

From mercury to microneedles

A BRIEF HISTORY OF CONTRACEPTIVE INNOVATION

Throughout history, women have sought to control their fertility. Some of the methods they used to prevent pregnancy were dangerous and ineffective. Others form the basis of modern contraceptive methods.

Today, despite the availability of a wide range of contraceptive products, more than 200 million women who want to control their fertility lack access to methods that are acceptable and affordable. Working with our partners, FHI 360 is expanding access to quality, affordable and acceptable new contraceptive methods.

EARLY HISTORY

10,000 BC

Cave paintings in France's Grotte des Combarelles depict a woman having sex with a man wearing a penis sheath.



Ethan Doyle White (CC BY-SA 3.0)

1850 BC

Women in ancient Egypt used a mixture of crocodile dung and honey to block sperm.

900 BC

Women in ancient China swallowed tadpoles cooked in hot mercury immediately after sex to control fertility. This toxic concoction could lead to sterility and organ failure.

100 AD

Women in India used a mixture of honey, ghee (clarified butter) and palash seeds to prevent pregnancy.



1880

The first tubal ligation was performed in the United States.

1894

The first vasectomy was performed in Britain, not for contraception but to relieve a patient's swollen prostate.

1882

Wilhelm P.J. Mensinga is credited with inventing the diaphragm.



1200s

The Maori people in New Zealand created pessaries by inserting small pebbles in women's vaginas to make them sterile.

1640

Soldiers during the English Civil War used condoms made from animal intestines.



1843

Charles Goodyear patented the vulcanization of rubber, leading to the mass production of condoms and the rubber diaphragm.



1906

Freidrich Merz developed Patentex, the first commercially produced spermicidal jelly.

Early 1900s

Marie Stopes promoted sponges moistened with olive oil as a contraceptive method for women.

1909

The first intrauterine device was developed by Dr. Richard Richter. He used two strands of silk-worm gut suture material to form a loop measuring about 27mm in diameter.

1920s

The creation of latex leads to the first latex condom.

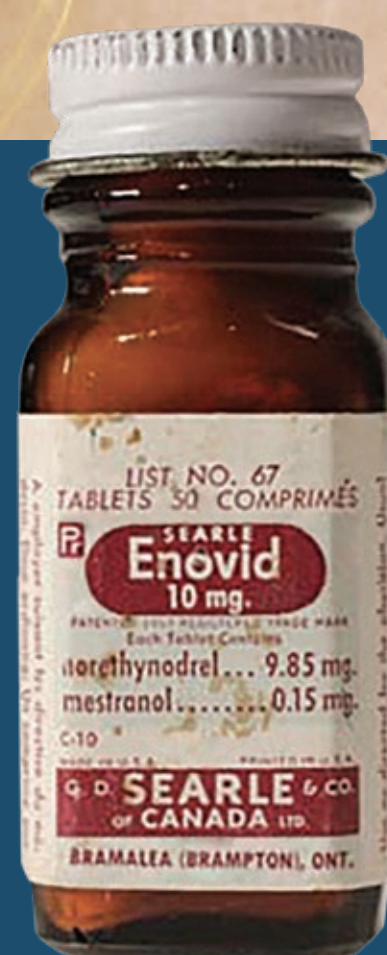


MODERN HISTORY



1960

Enovid, which had been previously prescribed for menstrual disorders, was approved by the U.S. Food and Drug Administration as the first contraceptive pill.



1962

Dr. Jack Lippes, an American gynecologist, developed the Lippes Loop IUD.

1969

Dr. Jaime Zipper in Chile discovered the contraceptive properties of intrauterine placement of copper, which led to the development of the copper IUD.

1984

FHI 360 demonstrated that progestin-only pills could be used safely by breastfeeding women, leading to the introduction of the mini-pill in 15 countries.



Museum of Contraception and Abortion

1984

Finland was the first country to approve the Norplant subdermal contraceptive implant system, consisting of six rods that release progestin (levonorgestrel).

