



OPTIONS

Dapivirine Ring Compendium of End-User Insights

March 2020





Research Included

This analysis includes 37 resources (published manuscripts, market research analyses, conference presentations and abstracts) from 21 studies. The studies referenced are categorized by type, sample population and geographies below.

Study type

5	Qualitative research
4	Market research
3	Discrete choice experiment
2	Mixed method/placebo-based
2	Open label study
2	Phase I/II clinical trial
2	Phase III clinical trial
1	Safety/acceptability study

Population

31	Adult women (18+)
4	Adult men (18+)
4	Young women (18–24)
4	Adolescent girls (15–17)
3	Key populations (e.g., female sex workers)
2	Young men (18–24)

Geography

30	South Africa
20	Uganda
17	Zimbabwe
16	Malawi
6	Kenya
2	Tanzania
1	United States



Introduction and Context

- **Objective:** To help direct and inform dapivirine ring research and demand creation efforts by synthesizing end-user insights relevant for the dapivirine ring from existing research.
- **Methodology:** From September to November 2019, reviewed published and grey literature to identify factors which may influence women's uptake and adherence to the dapivirine ring across three major factors: capability, motivation, and opportunity.¹
- **Inclusion Criteria:** Qualitative or quantitative studies on the use of vaginal rings for HIV prevention, including descriptive studies, human centered design research or discrete choice experiments, published between January 1, 2014 and November 30, 2019 focused on women of any age and sub-Saharan Africa.*
- **Practical Use:** Understanding end users is a first step to establishing effective communications and informing program delivery- with ring-specific insights collectively synthesized, researchers and programmers can use these findings as a springboard for their work.

Additional resources

- A searchable database of included research studies [can be found here](#)

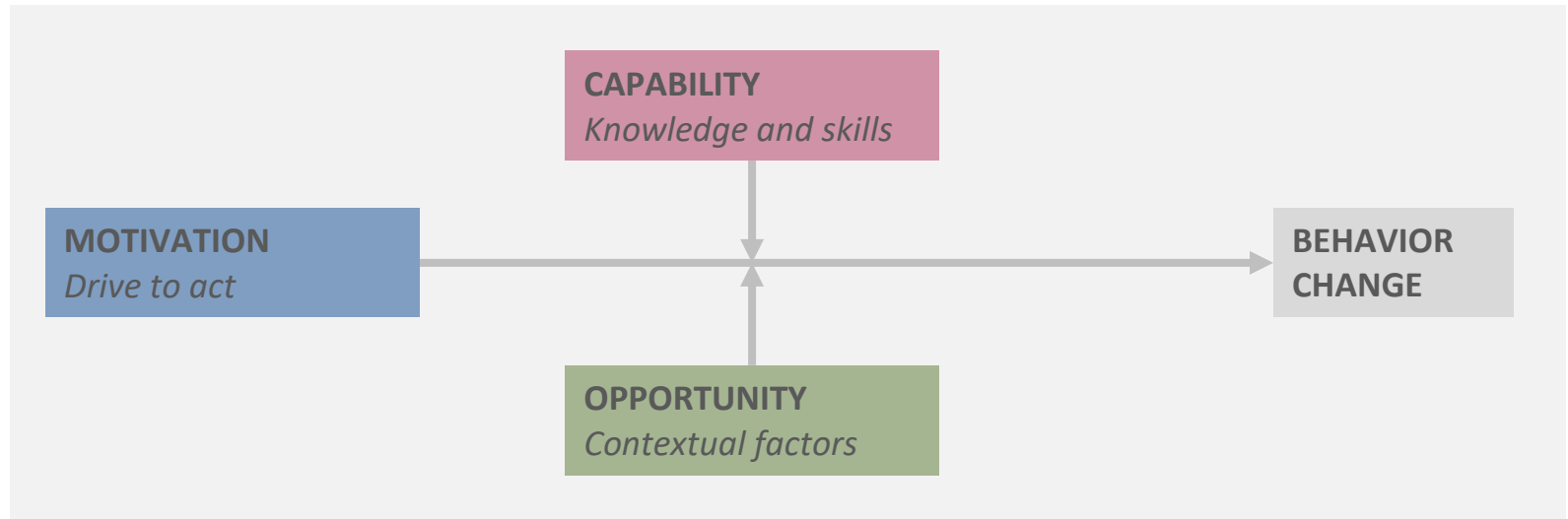
1. Michie S, van Stralen M, and West R. (2011) The behavior change wheel: A new method for characterizing and designing behavior change interventions. Implementation Science 6:42

* One study was included from the United States as it contributed to the literature base on acceptability for the AGYW population particularly.



