



6 Quantification and procurement

The introduction of subcutaneous DMPA (DMPA-SC, brand name Sayana® Press) promises to expand women’s access to family planning options by increasing opportunities for lower-level health workers and even clients themselves to administer injectable contraceptives. Insights from the first introductions can help inform new country experiences and transitions, whether small pilots or scaled delivery. This section discusses results and lessons learned during introduction pilots in four countries and provides recommendations to guide future efforts by ministries of health and implementing partners related to **quantification and procurement**.

PURCHASING THE RIGHT AMOUNT OF PRODUCT

Procurement is the process of purchasing or ordering a commodity; an essential step in that process is quantification, or estimating the amount of product to procure. Quantification includes forecasting (estimating the quantity of product to be consumed) and supply planning (developing order quantities and delivery schedules to meet these needs while accounting for various stock/supply factors). Regular quantification exercises for estimating commodity requirements for family planning are generally led by the ministry of health (MOH) with input from partners and donors. Quantification is not a one-time event but rather an ongoing process that requires

updating to adjust for new information such as consumption data, changes in introduction plans, and shifts in timing or quantity of product shipments. The results feed into each country’s ongoing or periodic commodity procurement process. PATH and partners undertook a version of this quantification exercise for the DMPA-SC* pilot introductions in Burkina Faso, Niger, Senegal, and Uganda to be consistent with country processes, fulfill donor procurement requirements, and provide an estimate of initial product needs based on assumptions about product use. As the first introduction of DMPA-SC in nonresearch settings, these quantification exercises were somewhat unique, but they ultimately merged into each country’s procurement process.

*The DMPA-SC product introduced in pilots was Sayana® Press. Sayana Press is a registered trademark of Pfizer Inc. Uniject is a trademark of BD.

Quantification for any new contraceptive product ideally integrates into existing programs and systems to become part of routine mobilization of funds and commodity orders.

PATH and the country partners—most centrally the MOH, as these first introductions were largely public-sector endeavors—worked closely with the country offices of the primary procurement agency partner, the United Nations Population Fund (UNFPA), to develop the first DMPA-SC quantifications. Relevant MOH partners in each country reviewed, refined, and approved the proposed quantifications for the initial DMPA-SC orders before officially submitting them to UNFPA headquarters in Copenhagen to kick off procurement.

The introduction plans developed for each of the four pilot introduction countries specified the pilot's geographic locations, service-delivery channels, and training plans (see Section 4: Planning the country introduction strategy). This information was key to each country's quantification of its DMPA-SC (specifically Sayana Press) order. Additional factors beyond the introduction plan itself that were relevant to product quantification included:

- **Timing of country registration.** Each country's introduction plan and quantification reflected assumptions about the date when official country registration would be in hand. Shifts in registration timelines in each country led to shifts in assumptions about product uptake and quantification (see Section 5: Registration).
- **Product manufacturing dates and shelf life.** Sayana Press is authorized for a three-year shelf life. Some units that Pfizer had available for pilot introduction were manufactured as early as 2012. Because the pilot introductions did not begin until 2014, after the product was registered, the shelf life of each available product batch had to be matched with the projected schedule of training rollout and uptake, and influenced the final quantification. Countries are now supplied with newly manufactured product and stock closer to full shelf-life; however, this unique consideration for the pilot had to be accounted

for to try to prevent stock expiring in country, which would require additional orders.

- **Country policies.** Each country had a different policy indicating the minimum remaining shelf life for products procured for public-sector family planning programs. These policies were factored into the quantification process. For example, Senegal requires medicines to have at least 66 to 80 percent of product shelf life remaining upon delivery in country. PATH worked with country partners to document these policies as inputs to the quantification process.



INTRODUCTION TIP

Determine the minimum remaining shelf life of a product required by the country government and the procurement agency, such as the United Nations Population Fund or United States Agency for International Development.

QUANTIFICATION PROCESS: HOW MUCH PRODUCT IS NEEDED FOR PILOT INTRODUCTION?

DMPA-SC (specifically Sayana Press) was a new product in the four pilot introduction countries and had no historic consumption information available to inform initial estimates for quantification. However, data on historic and current use of other injectable contraceptives—intramuscular DMPA (DMPA-IM)—are highly relevant for estimating potential DMPA-SC consumption. PATH and partners started the process by consulting available technical resources and reviewing injectable contraceptive use data for each country. These resources helped to frame PATH's thinking about the variables to be considered in estimating consumption and quantification for DMPA-SC.



INTRODUCTION TIP

Review data on injectable contraception use to help inform DMPA-SC quantification.

CASE STUDY

PATH/Will Boase



Consumption estimated for quantification versus actual consumption in Uganda

PATH modeled DMPA-SC consumption in Uganda to prepare the quantification estimate. The model reflected the pilot introduction strategy of introducing DMPA-SC in 28 districts through Village Health Teams (VHTs) consisting of volunteer community-based health workers. PATH's model incorporated training details from the institutions designated at that time to train participating VHTs: Pathfinder International, FHI 360, and PATH.