1988

The Copper T 380A IUD (also known as ParaGard) was marketed in the United States. As of 2019, it is the only copper IUD product available in the United States.

1971 ▶



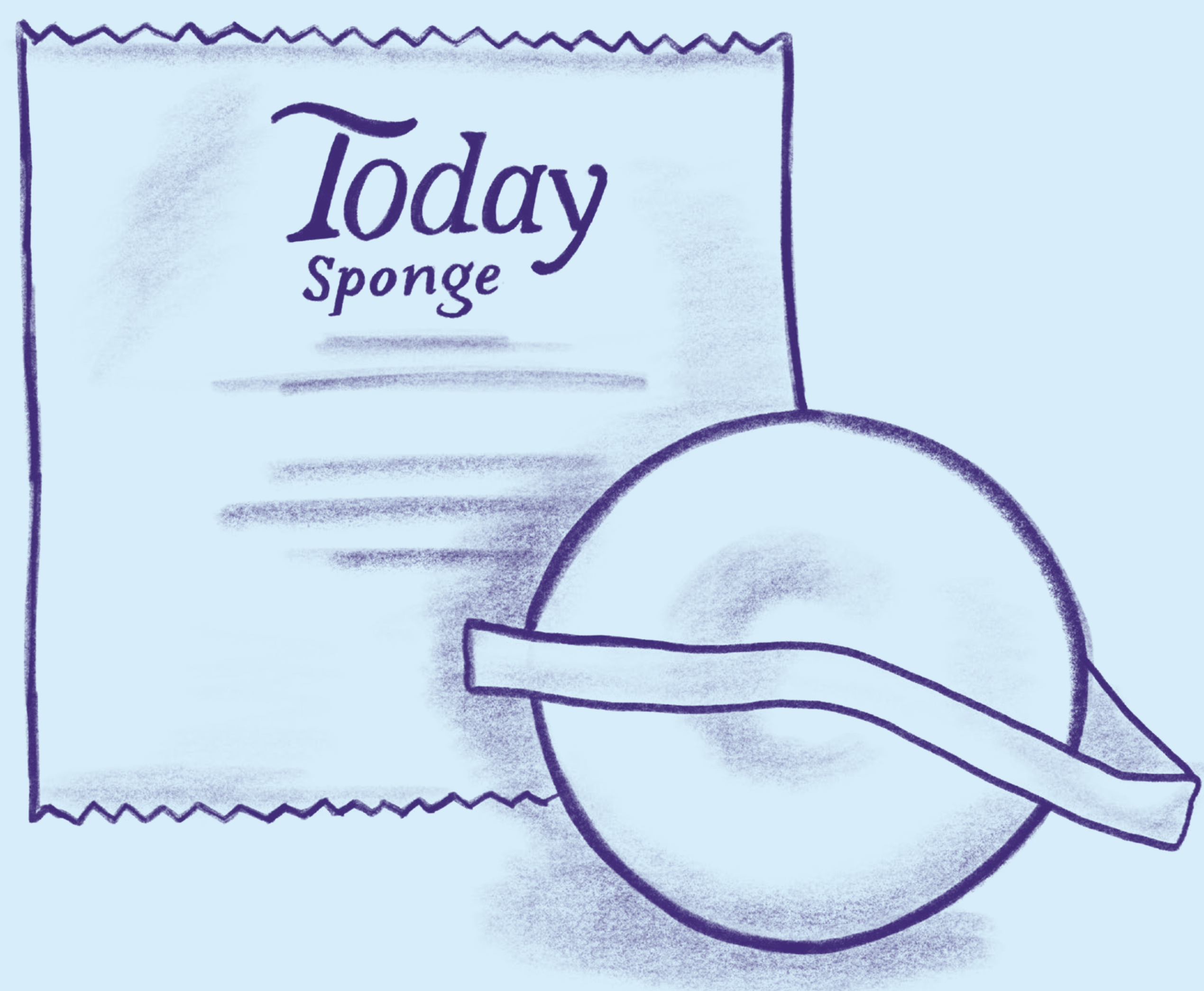
The injectable contraceptive Depo-Provera (depot-medroxyprogesterone acetate, or DMPA) was introduced in world markets.

