

INVESTMENT IN RESEARCH SAVES LIVES AND MONEY

Endometriosis

Endometriosis is a chronic disease in which tissue that lines the inside of the uterus (endometrium) instead grows outside of the uterus. Endometriosis most commonly involves the ovaries, fallopian tubes, and tissue lining the pelvis. The misplaced tissue — called implants, lesions, or nodules — acts like endometrial tissue by building up, breaking down, and bleeding during the menstrual cycle. This tissue has no way to exit the body, so it becomes trapped. This can lead to inflammation, swelling, and scarring of the tissue surrounding the lesions.^{1,2} Symptoms of endometriosis include pain, often during the menstrual period, and infertility. The causes of endometriosis are unclear, but researchers believe it could be due to retrograde menstruation (menstrual blood flowing back into the body during menstruation.) There is no cure, but treatments include pain medication, hormone therapy, and surgery.³

COST

\$13,670:

Average individual cost to treat endometriosis.⁵

\$69.4 billion:

Estimated annual U.S. health care expenditures for endometriosis.⁶

TODAY

Endometriosis is considered one of the **three major causes** of female infertility.²

At least **11%** of women, or over **6.5 million women**, in the U.S. have endometriosis.³

176 million women worldwide have endometriosis.⁴

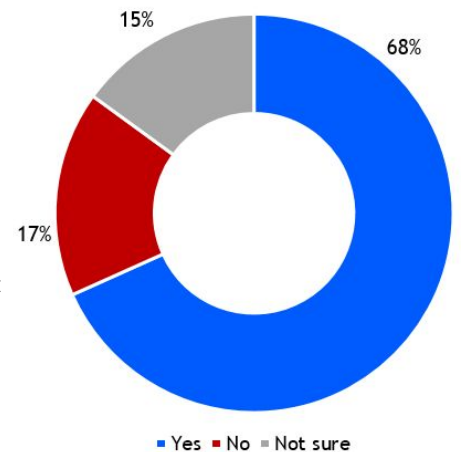
Research Delivers Solutions

Diagnosing endometriosis can be challenging given that there are no known biological markers to define the disease; surgical evaluation is often needed to find lesions to diagnose. One study examined the diagnostic accuracy of a non-invasive method called **transvaginal ultrasound (TVS)** to identify endometriosis. They performed a meta-analysis of clinical studies examining **deep infiltrating endometriosis (DIE)**, or endometriosis where lesions are deeper than 5 millimeters. The results confirmed that TVS is a potential imaging method for diagnosing DIE.⁷

To better assess treatments for endometriosis, researchers have been looking into biomarkers, especially the characteristics of **galectin-3 (Gal-3)**, a protein that is often used as a biomarker for cancer, in endometriotic lesion development. They analyzed lesions and performed experimental tests of treatment with **Gal-3 carbohydrate (Gal3C)**, which inhibits Gal-3 production. The results in this study showed that Gal-3 has a role in the growth of endometriotic lesions, and using Gal3C to prevent Gal-3 production reduced the development of endometriotic lesions. These results provide more knowledge about the Gal-3 protein and its potential as a target for developing endometriosis treatments.⁸

Many women with endometriosis often continue to experience pelvic pain despite surgical and hormonal treatments. Oftentimes, women experience **pelvic floor muscle spasms** that can lead to genital pain and lower urinary tract symptoms. One study examined pain, muscle spasm, disability, and pain medication use in 13 women one year after **botulinum toxin injection**. Botulinum toxin is commonly used to manage movement disorders and reduce pain. The researchers found that spasms, pain, and use of pain medication all decreased. They concluded that pelvic floor spasms are a major contributor to endometriosis-associated pelvic pain. These findings support the efficacy of this treatment to reduce pain in patients with endometriosis.⁹

Would you be willing to pay \$1 per week more in taxes if you were certain that all of the money would be spent on additional medical research?



Source: A Research!America poll of U.S. adults conducted in partnership with Zogby Analytics in January 2020

Endometriosis

Then. Now. Imagine.

THEN

For most of the 20th century, endometriosis was often dismissed as a sign of immorality or diagnosed as an imaginary illness such as female hysteria.¹⁰

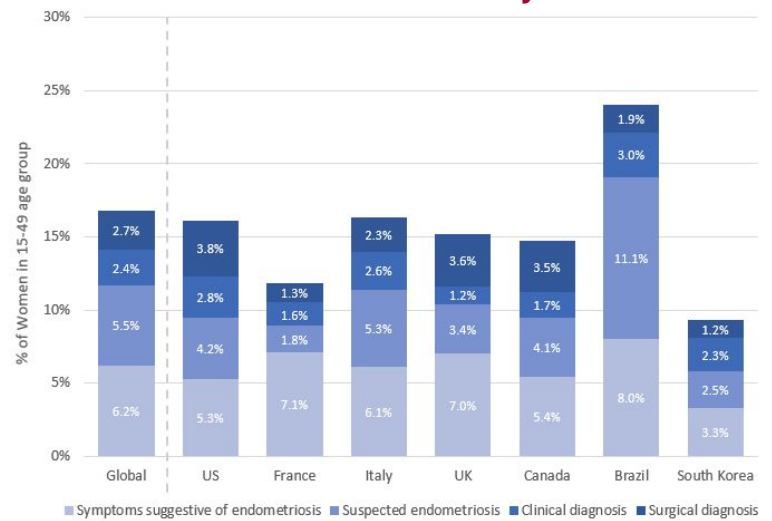
NOW

New diagnostic tests are emerging, and new studies are bringing understanding of pain mechanisms in endometriosis to the forefront.¹¹