The COM-B Framework

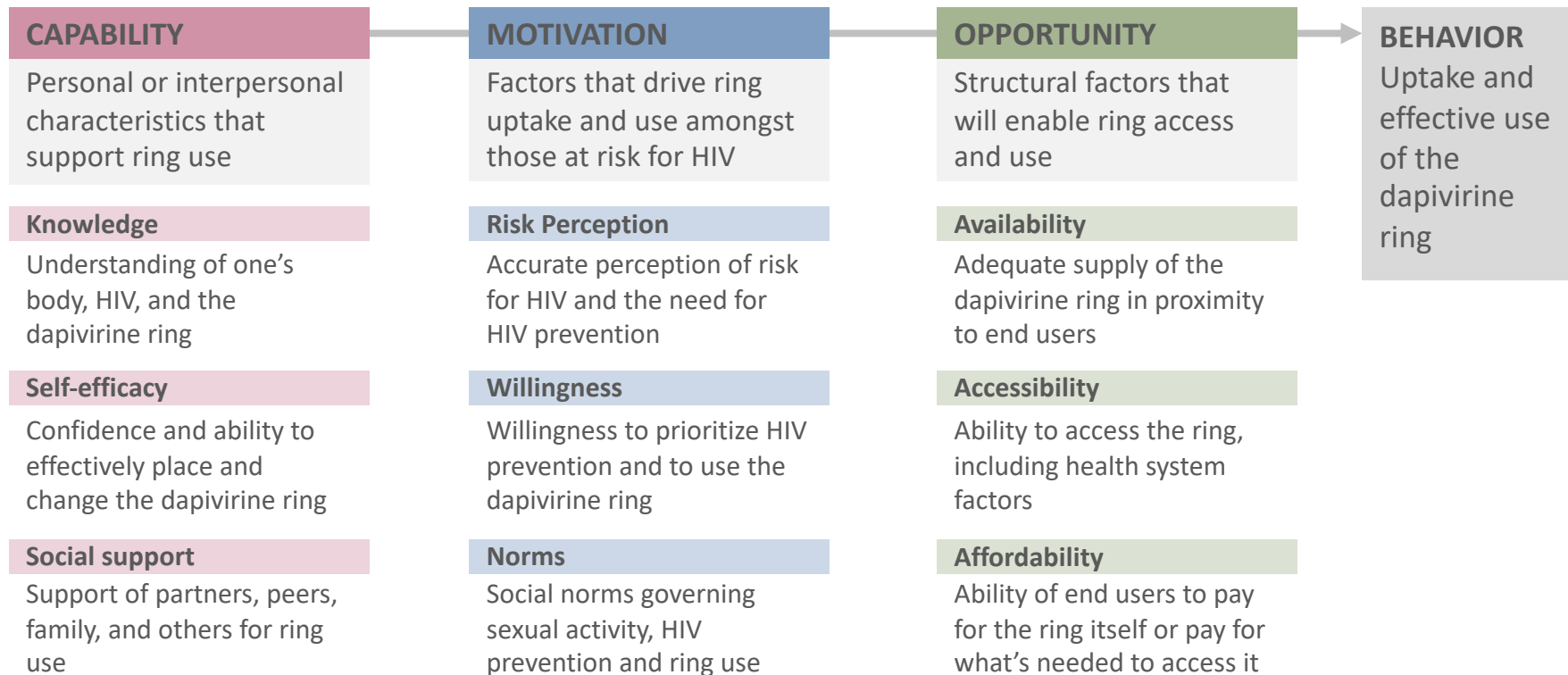
Our findings are organized along the COM-B framework¹ for behavioral research – whereby capability, opportunity, and motivation are three essential conditions for behavior change. Any one factor can act as a barrier to change.





COM-B Framework Detail

We adapted the COM-B framework to highlight specific factors for the dapivirine ring.