1975

Laparoscopic tubal ligation debuted, sparing women major abdominal surgery and long recovery processes.

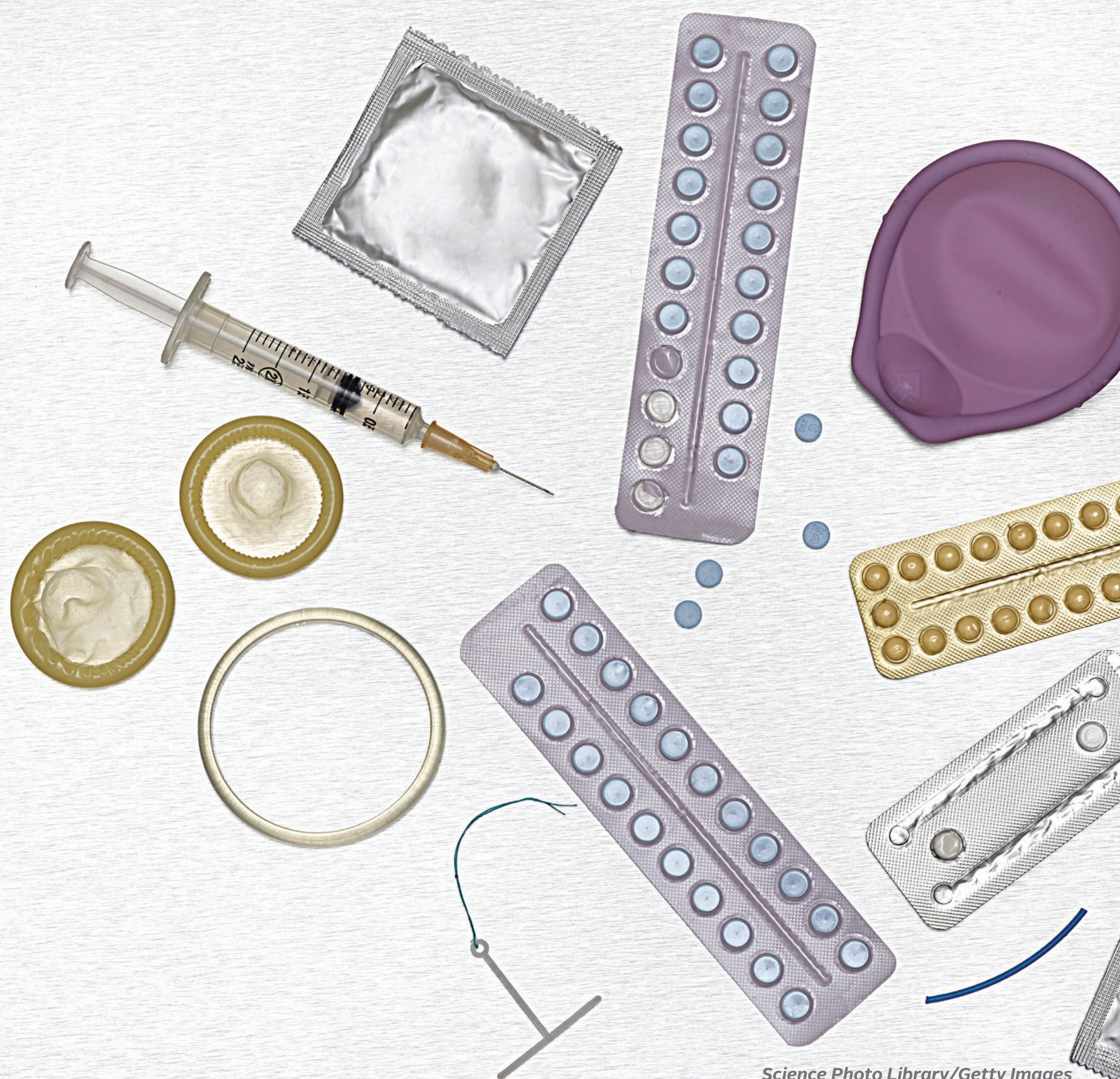
1983

The Today Sponge was approved for use, based on a pivotal trial conducted by **FHI 360**. The product became one of the most popular over-the-counter female contraceptives in the United States.



