory agencies do provide input, but other country actors play a marginal role. This, along with other factors, affects their ability to respond to national-level supply crises (see Stockouts, left). Lower-level interviewees (such as providers) are not consulted.

<sup>1</sup> Penta: pentavalent vaccine (diphtheria, hepatitis B, haemophilus influenzae type B, pertussis, tetanus); PCV: pneumococcal conjugate vaccine; YF: yellow fever. One of the three countries fully finances their YF vaccines.

<sup>2</sup> Tetanus-diphtheria (Td) is used in DRC.

**Tools used for vaccine selection:** Interviewees believed that the information needed for vaccine selection includes WHO vaccine pre-qualification status, epidemiological data on the disease, information on vaccine characteristics, data on the vaccine's efficacy, and cost data; along with viability of the vaccine on the global market and availability of financing.

**Tools for deciding on DPC changes:** Interviewees felt that decision-making tools could contribute to discussion on changes in vaccine presentation. The countries currently use logistics management tools, such as the District Vaccination Data Management Tool, the Stock Management Tool, the EPI logistics forecasting tool, and cold chain inventory tools. Two-thirds of interviewees—particularly those in procurement and regulation—believed that decisionmakers should prioritize increasing vaccination coverage rather than minimizing total immunization costs, including supply chain costs.

**Views on DPC changes:** Overall, interviewees saw changes in DPC as a way of improving the performance of the immunization program. When asked to rank a list of potential outcomes of a change in DPC to either higher or lower dose vials, country actors involved in immunization management believed that reduced wastage would be a principal benefit of changing DPC (which may reflect the fear of wastage among health care workers). Actors involved in procurement and regulation cited improved vaccination coverage as a major benefit. They also noted concerns about cold chain capacity and vaccine management as drawbacks to using containers with fewer doses per container. The potential effects of a DPC change varied depending on type of vaccine.

Most interviewees said that changing DPC would have a stronger positive impact for lyophilized vaccines (moving to lower multi-dose containers for MCV, YF, BCG), or bulky vaccines, such as PCV13 (moving from the currently used single-dose vial to multi-dose containers).

**Views on multiple vaccine presentations:** Some interviewees said that having multiple presentations of the same vaccine could be beneficial for PCV and the vaccines used during supplementary immunization activities, such as MCV and YF—potentially reducing wastage while increasing coverage. These responses show a good understanding of the advantages of selecting vaccine presentations that are customized to countries' immunization programs. However, a few individuals expressed concerns that making multiple DPC presentations available could jeopardize vaccine management and safety.

**Timing of DPC changes:** Interviewees felt that the best times to make decisions on changing vaccine presentation were the immunization program review, introduction of a new vaccine, and revision of the immunization strategy. Those working in vaccine management also viewed the annual vaccine forecast as an opportunity to change presentation (though this has not occurred). Only a few participants mentioned supply chain redesign as an opportunity to consider DPC change, though all three countries are conducting activities to optimize their supply chains. For established vaccines, decisions on presentation are not revisited; countries often do not realize that they have additional options for vaccine presentation.

**DPC and wastage:** Wastage rates remain an important factor in decision-making on presentation: open vial wastage in vials with fewer doses is expected to be less than in vials with more doses, but there is little information on the differences in a given setting.

Cost is also a concern, since the per-dose purchase cost is generally higher for low-dose than high-dose presentations. However, in certain settings or applications, lower-dose presentations of some vaccines may reduce wastage, and may thus be more cost-effective.

## VARYING OPINIONS ON MULTIPLE PRESENTATION

"Of course, several presentations of the same vaccine could be beneficial only if vaccine management is well controlled by the actors at all levels of the supply chain." Respondent saying that multiple presentations would require strengthening vaccine management

"A single presentation of the same vaccine in the same country is better, thus avoiding calculation errors on wastages." Respondent saying that single presentation would strengthen the immunization system.