

Infertility: A Hidden Cost of Medical Training

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Medical training often occurs in the critical biological window¹ for childbearing, which cannot be reliably postponed. As a result, there is an association between infertility and medical training, linked with anxiety, depression, loss of control, and feelings of failure.^{2,3} The deep psychological and social impacts of infertility on one's health, wellness, and family demand early intervention to promote physician well-being in training and beyond.

Female Fertility

The average age of the graduating female medical student is 28, and 16% of graduates are 30 and over.⁴ Female fertility decreases gradually but has a slight drop in the early 30s, with a more substantial drop starting at age 37.⁵ This decrease coincides with both residency and fellowship training periods. In general, women under 30 have an 85% conception rate in 1 year compared to 66% and <44% at ages 35 and 40, respectively.^{1,5} Fecundability, the probability of becoming pregnant, is further impacted by a host of individual factors, including surgical history, chemotherapy and radiation therapy, endometriosis, obesity, infection, and male factor infertility.¹ Additionally, lifestyle factors like stress, sleep, diet, and exercise—those particularly prone to disruption in training—alter fecundability.⁶ The live birth rate is further affected by age: for example, 40% of pregnancies end in miscarriage beginning at age 40, compared to 9%-17% under age 30.⁷

The average age of motherhood has increased over the last few decades, with the average first birth for college-educated women occurring at 30 years.⁸ The definition of infertility is the inability to conceive after 1 year of unprotected sex.⁹ In a small national survey of US female physicians graduating medical school from 1995 to 2000, the average age of pregnancy was similar at 30.4 years (based on 327 responses, 55% response rate).¹⁰ In this survey, 24% of respondents

reported being given a diagnosis of infertility, at an average age of 34 years. Of those attempting to conceive, 4% were unable. Some reports suggest that female surgeons have greater delays at age of first birth,^{11,12} which may be related to longer training periods associated with surgical specialties.

Problems With Assisted Reproductive Technology (ART)

Despite knowledge of the decline of fertility with age, nonphysicians and trainees alike underestimate the age at which fertility declines and overestimate the chance of becoming pregnant, both spontaneously and through fertility treatments. Even obstetrics and gynecology residents who were surveyed remained misinformed about the rate of fertility decline and overestimated the effectiveness of in vitro fertilization (IVF).¹³ Peripheral awareness of ART (ie, ovulation induction, intrauterine insemination, IVF) without details regarding efficacy and live birth rate may create a false sense of security. Women who choose to delay childbearing, particularly those who train and work in the medical field and have knowledge of ART, may do so under the guise of ART as a panacea. There are many paths to parenthood and ways to build a family. This in no way is meant to take away from surrogacy, adoption, or any other reproductive or legal means of family building.

The oocyte attrition rate inherent to an IVF cycle highlights the challenges of those who delay. First, not all oocytes retrieved are able to be fertilized with sperm, and only a portion of fertilized oocytes progress into embryos. Further, even with the transfer of a high-quality, genetically normal embryo, the pregnancy failure rate remains around 30%.¹⁴ Lower-quality and genetically untested embryos fail at a higher rate. Advanced female age is related to fewer and poorer quality oocytes, as well as higher risk of miscarriage, obstetric morbidity, and perinatal complications.¹⁵ Age and oocyte quality, therefore, remain insurmountable barriers for some, despite ART. For this critical reason, early oocyte preservation between the ages of 25 and 34 gives women the

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best options for family building.^{16,17} Therefore, early consideration and thoughtful discussion around an individual's or couple's goals regarding family building is key.

A Call for Earlier Interventions

The duration and continuous structure of medical training places a unique burden on female physicians without the flexibility granted in nearly every other career path. The rise in medical trainees with experiences between college and undergraduate medical education, and trainees with additional research years, results in more residents and fellows extending training into their late 30s and 40s, which in turn increases the risk of infertility.⁴

Accreditation Council for Graduate Medical Education program candidacy depends on provisions for resident well-being, including “attention to scheduling, work intensity, and work compression” so that “residents must be given the opportunity to attend medical [...] care appointments, including those scheduled during their working hours.”¹⁸ Infertility and discussions concerning family planning fall under this scope but ought to be brought into the forefront of physician well-being, given the known consequence of infertility on overall health.² Much like the mitigation strategies implemented to reduce physician burnout and increase well-being, integration of fertility awareness, education, and care is an essential first step to improving the overall reproductive health of trainees.

To ensure timely access to information, programs may consider integrating written or online modules with fertility information during onboarding. Review of materials could be made mandatory, or if optional, completion could be incentivized through additional unscheduled time for the trainee, with the goal of promoting wellness activities. Modules during onboarding would allow timely access to information, prompting interested individuals to seek personalized information. To facilitate this, programs should provide contact information for local and/or affiliated reproductive endocrinology and infertility specialists and protect trainee time to seek medical care. Depending on an individual's goals, this may mean a consultation for information gathering and testing or for pursuing treatment. In further support, programs may consider schedule modifications that would allow for more flexibility around family building, such as part-time training options or adjusting clinical hours (eg, a research elective).

While raising awareness is essential, expanded fertility coverage and access should follow the example of many Fortune 500 companies to allow trainees to afford treatment. These companies now

BOX Specific Recommendations to Support Resident Family Planning

- Initiate discussions of infertility and family planning as a part of intern orientation and onboarding.
- Include family planning and fertility awareness as a part of wellness curricula.
- Provide accessible family planning information and counseling for residents and fellows.
- Provide insurance or residency-subsidized coverage for consultation with a reproductive endocrinology/infertility specialist.
- Protect time to facilitate assisted reproductive technology, oocyte cryopreservation, and other family planning methods.
- Allow part-time training options and schedule modifications to facilitate family building.

allow for parental planning, including IVF coverage expansion for those with a history of infertility and for those who wish to preserve oocytes for future use.¹⁹ A typical IVF cycle costs \$10,000 to \$20,000 without coverage, dependent on evaluation, medication, genetic testing, or embryo transfers.²⁰ Not only is the financial cost of infertility care high, but so is the personal cost, which can be life changing. While some institutions may have insurance benefits with infertility coverage, others may not, or the individual may not be aware it exists. At one author's institution with infertility coverage, residents and fellows seeking infertility care were estimated to comprise 5% to 10% of the patient population in the fertility clinic. This suggests residents and fellows would benefit from access to fertility treatment insurance coverage. The Centers for Medicare & Medicaid Services (CMS) provide a portion of funding for graduate medical education.²¹ CMS coverage includes “reasonable and necessary” infertility services.²² While not directly tied to coverage provided to trainees, this CMS provision highlights that infertility coverage is both a reasonable and necessary component of health care services. The box includes a list of specific recommendations for supporting resident family planning.

Given the established impact of age on fertility and ART outcomes, the link between training and delayed childbearing and infertility is evident. Integration of fertility awareness and treatment into training is critical. To be most effective, this information must be paired with access to care and resources to meaningfully impact the lives of physicians. Delay in receiving the knowledge or care needed creates undue burden and stress on a workforce already affected by diminishing numbers due to the current state of practicing medicine. One's fertility should not be the actual cost of a career in medicine.

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