1990

Finland was the first country to approve Mirena, a progestin-releasing IUD. It continues to be popular worldwide, due to its noncontraceptive benefits, including a reduced menstrual flow. ▶



Science Photo Library/Getty Images

1993

FHI 360 conducted research that led to the U.S. Food and Drug Administration's approval of the first female condom.



Lalocracio/Getty Images



Jessica Scranton/FHI 360

1996

The Filshie Clip, developed by Dr. Marcus Filshie, was approved by the U.S. Food and Drug Administration based on clinical trials conducted by **FHI 360**. The clip, an alternative to tubal ligation, improved prospects for surgical reversal.

2001

The Standard Days Method was tested and introduced by Georgetown University. This also marked the launch of cycle bead jewelry, which helps women track their fertility cycles.



1997

FHI 360 and Mayer Laboratories, Inc., developed one of the first polyurethane male condoms, eZon. The condom was unique because it could be donned bidirectionally.

1999

The U.S. Food and Drug Administration approved Plan B, an emergency contraceptive. In 2013, the agency lifted restrictions requiring a prescription, based in part on research conducted by **FHI 360**. In the United States, Plan B is now available without a prescription or age restriction.

2002

Ortho Evra, the first contraceptive patch, was approved in the United States.



2006

The single-rod contraceptive implant Implanon was approved by the U.S. Food and Drug Administration.

2003

Dr. Alfred Shihata, with support from **FHI 360** and CONRAD, developed the FemCap, a modern cervical cap.



FUTURE

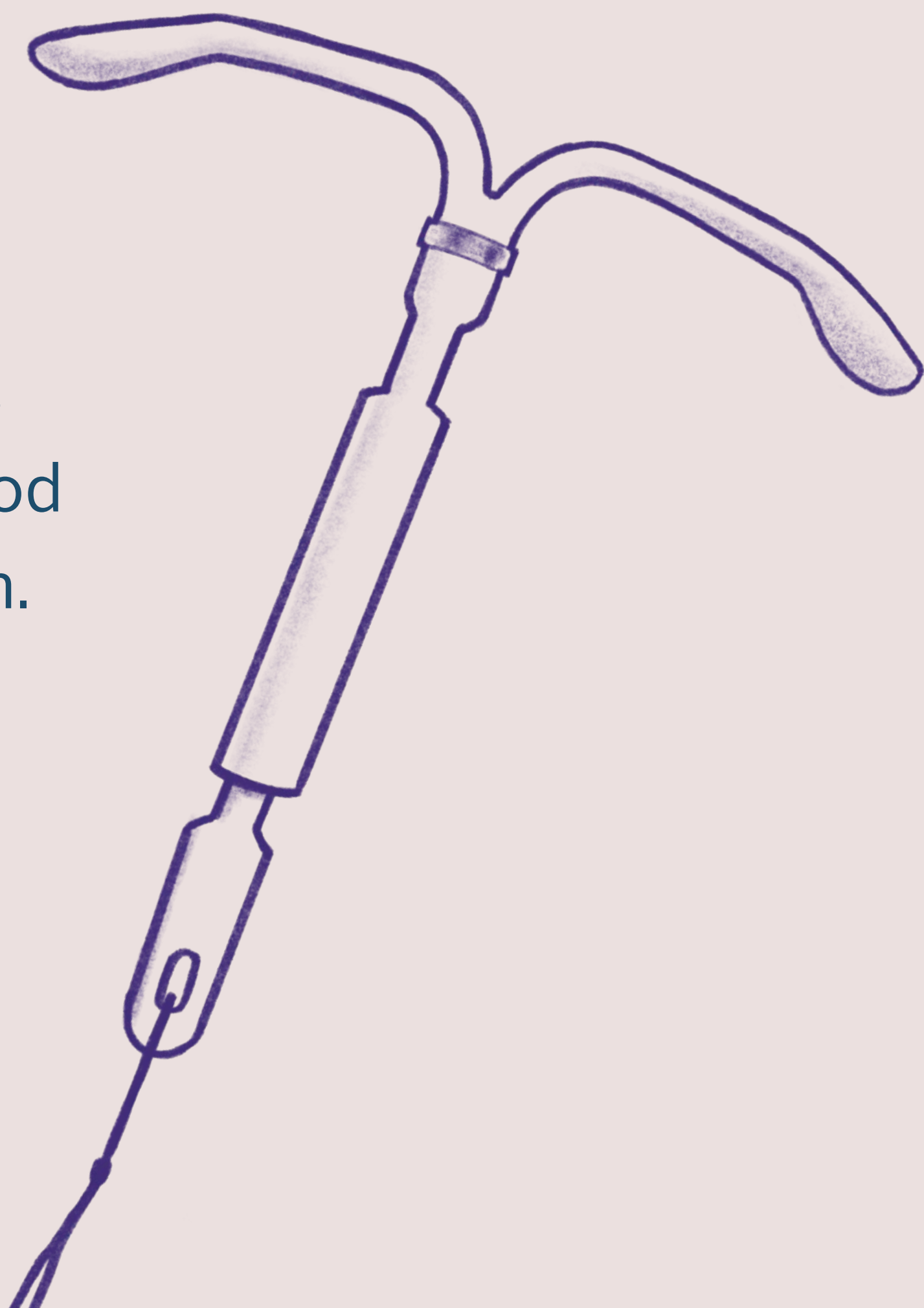
What does the future hold for contraceptive innovation?

