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# Home medical abortions are effective and safe with online consultation

17th May 2017 by [Katherine Lindemann](#)

Women who received medical abortion drugs with input from doctors online report successful terminations and few complications.

Ireland and Northern Ireland have some of the most restrictive abortion laws in the world, meaning women there who wish to terminate a pregnancy face a choice that's familiar to many in the US: traveling long distances to the nearest clinic or self-sourcing medication abortion pills at home. Online telemedicine has made the latter more appealing and drastically improved abortion access for Irish women. It entails an online consultation with a doctor, after which the pills to induce an abortion are shipped to the patient by mail. [New research](#) published in the BMJ finds that women who use this approach report successful terminations and low rates of complications. The study

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lead author [Abigail Aiken](#) to learn more.

## ResearchGate: What is telemedicine?

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**Abigail Aiken:** Telemedicine is the provision of healthcare without an in-person visit to the doctor. It's used in many countries to provide a wide range of healthcare services and leverages technologies such as video link software, phone, email, or live chat.

## RG: What were you examining with this study?

**Aiken:** We've known for some time that women in Ireland and Northern Ireland self-source their own abortions using online telemedicine. In fact, this model has revolutionized abortion access for Irish women. Yet very little was previously known about the outcomes of those abortions. How safe and effective are they? We wanted to address that knowledge gap with this study.

## RG: What did you find?

**Aiken:** This research shows that self-sourced medication abortion, conducted entirely outside the formal healthcare setting, can have high rates of effectiveness and low rates of adverse outcomes. Women can successfully manage their own abortions and recognize the symptoms of potential complications. Among the small number who experienced such a symptom, virtually all sought in-person medical attention as advised.

## RG: What are some advantages to medical abortions via telemedicine?

**Aiken:** Telemedicine has great potential to benefit people who live at a distance from a clinic, people who have trouble accessing in-clinic care due to work or childcare commitments, and those who might prefer a more autonomous and home-based model of care. Telemedicine can also save healthcare dollars by avoiding costly and unnecessary clinic visits.

## RG: Are there any drawbacks or concerns?

**Aiken:** One of the most common concerns is that women might inaccurately report their medical history or gestational age. This model of telemedicine trusts women to accurately self-report, and the results of the study support this move towards a more autonomous model of care.

## RG: What was the telemedicine experience like for the women you studied?

**Aiken:** Women on Web uses an online telemedicine model, where women fill out a consultation form, including information about their medical history. A doctor checks the form for any contraindications, and then medical abortion medications (mifepristone and misoprostol) are

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signs of potential complications. The helpdesk also provides advice and support and answers any questions before, during, and after the abortion process.

## RG: What is the legal situation for women seeking abortions in this manner?

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**Aiken:** Abortion laws in Northern Ireland date back to Victorian times, governed by the 1861 Offences Against the Person Act. In the last few years, women have been prosecuted for doing their own abortions at home through online telemedicine. Under the law, women are being punished for using "poisons" or "noxious substances" to end their pregnancies. But this study adds to the weight of evidence that, far from using "poisons", women who self-source their own abortions using online telemedicine are using the same medications provided in the clinical setting to avail of a highly effective and safe healthcare service.

## RG: Do these results from Ireland and Northern Ireland have implications for the US and other countries?

**Aiken:** While there are certainly cultural and demographic differences between the US and Ireland, the options available to women seeking abortion in the two countries are very similar. Women can either travel long distances to access care in a clinic—if they have the requisite financial and social resources—or they can find a way to do their own abortion outside the clinic setting. The main difference is that women in Ireland have access to comprehensive telemedicine services that ensures they can do their own abortions safely and effectively.

In the US, abortion is supposed to be a legally-protected right for all women. So we need to consider why such inequities in access to healthcare are happening and try to address the root causes. On the other hand, at-home abortion using online telemedicine could be a preference for some women, and future conversations about abortion access in the US should focus on expanding the range of options available to provide the best possible care for each individual.

## RG: What should the public take away from your findings?

**Aiken:** When most people think about self-sourced or self-induced abortion, they tend to think about coat hangers or cold steel tables in back alleys. But these findings show that in 2017, self-sourced abortion involves a network of people helping and supporting each other through a safe and effective process in their own homes. That's a huge step forward for public health.

Featured image courtesy of Ilya Pavlov.

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# 3D printed ovaries produce healthy offspring

16th May 2017 by [Maarten Rikken](#)

Infertile mice produced healthy pups when their ovaries were replaced with 3D printed prosthetics.

For women who can no longer give birth because of a disease or treatment, 3D printable ovaries could one day restore fertility and boost hormone production. In a new *Nature Communications* [study](#), researchers have taken a big step in that direction by successfully restoring ovarian hormone and egg production in sterilized mice. Researchers removed the mice's ovaries and replaced them with 3D printed bioprosthetic ovaries made from gelatin, enabling the mice not only to ovulate, but also give birth to healthy mouse pups.

We spoke with one of the study's authors, [Monica M. Laronda](#) of the Ann & Robert H Lurie Children's Hospital and Northwestern University, about the study.

## ResearchGate: What motivated this study?

**Monica Laronda:** Creating an engineered ovary was motivated by the need to restore hormone function and the option of fertility in young girls or women whose ovaries are affected by disease or treatments. The ovarian follicles are dynamic, so we needed a dynamic scaffold structure. We sought the help of materials scientists and 3D printing experts in the Shah Lab to help us address

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### RG: What did you develop?

**Laronda:** We developed a bioprosthetic ovary, a combination of ovarian follicles that are supported by a 3D printed scaffold that together is transplanted to restore ovarian hormone and egg production. We restored ovarian function with this bioprosthetic ovary in sterilized mice.

### RG: Can you give us a brief insight into how you achieved this?

**Laronda:** We used 3D printed scaffolds made of gelatin to support ovarian follicles. We transplanted this bioprosthetic ovary into mice, in the same location where their natural ovaries were. We identified follicle growth and vessel infiltration and found that the transplant produced steroid and peptide hormones and could ovulate and support a pregnancy that resulted in healthy pups.

### RG: What were some of the challenges you faced? How did you overcome them?

**Laronda:** We needed the spherical follicle to be supported enough to maintain the connections between the hormone-producing support cells and the centralized oocyte (potential egg cell), but dynamic enough to accommodate the expansion of large preovulatory follicles and ovulation of an egg. We also needed this scaffold to be durable enough to support handling during transplant, and porous to allow nutrient exchange and vessel infiltration. We tested different architectural designs using precise 3D printing techniques to best extrude gelatin and give us a scaffold that would meet these criteria.

### RG: How close are we to a human trial?

**Laronda:** There are still some key steps that are needed to safely try this in humans. We need to do a number of things: test this scaffold material and design with human follicles, create a bioprosthetic ovary in a large animal model, and create clinical-grade scaffolds.

### RG: Can you tell us more about the 3D printing used for this study?

**Laronda:** 3D printing is scalable and can tailor the scaffold for specific tissue spatial, biochemical, and mechanical cues. We chose gelatin as a material because it is relatively cheap and already has several FDA-approved uses, which can facilitate the translation of our 3D printable gelatin devices for clinical use. Gelatin is a derivative of collagen, the most abundant type of matrix proteins in most organs, including the ovary. The 3D printed design nurtured the ovarian follicles, allowed for nutrient and endocrine (hormone) exchange, and expansion and release of a fertilizable egg.

### RG: What's next for your research?

**Laronda:** The Woodruff Lab will continue to define what it means to be a healthy human egg and

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