



One in a series discussing PATH's activities, research findings, experiences, and recommendations to support decision-making and product introduction planning for the injectable contraceptive depo-subQ provera 104™ in the Uniject™ injection system.

BRIEFING SUMMARY FEBRUARY 2011

Assessing demand for depo-subQ in Uniject: A five-country modeling exercise

PATH collaborated with Futures Institute from August 2009 to April 2010 to develop strategic models describing the demand for the injectable contraceptive depo-subQ provera 104™ in the Uniject™ injection system (depo-subQ in Uniject) in five focus countries: Kenya, Malawi, Pakistan, Rwanda, and Senegal. PATH and Futures Institute developed these models to inform global and country introduction planning for the new contraceptive product, expected to become available on the market soon. The models contribute to evidence that informs global product price and procurement dialogue, and can provide information for global and country decision-makers to help them determine how to include depo-subQ in Uniject in their family planning programs.

Futures Institute developed the demand models using Demographic and Health Survey data and population data from each country. The models incorporate information on the impact of specific family planning programs and policies on depo-subQ in Uniject uptake. PATH provided guidance to Futures Institute on the program and policy factors expected to influence the size and growth of each country's market for depo-subQ in Uniject.

This briefing document describes the demand modeling objectives, assumptions, key outputs, and what PATH has learned from the modeling exercise to date. The models are not intended to produce definitive demand estimates for depo-subQ in Uniject; instead they provide a framework for projecting the new product's impact on the family planning markets in the five focus countries based on a given set of assumptions. Any of the variables and



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Estimating the market for depo-subQ in Uniject considers new users as well as those switching from other methods.

assumptions in the model may be altered to generate new scenarios.

OBJECTIVES

PATH had four objectives for the depo-subQ in Uniject demand modeling:

1. To generate market scenarios for depo-subQ in Uniject for the five focus countries by identifying and incorporating factors expected to have the greatest influence on the product's potential market.

2. To develop projections of the size of the family planning markets in the five focus countries from 2012—the year when depo-subQ in Uniject is expected to become widely available—through 2017.
3. To estimate the number of new users of family planning products in the depo-subQ in Uniject market.
4. To estimate the share of depo-subQ in Uniject’s market that would derive from users of other family planning methods—including three-month injectables—switching to depo-subQ in Uniject.

The last two objectives were especially important to PATH’s demand analysis and introduction strategies for depo-subQ in Uniject. Giving traditionally underserved women increased access to injectable contraception has been central to the product’s value proposition. PATH established these particular objectives to better understand the market conditions that might generate new users versus the conditions that might generate use through displacement and switching from other contraceptive methods.

DEVELOPING THE MODELS

Futures Institute developed the demand models to answer the following questions:

- What is the total potential market for depo-subQ in Uniject in the five focus countries?
- What are the drivers of the market for depo-subQ in Uniject?
- What are demand scenarios for depo-subQ in Uniject given the context in each of the five countries?
- How do different international procurement prices for depo-subQ in Uniject change the demand scenarios?

ASSUMPTIONS

We generated the models based on a set of assumptions that, if shifted, will produce very different market scenarios. The primary assumptions in the models include:

Overall family planning market growth: The models incorporate Futures Institute’s best projections of the growth patterns for family planning markets—specifically, how the growth of individual family planning methods impacts total market growth. Futures Institute assumed that the maximum potential growth for family planning would not exceed 3.5 percent per year, and further assumed that market growth driven by a single family planning method would not exceed 2 percent per year. These two underlying assumptions were based on

Factors used to assess CBD implementation:

1. Degree of development of a current distribution program.
 - Existence and coverage of a distribution program.
 - Inclusion of injectables.
 - Inclusion of family planning and diversity of methods offered.
2. Legal environment for dispensing injectable medications via a CBD program.
 - Existence of policies allowing injections by lower-level health personnel.
 - Current pilot tests in progress that include a policy component or a policy change.
 - Whether there is support for a policy change.
3. Priorities competing with the implementation of Uniject.
 - Presence of competing family planning priorities.
 - Government support for Uniject.

analysis of market growth data from family planning programs and individual methods worldwide.