2009

NuvaRing, the first monthly vaginal contraceptive ring, became available.

2013

Skyla, a smaller, lower-dose hormonal IUD, was approved by the U.S. Food and Drug Administration.



Here are just a few promising ideas that are being explored.



2013

The Caya Contoured Contraceptive Diaphragm debuted. It is a flexible, one-size-fits-most device that largely eliminates the need for individual diaphragm fittings.



2018

The U.S. Food and Drug Administration approved the segesterone acetate vaginal ring (brand name Annovera), which can prevent pregnancy for up to one year and requires no cold storage.



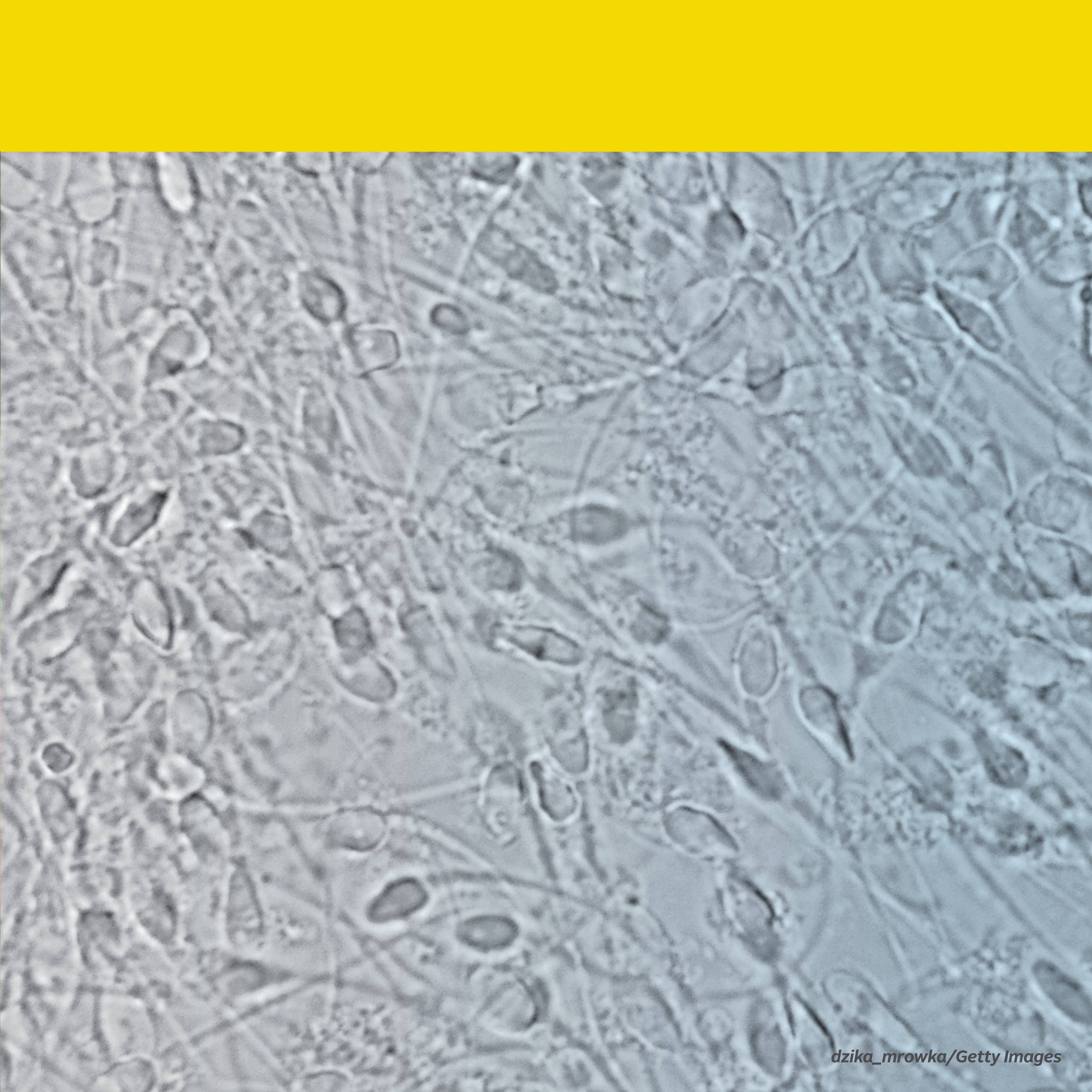
Biodegradable contraceptive implants

FHI 360 is supporting the development of a long-acting, biodegradable contraceptive implant that would eliminate the need for removal at the end of the product's effective life span. This would be particularly beneficial for women who live in settings with limited access to trained personnel or who might not be able to afford the removal procedure.