Additional assumptions incorporated estimates of:

- Numbers of new and continuing clients.
- Rates of retention of VHTs in the pilot program by quarter.
- Switching from DMPA-IM (for VHTs already trained to deliver DMPA-IM).
- The maximum number of new clients for any VHT.

The model then projected how DMPA-SC uptake would increase over time based on the number of VHTs trained per quarter. It assumed that 2,300 VHTs would be trained and that all training would be completed in 2014. The initial estimate based on forecasting was that 298,860 units of DMPA-SC would be needed through the fourth quarter of 2015, and an order was placed for 331,000 doses. The actual consumption of DMPA-SC in Uganda as of the fourth quarter of 2015 was 68,909. Thus, actual consumption was well below the estimate. There are a few reasons for this disparity:

- Timing of trainings. Provider training started later and took longer than the quantification model assumed; as a result, uptake increased later and more slowly than expected.
- VHT capacity. The modeled assumptions about client ramp-up and retention proved to be inaccurate. The models assumed that each VHT would have 22 to 27 DMPA-SC clients per quarter. Results from PATH's monitoring data show that the maximum number of doses administered per VHT per quarter was 18 doses, as of mid-2016. Thus, each VHT has had fewer DMPA-SC clients on average than originally estimated.

Despite the significant disparity between the forecast estimate and actual consumption numbers in Uganda, the country has not been overstocked with the product. Consumption rose steadily over the course of the two-year pilot. As of mid-2016, most of the original 331,000 units ordered for Uganda had been consumed or distributed to service-delivery points in the field, and based on the subsequent quantification exercise, a new order of 548,000 units arrived in June 2016.

PATH supported the quantification exercises differently in each country depending on the context. In Burkina Faso and Niger, the UNFPA country programs were already working closely with the MOH to support overall contraceptive commodity estimation, including quantification for DMPA-SC pilot introduction. In these two cases, the country partners developed their initial quantification of DMPA-SC based on the introduction plans and submitted them to UNFPA headquarters. PATH supported the Burkina Faso and Niger processes by tracking and aggregating the four-country quantifications and coordinating multicountry communication with UNFPA headquarters, specifically the procurement unit in Copenhagen.

For Senegal and Uganda, PATH developed models in Excel for estimating DMPA-SC consumption as a key input to country quantification. These consumption models were built from “the bottom up,” incorporating information about:

- Numbers of health workers to be trained, training locations, geographic coverage, and expected timeline for trainings.
- Estimates of DMPA-SC units that each trained health worker would be expected to administer to women each quarter (see box on page 55).

- Assumptions about the number of reinjecting clients, new clients, and dropouts.
- Estimates of the number of women using DMPA-SC each quarter (i.e., estimated number of DMPA-SC units to be consumed) based in part on data from prior acceptability studies.

Such information was more readily available in Uganda, where community-based distribution (CBD) of injectables was already under way, but was scarce in Senegal, which had limited experience with CBD of injectables. The resulting output was a modeled estimate of product consumption over time that could be modified as assumptions and timelines shifted. These consumption estimates formed the basis of the Senegal and Uganda quantifications.

Consumption patterns form the basis for quantification exercises, which in turn form the basis for procurement orders. The first order for DMPA-SC (specifically Sayana Press) units placed by each pilot country varied by country setting, specifically, 100,000 doses in Niger; 250,000 doses in Burkina Faso; 331,000 doses in Uganda; and 448,600 in Senegal. Subsequent orders were made semiannually based on emerging consumption data and remaining stock available in each country.

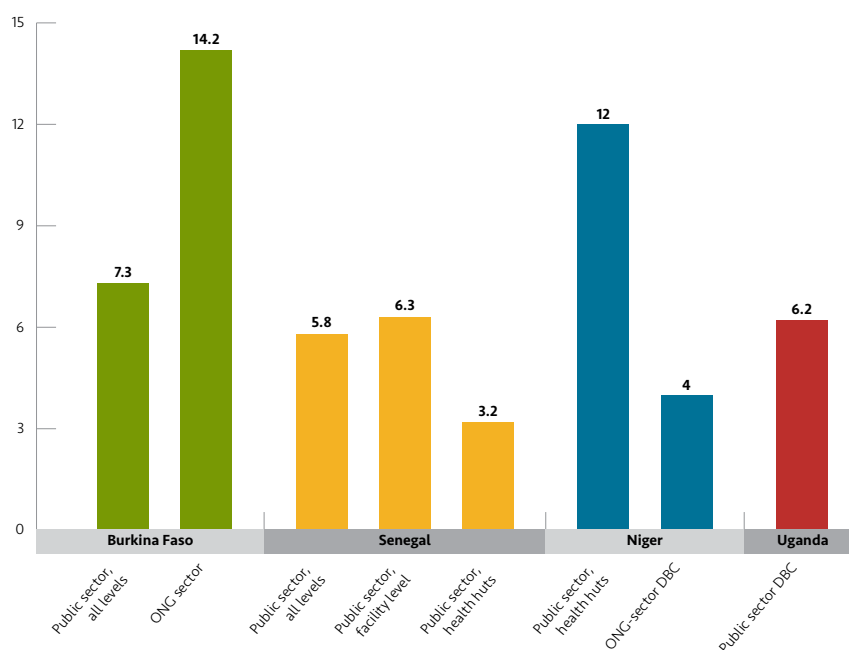


PATH/Siri Wood

How many units did health workers administer per month during the pilot introductions?

