DEPARTMENT OF VETERANS AFFAIRS

Comprehensive Assessment of Fertility Services for Veterans Inside and Outside the Veterans Health Administration

December 2021

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Abbreviations

ART	Assisted Reproductive Technology
CCN	Community Care Network
CPT	Current Procedural Terminology
FSH	Follicle-stimulating Hormone
FY	Fiscal Year
GnRH	Gonadotrophin-releasing Hormone
hCG	Human Chorionic Gonadotropin
IVF	In vitro Fertilization
LH	Luteinizing Hormone
LHRH	Luteinizing Hormone-releasing Hormone
OCC	Office of Community Care
PIT	Performance Integrity Tool
PTSD	Post-traumatic stress disorder
VA	Department of Veterans Affairs
VAMC	VA Medical Center
VHA	Veterans Health Administration
WHMD	Women's Health Medical Director
WH-PCP	Women's Health Primary Care Provider

Introduction

This report is submitted pursuant to the requirements of section 5110 of the Johnny Isakson and David P. Roe, M.D. Veterans Health Care and Benefits Improvement Act of 2020, P.L. 116-315 (2021). More specifically, section 5110 requires the Secretary of Veterans Affairs to conduct a study on the infertility services offerings at the Department of Veterans Affairs (VA). VA's study is to assess the availability of infertility services at VA facilities and through authorized non-VA care (community care) and the demand for such services from eligible individuals. It must also include:

- Identification of potential challenges in accessing infertility services for eligible individuals.
- An analysis of Department resources for the furnishing of infertility services, including analysis of Department workforce and non-Department providers.
- Development of recommendations for the improvement of infertility services under laws administered by the Secretary to improve eligible individuals' access, delivery of services and health outcomes.

Section 5110(d) defines an "eligible individual" to mean a Veteran "who is eligible for and enrolled in the health care system of the Department under section 1705(a) of title 38, United States Code.", The provision of fertility care represents a continuum of services, and VA provides fertility services under two programs that are, to a large degree, inter-connected. More specifically, Veterans who enrolled in VA's health care system receive fertility services, excluding In Vitro Fertilization (IVF), as described in Veterans Health Administration (VHA) Directive 1332, Infertility Evaluation and Treatment, as part of VA's medical benefits package.

Some Veterans qualify for Assisted Reproductive Technology (ART)/IVF services under separate and independent treatment authority. The IVF authority includes, within its scope, the same fertility services available in the medical benefits package because they are necessary clinical precursors to administering ART/IVF services. Thus, VA provides the same general fertility benefits on a continuum of care to both groups and the care is delivered in such a way that the data cannot be disaggregated by program (e.g., enrollees versus those receiving care under VA's independent IVF treatment authority).

This is not problematic because the clinical eligibility criteria for IVF requires a Veteran to have a service-connected disability leading to the inability to procreate without the use of fertility treatment. This means the Veterans would, as a practical matter, be eligible for enrollment in VA's health care system, if not already enrolled or exempt from the enrollment requirement under 38 C.F.R. § 17.37, and thus captured or envisioned by section 5110(d). The key difference is that their lawful spouse is also eligible for the same fertility services described in VHA Directive 1332, along with the addition of IVF, and VA captures their data as well.

We note that until the reporting mandate, VA had not conducted a comprehensive study on the prevalence of infertility diagnoses or needs and preferences among Veterans by sex, nor the VHA or Community Care workforce capacity to address these needs. VA contracted with a VA research entity (hereafter referred to as the study team) to carry out the study, to include data generation, collection and analysis, required for this report.

Background

Infertility prevalence and reproductive assistance needs among Veterans are understudied topics. VA is authorized by its general treatment authority, 38 U.S.C. § 1710, as implemented by 38 C.F.R. § 17.38 (VA's medical benefits package) and VHA Directive 1332, to provide Veterans who are enrolled in VA's health care system with full infertility evaluation and many infertility treatments, excluding IVF pursuant to section 17.38(c)(2). Such care is furnished as clinically warranted, in accordance with generally accepted standards of medical practice, and regardless of the infertility condition's etiology. This treatment authority does not extend to their non-Veteran spouses or partners.

In addition to the fertility benefits available to enrolled Veterans, VA has been authorized since 2016 to use its Medical Service funds to provide ART/IVF to certain eligible Veterans and to their lawful spouses. We underscore this authority does not make IVF benefits available to all Veterans, and it is separate and quite narrowly crafted. Moreover, it is necessarily a couple's benefit. All human reproduction requires the fertilization of a female gamete (egg) by a male gamete (sperm) to create an embryo, with the female also having an intact uterus into which the embryo might implant develop into a fetus and be carried to term. IVF services are used when the fertilization or transfer cannot be accomplished without such assistance. For this reason, the law authorizes VA to provide these services to a cisgender opposite-sex legally married couple or legally married couple with opposite-sex gametes/reproductive organs, provided each has consented to receipt of VA IVF services. VA will then provide the fertility services that are needed by each member of the couple to deliver a complete IVF benefit.

Infertility evaluation and treatment services represent a continuum of care that starts with evaluation and diagnosis and includes various stages of potential treatments. All enrolled Veterans are eligible for evaluation and treatment of infertility; however, only certain Veterans (and their lawful spouses) are eligible for ART/IVF.

Generally, a Veteran who is eligible for ART/IVF starts their infertility evaluation and treatment course using the services available to Veterans under the medical benefits package. If their infertility provider ultimately recommends ART/IVF as the treatment with the best likelihood of success, then they are evaluated for eligibility for ART/IVF under the special IVF treatment authority. For this reason, it is not possible to separate or disaggregate the fertility services provided under VA's general treatment authority for enrollees and those provided under VA's ART/IVF treatment authority for a limited specified Veteran-cohort.

A. General Description of Fertility Services Included in the Medical Benefits Package

VHA provides infertility evaluation, management and treatment services, with the exception of IVF, to Veterans who are enrolled in VA's health care system and hence eligible for VA's Medical Benefits Package. Eligible Veterans include married, partnered and single Veterans, cisgender and transgender Veterans, Veterans in same- and opposite-sex relationships and Veterans with and without a service-connected disability. However, as noted above, no authority exists under VA's general treatment authority to include their non-Veteran spouses or partners.

Examples of infertility services available to all female Veterans include but are not limited to infertility assessments and counseling; laboratory testing; imaging services such as ultrasounds and X-rays; hormonal therapies; surgical correction of infertility; genetic counseling and testing; fertility medications; artificial and intrauterine insemination; and tubal ligation reversal. Examples of infertility services available to all male Veterans include but are not limited to infertility assessments and counseling; laboratory testing; imaging services such as ultrasounds and X-rays; hormonal therapies; surgical correction; genetic counseling and testing; vasectomy reversal; and sperm retrieval techniques (including sperm washing for intrauterine insemination).

The capacity for VHA facilities to provide fertility evaluation and initial treatment, for example with ovulation induction and timed intercourse for females, varies across sites depending on local expertise and infrastructure. Veterans seeking infertility evaluation and treatment may have all of their initial testing and treatment done within VHA, may have all of it done through authorized community providers, or they may have a combination of care with some provided in VHA and the rest delivered through authorized care providers.

B. General Description of VA's ART/IVF Benefit

IVF is a form of ART and a treatment for infertility. IVF is the process of fertilization that involves manually fertilizing an egg with sperm outside of the body and then transferring the fertilized egg or embryo to the uterus. ART/IVF is expressly excluded from the Medical Benefits Package, see 38 C.F.R. § 17.38(c)(2), but, as discussed throughout, IVF is authorized by VA's current appropriations law for a limited cohort of Veterans and their spouses.

In September 2016, Congress passed the Continuing Appropriations and Military Construction, Veterans Affairs and Related Agencies Appropriations Act, 2017 and Zika Response and Preparedness Act, P.L. 114-223 § 260 (2016), which first allowed VHA to provide ART, including IVF to certain eligible Veterans. This law also made the lawful spouses of said Veterans eligible for the IVF health care benefit. For purposes of this law, the term ART is defined to mean the same benefits as those described in the Department of Defense's (DoD) "Policy for Assisted Reproductive Services for the Benefit of Seriously or Severely Ill/Injured (Category II or III) Active-Duty Service Members'' (the Memorandum) that was issued by the Assistant Secretary of Defense for Health Affairs on April 3, 2012, "and the guidance issued to implement such policy,

including any limitations on the amount of such benefits available to such a member." P.L. 114-223 § 260(b)(3) (Emphasis added).

Successor appropriations laws have, without lapse, re-instated this authority for subsequent fiscal years (FY). Currently, VA's IVF program is authorized by section 234 of the Military Construction, Veterans Affairs and Related Agencies Appropriations Act, 2021, (Division J of P.L. 116-260), which authorizes VA to provide ART, including IVF, to service-connected Veterans who have a service-connected condition that results in their inability to procreate without the use of fertility treatment and to their lawful spouses. Because this Act included an advance appropriation for the "Medical Services" account for FY 2022, VA can use funds appropriated in P.L. 116-260 for that account for FY 2022 to make this treatment available through September 30, 2022.

VHA's authority was amended in P.L. 116-260, Div. J, Sec. 234(b)(3) to include two exclusions to the Memorandum. In contrast to DoD's IVF program, the Memorandum's durational limitations for cryopreservation and storage of gametes and embryos no longer apply to VHA. The definition of ART has otherwise remained unchanged for VA benefits.

It is important to note that it is for VHA clinicians to determine if a Veteran qualifies for ART/IVF. To qualify the Veteran must have a diagnosis of infertility, and a service-connected condition, or treatment for a service-connected condition that is causally related to their infertility. That is, the clinicians may diagnose infertility as a clinical consequence of a service-connected disability.

C. Operational Delivery of Fertility Services

The Memorandum describes generally the array of assisted fertility/reproductive services included in the IVF benefit. Aside from IVF itself, 38 C.F.R. § 17.38(c)(2), they are basically the same fertility services available to enrolled Veterans as part of the medical benefits package and described in VHA Directive 1332. This is because fertility care is provided on a continuum and these general fertility services constitute clinical precursors to the delivery of IVF services. For instance, retrieval of sperm or eggs is available under both programs. Thus, subject to capacity, VA can furnish, in-house or through contractual arrangements, the general fertility services described in VHA Directive 1332 to Veterans under both programs but including their provision to the eligible Veteran's lawful spouse if provided as part of the IVF benefit. VHA then refers the couple to the community to receive actual IVF services.

D. Availability of ART/IVF through Community Care

ART/IVF services are subspecialty services that are provided entirely in the community. This is accomplished through contracting mechanisms including the community care networks (CCN) or through single case agreements. Changes in VHA contracts with third party payors for Community Care have the potential to significantly affect these Veterans' and their spouses' access to care. A change in contractor can mean disruptions in care if providers that were considered in-network under one payor become out-of-network under the new payor. A timeline of the changes in contracts with third party payors is below.

ART/IVF services were first delivered through VHA in January 2017, using contracted-for-community providers. ART/IVF costs were covered in contracts entered into with Healthnet for the Midwest and Eastern United States and by TriWest Healthcare Alliance for the Western United states until September 30, 2018. Beginning in October of 2018, contract administration of all VHA IVF Services transitioned to TriWest Healthcare Alliance under the Patient Centered Community Care (PC3) contract. For many Veterans, it took several months to start their treatment with new ART/IVF providers.

Initial authorizations for ART/IVF were issued for 365 days to Veterans and their legal spouses for care in the community. Before enactment of the amendments that eliminated durational limitations on cryopreservation and storage in P.L. 116-260, eligible Veterans and their spouses had to pursue continued services in the community at personal expense once the former durational limitations had been reached. Once these time-limitations were removed, VA found that a barrier to access still resulted but this time from changes in contract administrators, as discussed herein. Since this authority is not permanent and to date, only re-instated in successor appropriations laws, a gap in ART/IVF services could occur were there a lapse in our appropriations authority, assuming this treatment authority continues to be included in those laws or is not made permanent.

The PC3 contract ended March 31, 2021, in all regions of the country except for Alaska and the Pacific Islands. At that time, VHA IVF benefit administration transitioned to the CCN contracts under Optum Serve for the Midwest and Eastern United States and to TriWest HealthCare Alliance for the Western United States (see map on page 37). The PC3 contract officially ended in all regions and no further care can be rendered, except in Alaska and the outer Pacific Island territories. In Alaska and the outer Pacific Island territories PC3 contract extends until March 31, 2022. All regions will administer the VHA IVF benefit under the CCN contract by the appropriate third-party administrators.

Indefinite cryopreservation and storage of gametes and embryos are included in the VHA IVF benefit (up to exhaustion of the IVF benefit by the Veteran), but such services are not covered by the CCN contract. When other payment mechanisms for cryopreservation storage ended in October 2019, a national contract for payment of cryopreservation storage administered by Ghost RX vendor was initiated and continues to be the only approved vehicle to pay for cryopreservation storage.

I. Study

Purpose and Scope of Work for Each Reporting Element and Study Findings

Element One Parts A and B: Availability and Demand for Infertility Services, Respectively

"The availability of infertility services at facilities of the Department and through laws administered by the Secretary for the provision of non-Department care."

The study team assessed the availability of and demand for infertility services by examining the incidence and prevalence of diagnosed male and female infertility among Veterans enrolled in VA's health care system and using VHA health care and services during FY 2018 – 2020 (October 2017–September 2020). Diagnoses were made by VHA providers or identified through Performance Integrity Tool (PIT) community care claims. Data on service use was determined on the cohort of Veterans diagnosed with infertility. Services that were likely related to infertility but were not performed on a Veteran with diagnosed infertility were not examined. Data are presented for VHA-provided services and for community care (from fee-basis care and PIT tables).

1.1. Assessment of the Availability of Infertility Services at Facilities of the Department and Through Laws Administered by the Secretary for the Provision of Non-Department Care and the Demand for Such Services from Eligible Individuals, FY 2018 – 2020.

The study team assessed the availability of and demand for infertility services by examining the incidence and prevalence of diagnosed male and female infertility among Veterans using VHA health care and services obtained by those Veterans during FY 2018 – 2020 (FY 2018 – 2020; October 2017–September 2020). Data on spouses of VHA Veterans were not available. Diagnoses were made by VHA providers or identified through community care claims. Procedures were conducted by VHA providers or by a CCN provider through a VHA referral.

Incidence in this report is defined as the ratio of total new cases in a population divided by the total population. The total population varies based on the table presented, either the entire study period (FY 2018 - 2020) or by individual year. The incidence date was considered the date of the first outpatient medical encounter that included a case-defining diagnosis of infertility. An individual could be counted as an incident case of infertility only once during the study period (FY 2018 - 2020). Incidence rates were calculated as an incident infertility diagnoses per 10,000 person-years (p-years). Prevalence is defined as the proportion of the given population diagnosed with infertility at any point during the study period (FY 2018 - 2020).

A total of 17,216 Veterans receiving VHA care had at least one infertility diagnosis in FY 2018, FY 2019 or FY 2020. During the 3-year surveillance period, 8,766 male Veterans and 8,450 female Veterans received at least one infertility diagnosis. Incident diagnoses of infertility were observed in 7,192 male Veterans and 5,563 female Veterans. A large proportion of Veterans who were diagnosed with infertility received an

infertility-related procedure at the VHA in the year of their incident diagnosis (Males: 74.7, 75.3, 65.0%, FY 2018 – 2020 respectively; Females: 80.9, 80.8, 72.9%,

FY 2018 – 2020 respectively). Due to the Coronavirus Disease 2019 (COVID-19) pandemic, a decrease in utilization and available services was observed in FY 2020, see Table 1.1 below.