Jessica Scranton/FHI 360

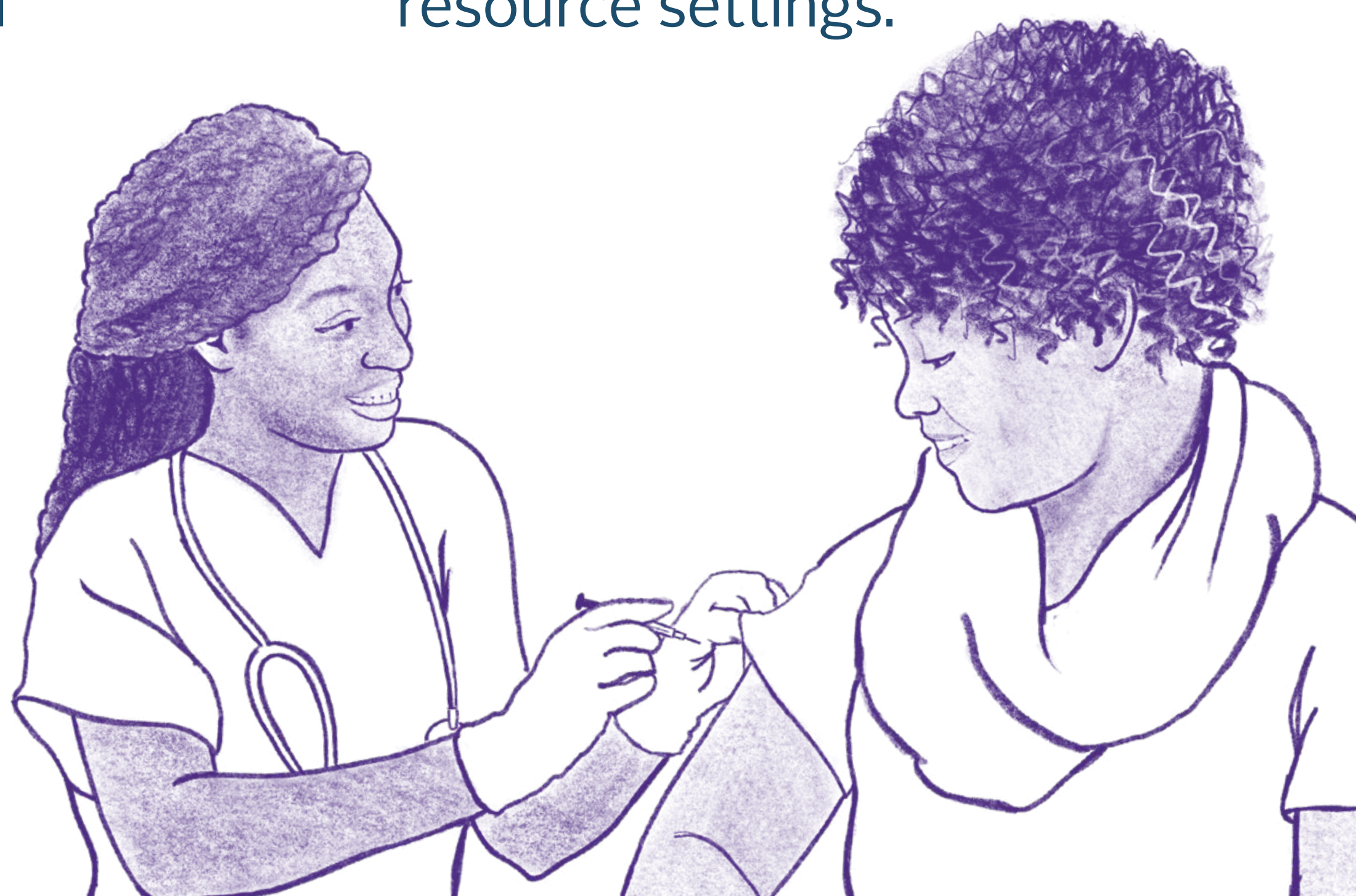


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Longer-acting injectables

At present the most popular injectable, depot-medroxyprogesterone acetate (DMPA) lasts for three months and requires reinjection four times a year. **FHI 360**, along with other researchers, is seeking to develop a self-injectable product that would provide six months

of continuous protection. Such a product would make using the method more convenient and could improve continuation rates, increase typical-use effectiveness and reduce the burden on clinic-based and community-based health programs in limited-resource settings.



Male contraceptive gel

Researchers from the Population Council, in collaboration with the U.S. National Institutes of Health, are evaluating the acceptability and efficacy of a male contraceptive gel that works through the hormonal suppression of sperm production. The gel, called NES/T, includes segesterone acetate in combination with testosterone.