Coverage of Findings and Gaps Remaining

		Coverage (# resources)	Questions relevant to behavior change that are currently not answered in the literature
CAPABILITY	Knowledge	HIGH (13)	<ul style="list-style-type: none"> How well do users understand correct usage of the ring? How can knowledge gaps and misconceptions be addressed? If peers are important influencers, how can they be encouraged/empowered to share their experiences? How are health workers currently helping girls navigate the sea of misinformation around HIV prevention (if at all)?
	Self-efficacy	MODERATE (9)	<ul style="list-style-type: none"> Will the ring offer an opportunity for women at risk of HIV to feel more empowered? What will 'empowerment' mean for ring users? What does successful empowerment messaging look like?
	Social support	HIGH (13)	<ul style="list-style-type: none"> What factors make partners more/less open to ring use? How can we help women navigate ring discussions with partners? If recommendations from health care providers are important, how can they be comfortable/confident in giving them? What is the emotional cost of using the ring for women?
MOTIVATION	Risk perception	MODERATE (9)	<ul style="list-style-type: none"> Are women making the connection between gender-based violence and HIV risk? Is there a sense of fatalism around HIV and how can this be overcome?
	Willingness	HIGH (10)	<ul style="list-style-type: none"> To what extent does this audience engage in routine preventative behaviors (e.g., prenatal vitamins, healthy eating)? How do women perceive the efficacy of the ring vs. other products? Are there certain types of messaging/value propositions that are more effective than others for HIV prevention? What are these and how can you leverage them for the ring?
	Norms	MODERATE (5)	<ul style="list-style-type: none"> What are the structural drivers that put women at risk of HIV infection? How can they be addressed? What strategies/messaging can decrease stigma at the community level? Are women comfortable confiding in each other? How can open conversation be encouraged/facilitated?
OPPORTUNITY	Availability	LOW (0)	<ul style="list-style-type: none"> How can health systems adapt to make the ring more available for women, especially for refills?
	Accessibility	MODERATE (8)	<ul style="list-style-type: none"> How can health care provider stigma to sexual and reproductive health services for young/unmarried women be reduced?
	Affordability	LOW (1)	<ul style="list-style-type: none"> What non-product costs do we need to take into account for ring use (e.g., transportation)?

Summary Insights

The following slides include summary insights across studies for each component of the COM-B framework for the dapivirine ring. Please see slides 18–20 for full study references.



Findings Overview

		Key Insights
CAPABILITY	Knowledge	<ul style="list-style-type: none">• Initial “shock” about the ring will need to be overcome.• Experience with the ring increases women’s likelihood of ring uptake.• Significant misunderstandings about the ring can challenge acceptability.• Knowledge of HIV and previous experience with contraception increases women’s likelihood of ring uptake.• Additional information on ring use, especially from experienced ring users, can support ring uptake.• Use of the ring during menstruation will need to be addressed.
	Self-efficacy	<ul style="list-style-type: none">• The long-acting nature of the ring may enable more effective use of the product compared to other modalities.• Effective use and replacement of the ring improves with experience.• Intimate partner violence (IPV) affects women’s ability to use HIV prevention.
	Social support	<ul style="list-style-type: none">• Partners can influence women’s use of the ring.• The impact of the ring on sexual experiences and relationships will be important to women.• Women approach disclosure of ring use to partners in different ways.



Findings Overview

		Key Insights
MOTIVATION	Risk perception	<ul style="list-style-type: none">• Women recognize the need for HIV prevention beyond condoms.• Young women may consider their personal HIV risk low, even while recognizing high levels of general risk.• Women with more partners may use the ring more regularly.• Risk of pregnancy is highly salient for young women – even more than HIV risk.• A desire to have children while avoiding risk of HIV transmission is also a motivating factor.
	Willingness	<ul style="list-style-type: none">• HIV prevention efficacy is a key motivating factor for product uptake.• Ease of use and long-acting coverage make vaginal rings attractive to many women.• Fear of side effects can influence product choice.• Recommendations from healthcare providers are important.• Comfort with a vaginal ring modality differs by context.
	Norms	<ul style="list-style-type: none">• Community awareness and acceptance of the ring is critical.• Stigma against sexual activity, especially for young people, may influence product choice.• Yet, discussing HIV may be acceptable amongst young people.• Beliefs and norms around the vagina and vaginal insertion may impede ring use for some women.
OPPORTUNITY	Availability	
	Accessibility	<ul style="list-style-type: none">• Women largely seek to access the ring in clinical settings at the outset.• Yet, the healthcare system may be a barrier to ring uptake in many settings.
	Affordability	<ul style="list-style-type: none">• Affordability of products is a major factor determining uptake.

➤ Initial “shock” about the ring will need to be overcome.

- The Routes 2 Results qualitative and quantitative study, Dapivirine Ring Design Guide, and qualitative research in the TRIO study found women’s initial reactions to a placebo vaginal ring were of “shock” and “suspicion.” Women tended to focus on the size and rigidity of the ring, which created initial confusion about how it could be used and raised **expectations of discomfort** or pain as a major barrier to use.^{4,23,28,36}
- With additional information, 53% of participants in the Routes 2 Results research improved their opinion of vaginal rings, noting that they evoked **health, protection and safety**, highlighting the importance of early information to inform product choice.⁴

➤ Experience with the ring increases women’s likelihood of ring uptake.

