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Utilization of Fertility-Related Services in the United States

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Narrative Abstract

To describe trends in the types of fertility-related medical services that women and/or their partners have received while trying to become pregnant, the author analyzed data from women aged 20–44 years who participated in the 2002 National Survey of Family Growth. Advice (74%) and infertility testing (59%) were the most common types of fertility-related services received, and of those who received infertility testing, 66% responded that both partners were tested. Nearly half of the study population reported receiving drugs to improve ovulation.

In the U.S., it is well documented that there is a growing demand for medical therapies, such as assisted reproductive technologies (ART), to assist women who are trying to become pregnant. The most recent data (2004) from the U.S. ART Surveillance System shows that 127,977 ART procedures were reported to the Centers for Disease Control and Prevention (CDC), which led to 36,760 live-birth deliveries and 49,458 infants (1). Moreover, the number of ART procedures has risen 92% over the past eight years. While there is a wealth of information in the literature about the use of ART in the U.S., including the number of procedures performed, success rates, and risk of adverse pregnancy outcomes, there is a paucity of information about some of the less-invasive procedures performed to improve a woman's chances of becoming pregnant, such as infertility testing, using ovulation induction drugs, or surgery or drug treatment for disorders of the reproductive system. Reproductive endocrinologists generally perform ART procedures. In contrast, both generalists (family practitioners, internists, gynecologists) and specialists may provide preliminary fertility consultations and the provision of ovulation induction drugs. Thus, this analysis sought to document these types of medical services that women and/or their partners have received in an effort to become pregnant, using data from a population-based survey - the 2002 National Survey of Family Growth (NSFG).

The NSFG is a periodic survey designed and administered by the National Center for Health Statistics (NCHS), an agency of the U.S. Department of Health and Human Services. The 2002 survey was designed to obtain detailed information on factors affecting childbearing, marriage, and parenthood from a national probability sample of 12,571 non-institutionalized men and women 15 to 44 years of age. Most of the survey was administered using computer-assisted personal interviewing (CAPI), a technique in which a trained interviewer asked participants questions and entered the responses into a notebook computer (2).

As this analysis involved the use of a public-use dataset stripped of identifiers, the University of Michigan Institutional Review Board classified this research as "non regulated"; thus, formal approval was not required. For this analysis, we restricted our sample to non-pregnant female respondents 20 to 44 years of age who indicated that they (or their partner) had been to a doctor or other medical care provider to talk about ways to help them become pregnant (N=519). Respondents were asked about the types of services ever received to help them become pregnant (advice, infertility testing, drugs to improve ovulation, surgery to correct blocked tubes, artificial insemination, surgery or drug treatment for endometriosis, in vitro fertilization,

surgery or drug treatment for uterine fibroids, or other pelvic surgery). For those who indicated that they received infertility testing, respondents were also asked who in the relationship had the testing. For those who indicated that they underwent artificial insemination, respondents were also asked about the relationship of the sperm donor. Other questions inquired about whether the couple had private health insurance to cover the costs of these services, how long the couple had been trying to become pregnant prior to seeking medical help, whether they are currently pursuing medical help to become pregnant, and whether they have been told by a medical care provider that they have had an ovarian cyst, uterine fibroids, endometriosis, or problems with ovulation or menstruation. All analyses were performed using Statistical Analysis Software (SAS) Version 9.1 for Windows (SAS Institute Inc., Cary, NC). Descriptive analyses were conducted to ascertain both the demographic and fertility-related characteristics of the study population. The surveyfreq procedure in SAS was used to perform the above-mentioned analyses, which were weighted to adjust for the survey design, sampling, coverage, and response rates so that accurate national estimates can be made from the sample. The 2002 NSFG fully weighted response rate was 70% for females overall, 73% for females 20–24 years of age and 68% for females 25–44 years of age (3). Because the data are weighted, this study population actually reflects approximately 4.7 million couples that had a fertility-related medical visit at some point in their lives.

Sixty-five percent of respondents were 20–39 years of age. Eighty percent of women indicated that they were non-Hispanic white, while 9% self-identified as Hispanic, 7% as non-Hispanic black, and 4% as non-Hispanic other. Approximately 75% had more than a high school education at the time of the survey. Several of the women surveyed indicated that they had received a previous diagnosis of an adverse condition affecting their reproductive system. For example, 51% or approximately 2.4 million women had a problem with ovulation or menstruation, 34.2% or approximately 1.6 million women had an ovarian cyst, 19.8% or approximately 933,000 women had received a diagnosis of endometriosis, and 14.4% or approximately 676,000 women had an uterine fibroid.