Table 1.1. Incident Infertility Rates by Sex and Year*		
	Male Veterans	**Female Veterans**
Total FY 2018, FY 2019 and FY 2020		
Total # Veterans receiving VHA outpatient care	6,664,784	594,322
Incident infertility cases diagnosed	7,192	5,563
Incidence per 10,000 person-years	10.8	93.6
Prevalent infertility cases diagnosed	8,766	8,450
Prevalence per 10,000 person-years	13.2	142.2
FY 2018		
Total # Veterans receiving VHA outpatient care	5,567,586	411,023
Incident infertility cases diagnosed	2,463	1,959
Incidence per 10,000 person-years	4.4	47.7
% of Incident Cases with an Infertility-Related Procedure in same FY*	74.7%	80.9%
FY 2019		
Total # Veterans receiving VHA outpatient care	5,613,688	423,131
Incident infertility cases diagnosed	2,575	1,965
Incidence per 10,000 person-years	4.6	46.4
% of Incident Cases with an Infertility-Related Procedure in same FY*	75.3%	80.8%
FY 2020		
Total # Veterans receiving VHA outpatient care	5,449,471	393,946
Incident infertility cases diagnosed	2,154	1,639
Incidence per 10,000 person-years	4.0	41.6
% of Incident Cases with an Infertility-Related Procedure in same FY*	65.0%	72.9%
**Note: Includes female Veterans ages 18–49 and male Veterans 18–89. See Appendix D for infertility-related procedures examined. No data on spouses were available.*		

1.2. Availability of Infertility Services at VHA Facilities and the Demand for Such Services from Eligible Male Veterans Diagnosed with Infertility, FY 2018 – 2020.

The study team examined demographic and clinical characteristics of male Veterans with a prevalent or incident diagnosis. Tables 1.2.1 and 1.2.2 below indicate the

International Classification of Diseases (ICD)-10 diagnosis codes used to identify infertility in VHA electronic medical records and the number of diagnoses by type, respectively.

The study team also present medications and procedures related to an infertility diagnosis, as documented in VHA electronic medical records.

Table 1.2.1. Diagnosis Codes Used to Identify Cases of Male Infertility in Electronic Health Records and Overall Number of VHA Diagnoses in FY 2018 – FY 2020

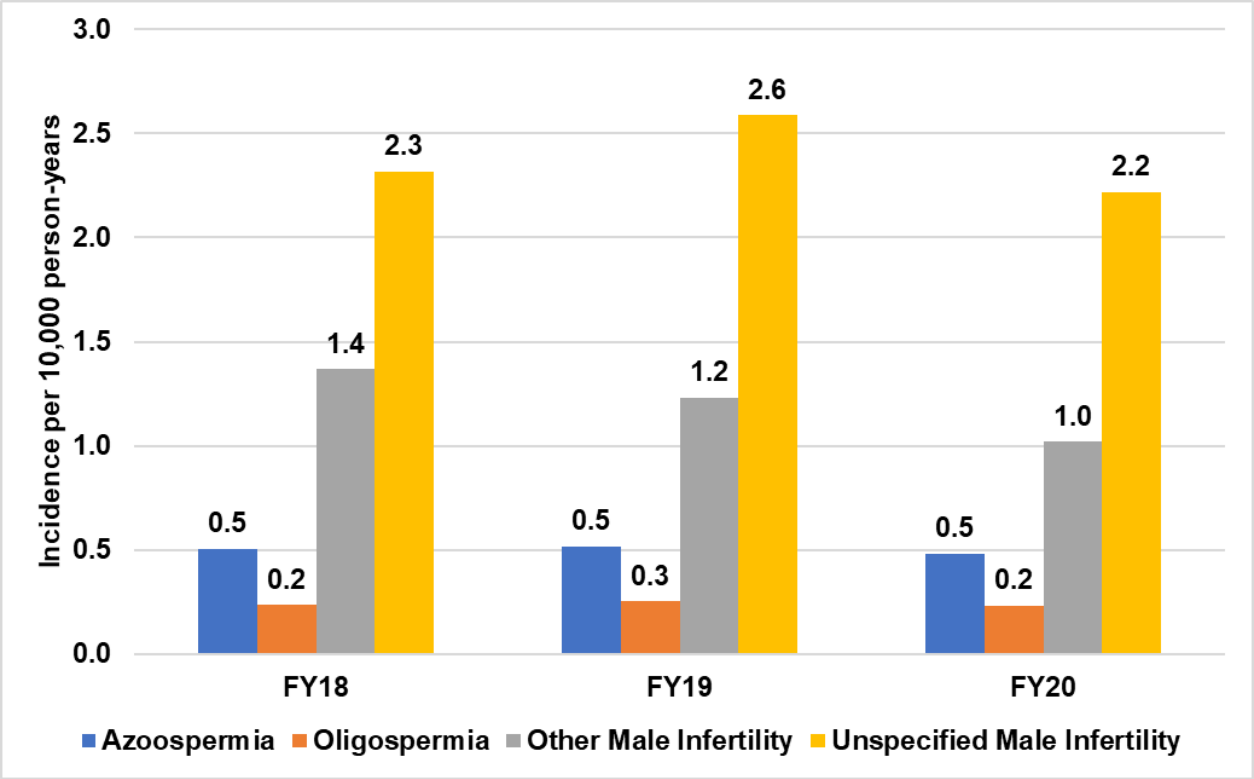
ICD-10 Diagnosis Codes	Description	Overall Diagnoses	
		N	%
N46	Male infertility	2	0.0%
N46.0	Azoospermia	2	0.0%
N46.01	Organic azoospermia	639	7.3%
N46.02	Azoospermia due to extratesticular causes	0	0.0%
N46.021	Azoospermia due to drug therapy	34	0.4%
N46.022	Azoospermia due to infection	5	0.1%
N46.023	Azoospermia due to obstruction of efferent ducts	523	6.0%
N46.024	Azoospermia due to radiation	3	0.0%
N46.025	Azoospermia due to systemic disease	10	0.1%
N46.029	Azoospermia due to other extratesticular causes	150	1.7%
N46.1	Oligospermia	5	0.1%
N46.11	Organic oligospermia	556	6.3%
N46.12	Oligospermia due to extratesticular causes	13	0.2%
N46.121	Oligospermia due to drug therapy	3	0.0%
N46.122	Oligospermia due to infection	21	0.2%
N46.123	Oligospermia due to obstruction of efferent ducts	1	0.0%
N46.124	Oligospermia due to radiation	6	0.1%
N46.125	Oligospermia due to systemic disease	41	0.5%
N46.129	Oligospermia due to other extratesticular causes	2,433	27.7%
N46.8	Other male infertility	6,137	70.0%
N46.9	Male infertility, unspecified	2	0.0%
	Total Number of Infertility Diagnoses	*10,584*	

Note: This table depicts the number of infertility diagnoses, not the number of Veterans diagnosed. Diagnoses are not mutually exclusive (i.e., Veterans may receive more than one diagnosis). No data on spouses were available.

Table 1.2.2. Number of Male Infertility Diagnoses by Type, FY 2018 – FY 2020						
	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
Azoospermia (ICD-10: N46.0x)	521	11.5%	554	11.1%	541	11.7%
Oligospermia (ICD-10: N46.1x)	274	6.1%	295	5.9%	289	6.2%
Other male infertility (ICD-10: N46.8)	1089	24.1%	1113	22.3%	1011	21.8%
Male infertility, unspecified (ICD-10: N46.9)	2635	58.3%	3019	60.6%	2794	60.3%
Total Number of Infertility Diagnoses	*4519*	*100%*	*4981*	*100%*	*4635*	*100%*
Note: This table depicts the number of infertility diagnoses, not the number of Veterans diagnosed. Diagnoses are not mutually exclusive (i.e., Veterans may receive more than one diagnosis). These data reflect only VHA patients.						

A total of 7,192 male Veterans received incident diagnoses of male infertility for a crude overall incidence rate of 10.8 cases per 10,000 p-years. This represents 0.1% of male Veteran users of VHA. The majority of incident male infertility cases were unspecified male infertility (2.4 per 10,000 p-years), followed by other male infertility (1.2 per 10,000 p-years), azoospermia with or without other/unspecified (0.5 per 10,000 p-years) and oligospermia with or without other/unspecified (0.2 per 10,000 p-years; see Figure 1.2.1 below).

Figure 1.2.1: Annual Incidence Rates of Male Veteran Infertility Diagnoses by Type of Infertility, FY 2018 – FY 2020



Veteran characteristics. Table 1.2.3 below shows that the majority of male Veterans with at least one infertility diagnosis between FY 2018 – FY 2020 were between the ages of 30–39 (54.8%), white (69.9%), non-Hispanic (83.4%), married (53.1%) and lived in an urban area (71.6%). Seventy-two percent of these Veterans were in VHA Priority Group 1, indicating that they had a 50–100% service-connected disability rating.

Table 1.2.3. Demographic Characteristics of Male Veterans with an Infertility Diagnosis, FY 2018 – FY 2020 (N=8,766)		
	N	**%**
Age group (years)		
19–24	97	1.1%
25–29	1,046	11.9%
30–34	2,467	28.1%
35–39	2,344	26.7%
40–44	1,188	13.6%
45+	1,624	18.5%
Race		
White	6,124	69.9%
Black or African American	1,711	19.5%
Asian	236	2.7%
Native Hawaiian or Other Pacific Islander	133	1.5%
American Indian or Alaska Native	114	1.3%
Unknown	557	6.4%
Ethnicity		
Hispanic	1,132	12.9%
Non-Hispanic	7,310	83.4%
Unknown	255	2.9%
Marital Status		
Married	4,659	53.1%
Divorced	1,995	22.8%
Never Married	1,979	22.6%
Widowed	22	0.3%
Urban/Rural Status		
Urban	6,275	71.6%
Rural	2,363	27.0%
VHA Priority Group		
1: 50-100% Service-Connected	6,305	71.9%
2: 30-40% Service-Connected	30	0.3%
3: 10-20% Service-Connected or special grouping	1,350	15.4%
4: Catastrophically disabled	17	0.2%
5: Low income	1,027	11.7%
6: 0% Service-Connected or Post-9/11 or special group	9	0.1%
7: Agreed to copay, means-tested	29	0.3%
Missing	4	0.0%
Note: Age is calculated as of date of first infertility diagnosis in FY 2018 – FY 2020, with a minimum date of 10/1/2017. Race is not mutually exclusive. Percentages may not total to 100% due to missing data.		

Table 1.2.4, located in Appendix A, shows the proportion of male Veterans who received a specific type of infertility procedure at the VHA. Table 1.2.5, located in Appendix A, shows this care by CCN providers. Procedures in these tables are sorted by FY 2018 prevalence. Procedures shown for FY 2018 include Veterans diagnosed in FY 2018; procedures for FY 2019 include Veterans diagnosed in FY 2018 or FY 2019; procedures for FY 2020 include Veterans diagnosed in FY 2018, FY 2019 or FY 2020. The most common procedures (following thyroid assays, which are standard tests for infertility but not unique to infertility care) included assays of gonadotropins, semen analysis and scrotal ultrasound exams.

The most commonly prescribed fertility related medications are shown in Tables 1.2.6 and 1.2.7 below and included clomiphene citrate and chorionic gonadotropin.

Table. 1.2.6. Infertility Medications Prescribed to Male Veterans Diagnosed with Incident Infertility and Filled in VHA Facilities by Year of Incident Infertility Diagnosis, FY 2018 – FY 2020 (N=7,192)

Drug (generic name)	Drug Class	FY 2018 (N=2,463)		FY 2019 (N=2,575)		FY 2020 (N=2,154)	
		N	%	N	%	N	%
Clomiphene Citrate	Fertility Enhancer - Ovulation Stimulant - Synthetic (Non-FSH)	100	4.1%	134	5.2%	115	5.3%
Chorionic gonadotropin	Human Chorionic Gonadotropin (hCG)	23	0.9%	16	0.6%	24	1.1%

Table 1.2.7. Infertility Medications Prescribed to Male Veterans with Prevalent Infertility and Filled in VHA Facilities by Year of Infertility Diagnosis, FY 2018 – FY 2020 (N=8,766)

Drug (generic name)	Drug Class	FY 2018 (N=3,511)		FY 2019 (N=3,789)		FY 2020 (N=3,452)	
		N	%	N	%	N	%
Clomiphene Citrate	Fertility Enhancer - Ovulation Stimulant - Synthetic (Non-FSH)	226	6.4%	269	7.1%	302	8.7%
Chorionic gonadotropin	Human Chorionic Gonadotropin (hCG)	65	1.9%	59	1.6%	68	2.0%

Note: Medications with cell sizes <10 across all three FY were censored in this table. A complete list of medications examined is located in Appendix F. No data on spouses were available.

1.3. Availability of Infertility Services at VHA Facilities and the Demand for Such Services from Eligible Female Veterans, FY 2018 – 2020

The study team examined demographic and clinical characteristics of female Veterans with a prevalent or incident diagnosis. Tables 1.3.1 and 1.3.2 below indicate the ICD-10 diagnosis codes used to identify infertility in VHA electronic medical records and the number of diagnoses by type, respectively. The study team also present medications and procedures related to an infertility diagnosis, as documented in VHA electronic medical records.

Table 1.3.1. Diagnosis Codes Used to Identify Cases of Female Infertility in Electronic Health Records and Overall Number of VHA Diagnoses in FY 2018 – FY 2020

ICD-10 Diagnosis Codes	Description	Overall Diagnoses	
		N	%
N97	Female Infertility	1	0.0%
N97.0	Infertility associated with anovulation	1,387	16.3%
N97.1	Infertility of tubal origin (block, occlusion, stenosis of fallopian tubes)	1,408	16.5%
N97.2	Infertility of uterine origin (congenital anomaly of uterus, nonimplantation)	194	2.3%
N97.8	Infertility of other specified origin (pituitary-hypothalamic, cervical or vaginal, age-related, etc.)	1,795	21.1%
N97.9	Infertility of unspecified origin	6,534	76.7%
	Total Number of Infertility Diagnoses	*11,319*	

Note: This table depicts the number of infertility diagnoses, not the number of Veterans diagnosed. Diagnoses are not mutually exclusive (i.e., Veterans may receive more than one diagnosis). These data reflect only VHA patients.