- At the outset of the Quatro study, only 16% of participants ranked a vaginal ring as their first preference among four vaginally-inserted HIV prevention products (film, insert, gel, ring). After watching a video about the hypothetical products, 26% of participants ranked the ring as their first preference. By the end of the study, after all participants had some experience with the ring, 28% of participants noted the ring as their preferred option (2nd most popular option).¹
- A similar result emerged from the IPM 011 study, where participants in Tanzania and South Africa initially expressed concerns about vaginal rings but **grew to like them with use**⁷ and also in the ASPIRE trial, where 29% of users had a general worry about the dapivirine ring at the outset but only 4% had persistent concerns by Month 3.¹⁹
- A study of adolescent girls age 15–17 in the United States also found that the dapivirine ring was highly acceptable to girls who had experienced ring use, with 93% of participants noting that they “liked” the ring.¹⁶

➤ Significant misunderstandings about the ring can challenge acceptability.

- In IPM 015, one-quarter of participants held concerns that the ring may fall out (22%) or get lost inside their body (28%). These concerns diminished somewhat over the course of the trial (to 16% and 20%, respectively).⁸ Similar concerns were raised in the TRIO study.³⁶
- **Rumors** persisted about the ring across all four Phase III trial countries (South Africa, Malawi, Uganda, Zimbabwe) including links to severe illness like cancer, suggestions that use of the ring could cause infertility or harm to male partners, and that the ring was an object of witchcraft. Studies noted that education to overcome these **misperceptions** will be important to support uptake.^{13,24}

➤ Knowledge of HIV and previous experience with contraception increases women's likelihood of ring uptake.

- A discrete choice experiment (DCE) in South Africa found women with greater **knowledge of HIV** are more interested in using oral PrEP or a vaginal ring.³
- In the Quatro study, previous use of a contraceptive implant was significantly correlated with a preference for a vaginal ring for HIV prevention.¹ A DCE in South Africa also found contraceptive use to be correlated with uptake of oral PrEP and a ring.³
- The Dapivirine Ring Design Guide also found that many young women have **limited knowledge of their body** and HIV, and thus often do not know how to understand or effectively manage side effects, leading to ring discontinuation.²⁸

➤ Additional information on ring use, especially from experienced ring users, can support ring uptake.

- The Routes 2 Results study in South Africa found that young women are **eager for information** about vaginal rings, with 23% of study participants noting that input from an “experienced user” is as important as information from a healthcare provider.⁴
- Qualitative research during the ASPIRE trial also highlighted that **sharing of experiences** among trial participants as a key factor in supporting comfort with dapivirine ring use.^{23,24}
- This was echoed by Dapivirine Ring Design Guide, which suggests that peer information sharing can be powerful to help fill knowledge gaps, reduce anxiety, and build comfort with ring use, noting that women often do not get full information from their healthcare providers, especially on basic anatomy.^{13,28}
- In the TRIO study, an **educational video** on the ring improved women's rating of vaginal rings as an HIV prevention option, allaying fears of ring use and highlighting its benefits (e.g., long-acting product). A similar video for injectable and tablet products did not influence product ratings, suggesting that this type of information is especially important for new product modalities.³⁵

➤ Use of the ring during menstruation will need to be addressed.

- Research with ring users across South Africa, Kenya, Malawi, Uganda, and Zimbabwe found that many ring users believe the ring should be taken out during menses for reasons of **hygiene and cleanliness**, fear that the ring would fall out during this time, and fear that the ring would block the flow of blood.^{18,36}
- In the ASPIRE trial, 20% of participants reported ring removals and/or expulsions and most were associated with **menstruation** and concerns about hygiene during menses, indicating a need for enhanced adherence counseling.¹⁸

➤ **The long-acting nature of the ring may enable more effective use of the product compared to other modalities.**

- In the Quatro study, 88% of participants who used a placebo ring reported regular use during sexual encounters, compared to 40–55% of participants who used “on-demand” products (e.g., gel).¹
- The VOICE-D study found that young women were concerned with formulations requiring daily adherence (e.g., oral PrEP) and expressed preferences for **long-acting methods**.⁶

➤ **Effective use and replacement of the ring improves with experience.**

- Research during an open label extension (OLE) in Uganda found 31% of participants changed the dapivirine ring on time and independently at one month – this rose to 53% at three months and 74% after 6 months.²
- The Dapivirine Ring Design Guide notes the importance of helping young women **establish new habits** to support effective ring use and adherence.²⁸
- In the TRIO study, users of vaginal rings found them to be **comfortable**, overcoming initial concerns.³⁵