Displacement and switching: The models assume that depo-subQ in Uniject will be considered a superior product to the currently available depot medroxyprogesterone acetate (DMPA) intramuscular (IM) contraceptive formulation. Therefore, we assume a significant share of each country’s uptake will come from users switching from DMPA IM to depo-subQ in Uniject. For all five countries, the models assume that 80 percent of current DMPA IM users will prefer to use depo-subQ in Uniject. In addition, the models assume that 20 percent of depo-subQ in Uniject’s market will be derived from users of other family planning methods who will switch to depo-subQ in Uniject. Neither of these assumptions account for supply or procurement constraints on depo-subQ in Uniject’s availability in a country family planning program.

Delivery systems: In the case of country introduction, we assume depo-subQ in Uniject’s uptake will be greatest in settings where community-based distribution (CBD) already exists. The demand models assess each country’s CBD systems and related policies. The models then use these conditions to forecast by how much a given country

TABLE 1: International procurement price values

Price point category	Value	Description
Low	US\$0.75/unit	Identified from range of prices paid by donor agencies for generic DMPA
Medium	US\$1.00/unit	Selected from range of prices paid by US Agency for International Development for Depo-Provera® (range is US\$0.93 to \$1.03)
High	US\$1.20/unit	20 percent more than medium price

will be able to maximize the potential uptake of depo-subQ in Uniject.

Procurement environment and price: PATH and Futures Institute identified the procurement environment and, specifically, the international procurement price of depo-subQ in Uniject as a central factor influencing the product’s market potential. Although PATH’s initial country assessments consistently indicated that depo-subQ in Uniject is a desirable product, the international procurement price will strongly influence country-level decision-making about the product’s introduction. The level of sensitivity to international procurement pricing varies among countries. Regardless, country stakeholders indicated that they would generally be concerned about the product’s international procurement price even if the product were procured by an international donor on behalf of a country program.

PATH and Futures Institute developed three price scenarios in the models to reflect the potential impact of different international procurement prices of depo-subQ in Uniject on product uptake, as shown in Table 1. Generally, we assume uptake, or use of the product, will be much greater if the contraceptive is available at a low or medium procurement price and will be more constrained at a high procurement price. The projected environment depends on a subjective assessment of country sensitivity to price based on their procurement setting and the international procurement price for depo-subQ in Uniject.

RESULTS

Futures Institute and PATH prepared initial estimates of market demand for the product assuming 80 percent of current DMPA IM users will use depo-subQ in Uniject, and 20 percent of users of non-DMPA methods will switch to depo-subQ in Uniject. The initial outputs incorporate the mathematical scores for each country’s