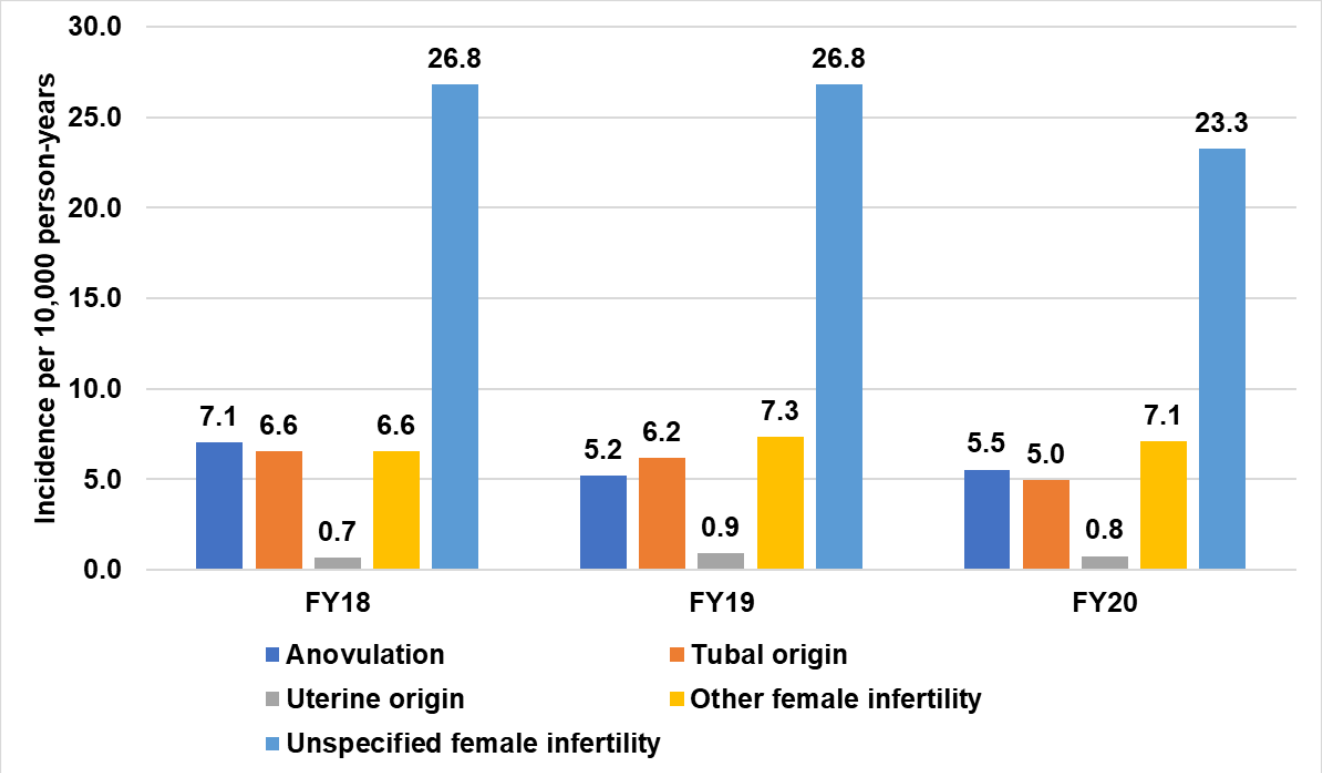
Table 1.3.2. Number of Female Infertility Diagnoses by Type, FY 2018 – FY 2020

	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
Anovulation (ICD-10: N97.0)	724	13.2%	656	10.7%	642	11.2%
Tubal origin (ICD-10: N97.1)	659	12.0%	757	12.3%	631	11.0%
Uterine origin (ICD-10: N97.2)	93	1.7%	112	1.8%	103	1.8%
Other female infertility (ICD-10: N97.8)	747	13.6%	941	15.3%	937	16.3%
Female infertility, unspecified (ICD-10: N97.9)	3,260	59.5%	3,690	59.9%	3,436	59.8%
Total Number of Infertility Diagnoses	*5,483*	*100%*	*6,156*	*100%*	*5,749*	*100%*

Table 1.3.2. Number of Female Infertility Diagnoses by Type, FY 2018 – FY 2020						
	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
Note: This table depicts the number of infertility diagnoses, not the number of Veterans diagnosed. Diagnoses are not mutually exclusive (i.e., Veterans may receive more than one diagnosis). These data reflect only VHA patients.						

A total of 5,563 female Veterans of childbearing age (20–49 years) using VHA were diagnosed with infertility for the first time, resulting in an overall incidence of 93.6 cases per 10,000 p-years. This represents 0.9% of female Veteran users of VHA. Infertility due to unspecified origin was the most frequently diagnosed type (25.7 per 10,000 p-years), followed by other female infertility (7.0 per 10,000 p-years), anovulation and infertility of tubal origin (both 5.9 per 10,000 p-years) and infertility of uterine origin (0.8 per 10,000 p-years; see Figure 1.3.1 below).

Figure 1.3.1. Annual Incidence Rates of Female Veteran Infertility Diagnoses by Infertility Type, FY 2018–FY 2020



Veteran characteristics. Table 1.3.3 below shows that most female Veterans with at least one infertility diagnosis between FY 2018 – FY 2020 were between the ages of 30–39 (61.3%), white (47.3%), non-Hispanic (79.5%), married (47.5%) and lived in an

urban area (76.4%). Sixty-eight percent of these Veterans were in VHA Priority Group 1, indicating that they had a 50–100% service-connected disability rating.

Table 1.3.3. Demographic Characteristics of Female Veterans with an Infertility Diagnosis, FY 2018–FY 2020 (N=8,450)		
	N	**%**
Age group (years)		
19–24	280	3.3%
25–29	1,494	17.7%
30–34	2,637	31.2%
35–39	2,545	30.1%
40–44	1,152	13.6%
45–49	342	4.0%
Race		
White	3,996	47.3%
Black or African American	3,088	36.5%
Asian	294	3.5%
Native Hawaiian or Other Pacific Islander	179	2.1%
American Indian or Alaska Native	162	1.9%
Unknown	648	7.7%
Ethnicity		
Hispanic	1,032	12.2%
Non-Hispanic	6,720	79.5%
Unknown	350	4.1%
Marital Status		
Married	4,016	47.5%
Divorced	2,074	24.5%
Never Married	2,084	24.7%
Widowed	21	0.2%
Urban/Rural Status		
Urban	6,458	76.4%
Rural	1,886	22.3%
VHA Priority Group		
1: 50-–100% Service-Connected	5,721	67.7%
2: 30–40% Service-Connected	322	3.8%
3: 10–20% Service-Connected or special grouping	1,423	16.8%
4: Catastrophically disabled	32	0.4%
5: Low income	796	9.4%
6: 0% Service-Connected or Post-9/11 or special group	47	0.6%
7: Agreed to copay, means-tested	123	1.5%
Missing	9	0.1%
Note: Age is calculated as of date of first infertility diagnosis in FY 2018–FY 2020, with a minimum date of 10/1/2017. Race is not mutually exclusive. Percentages may not total to 100% due to missing data.		

Table 1.3.4, located in Appendix A, shows the proportion of female Veterans who received a specific type of infertility procedure at the VHA. Table 1.3.5, located in Appendix A, shows these procedures by CCN providers. Procedures in these tables are sorted by FY 2018 prevalence. Procedures shown for FY18 include Veterans diagnosed in FY 2018; procedures for FY 2019 include Veterans diagnosed in FY 2018 or FY 2019; procedures for FY 2020 include Veterans diagnosed in FY 2018, FY 2019 or FY 2020. The most common procedures (following thyroid assays, which are standard tests for infertility but not unique to infertility care) included assays of gonadotropin and prolactin and transvaginal and pelvic ultrasound exams.

The most commonly prescribed fertility related medications are shown in Tables 1.3.6 and 1.3.7 below and included clomiphene citrate and progesterone.

Table 1.3.6. Infertility Medications Prescribed to Female Veterans Diagnosed with Incident Infertility and Filled in VHA Facilities by Year of Diagnosis, FY 2018 – FY 2020 (N=5,563)

Drug (generic name)	Drug Class	FY 2018 (N=1,959)		FY 2019 (N=1,965)		FY 2020 (N=1,639)	
		N	%	N	%	N	%
Cabergoline	Prolactin Inhibitor - Ergot Derivative Dopamine Receptor Agonists	<10		14	0.7%	<10	
Cetrorelix	LHRH (GnRH) Antagonists	27	1.4%	41	2.1%	32	2.0%
Chorionic gonadotropin	Human Chorionic Gonadotropin (hCG)	81	4.1%	86	4.4%	65	4.0%
Clomiphene Citrate	Fertility Enhancer - Ovulation Stimulant - Synthetic (Non-FSH)	156	8.0%	132	6.7%	106	6.5%
Follitropin alfa	Follicle-Stimulating Hormone (FSH)	62	3.2%	70	3.6%	66	4.0%
Follitropin beta	Follicle-Stimulating Hormone (FSH)	39	2.0%	42	2.1%	23	1.4%
Ganirelix	LHRH (GnRH) Antagonists	34	1.7%	27	1.4%	36	2.2%
Letrozole	Antineoplastic - Aromatase Inhibitors – Antiestrogen	66	3.4%	97	4.9%	56	3.4%
Leuprolide	Antineoplastic - LHRH (GnRH) Agonist Analog Pituitary Suppressants · LHRH (GnRH) - Central Precocious Puberty ·	48	2.5%	72	3.7%	54	3.3%

Table 1.3.6. Infertility Medications Prescribed to Female Veterans Diagnosed with Incident Infertility and Filled in VHA Facilities by Year of Diagnosis, FY 2018 – FY 2020 (N=5,563)							
Drug (generic name)	**Drug Class**	**FY 2018 (N=1,959)**		**FY 2019 (N=1,965)**		**FY 2020 (N=1,639)**	
		N	**%**	**N**	**%**	**N**	**%**
	LHRH (GnRH) Agonist Analog Pituitary Suppressants						
Metformin	Insulin Response Enhancers – Biguanides	152	7.8%	121	6.2%	109	6.7%
Progesterone	Fertility Enhancer - Luteal Phase Supporting, Progesterone-type Progestins Vaginal Progestins	110	5.6%	131	6.7%	108	6.6%
Note: Medications with cell sizes <10 across all three FY were censored in this table. A complete list of medications examined is located in Appendix F.							

Table 1.3.7. Infertility Medications Prescribed to Female Veterans Diagnosed with Prevalent Infertility and Filled in VHA Facilities by Year of Diagnosis, FY 2018 – FY 2020 (N=8,450)							
Drug (generic name)	**Drug Class**	**FY 2018 (N=3,789)**		**FY 2019 (N=4,194)**		**FY 2020 (N=3,850)**	
		N	**%**	**N**	**%**	**N**	**%**
Cabergoline	Prolactin Inhibitor - Ergot Derivative Dopamine Receptor Agonists	24	0.6%	41	1.0%	40	1.0%
Cetrorelix	LHRH (GnRH) Antagonists	71	1.9%	102	2.4%	121	3.1%
Chorionic gonadotropin	Human Chorionic Gonadotropin (hCG)	194	5.1%	233	5.6%	249	6.5%
Clomiphene Citrate	Fertility Enhancer - Ovulation Stimulant - Synthetic (Non-FSH)	370	9.8%	358	8.5%	289	7.5%
Follitropin alfa	Follicle-Stimulating Hormone (FSH)	182	4.8%	218	5.2%	258	6.7%
Follitropin beta	Follicle-Stimulating Hormone (FSH)	108	2.9%	104	2.5%	108	2.8%
Ganirelix	LHRH (GnRH) Antagonists	81	2.1%	90	2.1%	116	3.0%
Letrozole	Antineoplastic - Aromatase Inhibitors – Antiestrogen	178	4.7%	251	6.0%	236	6.1%
Leuprolide	Antineoplastic - LHRH (GnRH) Agonist Analog Pituitary Suppressants LHRH (GnRH) - Central Precocious Puberty · LHRH (GnRH) Agonist Analog Pituitary Suppressants	118	3.1%	172	4.1%	187	4.9%
Metformin	Insulin Response Enhancers – Biguanides	326	8.6%	338	8.1%	295	7.7%

Progesterone	Fertility Enhancer - Luteal Phase Supporting, Progesterone-type Progestins Vaginal Progestins	304	8.0%	377	9.0%	434	11.3%
Note: Medications with cell sizes <10 across all three FY were censored in this table. A complete list of medications examined is located in Appendix F.							

Element Two: Identification of Potential Challenges in Accessing Infertility Services for Eligible Individuals

"Identification of potential challenges in accessing infertility services for eligible individuals."

The study team identified and interviewed Veterans about their experiences with VA infertility services. The team also interviewed Veterans who had been approved for ART services, including IVF, and their spouses. During the interviews, they asked Veterans to discuss why they had sought ART from VHA and to describe their experiences with these services. The study team asked Veterans to describe strengths and limitations of the program. In addition, the study team conducted a survey of Women's Health Medical Directors (WHMD), Women's Health Primary Care Providers (WH-PCP) and Urologists of the Department of Veteran's Affairs to determine their knowledge of onsite capacity to identify and treat female and male fertility issues.

2.1. ART Interviews

Purpose: To understand Veterans' use of ART, including IVF, the study team interviewed Veterans and their spouses who had been approved for ART services. During the interviews, they asked respondents to discuss why they had sought ART from VHA and to share their experiences with these services. They asked Veterans and their spouses to describe strengths and limitations of the program and to offer recommendations for how the VHA might improve these services. The initial aim was to conduct 100 interviews with Veterans and their spouses who had experienced IVF; they were able to complete 101 interviews.

Methods: The study team received a list of 762 Veterans from the Office of Community Care (OCC)/Office of Women's Health who had been approved for ART since October 2018. After removing duplicates, 726 Veterans, including 324 male (44%) and 402 (56%) female Veterans, remained on the list. If an email address was available (n=193), they utilized that email to invite Veterans or spouses to participate in an interview. For Veterans and spouses without available email addresses (n=544) they sent invitations to participate by mailed letter. Overall, 161 Veterans or spouses of Veterans responded to our study invitation request (21% response rate) and to date, they have interviewed 110 of those Veterans and/or their spouses. Of the 110 interview participants, 78 were Veterans, 19 were spouses (all women) and 13 were both Veteran and spouse interviewing together. Fifty-seven (52%) of the Veterans interviewed were female. The remaining 53 interviews focused on a male Veteran. The Veterans included in these interviews represented 62 VA medical centers (VAMC) across 18 Veterans Service Integrated Networks (VISN). Descriptive characteristics of the interview participants are shown in Tables 2.1.1 and 2.1.2 below.

Table 2.1.1. Characteristics of Veteran Interview Participants (N=91)		
	Mean +/- SD (Range)	
Age at time of interview, years	39.2 +/- 6.1 (27-63)	
Length of Service, years	9.0 +/- 5.1 (2-28)	
	N	**%**
Gender		
Male	34	37.4%
Female	57	62.6%
Race		
White	53	58.2%
Black/African American	25	27.5%
Asian	2	2.2%
Native Hawaiian/Other Pacific Islander	1	1.1%
Other	4	4.4%
No Response	6	6.6%
Ethnicity		
Hispanic	13	14.3%
Non-Hispanic	78	85.7%
Military Branch		
Army	31	34.1%
Navy	13	14.3%
Air Force	10	11.0%
Marines	5	5.5%
Coast Guard	2	2.2%
Missing	30	33.0%
Discharge Year		
1996-2000	5	5.5%
2001-2005	7	7.7%
2006-2010	18	19.8%
2011-2015	30	33.0%
2016-2020	23	25.3%
Currently Active	2	2.2%
Missing	6	6.6%
Note: SD=standard deviation.		

Table 2.1.2. Characteristics of Spouse Interview Participants (N=19)		
	Mean +/- SD (Range)	
Age at time of interview, years	38.8 +/- 6.4 (30-52)	
	N	**%**
Gender		
Female	19	100.0%
Race		
White	13	68.4%
Black/African American	1	5.3%
Asian	1	5.3%
Native Hawaiian/Other Pacific Islander	0	0.0%
Other	1	5.3%
No Response	3	15.8%
Ethnicity		
Hispanic	2	10.5%
Non-Hispanic	17	89.5%
Note: SD=standard deviation.		

Each interview was conducted using Microsoft Teams and Veterans were welcome to join by phone or video link. Veterans and spouses were given a description of this study and told the interviews would take approximately 30 minutes. Veterans were told the interviews would be digitally recorded so that interviewers may later go back and capture quotes from the interview. Veterans could opt out of the digital recordings if they wished.

During the interview, Veterans were asked to describe why they had sought infertility care from the VHA and to describe their overall experiences navigating the IVF process. Veterans were asked to describe any barriers they faced in receiving IVF and to provide recommendations for how care might be improved.

At the conclusion of each interview, the interviewer wrote a summary report of the interview which described each Veterans' service-connected fertility condition and their IVF experiences. A summary of the service-connected conditions for male Veterans is shown in Table 2.1.3 below and service-connected conditions for female Veterans is shown in Table 2.1.4 below. Each summary report contained the IVF outcome (e.g., pregnancy, embryo transfer in process, discontinued IVF program) as well as Veteran recommendations for improved care. When all interviews had been completed, content analysis from the cumulative summary reports from each Veteran and spouse interview were used to prepare a report that incorporated the major themes that arose from the interviews.