➤ **Intimate partner violence (IPV) affects women’s ability to use HIV prevention.**

- Research associated with the ASPIRE trial and a DCE in South Africa found that women experiencing IPV were less likely to initiate oral PrEP or a vaginal ring.^{3,14,26} Young women (age 18–21) were more likely to report instances of social harm related to ring use than older women.²⁶
- Qualitative research with ASPIRE study participants as part of the CHARISMA project found that **IPV negatively impacts ring use**, resulting in women taking the ring out during time with their partner. However, the research also found instances of women feeling empowered by ring use, using conversations about the ring as an entry point to broader discussions about relationships.²⁰

➤ Partners can influence women's use of the ring.

- An open label extension study (OLE) in Uganda found ring removals due to **partner influence** among 34% of participants.²⁵ Data from the ASPIRE trial suggests a lower percentage of women (12%) discontinued ring use at a partner's request, but found that maintenance of sexual relationships was a large driver of periodic non-adherence (e.g., women taking the ring out).^{24,31}
- In a Phase I/II clinical trial, half of participants in Kenya, South Africa, Malawi felt partners' perspectives were important, and 22% noted that their partner could feel the ring during sex but it was not a challenge.⁸ Women above age 21 more regularly reported partner support for ring use.¹³
- A discrete choice experiment (DCE) found that living with a partner is correlated with potential lower PrEP/ring uptake in women.³
- The TRIO study found partner acceptability of vaginal rings to be a factor in selection of other product modalities (e.g., injections).³⁵

➤ The impact of the ring on sexual experiences and relationships will be important to women.

- Findings from the Routes 2 Results study of young women in South Africa also found that a "partner feeling a vaginal ring during sex" or a vaginal ring "falling out" during sex was a major concern for over 30% of participants.⁴
- Qualitative research from ASPIRE found that ring use has real or perceived **impact on sexual relationships**, with some women reporting perception that their partners enjoyed the dapivirine ring (e.g., that it made the vagina tighter, wetter or drier) and others reporting perception that partners did not enjoy the ring (e.g., that it made the vagina wider). Most ring users reported no impact of the ring on their sexual experiences and some reported increased sexual pleasure.²²

➤ Women approach disclosure of ring use to partners in different ways.

- A number of research efforts highlighted a conflict around **disclosure of ring use**. Many women feared introducing distrust into their relationships, but were split on which path would be worse – disclosure (e.g., may result in accusations of infidelity) or non-disclosure (e.g., may result in discovery of the ring and suspicions of "witchcraft").^{9,11, 22,28}
- Qualitative data from the ASPIRE trial suggests that different **relationship dynamics** in terms of level of commitment and balance of power between partners is linked to disclosure decisions.³⁰ Research also found anxiety about discovery of the ring can create anxiety and impact women's enjoyment of sexual experiences.²²
- Qualitative research among women and men in South Africa and the Dapivirine Ring Design Guide found men to be unaccepting of products that imply HIV risk and that **male partners** want more information on the impact of a ring on the user and her partner.^{11,28}

➤ Women recognize the need for HIV prevention beyond condoms.

- OPTIONS market research with AGYW in Kenya found that only 24% regularly use male **condoms**.²⁹ In a series of focus groups in South Africa, women consistently noted that **condoms are insufficient protection against HIV**, given male partner preferences to not use condoms and noted that biomedical HIV prevention is important in cases of sexual assault.⁹
- Women in the TRIO study cited an inability to consistently use condoms and other partner dynamics that they felt increased their risk of pregnancy, HIV, and STI transmission as driving their need for multi-purpose technologies (MPTs).³⁶
- Qualitative research with a cohort of women who inject drugs in Kenya also noted their interest in HIV prevention as a result of their recognized risk, although knowledge of different options was low amongst participants.¹⁰

➤ Young women may consider their personal HIV risk low, even while recognizing high levels of general risk.

- OPTIONS research with AGYW in Kenya found that 16% feel they are at-risk, while 50% feel their peers are at-risk.²⁹
- Women in other studies (e.g., TRIO, ASPIRE) noted high levels of risk for pregnancy and HIV in their communities.³⁶

➤ Women with more partners may use the ring more regularly.

- Research during an open label extension (OLE) in Uganda found that 66% of participants had one main sexual partner while 34% had more than one sexual partner. Those with a main partner demonstrated lower levels of **adherence** to the dapivirine ring while those with more than one partner demonstrated greater adherence.²⁵

➤ Risk of pregnancy is highly salient for young women – even more than HIV risk.