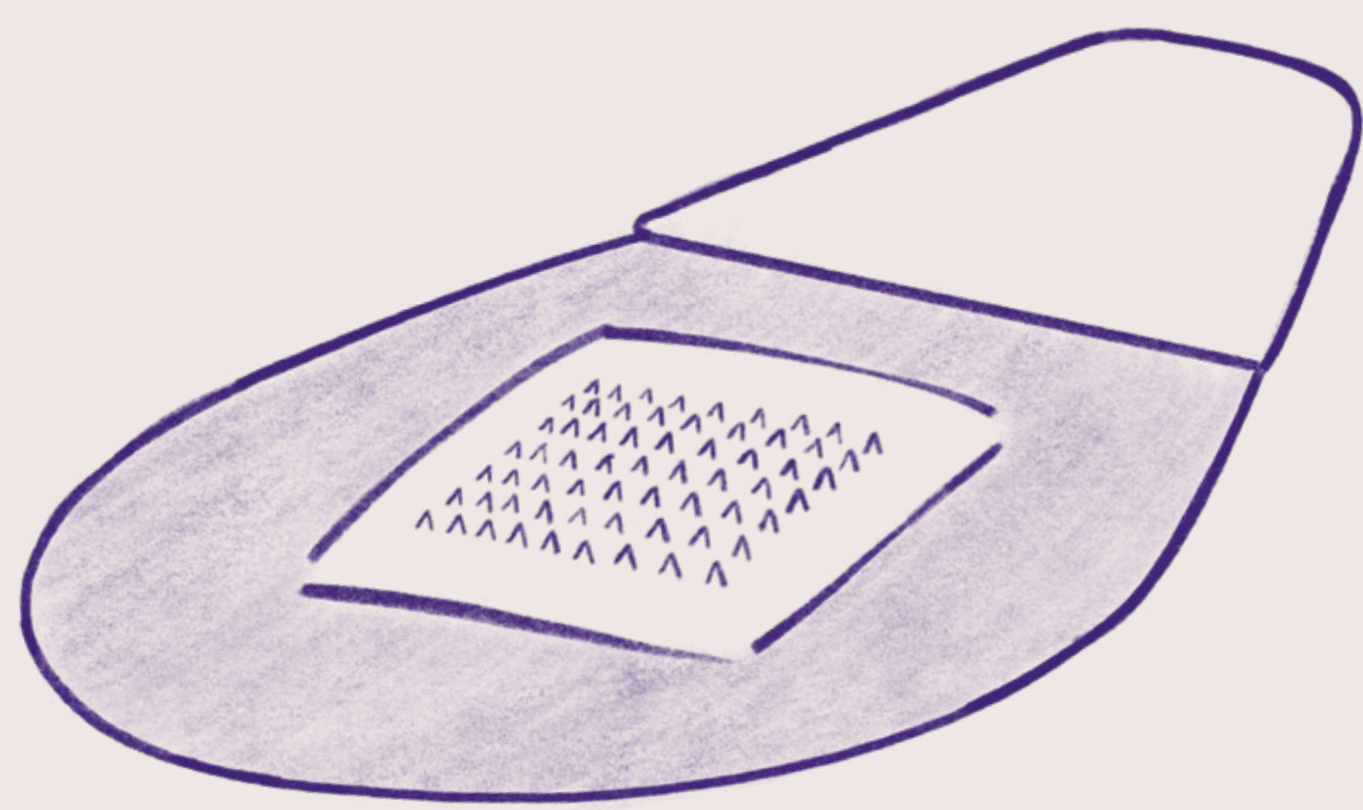


Hallie Easley/Population Council

Microarray (microneedle) contraceptive patch

Researchers, including those at **FHI 360**, are working to develop a microneedle delivery system that would provide long-acting contraception when applied to the skin. Biodegradable microneedles, which are each less than a millimeter in length and thinner than a hair, are attached to a small

patch about the size of a coin. Microscopic bubbles at the base of the needles create a point of weakness between the patch and the microneedles, which allows the microneedles to detach from the patch when pressed onto the skin.



Multipurpose prevention technologies

Multipurpose prevention technologies (MPTs) combine prevention of HIV or other sexually transmitted infections with contraception. At this time, male and female condoms are the only MPTs commercially available. Two approaches in development include

a one-size-fits-most diaphragm that could be used in combination with a microbicide gel and microarray patch technology that could offer a long-acting antiretroviral for HIV protection and a hormonal contraceptive.



Leanne Gray/FHI 360



Jessica Scranton/FHI 360