

Global in vitro fertilization utilization: How does the United States compare?



The worldwide utilization of in vitro fertilization (IVF) has increased dramatically over the past 4 decades. Since the first birth from IVF in 1978, at least 8 million children have been born from IVF-assisted pregnancies (1). Despite this rapid growth, significant economic, social, cultural, and structural barriers prevent many patients who struggle with infertility from accessing IVF. The European Society for Human Reproduction and Embryology (ESHRE) estimated the population-based demand for IVF to be approximately 3,000 cycles per million people (2); however, as of 2016, no European country had met this threshold.

In October 2022, The University of New South Wales Sydney released their report on IVF in Australia and New Zealand for 2020 and the numbers were impressive. In 2020 alone, Australia and New Zealand performed 95,699 IVF cycles for a population of over 30 million people, a utilization rate of 3,114 cycles per million inhabitants—meeting the ESHRE expected demand for the first time (3). In light of this report, we sought to characterize per capita IVF utilization in the United States (US) in the context of other developed and high-income nations.

Fortunately, IVF is one of the most thoroughly registered medical procedures across the world. In many countries, data from IVF cycles are reported to and verified by a centralized body to track IVF utilization and outcomes. To conduct global comparisons for our analysis, IVF cycle volumes were obtained from the Centers for Disease Control and Prevention, ESHRE, the University of New South Wales Sydney, Israel's Ministry of Health, the Japan Society of Obstetrics and Gynecology, and the International Committee Monitoring Assisted Reproductive Technologies. Data were obtained for 2018 because this was the most recent year that ESHRE published IVF cycle data. Population data were collected from the United Nations Department of Economic and Social Affairs, Population Division. Our primary outcome was per capita IVF utilization in terms of IVF cycles per million people.

Selected countries' results are reported in [Figure 1](#). Israel proved to be, by far, the world leader in per capita IVF utilization in 2018, reporting 5,711 cycles per million inhabitants, followed by Japan (3,603 cycles/million) and Denmark (3,575 cycles/million). Along with the Czech Republic (3,341 cycles/million), Australia (3,056 cycles/million), and Spain (3,003 cycles/million), only these 6 countries met the ESHRE threshold for anticipated IVF demand in our analysis. When averaging across all of Europe, the continent performed 1,368 cycles/million, which is less than half of the anticipated demand. The United States lags further behind the leaders, at only 922 cycles/million, despite performing the third highest total volume of cycles in our analysis (306,197 cycles), behind China (1,075,788 cycles) and Japan (454,893 cycles). To meet the ESHRE threshold, the United States would need to have performed 996,420 cycles in 2018, more than triple the

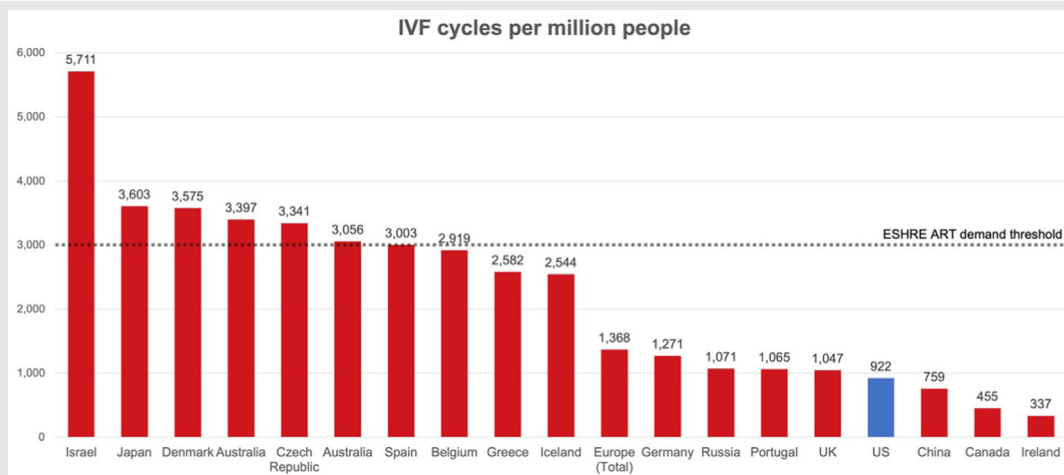
reported volume. Despite IVF volumes growing more than 150-fold over the past 3 decades, the US fertility industry leaves much to be desired in terms of meeting the epidemiological need for infertility treatment.