- Multiple research efforts have found **risk of pregnancy** to be more urgent for women than risk of HIV.²⁸
- Young women report higher willingness to use products that include a contraceptive as well as HIV prevention (for example, inclusion of contraception increases enthusiasm for a ring relative to an injection). This effect is less important for older women.³
- In a discrete choice experiment in Kenya and South Africa, 92% of participants preferred a multi-purpose product rather than a product that protected against HIV or pregnancy alone.⁵

➤ A desire to have children while avoiding risk of HIV transmission is also a motivating factor.

- For some women, especially those in serodiscordant relationships, the **ability to have children** while avoiding risk of HIV transmission to the child was cited as a motivating factor for HIV prevention use.⁹

➤ HIV prevention efficacy is a key motivating factor for product uptake.

- A discrete choice experiment (DCE) conducted in Kenya and South Africa and another in Uganda found **product efficacy** to be the primary motivating factor for product choice. In Kenya, efficacy had more salience than any other factor tested. In South Africa, frequency/modality was as strong a preference as efficacy, with a strong preference for an injection lasting 2–3 months.^{5,21}
- Concern about product efficacy is highest among older women aged 30 – 45 years.³⁷
- A DCE in Kenya and Zimbabwe found efficacy to be of highest importance, however also found that women are willing to trade a level efficacy for other desired attributes (e.g., pregnancy protection, non-daily dosing regimen).³⁴ The Routes 2 Results study of young women in South Africa found effectiveness, safety, and **lack of side effects** to be motivating factors for vaginal ring use.⁴

➤ Ease of use and long-acting coverage make vaginal rings attractive to many women.

- In the TRIO study 2/3 of participants preferred injectable products, while 1/3 favored tablets and 1/3 favored vaginal rings. Preference was largely driven by **perceived negative characteristics of other products** (e.g., fear of needles, inability to take a daily pill), suggesting that communications will need to address positive as well as negative factors for any modality.³⁶
- The VOICE-D study and qualitative research from the ASPIRE trial found vaginal rings were the third most preferred modality behind injectables and implants and ahead of oral tablets, films, suppositories, and gel due to: the ring's ease of use and long-acting nature (e.g., no action required for a month), lack of interference with sexual pleasure, and discretion.⁶
- In the ASPIRE trial, users note that the use of **long-acting products** gives them “peace of mind,” alleviating concerns about missing doses.²⁷ Focus groups in South Africa with men and women and a DCE in Uganda found similar themes, and also noted a preference for methods that did not interfere with **family planning routines**.^{9,11,21}
- The Routes 2 Results study found **self-administration** to be an attractive feature of a placebo ring for over 20% of participants.⁴

➤ Fear of side effects can influence product choice.

- While the ring was found to have few side effects in clinical trials, women who participated in end user research across four countries noted a fear of potential side effects as a barrier to vaginal ring use. Fear of side effects was highest in Uganda, where 52% of participants noted it as a barrier compared to 16% in Zimbabwe, 11% in South Africa, and 7% in Malawi.³⁷

➤ Recommendations from healthcare providers are important.

- The Routes 2 Results study found recommendations from **healthcare providers**, including doctors, nurses, midwives, and community health workers are powerful to support uptake of a vaginal ring (for 80% of respondents). Other **effective influencers** include government or ministry/government officials, family members, or peers (60–65% of respondents).⁴
- In end user segmentation research in Malawi, South Africa, Uganda, and Zimbabwe, women’s discomfort with the idea of inserting a vaginal ring decreased when informed that a healthcare worker would perform the insertion, especially in South Africa, Zimbabwe and Malawi. Little change was seen in Uganda.³⁷

➤ Comfort with a vaginal ring modality differs by context.

- Data from the ASPIRE trial suggests that the dapivirine ring could be more popular in Zimbabwe and Uganda, where over 70% of participants noted they were “very likely” to use the ring in the future, compared to South Africa and Malawi, where just over 50% were very likely to use the ring and ~10% were very unlikely to use it.¹⁵
- End user segmentation research in Malawi, South Africa, Uganda, and Zimbabwe found that over 50% of participants would use a vaginal ring for HIV prevention if offered, ranging from 56% in Uganda to 71% in South Africa. Women in rural areas and younger women expressed the highest levels of willingness to use the ring, with the highest rate (81%) among women in rural South Africa.³⁷

➤ Community awareness and acceptance of the ring is critical.