Table 2.1.3. Primary Service-Connected Conditions Related to Infertility, Male Veterans (N=53)		
	N	%
Deformity of the penis	6	11.3%
Testicular atrophy	4	7.5%
Low sperm count and/or mobility	4	7.5%
Spinal cord injury	4	7.5%
Removal of the testes due to disease or injury	4	7.5%
Post-traumatic Stress Disorder	2	3.8%
Varicocele	2	3.8%
Unspecified male infertility	2	3.8%
Infertility due to cancer	2	3.8%
Erectile dysfunction	1	1.9%
Bladder, disease or injury	1	1.9%
Testicular tuberculosis	1	1.9%
Testicular cancer	1	1.9%
Traumatic brain injury	1	1.9%
Neoplasm, benign, genitourinary	1	1.9%
Prostate gland condition	1	1.9%
Unknown/Missing	16	30.2%

Table 2.1.4. Primary Service-Connected Conditions Related to Infertility, Female Veterans (N=57)		
	N	%
Endometriosis	16	28.1%
Fallopian tube, disease or injury	11	19.3%
Ovary, disease or injury (not including polycystic ovary syndrome)	8	14.0%
Polycystic ovary syndrome	6	10.5%
Uterine fibroids	5	8.8%
Cervix, disease or injury	2	3.5%
Post-traumatic stress disorder	2	3.5%
Unspecified female infertility	2	3.5%
Ankylosing Spondylitis	1	1.8%
Crohn’s Disease	1	1.8%
Traumatic brain injury	1	1.8%
Uterus, disease or injury	1	1.8%
Unknown/Missing	1	1.8%

A. The Study Team's Interview Findings

Veteran Feedback

1. **Veterans deeply appreciative of service-connected infertility benefit**. Across the 100+ interviews with Veterans and spouses, nearly every participant indicated how deeply grateful they were for VHA service-connected infertility benefits. Veterans and spouses had tried to conceive naturally without success, and many had turned to the private sector for IVF, and some had incurred tens of thousands of dollars of debt before turning to VHA IVF benefits.

2. **Veterans need improved communication and transparency regarding IVF benefits.** A majority of Veterans interviewed noted poor communication of IVF benefits and information. Most Veterans noted they didn't have a number to call when they had questions about the IVF program and when they did call the local OCC to get information about benefits or the status of an unpaid bill, their calls went unanswered, and their messages were not returned. Problems with communication of benefits focused on *four* major areas: cryopreservation and storage, pharmacy medications, genetic testing and treatment for mental health conditions associated with IVF treatment.
    a. **Cryopreservation and Storage.** More than 40% of Veterans interviewed mentioned problems related to receiving accurate information regarding VHA cryopreservation and storage benefits. Some Veterans were told that they would only receive one year of cryopreservation for their embryos, while other Veterans weren't told that cryopreservation was a covered VHA benefit at all. In contrast, a small number of Veterans were aware that VHA would cover cryopreservation indefinitely, with certain restrictions. Most Veterans had received cryopreservation storage bills in the mail and many Veterans were sent to collections.
        i. **Example #1:** C5-C7 quadriplegic Veteran and spouse paid for embryo storage out of pocket because they were unaware that VHA covers these costs. Veteran receives care at Spinal Cord Injury (SCI) Center and nobody there is aware of cryopreservation benefits through IVF program.
        ii. **Example #2:** Veteran and husband have paid $2,400 out of pocket since 2018 because they have not been reimbursed for cryopreservation.
        iii. **Example #3:** Veteran received a bill for $1,000 for cryopreservation and called VHA to get them to pay the bill and VHA said, "send us the bill and we'll pay it", but they never did. Veteran now receives calls from creditors threatening that they will be sent to collections.

b. **Pharmacy prescriptions.** More than 50% of Veterans interviewed mentioned they had experienced problems receiving infertility prescriptions in a timely manner. A substantial majority of Veterans and spouses interviewed indicated that the VHA pharmacy was not able to get fertility medications in a timely manner and therefore Veterans had to get their medications from community pharmacies and pay out of pocket. Veterans and spouses undergoing IVF must follow a time-sensitive regimen of injectable medication to stimulate ovaries and produce eggs, followed by a trigger shot and egg retrieval. A majority of Veterans and spouses interviewed indicated that the VHA pharmacy was not able to get the prescriptions in time and therefore they had to pay out of pocket for the medications and were not reimbursed by VHA.
    i. **Example #1:** Veteran receiving care from their local VAMC had to pay out of pocket for trigger shots because the VHA pharmacy couldn't get them in time. Veterans and spouse paid more than $1,000 out of pocket and VHA would not reimburse because it wasn't considered an emergency medication.
    ii. **Example #2:** Veteran and wife were unable to get trigger medications in time from the VHA pharmacy. Called Community Care and they were told to pay for medication from community pharmacy and wait for reimbursement. However, when they submitted for reimbursement they were denied twice and told the medication was not "an emergency".
c. **Genetic Testing.** Thirteen percent of Veterans mentioned problems regarding payment for genetic testing. VHA Directive 1334, In Vitro Fertilization Counseling and Services Available to Certain Eligible Veterans and Their Spouses, states that "genetic counseling and testing" is covered, but the study team found that some Veterans used IVF clinics who worked with genetic counseling companies that weren't covered by VHA contract. In several instances, Veterans had to pay out of pocket for genetic testing because they were told that it wasn't covered by the laboratory used by the IVF provider. In some cases, these genetic tests were $1,000 or more and these costs were borne by the Veteran.
    i. **Example #1:** Several Veterans were told that genetic testing was not covered by the company used by their IVF clinic. These Veterans paid out of pocket for testing because they weren't going to change IVF clinics at that stage of the process.

d. **Treatment for mental health problems associated with IVF, especially for Veteran spouses.** Approximately 26% of Veterans and spouse noted problems related to access to mental health services for infertility-related problems. Many Veterans and spouses noted the substantial mental health toll taken during the process of IVF treatment. One Veteran spoke of the severe depression his wife was experiencing during unsuccessful IVF cycles. However, Veterans and spouses noted they were unaware that spouses were eligible for mental health treatment during the IVF process, and they wouldn't know who to ask in VHA for a referral for their spouse. Veterans also noted that they weren't sure that VHA had any mental health clinicians that were familiar with IVF and could understand the challenges of IVF.
    i. **Example #1:** Service-connected Veteran with post-traumatic stress disorder (PTSD) and spouse unable to get pregnant after three IVF attempts. Veteran and spouse now trying to acquire a credit card to continue to try IVF on their own. Veteran expressed severe distress.
    ii. **Example #2:** Veteran had radical vasectomy for prostate cancer and went through three unsuccessful IVF attempts. Veteran note on his spouse: "My wife is getting very depressed and having mental health problems arising from this process but there is no mental health support in place for her going through the process, even though the Directive that states 'all supportive care should be provided.'"

3. **Existing IVF benefit limitations leave some Veterans unable to conceive.**
    a. **Too few embryo transfer cycles mandated by current law.** Approximately 5% of Veterans had gone through three embryo transfer cycles and were no longer eligible for the IVF benefit. Currently, Veterans are allowed six egg retrievals and three embryo transfers. A number of Veterans had used all three embryo transfer cycles and were thus no longer eligible for the IVF program. These Veterans noted the disparity between the number of egg retrieval cycles and embryo transfer cycles and asked that VHA consider an equal number of embryo transfer cycles. One Veteran noted that VHA should consider the level of physical disability and age when making decisions regarding the number of embryo transfers, as some Veterans might need more time to have a successful transfer. mandate to comport with the DoD Memorandum.
        i. **Example #1:** Female Operation Iraqi Freedom (OIF)/Operation Enduring Freedom (OEF) Veteran with burn pit exposures unable to get pregnant after three VHA IVF attempts. Wanted to keep trying but VHA advised her that her benefits had ended.
        ii. **Example #2:** Veteran and wife experienced substantial administrative problems when going through IVF process because

several IVF clinics in the Tampa area stopped seeing Veterans due to lack of payment from VHA. This led to years of delays in starting IVF process and eventually after three embryo transfer cycles they weren't allowed to use IVF benefit anymore. Veteran believes the years of administrative delays from VHA, along with the increasing age of his wife, led to unsuccessful embryo transfer cycles.

iii. **Example #3:** Male Veteran service-connected for high blood pressure and PTSD did four egg retrievals and three embryo transfers and all transfers failed. Veteran and spouse wanted to continue trying but VHA notified them that their IVF benefits ended.

b. **Existing IVF benefit does not allow for the use of donated egg and sperm for otherwise eligible Veterans unable to use their own.** A number of Veterans were ineligible for the program because their eggs or sperm were not viable. In some instances, male Veterans who had testicular cancer went through chemotherapy and radiation and did not bank sperm before and therefore had no viable sperm for IVF. In other cases, female Veterans who had experienced fibroids or endometriosis went through several IVF cycles only to be told that they would only be successful if they could use donated eggs. Some female Veterans noted that they were unable to use their own eggs, but their sister or friend was willing to donate an egg or in some cases, serve as a surrogate.

i. **Example #1:** Female Veteran in Philadelphia had history of fibroids and eggs were found to be unusable for IVF. Veteran took out loan for $20,000 and put her car up as collateral in order to use donor eggs to get pregnant. Because she could not use her own eggs, she was ineligible for VHA IVF program.

ii. **Example #2:** Female Gulf War Veteran has had two unsuccessful IVF attempts and her IVF providers have told her that her "eggs are too old" for her to be successful and the only way she is going to get pregnant is to use donor eggs.

iii. **Example #3:** Male Veteran with history of hemospermia did not qualify for the IVF program because it was determined his sperm would not be able to fertilize an egg. IVF clinic advised him that the only way he and his spouse could get pregnant was by using donor sperm.

4. **VHA lacks a comprehensive IVF care coordination program**. More than 70% of Veterans noted substantial problems related to care coordination. Veterans and spouses noted that they had no contact information for anybody who knew about IVF if they had questions and they didn't know who to call for matters that required a coordinated response from the IVF clinic and VHA (e.g., prescription medications).

a. **Loss of TriWest care coordination.** A substantial majority of Veterans and their spouses initially received care coordination from TriWest care coordinators. By all accounts, TriWest care coordinators provided comprehensive care coordination with VHA and the IVF clinic and communicated with Veterans and spouses going through IVF every few weeks, if not more frequently. TriWest care coordinators were able to answer questions regarding IVF benefits and served as the intermediary between Veterans, the IVF clinic and VHA, as needed.
    i. **Example #1:** Veteran had outstanding care coordination experience with TriWest because they knew about all the benefits. One day the TriWest coordinator called and said, “I can’t provide coordination for you anymore because the VHA is going to do it now” and nobody from the VHA ever called her.
    ii. **Example #2:** Veteran’s spouse initially had a very helpful case manager at TriWest, but when a new TriWest contract went into place they lost their former case manager. They finally got a hold of somebody at TriWest who explained that the case management function had been given back to VHA. Veteran’s spouse stated that VHA case manager (in Community Care) admitted she knew nothing about IVF and couldn’t answer questions.
    iii. **Example #3:** Veteran with service-connected polycystic ovary syndrome who experienced an ectopic pregnancy after IVF had a strong relationship with the TriWest coordinator and notes: “The TriWest coordinator was proactive, instead of reactive. Before appointments she would check and double check that authorization was active. Even with the ectopic pregnancy, she kept in touch and made sure that I would not receive a bill for any ER services.”
b. **Office of Community Care Coordination.** A substantial majority of interview participants noted that the individuals they worked with in the local OCC were not familiar with IVF benefits. Participants noted it was almost impossible to find phone numbers for people in the Community Care and that even if they did have the phone number, their calls were rarely returned. Veterans and spouses also noted that Community Care often gave them incorrect information about benefits, including cryopreservation costs and pharmacy issues. Many Veterans noted that it seemed that most Community Care offices didn’t have any one person with specialized knowledge in IVF. As a result, Veterans were frustrated with VHA because there was really nobody available at their facility who could answer any questions about IVF. One Veteran noted that VHA provided these benefits but that “they make it so hard to use the benefit that it doesn’t really seem like they want us to use the benefits at all.”

5. **Male Veterans frustrated by IVF referral coming from Women's Health Clinic.** Male Veterans at some VHA facilities were sent to the Women's Health clinic to start the IVF referral process. The Veterans indicated that staff in the Women's Health clinics were local knowledge experts for the IVF process and thus the referrals should be generated from those experts. These Veterans thought they should be able to have access to IVF services without the referral coming out of women's health. Veterans acknowledged that they were uncomfortable sitting and waiting in the women's clinic and wondered why they couldn't get a referral from their primary care provider.
    a. **Example #1:** Male Veteran told he had to go to women's clinic to get IVF referral. Has waited more than a year and still not referred. He wanted to know why he could get a referral from urology. Veteran commented: "I don't know how to say this, but I have to go into the women's clinic and there are so many female Veterans that have been sexually harassed or just having women's health issues. And as a man being in the waiting room is awkward because they look at me like why I in am here. Having male Veterans going in there for infertility services is insensitive to both male and female Veterans."

6. **Geographic accessibility to IVF clinics is a problem for some Veterans.** Approximately 37% of Veterans and spouses mentioned problems related to geographic accessibility to IVF clinics. A substantial number of Veterans and spouses had to travel several hours in each direction to access IVF clinics. In some cases, the closest IVF clinic was a 5-hour drive. This distance is particularly problematic for Veterans and spouses undergoing IVF due to the need to get frequent blood tests prior to egg stimulation. In several instances, Veterans and their spouses were not offered travel reimbursement. In one instance, a Veteran was told she needed to stay in domiciliary care because VHA wouldn't pay for a hotel during the time she needed to get her blood draws. Access to IVF clinics did seem to improve over time, with those most recently approved for IVF services experiencing less extreme access problems. At present, VHA has contracted with 1,175 IVF clinics in every state but Wyoming and Alaska.
    a. **Example #1:** Veteran living in Pensacola, Florida traveled to New Orleans, Louisiana for IVF care (3 hour drive each way).
    b. **Example #2:** Veteran living in Anchorage, Alaska traveled to Seattle, Washington for IVF care (3.5-hour flight).
    c. **Example #3:** Veteran living in El Paso, Texas traveled to Tucson, Arizona for IVF care (4 hour drive each way).

7. **Some Veterans with SCIs are not getting IVF information from the SCI Centers where they receive their care.** The study team spoke to seven Veterans with spinal cord injuries who have utilized IVF benefits. Several of these Veterans and spouses found out about the VHA IVF program through the Bob Woodruff Foundation, which works in collaboration with VHA to inform

Veterans with service-connected fertility challenges of various fertility benefits and services available to them. Though all of the Veterans the study team spoke with received annual care at one of the 25 SCI Centers, only a few of them received information regarding IVF benefits from the SCI Centers. Spouses of these Veterans noted that when the Veterans went to IVF providers to begin the IVF process, some of the IVF providers had not worked with quadriplegic or paraplegic individuals before and therefore were unfamiliar with the limitations that these Veterans may have. Spouses noted that if SCI Centers could share information on the IVF process unique to SCI Veterans, the process would be less emotionally taxing for Veterans and their spouses.

a. **Example #1:** Veteran has a complete C4 SCI. Was told about IVF program through SCI Center, but Veteran and spouse had challenges navigating IVF program due to the unique needs of SCI Veterans. Spouse indicated that it was a stressful process for Veteran and that it would really be great if there was a support network for SCI Veterans and spouses going through IVF program.
b. **Example #2:** Veteran is a C5-C7 quadriplegic. Did not receive any information on IVF through the SCI Center where Veteran receives treatment. Veteran and spouse would appreciate being connected to other SCI Veterans and spouses going through IVF for support.

