P4O
planning for outcomes

Planning for Outcomes (P_4O) Model

FREQUENTLY ASKED QUESTIONS

2018 version

Q: Why was Planning for Outcomes (P_4O) developed?

A: Some observational studies have raised concerns about a link between the use of progestogen-only injectable contraceptives, particularly depot medroxyprogesterone acetate (DMPA), and the risk of HIV acquisition. These data are reported in a recent systematic review. In 2017, the World Health Organization changed the Medical Eligibility Criteria for injectable use among women at high risk for HIV from a 1 (no restrictions) to a 2 (advantages generally outweigh the risks). The ongoing Evidence for Contraceptive Options and HIV Outcomes (ECHO) trial is comparing DMPA, levonorgestrel implants, and copper intrauterine device (IUD) use on risk of HIV acquisition, with results expected in 2019. Depending on the evidence obtained from the ECHO trial, injectable use could be reduced in countries with high HIV burden. This modeling work was conducted to assess how restrictions on DMPA use could affect HIV and maternal and child health indicators and what it might take to compensate for such restrictions.

Q: What makes P_4O different from other models examining the issue of injectable use and potential HIV acquisition?

A: P_4O is different in the following ways:

- Focuses on *near-term* impacts of a shift in the modern contraceptive method mix, not long-term impacts to populations.
- Uses method-specific pregnancy rates and country-specific modern contraceptive method mix.
- Models impact on *all* women of reproductive age (WRA), not just those married or in unions.
- Features an interactive interface that allows the user to adjust the following model inputs:
    - Country
    - Assumed risk (hazard ratio) for HIV infection among injectable users
    - Percent of injectable users who stop using the method
    - Percent of previous injectable users who adopt other methods
    - How women are reallocated to the existing method mix
    - Effectiveness of condoms against HIV acquisition
    - HIV incidence to prevalence ratio
    - Probabilities of maternal to child transmission of HIV
    - Assumed risk of HIV acquisition during pregnancy
    - Yearly probabilities of pregnancy for modern contraceptive methods

USAID
Envision FP
fhi360 THE SCIENCE OF IMPROVING LIVES

P4O
planning for outcomes

Q: How does P4O calculate the outcomes?

A: Please refer to the *Formulae used in Model* document for details on calculations.

Q: What indicators are being modeled?

A: The tool models the changes per year in unintended pregnancies, live births, induced abortions, unsafe abortions, maternal deaths, HIV infections (among WRA), HIV infected children (from maternal to child transmission), and maternal and neonatal health costs.

Q: What are the key assumptions?

A: The key assumptions are as follows:

- No distinction between DMPA and NET-En†
- For each country, the pooled HIV incidence among women using contraception is a fixed fraction of HIV prevalence among WRA
  - default: incidence is 10% of prevalence [1,*]
- Condom users have additional protection against HIV
  - default: condoms are 85% effective [2,*]
- Women using modern contraception or with an unmet need due to withdrawal of DMPA have at most one unintended pregnancy per year
  - stop using their method while pregnant
  - contribute either 12 months of risk-time during pregnancy/post-partum (if live birth) or 6 months of risk-time (no live birth)
  - default: no differential risk of HIV during pregnancy (except due to discontinuation of condoms or injectable use) [3,*]

†Per current World Health Organization Medical Eligibility Criteria
*Assumption can be modified by user

Q: How were countries selected for P4O?

A: Countries selected for the model had a high prevalence of injectable use as a proportion of the modern contraceptive method mix, and an adult HIV prevalence greater than 1%. Seven additional USAID priority countries were also included.

Q: Can I look at the results by individual country?

A: Yes, you can run the model to look at results by individual country, by all countries, or by all sub-Saharan African countries.

USAID
Envision FP
fhi360
THE SCIENCE OF IMPROVING LIVES

P4O
planning for outcomes

Q: What countries are included?

A: In total, 22 countries including 20 in Sub-Saharan Africa (see map), Cambodia (USAID priority country) and Haiti met criteria for inclusion. These countries included: Botswana*, Burundi, Cambodia*, Côte d'Ivoire*, Ethiopia, Ghana*, Haiti, Kenya, Lesotho, Liberia, Malawi, Mozambique*, Namibia, Nigeria*, Rwanda, South Africa, South Sudan*, eSwatini (formerly Swaziland), Tanzania, Uganda, Zambia, Zimbabwe. (*additional USAID priority country)

Q: How does P4O deal with the different types of injectables – DMPA-IM, NET-EN and subcutaneous DMPA (brand name Sayana® Press)?

A: At this time, all injectable contraceptives are combined into one injectable category. With the exception of South Africa, the countries in the model almost exclusively use DMPA-IM.

Q: I see some assumptions have default values. How were the default values selected?

A: The default values are based on a review of the most recent literature. Please see the *Data Source References* document for more information.

Q: What are some limitations of this model?

A: P_4O is intended to help policy makers, family planning and HIV program planners, and other stakeholders understand the potential impact of a change in injectable contraceptive prevalence on pregnancy and HIV outcomes. As with any model, flawed or implausible assumptions ('Inputs Panel') can lead to flawed or implausible outputs ('Impact Panel'). As such, FHI 360 does not take responsibility for the use or misuse of P_4O. Furthermore, P_4O possesses the following additional limitations:

Q: I have more questions. Who can answer them?

A: For more information, please contact Elena Lebetkin (elebetkin@fhi360.org) or Doug Taylor (dtaylor@fhi360.org).

USAID
Envision FP
fhi360
THE SCIENCE OF IMPROVING LIVES

References

[1]Butler AR, Smith JA, Polis CB, et al. (2013). Modelling the global competing risks of a potential interaction between injectable hormonal contraception and HIV risk. *AIDS*; 27:105-113.

[2]Jain AK (2012). Hormonal contraception and HIV acquisition risk: implications for individual users and public policies. *Contraception*; 86:645-652.

[3]Thompson KA et al. (2018). Increased risk of female HIV-1 acquisition throughout pregnancy and postpartum: a prospective per-coital act analysis among women with HIV-1 infected partners. *J Infectious Diseases;218:16-25*.

Funding

This work is made possible by the generous support of the American people through the U.S. Agency for International Development (USAID), provided to FHI 360 through Cooperative Agreement AID-OAA-A-15-00045. The contents are the responsibility of FHI 360 and do not necessarily reflect the views of USAID or the United States Government.

Collaborators and Thanks

Elena Lebetkin, MPH
Douglas Taylor, PhD
Xiaoming Gao, MS
Markus J Steiner, PhD
Kavita Nanda, MD, MHS
Laneta Dorflinger, PhD
Timothy Mastro, MD
Abdulmumin Saad, MD, PhD
Jennifer Mason, MPH
Lauren Maldonado, MPH

USAID

Envision FP

fhi360
THE SCIENCE OF IMPROVING LIVES