Like with much of the American health care system, cost is frequently cited as the greatest barrier to fertility care in the United States. The country is no stranger to inefficiency in health care. Despite spending 18% of its gross domestic product on health care, nearly 40% more than the next country (Germany), the United States leads in infant and maternal deaths among 38 high-income countries belonging to the Organization for Economic Co-operation and Development, and it is the only country that does not provide universal health insurance coverage. Infertility coverage in the United States is even more dire, relying on a patchwork of small federal programs and 20 state insurance mandates requiring coverage of the diagnosis and/or treatment of infertility, only 13 of which provide full coverage for IVF (4).

To meet the present demand, the United States will need to train more providers, increase throughput at the clinic level, and expand the number of fertility clinics, all while lowering patient barriers to care. As of 2020, 449 clinics reported a total of 326,468 IVF cycles to the Centers for Disease Control and Prevention, averaging 727 cycles per clinic. Tripling this number without further proliferation of infertility clinics would require incredible structural changes to current clinical and laboratory operations. Although the number of fertility clinics has grown substantially in recent years, approximately 50 new reproductive endocrinologists are trained each year, which is unlikely to meet the present demand when accounting for exiting providers. Several strategies have been proposed to address the bottleneck in the number of reproductive endocrinologists trained each year, including decreasing the length of fellowship training. Additional fertility clinic staff, including embryologists, nurses, ultrasonographers, laboratory technicians, and clinic administrators, will need to be trained to support the present and growing demand. Finally, legislation promoting insurance coverage and access to fertility care needs to be a greater priority at both state and federal levels.

That being said, the United States has made progress in recent years, particularly because it concerns federal employees. In October 2022, the US Office of Personnel Management released new Federal Benefits Open Season information for 2023, expanding fertility coverage to almost 9 million people, including employees, annuitants, and their family members (5). As a part of the new benefits, all federal insurance carriers will provide coverage for fertility preservation for individuals facing the possibility of iatrogenic infertility, including infertility associated with gender transition treatment. This was followed by a 2024 carrier letter from the US Office of Personnel Management calling for Federal Employees Health Benefits program plans to include artificial insemination and medication for up to 3 cycles of IVF annually (6). Building on this momentum, in April, the Family Building Federal Employees Health Benefits Fairness Act was introduced by a bipartisan group of lawmakers, which would require federal employee health benefit plans to further

FIGURE 1



Annual in vitro fertilization (IVF) cycles per million people among selected countries. ART, assisted reproductive technology; ESHRE, European Society for Human Reproduction and Embryology.

Peipert. *Global IVF utilization*. *Fertil Steril Rep* 2023.

expand assisted reproductive treatment benefits, including IVF and social fertility preservation (7).

RESOLVE: The National Infertility Association has long focused on promoting these policies as “pro-family” to reach across party lines in promotion of legislation expanding coverage for fertility treatments. This argument has the potential to generate bipartisan support by promoting reproductive autonomy and reproductive justice on the left and the American family, “the foundation of civil society,” according to the Republican Platform 2020, on the right (8). Given the polarization in today’s political landscape, the prospect of federal legislation expanding access to fertility care may be optimistic at best. Thus, advocacy at the state level is equally, if not more, important for the promotion of new and better state mandates, requiring the coverage of the diagnosis and management of infertility.

The policy and structural changes necessary to meet the demand for fertility care in the United States are surely daunting. However, if we as a society are truly dedicated to helping all individuals struggling to build their family, these changes are necessary.

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<https://doi.org/10.1016/j.xfre.2023.06.005>

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