Table 1 summarizes the types of fertility-related services the respondents received. Advice (74%) and infertility testing (59%) were the most common responses. Of those who received infertility testing, 66% responded that both partners were tested. Nearly half of the study population reported receiving drugs to improve ovulation. Approximately one in six women indicated that they underwent either artificial insemination or in vitro fertilization. Of those who underwent artificial insemination, 87% used only their husband or partner's sperm. When asked how long they had been trying to become pregnant before they first sought medical help, the majority responded that they had been trying for less than 2 years. However, 31% tried to become pregnant for 2 years or more before seeking medical assistance. Twelve percent of women reported that they are currently pursuing medical help to become pregnant.

There is a paucity of information published on the broad use of fertility-related services in the U.S., such as some of the less-invasive, intermediate procedures performed to improve a woman's chances of becoming pregnant. This lack of national data is due in part to the limited collection of such data in existing population-based surveys. The majority of our knowledge about the utilization of fertility-related services is drawn from the ART Surveillance System. This database is maintained by the CDC Division of Reproductive Health and was established through a Federal mandate (the Fertility Clinic Success Rate and Certification Act of 1992) (4). Annually, the CDC publishes its ART Success Rates Report on their website in addition to a series of epidemiologic studies in peer-reviewed journals. While this data source provides a wealth of information about the use of ART, including the number of procedures performed, success rates, and risk of adverse pregnancy outcomes, its focus is limited to ART procedures and their outcomes. A demographic profile of users (beyond age) and information about other fertility-related services, such as those noted in this analysis, is not routinely collected.

A second data source is the CDC Pregnancy Risk Assessment Monitoring System (PRAMS), an annual follow-back survey of a stratified sample of postpartum women in more than half of all U.S. states. In 2000, a state-optional question on the use of ART was developed and available for use. An analysis of data from five states that incorporated this question into their survey was recently published (5). The PRAMS question asks respondents whether they used any medical procedures (assisted reproductive technology) to help them get pregnant with their current newborn. Assisted reproductive technology is further defined for the respondent as procedures that include IVF, GIFT, ZIFT, embryo transfer, and the use of donor oocytes.

In their recent analysis, Schieve and colleagues (2006) reported that PRAMS estimated 2.59 times as many ART births as those reported to the ART Surveillance System. The authors concluded that this overestimation may be due in part to a) women reporting about use in a previous, but not the index pregnancy; or b) women reporting about non-ART-related fertility treatments, such as artificial insemination or ovulation induction drugs (5). While the inclusion of this question into this population-based survey provides further information not only the birth outcomes of ART-assisted pregnancies, but it also offers information on the demographic composition of women undergoing treatment and its focus is limited to ART procedures.

Lastly, the 2003 revision to the U.S. Certificate of Live Birth includes a question in the 'risk factors in this pregnancy' section on whether the pregnancy resulted from infertility treatment, and if so whether it was from a) fertility-enhancing drugs, artificial insemination, or intrauterine insemination, or b) assisted reproductive technology (6). Previous validation studies on the 1989 revision to the birth certificate indicated high specificity for maternal co-morbidities and complications of pregnancy, labor, and delivery, but low sensitivity for other conditions (7–9). Further research is needed to ascertain the validity of this new measurement in comparison to other data sources before the full utility of this variable can be determined.

The NSFG is the sole U.S. survey to date that asks women about their (or their partner's) use of the health care system for fertility-related care. In addition to asking about their use of ovulation induction drugs, artificial insemination, and in vitro fertilization procedures, the NSFG inquires about the use of intermediate services such as infertility testing and surgical and/or drug treatment for blocked tubes, endometriosis, or uterine fibroids. In sum, the NSFG provides a wealth of information on this subgroup of women. However, it is often an underutilized resource. As it transitions from a periodic to an annual survey (9), the NSFG will provide public health professionals with a rich data source from which to study the fertility of women of childbearing age.

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Table 1
Fertility-related characteristics ^a of the study population

	%
Medical help received ^b	
Advice	73.7
Infertility testing	58.7
Drugs to improve ovulation	45.7
Surgery to correct blocked tubes	8.4
Artificial insemination	13.1
Surgery or drug treatment for endometriosis	3.8
In-vitro fertilization	2.9
Surgery or drug treatment for uterine fibroids	0.9
Other pelvic surgery	2.8
Other	9.6
Duration of infertility prior to seeking medical help ^c	
< 12 months	31.9
12–23 months	36.6
24–35 months	14.3
>35 months	17.2
Partner who had infertility testing ^d	
Female	26.0
Male	8.4
Both	65.6
Type of artificial insemination ^e	
Husband or partner	87.3
Donor	10.1
Both husband or partner and donor	2.6
Currently pursuing medical help to become pregnant	
Yes	11.8
No	88.2
Infertility services covered by private insurance	
Yes	76.7
No	23.3

^aData are presented as weighted percentages.

^bRespondents could select more than one response.

^cInformation was not available from all respondents.

^dQuestion was applicable to respondents who indicated that they received infertility testing.

^eQuestion was applicable to respondents who indicated that they underwent artificial insemination.