8. **The IVF benefit required-reauthorization process for every cycle is time consuming and repetitive.** Several Veterans noted that they had to go through the entire process of reauthorization to utilize embryos that they had in storage from their first IVF. One Veteran noted that nothing had changed from previous year when they used frozen embryos to get pregnant and yet they had to wait 9 months to get permission to use an additional frozen embryo, which the VHA was supposed to be paying for through the cryopreservation and storage program. The Veteran noted this pause occurred when the VHA contract was shifted from one contractor to another, and his IVF care was put on hold until the new contractor was in place.
    a. **Example #1:** Veteran and spouse had successful pregnancy with 1st IVF attempt. Son is now 9 months old, and they would like to begin process of using second stored embryo. However, VHA is required to obtain reauthorization; this couple has been waiting more than nine months to receive permission to use stored embryo, which in their view doesn't make any sense because VHA is storing the embryos for them to use.

9. **Several Veterans experienced substantial service interruptions when new VHA contracts were launched.** In June 2019, VHA began to implement new contracts under the auspices of the CCN. This contracting process extends from June 2019 (Region 1) to January 2022 (Regions 4 and 6). Many Veterans who were receiving care under the auspices of TriWest or HealthNet lost access to IVF services during this time while the new networks were put in place. For many Veterans, this was devastating as they were mid-cycle of fertility medications. As noted above, many Veterans also lost their TriWest care coordinators during this time and when the new contracts were put in place, there were no care coordinators available to help them navigate new systems.
    a. **Example #1:** Paraplegic Veteran and spouse found IVF clinic in Pittsburgh area that they enjoyed working with and were 1 year into IVF process when TriWest contract was stopped, and the new contract did not include their preferred IVF clinic. Veteran was not informed of this contract change until IVF providers noted that VHA was no longer paying bills. Rather than waiting to see what clinics VHA would approve in new contract, Veteran and spouse decided to seek IVF care on their own and spent $30,000 out of pocket to conceive a child.
    b. **Example #2:** Veteran was referred to an IVF clinic in Miami. She had just had surgery to remove fibroids and had one round of IVF and then TriWest contract was suspended. IVF clinic that Veteran had been working with in Miami was no longer included in the new contract and she had to start all over again with a new doctor under Optum.
    c. **Example #3:** Veteran and spouse had been approved for IVF and were working with an outstanding TriWest care coordinator to schedule appointments and answer questions. Soon after, the TriWest contract was suspended, and Veteran and spouse had to wait for more than a year until new contract was in place and IVF provider could be found.

B. Summary of the Study Team's Interview Findings with Veterans[1]

Veteran Recommendations

a. VHA should develop a clear set of communication materials that provide updated information regarding IVF services. These communication materials should be presented to each Veteran upon admittance to the IVF program and should also be available on a VHA website. The communication materials should include a working national or regional Community Care phone number and email address that Veterans can use to get questions answered as they utilize the program. The communication materials should also include a timeline that details what is needed/required during the IVF process.
b. VHA should create a comprehensive IVF care coordination program for Veterans and their spouses. This IVF care coordination program should include multiple coordinators at each VHA facility who are aware of VHA IVF benefits. Multiple coordinators are needed because if a coordinator is out for the day or on vacation, then other VHA staff members should be aware of the benefits and able to answer questions.
c. VHA facilities should develop an IVF referral process that is not necessarily generated out of Women's Health, as it is uncomfortable for male Veterans to have to use the Women's Clinic for IVF referral services.
d. VHA should expand IVF benefits with a specific focus on:
    i. Increased number of embryo transfer cycles authorized;
    ii. Ability to use donor eggs and sperm;
    iii. Ability to use a surrogate, if needed;
    iv. Ability to donate frozen embryos to other Veterans in need;
    v. Reimbursement for prescriptions filled by community pharmacies when VHA is unable to fill the prescription in a timely manner; and
    vi. Allowing single Veterans and same-sex couples to use benefits.
e. VHA pharmacies should undergo a comprehensive training on the unique needs of female Veterans and spouses of male Veterans who require immediate access to fertility-enhancing medications. VHA pharmacies should develop a plan to be able to quickly fill pharmacy prescriptions for Veterans in the IVF program.
f. VHA SCI Centers should provide comprehensive information to Veterans with SCI and their spouses about VHA's IVF program. Furthermore, Veterans with SCI and their spouses should have access to a listserv of other SCI Veterans and spouses who have used IVF, as many IVF providers have little experience treating individuals with SCIs.
g. VHA should consider a more efficient authorization process to approve additional embryo transfer cycles for those who have already successfully become pregnant within the IVF program and have additional embryos in storage.

[1] Note: All findings from interviews with Veterans have been shared with relevant program offices and VA has responded to these findings as summarized in section II of this study.

Element Three: Analysis of Department Resources for the Furnishing of Infertility Services, Including Analysis of Department Workforce and Non-Department Providers

"An analysis of Department resources for the furnishing of infertility services, including analysis of Department workforce and non-Department providers."

The study team conducted two projects. VHA workforce capacity (resources) was assessed by a survey distributed to VHA WHMDs to determine each facility's capacity to identify and treat infertility for female Veterans. The survey also queried WHMDs regarding their knowledge of onsite capacity (e.g., urologists) to identify and treat male fertility issues. WHMD's survey was developed and distributed to WHMDs with the assistance of the Office of Women's Health to identify the appropriate contact at each VAMC.

To document non-Department capacity (resources) the study team worked in collaboration with OCC. Names and addresses for all pertinent providers (e.g., gynecologists, reproductive endocrinologists and urologists) providing infertility services to Veterans were requested from OCC. The addresses were geocoded to visualize accessibility to infertility care services for Veterans receiving these services.

3.1. Distance from Veteran's Utilizing IVF Services to Nearest Approved Reproductive Endocrinologist or Fertility Facility

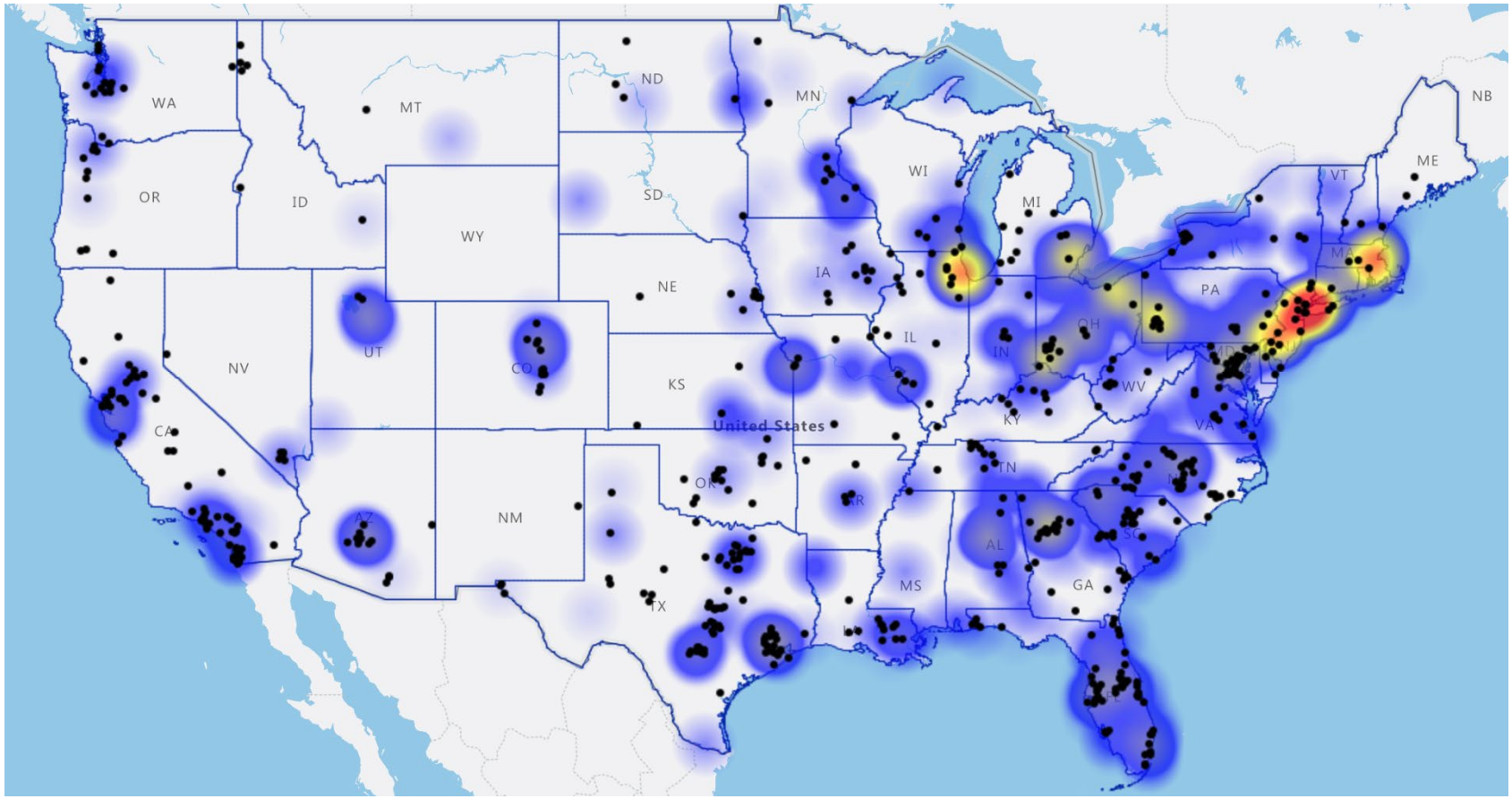
Veterans who received infertility services and addresses for all VHA approved providers with the specialty of "reproductive endocrinology" or "fertility facility" were obtained from OCC and mapped on ZIP Code using a postal service 5-digit ZIP Code crosswalk in ArcMap version 10.5 and eSpatial Mapping Software. The study team was able to match 700 of 707 Veteran ZIP Codes (99%) to a known ZIP Code for mapping. Of 1,359 unique infertility provider ZIP Codes, they were able to match 1,357 (99%) to a known ZIP Code for mapping.

Of the 700 ZIP Codes that matched, 625 were unique. Distance to the closest approved infertility clinic from Veteran ZIP Codes was calculated and summary statistics are shown in Table 3.1.1. below.

Table 3.1.1. Travel Times and Distances to the Nearest VHA Approved Infertility Provider from Veteran ZIP Codes (N=622*)				
	Minimum	**Maximum**	**Median**	**Average**
Distance (miles)	0.4	365.1	16.3	32.4
Travel time (minutes)	1.1	362.2	23.6	37.7
**Three ZIP Codes from Veterans living in Alaska are excluded from these calculations, as the distances to the nearest facility were extreme in comparison to the rest of the data (2,175–-2,457 miles to the nearest facility).*				

Figure 3.1.1 below shows Veterans and infertility providers located within the 48 contiguous states. There were no facilities located in Alaska or Wyoming. Two facilities in Hawaii (Honolulu and Kailua) and one facility in Puerto Rico (San Juan) are not depicted. The figure shows a heat map based on the average density (i.e., the density of the data if it was equally distributed across the map). The blue color shows the lowest/10% density areas (1/10th the density of the average), yellow represents medium/100% density areas (average density) and red indicates high/200% density areas (at least twice the average density) for infertility providers. ZIP codes of Veterans receiving infertility services are represented by black dots.

Figure 3.1.1. Heat Map of VHA Approved Infertility Providers with Veteran ZIP Code Indicators

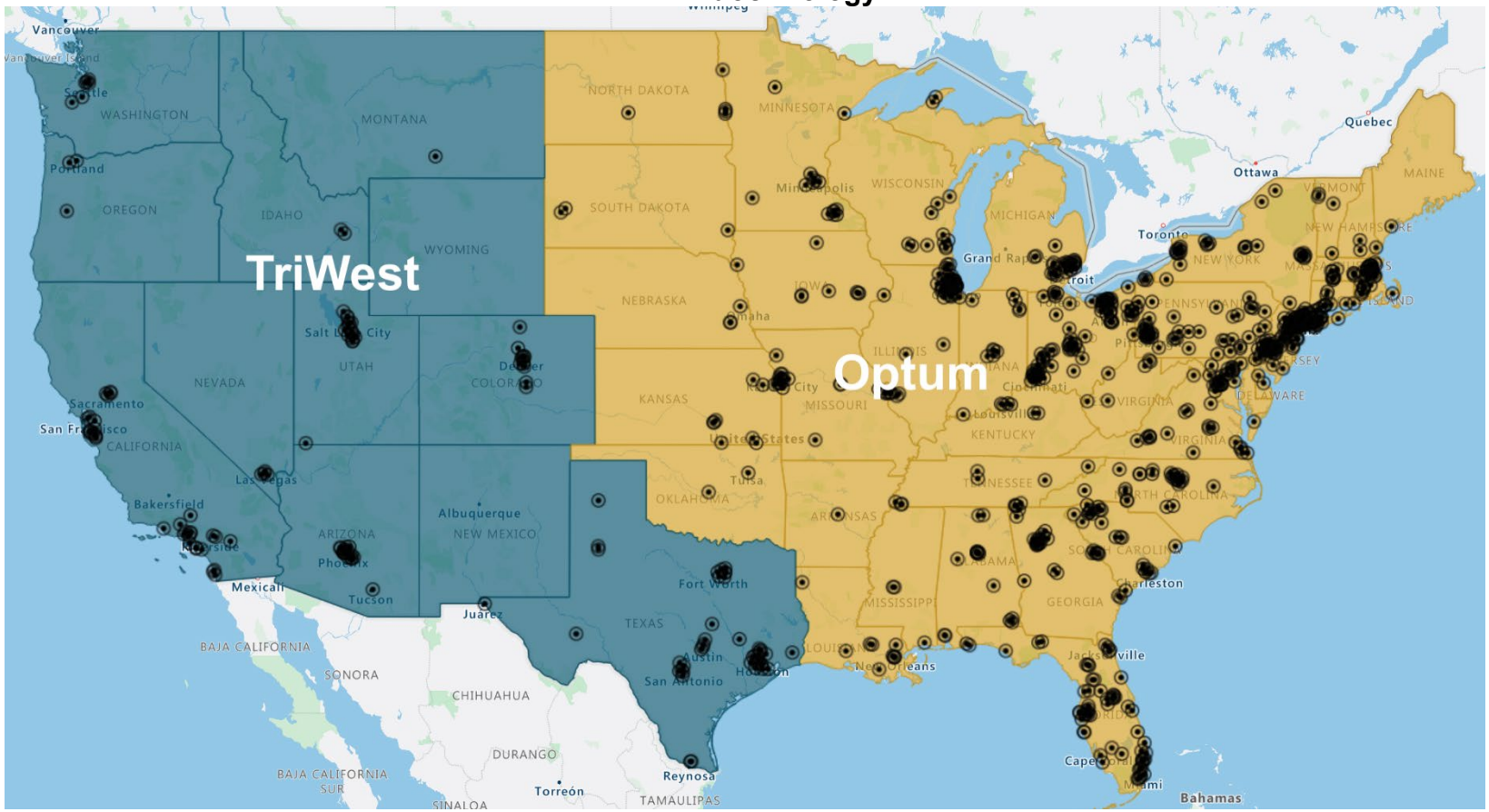


Note: Each black dot represents a ZIP Code where ≥1 Veteran who received infertility services resides. Heat map colors: blue, lowest/10% density infertility provider areas; yellow, medium/100% density infertility provider areas; red, highest/200% density infertility provider areas. Facilities outside of the 48 contiguous states are not shown here, including Two facilities in Hawaii (Honolulu and Kailua) and one facility in Puerto Rico (San Juan).