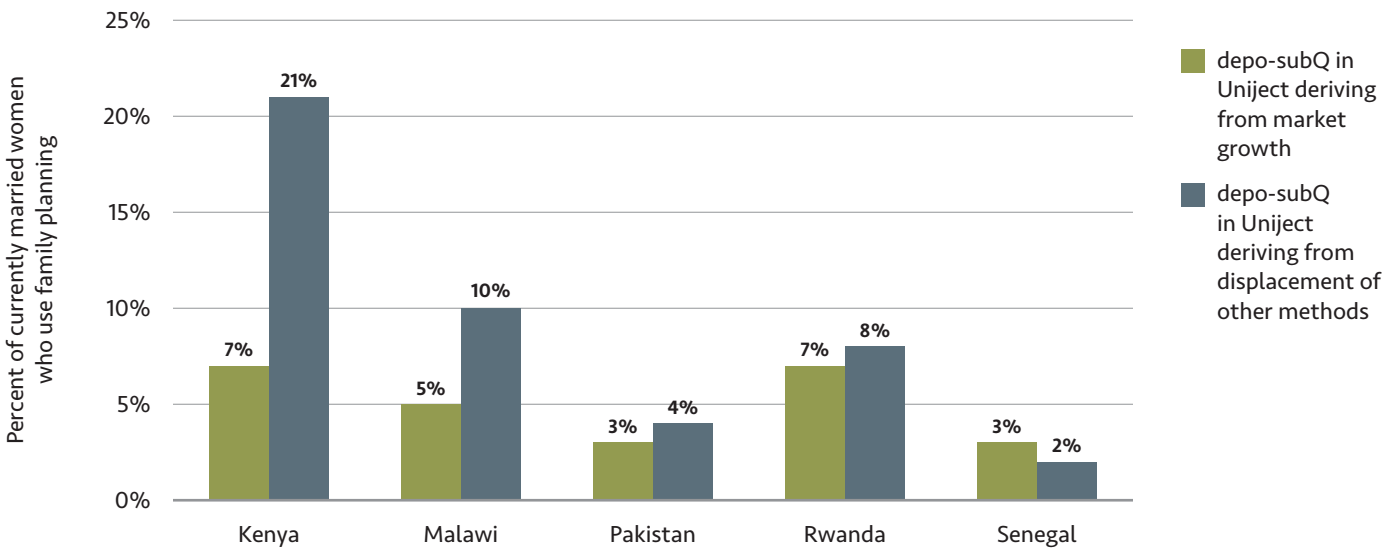
CBD and procurement environments and a medium procurement price.

Based on these estimates, the demand for depo-subQ in Uniject among married women of reproductive age who are already using family planning methods will range from 2 to 21 percent in the five focus countries, as shown in Figure 1. The estimate for each country is divided into use deriving from market growth and use deriving from



PATH/Willow Cerber

Depo-subQ in Uniject’s uptake is expected to be greatest in community-based distribution settings.

FIGURE 1: Demand model estimates for depo-subQ in Uniject use derived from market growth and displacement

displacement of other methods. These estimates show that, with the exception of Senegal, displacement more than market growth will drive the demand for depo-subQ in Uniject. Kenya and Malawi, which both have high levels of injectable contraceptive use, have 21 and 10 percent, respectively, of depo-subQ in Uniject demand deriving from displacement. In contrast, the maximum percentage of depo-subQ in Uniject deriving from market growth is 7 percent in both Kenya and Rwanda.

Within five years of depo-subQ in Uniject introduction, we estimate the number of married women of reproductive age in any of the focus countries using the product will be as many as 2.8 million, representing 11.3 million units of the contraceptive, as shown in Table 2. This assumes introduction in 2012 at a medium procurement price. The number of users and units is largely driven by population size with the two most populated countries—Kenya and Pakistan—containing the largest numbers.

The initial modeling reveals that depo-subQ in Uniject introduction by itself is not a wholesale solution for increasing family planning uptake. Instead, the new product tends to contribute to and accelerate existing trends in family planning uptake. One possible exception is in Senegal, where current use of family planning and of injectables is relatively low. Given other conditions in the country, the models suggest that the introduction of depo-subQ in Uniject would have a limited displacement effect and that the product's growth could derive more so from market growth.

WHAT HAS PATH LEARNED FROM THE DEMAND MODELS SO FAR?

The process of developing the five country demand models with Futures Institute provided valuable insights into the potential dynamics for introduction and scale-up of depo-subQ in Uniject.

First, it is clear that, in most countries, estimated growth and impact of depo-subQ in Uniject cannot be expected to exceed historic growth patterns for family planning uptake generally, or for a specific method. This was an important baseline element of Futures Institute's approach to building the model. This insight was driven by Futures Institute's extensive experience with and understanding of the historic and current dynamics of family planning programs in a large number of countries.

Second, the model development process helped PATH and partners identify the key variables likely to influence depo-subQ in Uniject's uptake and translate these into mathematical constructs indicating the potential for uptake under different scenarios. These four key variables include:

- Extent of displacement of current DMPA IM.
- Extent of switching from other methods.
- Evaluation of the CBD environment.
- International procurement price.