PATH developed estimates of the average number of DMPA-SC doses administered per trained health provider, by month, across different delivery channels in the four countries. After provider training was completed, the number of doses administered per trained provider generally increased gradually over time as introduction progressed, or fluctuated due to stockouts. The graph below features the month with the highest number of doses administered per trained provider from each country and delivery channel, representing the maximum monthly number of doses administered per trained provider during pilot introduction. The graph reflects the potential number of doses administered per trained provider, per month, in the absence of contextual challenges, such as stockouts. The month with the maximum number of doses administered per trained provider varied across settings, falling between March 2015 and May 2016. These data may help to inform new quantifications in countries planning DMPA-SC introduction strategies similar to those of Burkina Faso, Niger, Senegal, or Uganda.

Maximum monthly number of DMPA-SC doses administered per trained health provider during pilot introduction—Burkina Faso, Senegal, Niger, & Uganda (2015–2016)



Due to wide variation in country settings and introduction strategies, it is not feasible to directly compare the number of doses administered per trained provider across countries without carefully considering context. The high number of doses attributed to Marie Stopes International and Association Burkinabè pour le Bien-Être Familial providers in Burkina Faso's nongovernmental organization (NGO) sector, for example, is likely due to their intensive focus on outreach. In another instance, because Niger is the only country that did not introduce DMPA-SC alongside DMPA-IM, it makes sense that providers at public-sector health huts administered a higher number of doses compared to providers at public-sector health huts in Senegal, where DMPA-IM was also readily available. These and other factors—such as the proportion of injectables in the method mix or location of service-delivery points (e.g., community- versus facility-level)—make it more useful to consider the potential number of doses administered per trained provider in a month for individual introduction strategies given the local context (see Section 4: Planning the country introduction strategy).

Note: CBD, community-based distribution; NGO, nongovernmental organization.

RECOMMENDATIONS: QUANTIFICATION AND PROCUREMENT

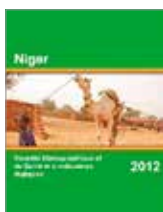
PATH/Siti Wood



- **Use the introduction plan to guide quantification.** Information from the introduction plan should inform the quantification exercise for initial DMPA-SC procurement requirements. Key information includes the number, types, and locations of providers to be trained to administer the product and the timing of the trainings.
- **Consider data on doses administered per provider from similar delivery strategies.** PATH data from the pilot countries show a wide range of doses administered per provider, from 3 units per month administered by community providers in Senegal to 14 units per month administered by facility-based providers in the NGO sector in Burkina Faso. Consider the ways these contexts vary to determine their relevance for quantification assumptions in new settings.
- **Use multiple sources to achieve accurate quantification.** In addition to service-delivery and training inputs, the initial product quantification process requires considering multiple other variables, including the manufacturer's planning horizons, product shelf life and expiry dates, country policies, and the timing for receipt of final formal registration. All of these factors affect the quantification and procurement process as well as the date when the product first becomes available to clients.



A Forecasting Guide for New and Underused Methods of Family Planning. Available at www.k4health.org/toolkits/NUMs-forecasting-guide. This resource offers a framework and guidance to program managers involved in forecasting for new contraceptive technologies or underused methods that are moving to scale. The guide identifies common pitfalls in forecasting and recommends strategies to avoid them.



Demographic and Health Surveys (DHS) Program. Available at www.dhsprogram.com/. The DHS Program disseminates data collected from large, household surveys conducted regularly in more than 80 countries. Data are available in country reports, as well as in mobile applications, a spatial data repository, and STATcompiler, a program that allows users to make custom tables based on thousands of demographic and health indicators.



Quantification of Health Commodities: DMPA-SC Companion Guide. Available at www.jsi.com. This guide was developed to assist technical advisors, program managers, warehouse managers, procurement officers, and service providers in estimating the total commodity needs and costs for successful implementation of national health program strategies and goals. The guide also helps these individuals to identify funding needs and gaps for procuring the required commodities, and plan procurements and shipment delivery schedules to ensure a sustained and effective supply of health commodities.



The Reproductive Health Supplies Coalition publications web page. Available at www.rhsupplies.org/activities-resources/publications/. The website is a repository for many resources including the Reducing Stockouts Impact Calculator, Strategic Pathway to Reproductive Health Commodity Security, Optimizing Supply Chains for Improved Performance, Contraceptive Stockouts: A Review of the Published and Grey Literature, and Building a Strong Supply Chain Workforce: The Role of Pre-Service Training.