3.2. Geographic Distribution of Optum and TriWest Network Fertility Facilities or Providers with Specialties of Reproductive Endocrinology

Using the same methodology described in 3.1, the study team also mapped the distribution of Optum and TriWest clinics (as of 2021) to examine the distribution of these clinics across the United States. A map of those clinics is below.

Figure 3.2.1. TriWest and Optum Network Fertility Facilities or Providers with Specialties of Reproductive Endocrinology

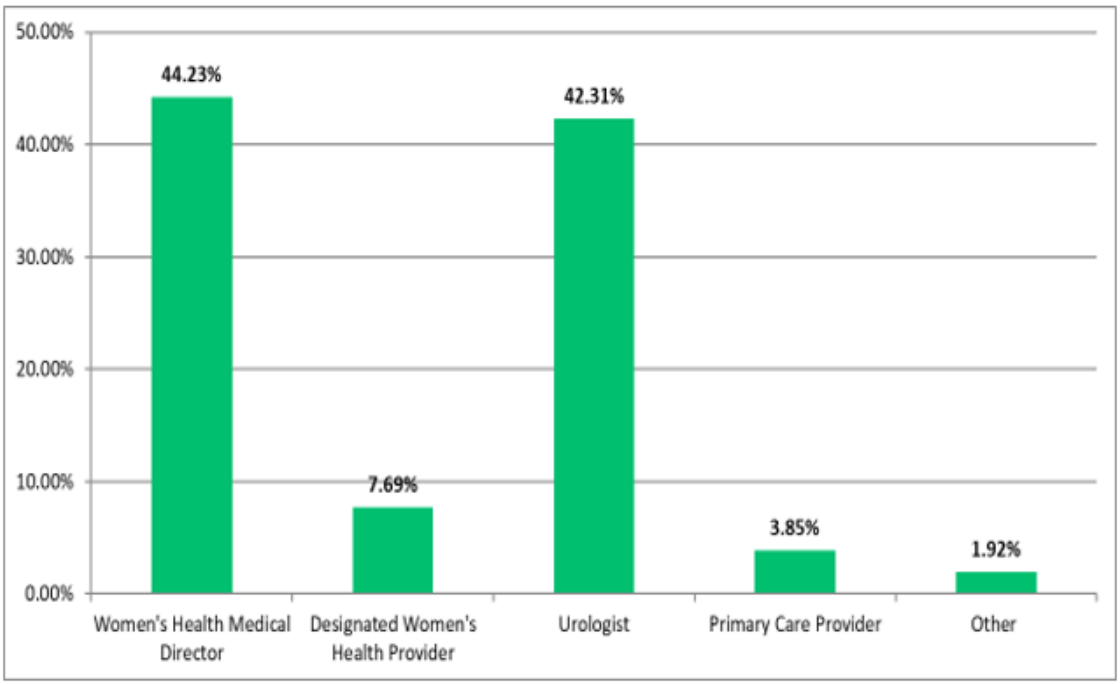


Note: Each black dot represents a zip code where ≥1 approved infertility service provider is located. Facilities outside of the 48 contiguous states are not shown here. Providers current as of July 2021.

3.3. ART Provider Survey

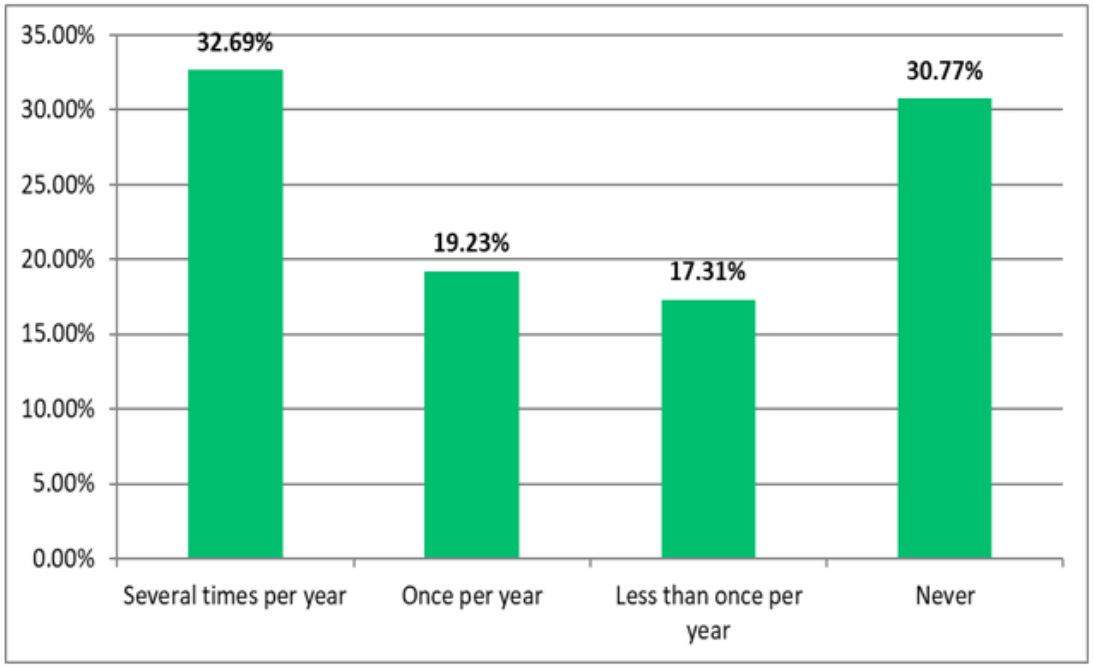
To better understand VHA provider knowledge regarding IVF benefits, the study team conducted a brief online survey. They sent emails to 139 VHA WHMDs and WH-PCP that were included on the Women's Health Services email distribution list. Additionally, the study team asked VHA Chief, Urology to forward the survey to a VHA Urology national mail group. The urology national mail distribution group included 244 VHA and community urologists that provide care to Veterans. The study team received 52 responses from WHMDs (44% of responses), urologists (42% of responses), WH-PCP's (8% of responses) and primary care providers (4% of responses) (see Figure 3.3.1 below).

Figure 3.3.1. ART Survey Respondent Characteristics (n=52)



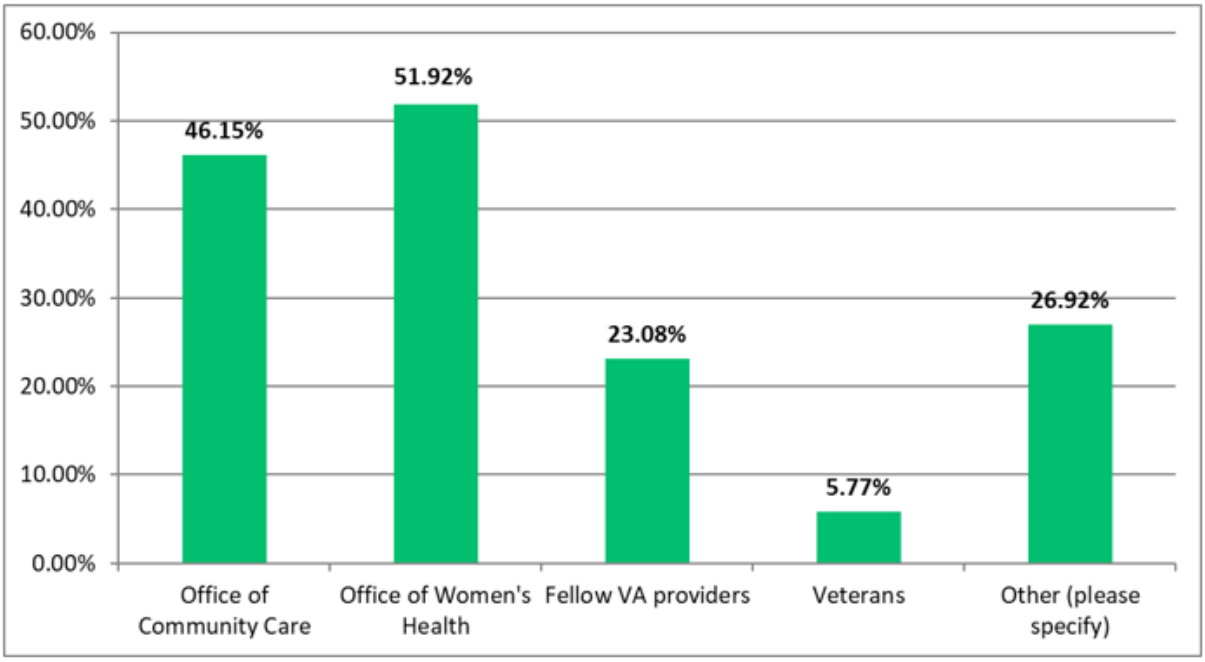
Survey respondents were asked to describe the extent to which they refer Veterans to ART services (see Figure 3.3.2 below). As noted in the graph below, nearly a third (33%) of providers refer Veterans to ART services several times per year, while another 31% of providers have never referred a Veteran to ART services. Nearly 40% of WHMDs reported that they referred Veterans several times per year, in comparison to 27% of urologists who reported they referred Veterans to ART services several times per year. In contrast, a slightly higher percentage of urologists (36%) had never referred a Veteran to ART services, in comparison to 30% of WHMDs (data not shown).

Figure 3.3.2. Frequency of ART Referral among Survey Participants



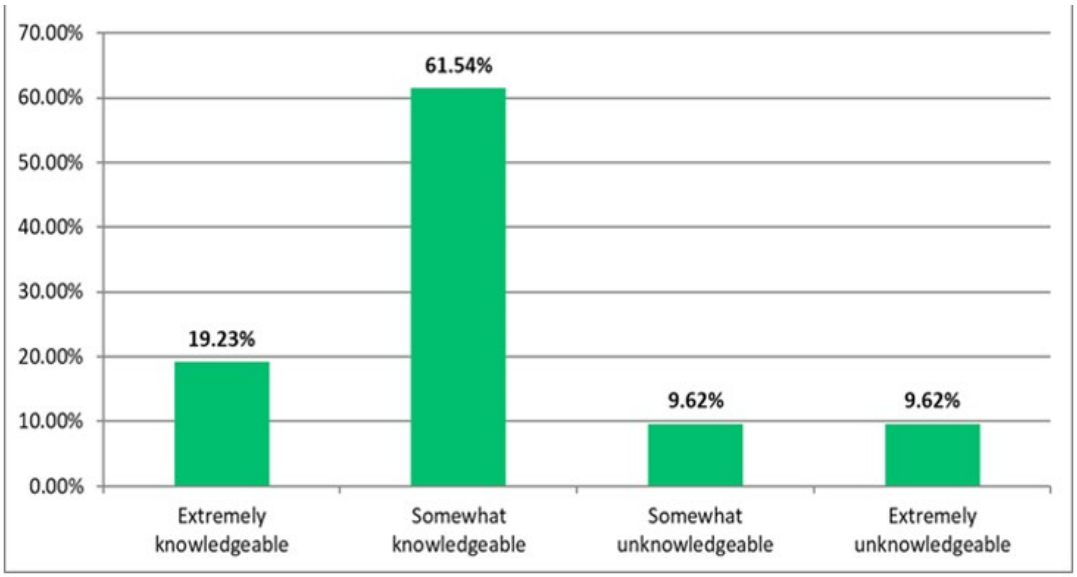
Respondents were asked if there was a person in their facility or in a national office, they could ask about ART benefits. Figure 3.3.3 below shows that a majority (52%) of participants rely on the Office of Women's Health for information regarding ART benefits, while others noted that OCC was the best source of information regarding ART benefits (46%). Over a quarter of respondents noted other important sources of information they used to understand ART benefits, including local Women Veteran Program Managers and VHA Directives 1332 and 1334. Not surprisingly, a majority of WHMDs (74%) relied on information from the Office of Women's Health, while most urologists relied on information from OCC (data not shown).

Figure 3.3.3. Top Source of Information for ART Benefits



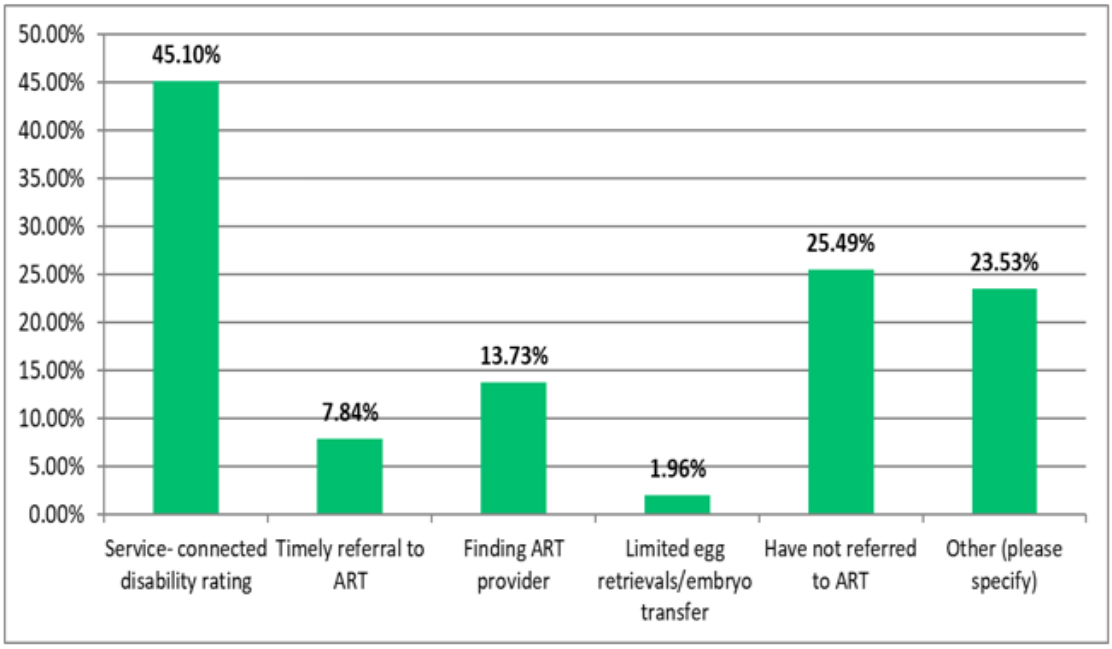
Survey respondents were asked how knowledgeable they feel regarding ART benefits for Veterans (see Figure 3.3.4 below). Overall, more than 80% felt extremely or somewhat knowledgeable about the benefits. There were substantial differences in knowledge between WHMDs and urologists, with 18% of urologists noting that they felt extremely unknowledgeable about the benefits, in comparison to just 4% of WHMD (data not shown).