- The Routes 2 Results study of young women in South Africa found that **communities** can be highly influential on women's decisions to use vaginal rings. 85% of participants noted that it was "important that the community accept" HIV prevention products and 63% were "concerned about what others might think" about HIV prevention use.⁴

➤ Stigma against sexual activity, especially for young people, may influence product choice.

- Qualitative research looking at product attributes of biomedical HIV prevention products found that **discretion**, or "invisibility" to partners, family members, and community members was the most important attribute defining product choice. Participants in the study preferred injections for this purpose, but also preferred long-acting methods overall (including vaginal rings) as they require fewer clinic visits and do not require storage (e.g., pill bottles).¹²

➤ Yet, discussing HIV may be acceptable amongst young people.

- OPTIONS market research in Kenya found that 84% of participating AGYW openly discussed HIV risk with peers, 83% were aware of their status, and over 52% got tested regularly, every 6 months.²⁹

➤ Beliefs and norms around the vagina and vaginal insertion may impede ring use for some women.

- Qualitative data from the ASPIRE trial, conducted in Malawi, South Africa, Uganda, and Zimbabwe highlights the challenge of beliefs around **vaginal insertion** of products, which include that any product in the vagina is an object of witchcraft (e.g., products are used to entrap men) or Satanism or that use of the product could result in cancer, infertility, or loss of blood. Researchers noted similar findings have emerged in Kenya, Rwanda, and Tanzania as well. These beliefs are tied to both culture and religion and influence product uptake, adherence, partner disclosure. While some of these concerns may diminish once the ring has regulatory approval, efforts to address these rumors will likely continue given the novelty of the ring.¹⁷
- Qualitative data from ASPIRE also highlights feelings of "shame and disgust" around **menstruation** (predominant in South Africa and Zimbabwe) and feelings that the vagina is "inherently shameful, unclean, smelly, and disgusting" (prevalent in participants across all four study countries). In the trials, this resulted in women taking out the ring during menses (to keep it "clean") and in women not wanting to return blood-stained rings to the clinic.³²

➤ Women largely seek to access the ring in clinical settings at the outset.

- The Routes 2 Results study of young women found that **local clinics and family planning clinics** are highly acceptable places to access a vaginal ring for HIV prevention (clinics are acceptable to over 90% of participants as opposed to just 64% who found it acceptable to access the ring in a pharmacy and 14% who found it acceptable to access the ring in a supermarket).⁴
- Qualitative research in the ASPIRE trial found that some respondents felt that the clinic was a good environment for administration of “more invasive” methods (including the dapivirine ring) due to high levels of hygiene and low risk of user error.²⁷
- OPTIONS market research among AGYW in Kenya found that they largely **trust the public health system** and that 90% of young women feel comfortable accessing services at public health facilities.²⁹
- A discrete choice experiment (DCE) with female sex workers (FSW) in Malawi found preference to access HIV prevention at **HIV testing or family planning sites**, for convenience. It also found add-on services (e.g., cervical cancer screening) to be attractive.³³

➤ Yet, the healthcare system may be a barrier to ring uptake in many settings.

- However, a series of focus groups with women in South Africa and the Dapivirine Ring Design Guide found that the current public health infrastructure is a barrier to ring use, specifically (1) **long wait times** at public health facilities and (2) perceptions that **healthcare workers** are judgmental, especially towards AGYW seeking services as a result of sexual activity.^{9,28}
- The Dapivirine Ring Design Guide found young women being nervous of nurses “gossiping” and sharing information about them.²⁸
- The TRIO study found that women expressed nervousness and embarrassment about a healthcare worker inserting a vaginal ring, citing that experience as a reason to select a different product modality (e.g., tablets, injections).³⁵
- Qualitative research in the ASPIRE trial found that women preferred methods that required the **fewest clinic visits**.²⁷
- Additionally, qualitative research in Kenya with a cohort of women who inject drugs found that they had several concerns about effectively using HIV prevention as a result of their poor access to healthcare services.¹⁰

➤ Affordability of products is a major factor determining uptake.