TABLE 2: Depo-subQ in Uniject units by country as of 2017

Assumes introduction in 2012 at medium procurement price.

Country	Number of married women of reproductive age using depo-subQ in Uniject in 2017	Number of units of depo-subQ in Uniject in 2017
Kenya	1,800,000	7,202,000
Malawi	406,000	1,623,000
Pakistan	2,838,000	11,353,000
Rwanda	220,000	886,000
Senegal	138,000	550,000

Third, looking at these four variables helped us identify important considerations around the distinct introduction strategies that might drive depo-subQ in Uniject's growth. For example, is it feasible or desirable to assume that a large number of current DMPA IM users will switch to depo-subQ in Uniject? If so, does this suggest that depo-subQ in Uniject would be introduced through clinical as well as community-based settings? If a country's CBD program and policies are key variables in determining uptake, does this suggest that introduction strategies should focus solely on CBD channels? The models assumed a significant share of depo-subQ in Uniject use from displacement. Highlighting this assumption directed greater attention to depo-subQ in Uniject's unique impact potential—generating new users.

Additional insights from the demand modeling work are described below:

- Because the models are designed to illustrate potential demand based on different sets of assumptions, their outputs may be useful for strategic decision-making and planning, but are not suitable for procurement planning.
- In markets with adequate distribution of Depo-Provera and other brands of DMPA IM, depo-subQ in Uniject may be targeted to peripheral settings—such as community health centers and other non-clinic settings—to maximize impact value, minimize displacement, and address supply constraints.
- Aside from the procurement price variables, the models do not factor in potential constraints on depo-subQ in Uniject supply at the production level. The production capacity of depo-subQ in Uniject will increase gradually over time, therefore making a major displacement strategy infeasible.

- The estimated potential demand for depo-subQ in Uniject does not factor in constraints on donor and government funding for contraceptive procurement. A more realistic analysis would compare potential market size with the estimated availability of funds for purchasing injectable contraceptives.

CONCLUSION

The demand models for depo-subQ in Uniject demonstrate the importance of considering both new users of the injectable contraceptive and those who are switching from another family planning method when estimating the market potential of the product. Estimates also need to factor in supply constraints, especially funding availability and production capacity.

Conditions for the introduction of depo-subQ in Uniject have changed since PATH and Futures Institute developed the demand models in 2009 and 2010. For example, because of the shifting timeframe to product availability, PATH and our partners are now focused less on individual country introduction plans and more on global activities, acceptability, and operational research. However, the demand models remain viable for estimating market potential and PATH expects them to be useful in future country introduction planning. With guidance from our technical advisory group, PATH will use these models as we conduct research concerning product acceptability, generate information on operational aspects of product introduction, and promote dialogue among key stakeholders about product price and procurement.

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About depo-subQ in Uniject injection system

A new formulation and presentation of the contraceptive depot medroxyprogesterone acetate (DMPA) for subcutaneous administration in a prefilled injection system, known as depo-subQ provera 104™ in Uniject™ injection system (depo-subQ in Uniject), will soon be available to women in developing countries. The contraceptive will be prepackaged with a single dose inside Uniject, an autodisable syringe developed by PATH. Due to its ease of administration and likely high acceptability among women seeking contraception options, introduction of depo-subQ in Uniject provides opportunities to both strengthen clinic injection services and extend injectable contraceptive delivery safely and effectively beyond the clinic, such as through community-based distribution. The product is also expected to have advantages for supply chain management. The product will be marketed by Pfizer, and PATH is leading global planning for its introduction.

About Futures Institute

Futures Institute specializes in the design and implementation of public health and social programs for developing countries. The company focuses on developing and applying models for long-range planning to assist with setting goals, strategies, and objectives. Futures Institute staff has experience in assessing population and health issues in developing countries and in providing technical assistance in policy analysis and awareness-raising through applied analysis, presentations, and computer modeling. (Source: www.futuresinstitute.org)

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