Figure 3.3.4. Self-Reported Knowledge of ART Benefits for Veterans



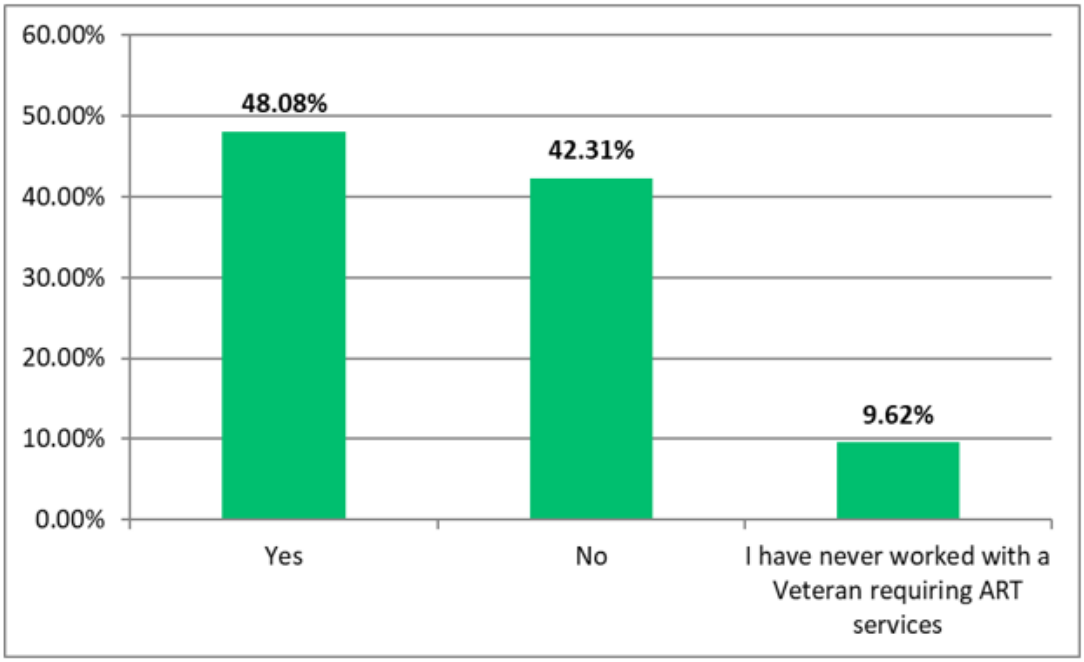
Survey respondents noted that the biggest barrier to Veterans receiving IVF is whether the Veteran is eligible, specifically the Veteran having a service-connected disability that results in the inability to procreate without the use of ART (45%) (see Figure 3.3.5 below). Other barriers noted included the ability to find a geographically accessible ART provider (14%) and timely referral to ART (8%). Other major barriers included access to benefits for lesbian, gay, bisexual, transgender and queer (LGBTQ+) and single Veterans to be able to use IVF based on legal prohibitions.

Figure 3.3.5. Perceived Barriers to Veterans Receiving IVF Care



The study team also asked participants if there was a person or office at their facility who was responsible for coordinating ART care for Veterans at their facility (see Figure 3.3.6 below). Respondents were nearly split in terms of whether they were knowledgeable of a person or office responsible for IVF care coordination. Forty-eight percent of participants were aware of a person or office (such as Community Care) responsible for care coordination, while 42% did not know who was responsible for care coordination.

Figure 3.3.6. Awareness of an IVF Care Coordinator at Each Facility



Element Four: Recommendations for the Improvement of Infertility Services Under Laws Administered by the Secretary to Improve Eligible Individuals' Access, Delivery of Services and Health Outcomes

"Development of recommendations for the improvement of infertility services under laws administered by the Secretary to improve eligible individuals' access, delivery of services and health outcomes."

The study team worked with VA's Office of Women's Health to review the findings of the study and the team proposed its own recommendations for improvement of delivery of infertility services that are likely to have the most impact based on the input received from our patient-users.

1. To best serve Veterans, the study team recommended that VA work with Congress to expand ART/IVF Benefits, e.g., to include more Veterans and their non-spouse partners. The team also recommended to VHA that VA expand IVF benefits with a specific focus on:

    i. Ability to use donor eggs, sperm and embryos;
    ii. Ability to use a gestational surrogate, if needed; and
    iii. Allow single Veterans and same-sex couples to use benefits.

As the study team noted, for many Veterans, having children is an important and essential aspect of life. Some Veterans suffer from infertility issues that prevent them from producing biological children through natural means. Other Veterans who want to build a family are either single or are in same sex partnerships and therefore may require the use of IVF and ART services to build their families. For many Veterans, the use of donor gametes (eggs or sperm), donor embryos, or gestational surrogacy is medically necessary for them to realize their family-building goals.

Infertility and the inability to build one's family can have significant impacts on Veterans' lives. Individuals and couples with infertility may have poor mental health outcomes such as increased risk of depression and suicide[2]. Furthermore, there are potential negative psychosocial outcomes for an infertile individual, couple and family such as decreased social status; ostracism; marital conflict; and interpersonal violence.[3]

Allowing the use of donor gametes, donor embryos and gestational surrogacy, and allowing single Veterans and those who are not legally married to use the ART/IVF benefit would make the benefit less discriminatory, more equitable and would support VA Strategic Goal 2: "Veterans receive highly reliable and integrated care and support and excellent customer service that emphasizes their well-being and independence throughout their life journey."

[2] Hanson B, Johnstone E, Dorais J et al. Female infertility, infertility-associated diagnoses, and comorbidities: a review. Journal of assisted reproduction and genetics 2017; 34: 167-177.
[3] ASRM Ethics Committee. Disparities in access to effective treatment for infertility in the United States: An Ethics Committee opinion. Fertility and sterility 2015; 104: 1104-1110.

2. Implement Care Coordination for those Veterans Using IVF Services.

As the study team found, IVF care is complex subspecialty care that requires multiple visits over time. Veterans receiving IVF care often need timely access to laboratory studies, imaging studies and specialty prescription medications, most of which is provided outside of VHA. Similar to maternity care and cancer care, there is a significant role for care coordination to ensure that the Veteran's needs are being met. As demand for infertility services increase, the need for IVF care coordination increases. The same is true for cryopreservation and storage benefits. This represents an opportunity for VHA to improve IVF care coordination and delivery.

3. Enhance Communication about VHA's Infertility and IVF Services.

In addition, the team found there is opportunity to further improve information sharing about infertility and ART/IVF benefits available to Veterans with those enrolled in VHA, VHA staff and providers and the general public.

II. VA Response to Study Findings and Recommendations on Improving Delivery of Infertility Services and ART/IVF Services

Infertility services are in demand within VHA, with over 7,000 new cases of male infertility and 5,500 new cases of female infertility diagnosed in FY 2018 – 2020. Of these new cases, roughly 75% in FY 2018 and FY 2019—with a slight decrease in FY 2020, due to COVID-19—had a procedure related to infertility in the same FY of initial diagnosis. This suggests that a large proportion of Veterans diagnosed with infertility can access infertility services at their VHA facilities or through a community provider and in a timely manner. However, we also identified areas for improvement.

One of the study findings was related to Veteran-concerns about the legally imposed limits of VA's ART/IVF benefit, specifically related to six egg retrieval attempts to achieve three embryo transfer episodes of care. The current limits are found in the Memorandum (incorporated by reference into VA's IVF treatment authority) and they are based on the best medical evidence regarding potential success of treatment. If an adequate number of high-quality eggs are not retrieved after six attempts, additional attempts are extremely unlikely to be successful and pose additional risk to the patient. If a viable pregnancy does not occur after three separate embryo transfer episodes, then additional transfers are unlikely to be successful and pose additional risk to the patient.

In terms of delivering fertility services, there are several layers of clinical and operational complexity involved in the delivery of infertility services to enrollees as authorized by the Medical Benefits Package and also as concerns the delivery of ART/IVF services available to Veterans and their spouses under VA's special IVF treatment authority.

The first is the nature of the services. Infertility evaluation and treatment and ART/IVF is complex multi-step subspecialty care that is delivered over time. In addition, much of infertility care and all ART/IVF services are delivered in the community, which as noted above, has gone through several contracts with third party payors affecting availability of in-network providers.

Despite this complexity, VHA has made several efforts to make both the delivery of infertility care under the Medical Benefits Package and that provided under VA's ART/IVF program as smooth as possible. Women's Health, in collaboration with OCC, has created multiple resources for Veterans and staff to facilitate care delivery, as discussed in more detail immediately below.

List of VA Efforts

Communication to Providers and Staff

- Internal SharePoint Website
- Joint VHA/OCC Monthly Community of Practice Office Hours Calls
- Targeted communications with relevant service lines
- Communication with Community Providers
- Communication with the General Public
- Enhancing Processes for ART/IVF Eligibility Determination and Vetting for ART/IVF Approval
- Management of Cryopreservation and Storage Benefits

Provision of Specialty Prescription Medications

Care Coordination

- Mental Health Care Coordination for eligible Veterans and Spouses
- Establishment of IVF Interdisciplinary Team

Improvement of Services for Veterans with Spinal Cord Injury

Maintaining Internal Systems and Strengthening Integrated Outside Networks (MISSION) Act Community Care Network Enhancements

- **Communication to Providers and Staff:**
    - **Internal SharePoint Website:**

VHA created and maintained a comprehensive internal SharePoint site on infertility services available to Veterans, including ART/IVF. The Women's Health SharePoint includes definitions of infertility, ART/IVF, eligibility information, links to relevant law and policy, answers to frequently asked questions about infertility services and links to OCC's infertility SharePoint. There are also links to letters for Veterans that explain the ART/IVF benefit in detail; links for Veterans that explain how to procure medications for IVF from VHA; links to outside resources, including relevant information sheets from American Society of Reproductive Medicine (ASRM); and links to outside resources that staff and providers can share with Veterans who wish to build their families, but who might not be eligible for ART/IVF, including the Bob Woodruff Foundation Veterans In Vitro Initiative program.

- **Joint VHA/OCC Monthly Community of Practice Office Hours Calls:**

Women's Health and OCC hold monthly ART/IVF Community of Practice Calls to update the field on fertility and IVF benefits, share best practices among facilities and share clinical and policy updates. ART/IVF Community of Practice Calls gives an opportunity to staff and providers in the field to ask questions of the national team to help clarify and resolve issues in real time. Women's Health and OCC collaborated to create an internal e-mail address that goes to multiple subject matter experts in infertility as well as experts from OCC. Staff and providers in the field are encouraged to use this email should any question come up in the field about infertility, eligibility and processes for making referrals.

- **Targeted Communications with Relevant Service Lines:**

The Office of Women's Health regularly communicates infertility and ART/IVF policy updates to the following national service lines: Endocrinology, Oncology, SCI, Primary Care, Specialty Care, LGBTQ+ Services, Urology and Gynecology. Women's Health also collaborated with the LGBTQ+ office on an internal SharePoint site on infertility and family-building services available to LGBT Veterans, given the eligibility criteria for IVF that exclude many Veterans in same-sex relationships due to the exclusion of use of donor gametes, gestational surrogacy and the requirement for legal marriage.

- **Communication with Community Providers:**

VHA has worked to ensure that providers of infertility evaluation and treatment, including infertility and ART/IVF providers in the community, are aware of the respective fertility benefits available for Veterans. Women's Health subject matter experts have given several presentations on fertility services available to Veterans at the ASRM National meetings and at the American College of Obstetrician Gynecologists National meetings. These are the two main professional societies of providers who deliver infertility evaluation and treatment to people in the United States. OCC has worked to enroll infertility providers into the networks of providers who are contracted to provide care to Veterans in the community to ensure that Veterans have access to care. It is important to note that there are areas of the country – including Alaska and the rural West where access to infertility treatment is limited for all people, whether they are Veterans or not.

- **Communication with the General Public:**

To ensure that Veterans and the general public are aware of fertility benefits for Veterans, VHA has worked diligently to widely disseminate information about infertility services (both those available to enrolled Veterans as part of the Medical Benefits Package and to those eligible for IVF services) through several communication efforts. Women's Health created public-facing brochures explaining the infertility benefits in both English and Spanish and published them

on public-facing web pages. OCC created Veteran-facing infographics and handouts explaining the ART/IVF benefit and has also published them on public-facing web pages. OCC produced a Veteran-facing YouTube video on infertility. Both Women's Health and OCC created public-facing websites devoted to infertility evaluation and treatment services available to Veterans. Additionally, VHA produced public-facing communications campaigns focused on fertility treatment including: Twitter posts, Facebook posts, VAantage Point blogs and creation of posters to be used in the community at VSOs and VHA facilities. VHA subject matter experts also participated in several Facebook Live and RallyPoint social-media events focused on services for women Veterans – including fertility and IVF treatment.

- **Enhancing Processes for ART/IVF Eligibility Determination and Vetting for ART/IVF Approval:**

  Women's Health and OCC worked together to create an ART/IVF approval checklist that guides staff and providers in the field through the IVF referral process, including documenting the Veteran's infertility diagnosis; documenting the relationship between the Veteran's service-connected condition(s) and their infertility; documenting that the Veteran is legally married; documenting that the Veteran and spouse will not need donor gametes (eggs or sperm), donor embryos or gestational surrogacy; how to register the Veteran's spouse as a collateral in the system so that the spouse may also receive services; and documenting how much of the lifetime IVF benefit (oocyte retrievals and embryo transfers) the Veteran has already used, if any. OCC and Women's Health National staff review every ART/IVF consult and provide guidance and feedback to the field about consults in real-time. The approval review now targets a 14 business-day turn-around time for IVF benefit approval.

- **Management of Cryopreservation and Storage Benefits:**

  Cryopreservation and storage of gametes and embryos have been identified as an area where additional guidance for staff in the field would be useful. To meet that need, VHA created and disseminated to the field an ART IVF Cryopreservation Storage Benefit Standard Operating Procedure that walks staff through the cryopreservation and storage consult and approval process. In addition, VHA created an email address, VHACryopreservationStorageTeam@va.gov, that the field can use to ask for additional guidance on cryopreservation and storage benefits.

- **Provision of Specialty Prescription Medications:**

  The difficulties Veterans encountered in procuring prescription medications for ovulation induction and ART/IVF have been noted by VHA. Women's Health, OCC and Pharmacy worked together to find solutions to the challenges Veterans and their spouses faced getting timely access to highly specialized medications. In July 2021 these specialty medications, with the exception of compounded medications, were made available to Veterans and their spouses through the CCN retail pharmacy

network. For compounded medications the Veteran/spouses still need to pay out of pocket and apply for reimbursement.

- **Care Coordination:**

  - **Mental Health Care Coordination for eligible Veterans and Spouses:**

    The need for coverage of mental health services for Veterans and their spouses undergoing ART/IVF treatment became clear through the IVF approval process when the prevalence of mental health conditions among Veterans seeking infertility services was noted. Infertility treatment is known to place stress on individuals and couples. VHA specifically added language to Directive 1334, prior to its publication in March 2021, that made it clear that mental health care for the Veteran and/or their spouse that is deemed to be necessary to support fertility treatment by the Veteran's fertility provider be covered as part of the benefit.

  - **Establishment of IVF Interdisciplinary Team:**

    In order to improve communication about ART/IVF consults at the VISN and facility level, VHA's Deputy Under Secretary for Health for Operations and Management issued a memorandum dated December 20, 2019, that required establishing a VISN-led IVF-Interdisciplinary Team (IDT). The memorandum stipulates that IVF-IDT is responsible for implementing national IVF and infertility consult templates at their VAMCs and reviewing and giving guidance on consults for IVF services. IVF-IDT also provides a setting for sharing ideas, discussing sensitive fertility cases and updating local practices related to community fertility care and treatment as outlined by national guidance. Facility directors are responsible for identifying members of IVF-IDT and assigning their roles.

- **Improvement of Services for Veterans with Spinal Cord Injury:**

  VHA created a Workgroup on the Reproductive Health Needs of Veterans with SCI in late 2020. Part of the work of that group has been to conduct a needs assessment in the field about what additional education or resources are needed to better meet the needs of Veterans with SCI. Future efforts of the work group including improved education to the field about sexual health needs including infertility evaluation and treatment of Veterans with SCI.

- **MISSION Act Community Care Network Enhancements:**

  VHA is aware of the service interruptions that occurred due to change in third party payor contracts. OCC and Women's Health have discussed future actions to mitigate these risks including ensuring advanced notification to both staff in the field and Veterans receiving this care that a change may be forthcoming and how to reduce any potential gaps in coverage; stronger vehicles for enrolling infertility providers into the CCN.