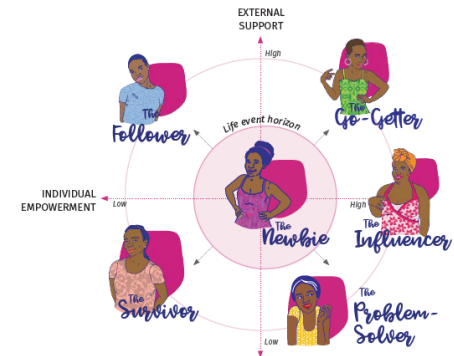
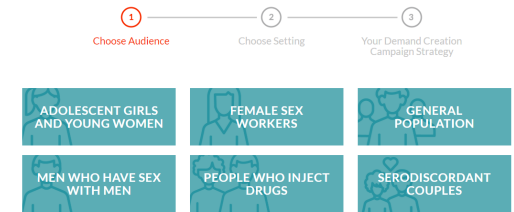
- The Routes 2 Results study of young women in South Africa found that 60% of respondents were concerned about **affordability**, including a reluctance to ask parents or partners for money to pay for HIV prevention products among 20% of participants. 92% of participants noted that they would try the product of their choice (e.g., a ring or oral PrEP) if it was free.⁴



Additional Resources

Understanding end users is a first step to establishing effective communications and informing program delivery. The following resources may be helpful to translate end-user insights to action:

- **PrEP Communications Accelerator:** This evidence-based tool to support mass media strategy development was developed by OPTIONS for oral PrEP, but contains guidance that is highly relevant for the dapivirine ring. Particular components that may be helpful include in-depth profiles on key audiences, including AGYW, FSW, general population, people who inject drugs, and serodiscordant couples. You can find the tool [here](#).
- **Dapivirine Ring Design Guide:** This guide to communications for the dapivirine ring is based on insights from human-centered design research conducted by Dalberg and IPM. It includes profiles of different end user segments for the ring, as seen on the right. You can find the guide [here](#).





Sources

	Title	Authors	Year
1	End-user preference for and choice of four vaginally delivered HIV prevention methods among young women in South Africa and Zimbabwe: the Quatro Clinical Crossover Study	Montgomery, ET et al	2019
2	Examining the relationship between multiple sexual partners and adherence to the dapivirine vaginal ring in a trial in South Western Uganda	Ndagire, AK et al	2018
3	Divergent stated preferences for new antiretroviral-based HIV prevention products across adults, adolescents and female sex workers in South Africa	Quaife, M	2017
4	Understanding consumer preference for HIV prevention products	Routes 2 Results	2017
5	Young Women's Stated Preferences for Biomedical HIV Prevention: Results of a Discrete Choice Experiment in Kenya and South Africa	Minnis, AM et al	2019
6	Stated product formulation preferences for HIV pre-exposure prophylaxis among women in the VOICE-D (MTN-003D) study	Luecke EH et al	2016
7	Safety of a silicone elastomer vaginal ring as potential microbicide delivery method in African women: A Phase 1 randomized trial	Nel, A	2018
8	Safety, Acceptability and Adherence of Dapivirine Vaginal Ring in a Microbicide Clinical Trial Conducted in Multiple Countries in Sub-Saharan Africa	Nel, A	2016
9	Contexts of vulnerability and the acceptability of new biomedical HIV prevention technologies among key populations in South Africa	Atujuna, M	2018
10	Perspectives on biomedical HIV prevention options among women who inject drugs in Kenya	Bazzi, AR et al	2017
11	Understanding women and men's acceptability of current and new HIV prevention technologies in KwaZulu-Natal, South Africa	Govender, E et al	2018
12	The Invisible Product: Preferences for Sustained-Release, Long-Acting Pre-exposure Prophylaxis to HIV Among South African Youth	Montgomery, ET et al	2019
13	Partners, Peers and Rumours as Influencers of Use and Attitudes Towards the Dapivirine Vaginal Ring: Qualitative Data From The Ring Study	Milford, C et al	2018
14	Use of a Vaginal Ring Containing Dapivirine for HIV-1 Prevention in Women	Baeten, JM et al	2016
15	Acceptability of and Adherence to the Dapivirine Vaginal Ring for HIV-1 Prevention	Browne, EN et al	2019



Sources

	Title	Authors	Year
16	Safety and acceptability trial of the dapivirine vaginal ring in U.S. adolescents	Bunge, K et al	2017
17	Negative rumours about a vaginal ring for HIV-1 prevention in sub-Saharan Africa	Chitukuta, M et al	2019
18	Hygiene, Blood Flow, and Vaginal Overload: Why Women Removed an HIV Prevention Vaginal Ring During Menstruation in Malawi, South Africa, Uganda and Zimbabwe	Duby, Z et al	2019
19	First Impressions Matter: How Initial Worries Influence Adherence to the Dapivirine Vaginal Ring	van der Straten, A et al	2019
20	The relationship between vaginal ring use and intimate partner violence and social harms: formative research outcomes from the CHARISMA study in Johannesburg, South Africa	Hartmann, M et al	2018
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Sources

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