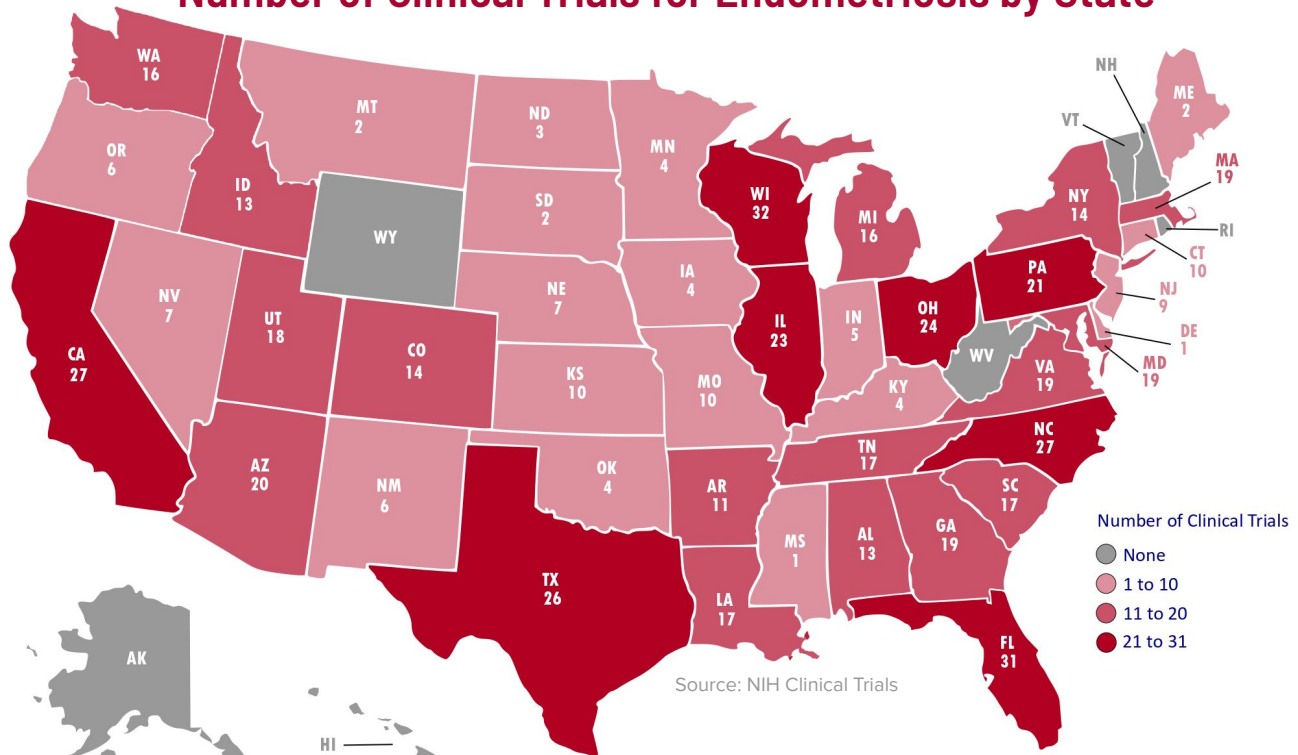
IMAGINE

Improved diagnoses and patient-centered treatment on endometriosis.

Prevalence of Endometriosis Categories Across Countries and Globally¹²



Number of Clinical Trials for Endometriosis by State



1. "Endometriosis." Mayo Clinic. 2019.

2. "Endometriosis." Johns Hopkins Medicine. N.d.

3. "Endometriosis." Office on Women's Health. 2019.

4. "Facts about endometriosis." Endometriosis.org. N.d.

5. Soliman et al. "Health care utilization and costs associated with endometriosis among women with Medicaid insurance." J Manag Care Spec Pharm. 2019;25(5):566-572.

6. "Identifying barriers to care for women with endometriosis." Society for Women's Health Research. 2019.

7. Guerriero et al. "Accuracy of transvaginal ultrasound for diagnosis of deep endometriosis in the rectosigmoid: systematic review and meta-analysis." Ultrasound Obstet Gynecol. 2016;47(3):281-289.

8. Mattos et al. "Galectin-3 plays an important role in endometriosis development and is a target to endometriosis treatment." Mol Cell Endocrinol. 2019;486:1-10.

9. Tandon et al. "Botulinum toxin for chronic pelvic pain in women with endometriosis: A cohort study of a pain-focused treatment." Reg Anesth Pain Med. 2019.

10. Nezhat et al. "Endometriosis: Ancient disease, ancient treatments." 2012;98(6 Suppl):S1-62.

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12. Bernuit et al. "Female perspectives on endometriosis: findings from the uterine bleeding and pain women's research study." J Endo. 2011;3(2):73-85.

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