The monthly dapivirine ring, developed by the nonprofit International Partnership for Microbicides, adapts a medical technology commonly used to deliver hormones to women—a vaginal ring—to the effort against HIV.

Despite progress against HIV/AIDS, women continue to face persistently high infection rates, particularly in sub-Saharan Africa. Women urgently need new prevention choices that meet their varied needs, which can change throughout their lives.

**Offering Women Hope**

IPM’s monthly dapivirine ring could fill an important gap with a long-acting prevention method for women who are unable or choose not to consistently use higher-efficacy products like daily oral PrEP.

**Dapivirine Ring Research: Efficacy, Safety, Acceptability**

**Efficacy:** Two Phase III studies found that the monthly dapivirine ring reduced women’s risk of HIV-1 infection with no safety concerns with long-term use.

- The Ring Study, led by IPM, found that the ring reduced overall risk by 35%, and ASPIRE, led by the US National Institutes of Health-funded Microbicide Trials Network (MTN), found that the ring reduced overall risk by 27%.
- Together, the two studies evaluated monthly use of the ring in nearly 4,600 women ages 18-45 in Malawi, South Africa, Uganda and Zimbabwe.

**OLE results:** Two subsequent open-label extension (OLE) studies, DREAM and HOPE, showed increased ring use compared to the Phase IIs, and modeling data suggested greater risk reduction—by over 50% across both OLEs.

**Safety:** In addition to the Phase III and OLE studies, over 40 safety studies of different dapivirine formulations (oral treatment, gel, film and ring) support the ring’s strong safety profile.

**Acceptability:** Nearly all women in two IPM acceptability studies in Africa found the ring to be acceptable and expressed interest in using it if proven effective. Many women in the Phase III studies reported forgetting the ring was in place, and that neither they nor their partner could feel it during sex.

**Regulatory:** The dapivirine ring received a positive scientific opinion in July 2020 from the European Medicines Agency (EMA) for use among women ages 18 and older in developing countries. The product was also prequalified by the World Health Organization in November 2020. IPM is now seeking country regulatory approvals in sub-Saharan Africa. Because many countries in Africa recognize the EMA’s opinion and consider prequalification status, both can help accelerate reviews. IPM will also submit an application to the US Food and Drug Administration.

In parallel, it will also conduct additional research to better understand the ring’s efficacy among women ages 18-25. IPM has been working across sectors to prepare for the ring’s possible introduction.

**Research:** A safety study of the ring is ongoing in Africa by the MTN among adolescent girls and young women (REACH), which may support future regulatory approvals. MTN is also conducting safety studies among pregnant women (DELIVER) and breastfeeding women (B-PROTECTED), both in Africa, to help us understand how the ring could fit into the lives of these key groups.

IPM is a nonprofit organization dedicated to developing new HIV prevention technologies for women and making them available in developing countries where the epidemic has hit hardest.
Potential Public Health Impact

Modeling studies show that a combination approach is needed to end the epidemic—and that microbicides like the dapivirine ring could have a meaningful impact as part of it. Such an approach includes condoms, PrEP and TasP, woman-centered products like rings, future long-acting injectables, and methods being developed such as implants and vaccines. Expanding women’s options so they can choose the method that best meets their individual needs is essential to controlling the HIV/AIDS epidemic.

Long-acting and Woman-Controlled

The dapivirine ring marks the first time a vaginal ring has been shown to deliver an ARV for HIV prevention. If approved, the ring would offer women the first long-acting tool they can control themselves and use discreetly to reduce their HIV risk.

Ring Technology: Slow-release and locally-acting

Vaginal rings provide controlled-release of drugs over extended periods of time. IPM’s ring is a novel formulation made of flexible silicone with 25mg of the ARV drug dapivirine dispersed uniformly throughout its matrix (56mm outer diameter, 7.7mm cross-sectional diameter). The ring slowly delivers the drug directly to the site of potential infection over a month, with low absorption elsewhere in the body, which could help minimize side effects.

Active Ingredient: Dapivirine

Dapivirine belongs to the same class of ARVs used to successfully treat HIV/AIDS and prevent mother-to-child transmission. Known as a non-nucleoside reverse transcriptase inhibitor, it works by blocking HIV from replicating inside a healthy cell.

A Product of Partnership

IPM pioneered the ring’s development through public-private partnerships that brought scientific ingenuity, political will and financial resources to bear at every phase of product development.

IPM obtained a royalty-free license from Janssen Pharmaceutical Companies of Johnson & Johnson in 2004 to develop dapivirine as a microbicide for women. That license expanded in 2014 to an exclusive worldwide rights agreement that ensures any dapivirine product will be made available at low cost in resource-limited settings.

IPM took the ring from concept through EMA review in cooperation with governments, foundations, researchers, industry, advocates and communities. It will require that same level of collaboration to finance and coordinate the ring’s introduction, where it is approved for use.

Follow-on Products: Building on the Monthly Ring

IPM is also developing longer-acting rings that could reduce annual costs, including a three-month dapivirine ring, and a three-month ring designed to prevent both HIV and unintended pregnancy.