Next Steps

VA Recommendations

- VHA is committed to improving care delivery to Veterans.
- There is a need for additional communication about VHA's infertility services and enhanced care coordination among those Veterans using infertility services.
- Recognize there is a general need to increase access to ART services, not specifically limited to the Veteran population.
- Consider the need for amendments to VA's IVF authority and work with the Administration to address.

In summary, VHA views fertility and family building services as an essential component of the care provided to Veterans. VHA is committed to improving care delivery to Veterans and as a result of the findings in this study has made several actionable recommendations for care improvement.

In addition, it remains clear that while infertility services remain in demand among Veterans who use VHA for care, additional communication about VHA's infertility services is needed. This includes clear communication about infertility benefits and how to administer them with all appropriate VHA staff including pharmacists, providers, nurses and staff in OCC. Continued public- and Veteran-facing communications campaigns would also be of benefit.

Enhanced care coordination among those Veterans using infertility services is an area of opportunity for additional work to be done. VHA looks forward to enhancing this capability.

In addition, we note that limited geographic access to ART services is a common and significant burden to people across the United States and is not limited to the Veteran population. ART centers and specialists concentrate in regions with large populations, mandated infertility insurance coverage and high median per capita incomes. While this factor is largely outside VHA's control, it is an area of additional opportunity for growth. Based on the study team's findings and Veteran recommendations, VA will consider the need for amendments to our IVF authority.

Appendices

Appendix A. Additional Characteristics of Veterans with an Infertility Diagnosis, FY 2018–FY 2020

Figure A1. Annual Prevalence Rates of Male Veteran Infertility, FY 2018 – FY 2020

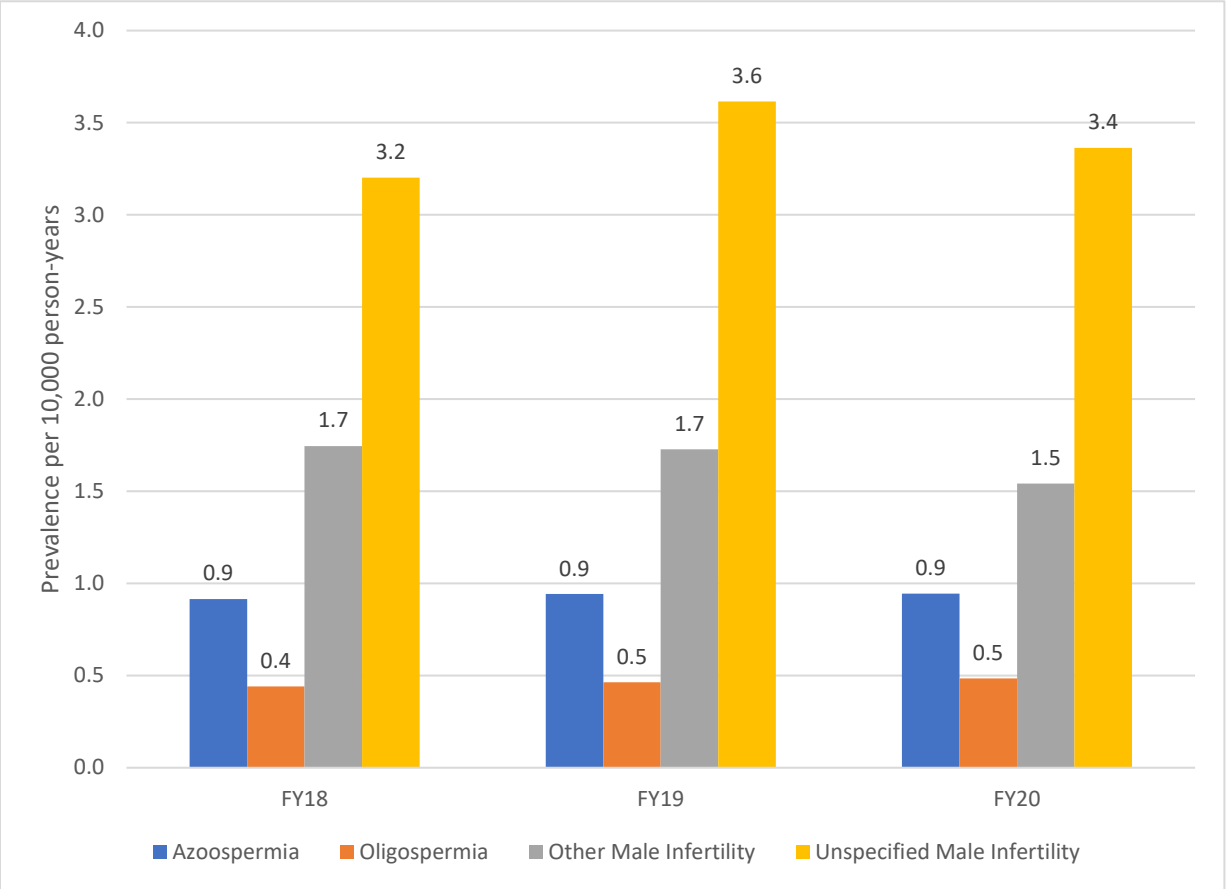
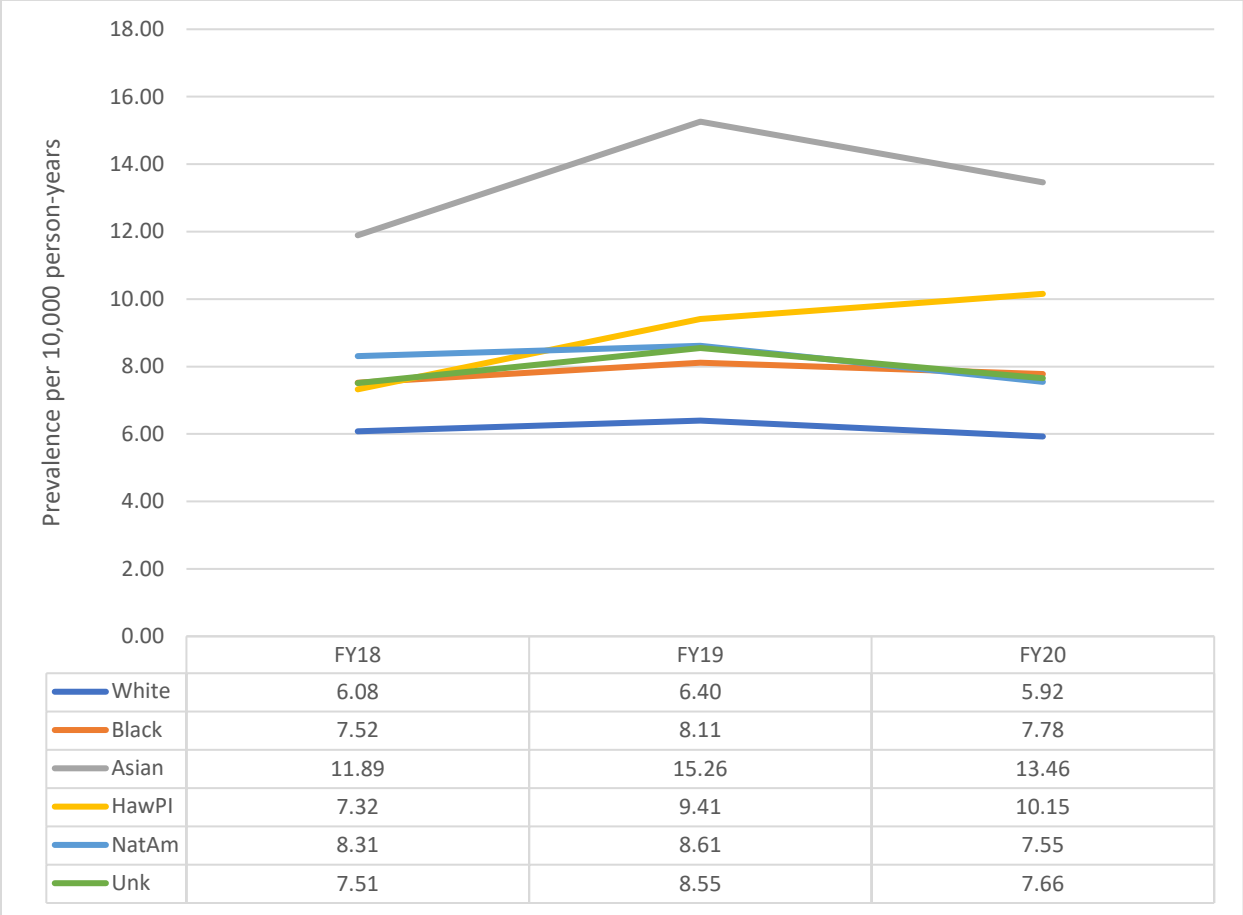
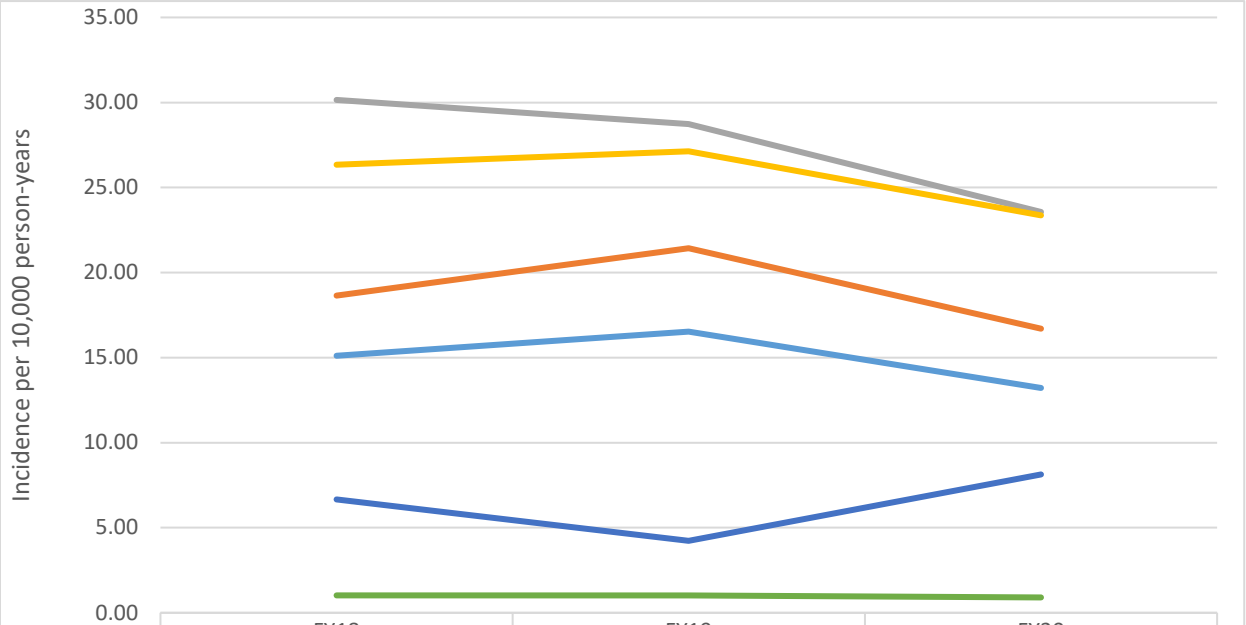


Figure A2. Annual Prevalence Rates of Male Veteran Infertility Diagnoses by Race, FY 2018 – FY 2020



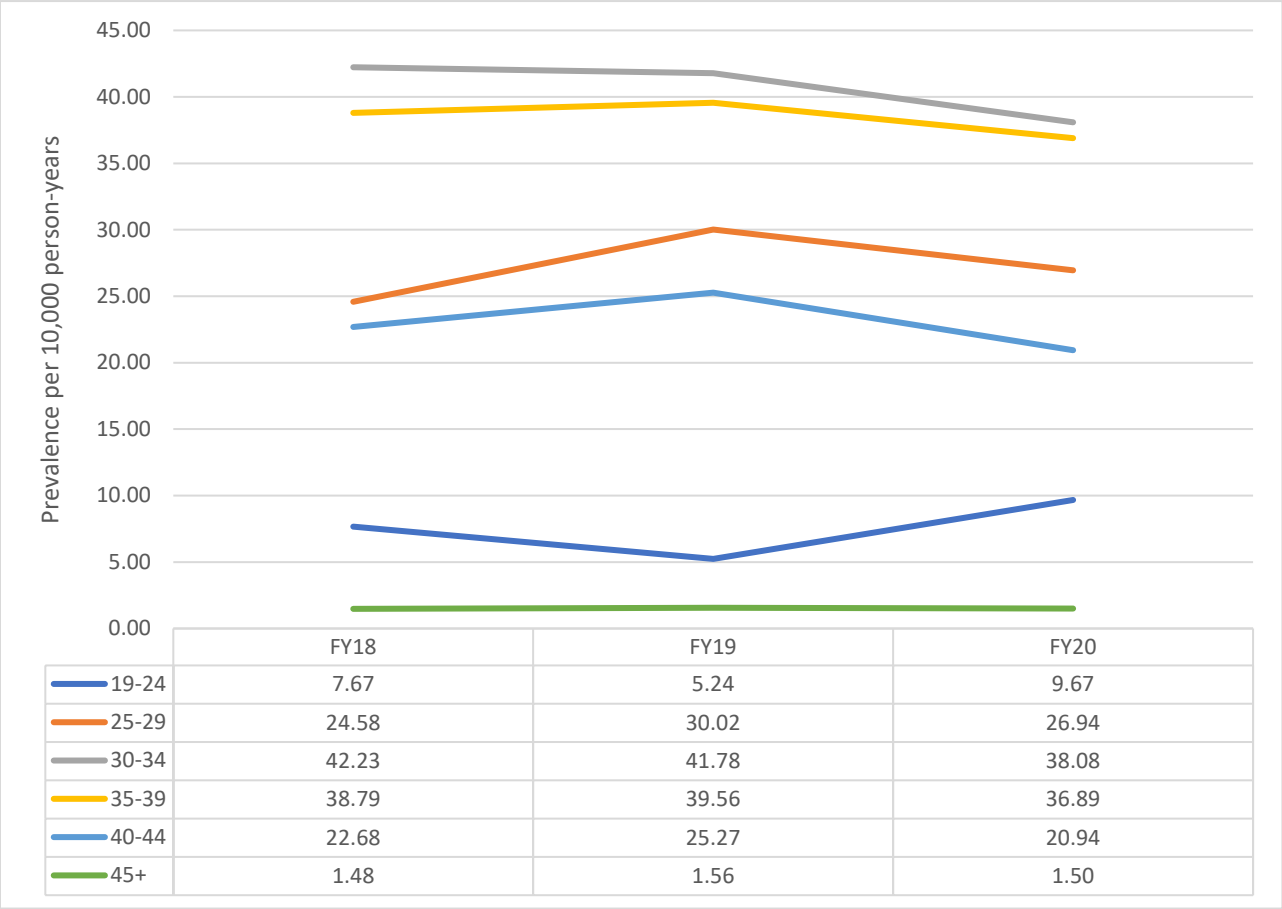
	FY18	FY19	FY20
White	6.08	6.40	5.92
Black	7.52	8.11	7.78
Asian	11.89	15.26	13.46
HawPI	7.32	9.41	10.15
NatAm	8.31	8.61	7.55
Unk	7.51	8.55	7.66

Figure A3. Annual Incidence Rates of Male Veteran Infertility Diagnoses by Age Group, FY 2018 – FY 2020



	FY18	FY19	FY20
19-24	6.66	4.23	8.13
25-29	18.64	21.43	16.70
30-34	30.15	28.72	23.56
35-39	26.34	27.13	23.36
40-44	15.10	16.53	13.22
45+	1.02	1.01	0.90

Figure A4. Annual Prevalence Rates of Male Veteran Infertility Diagnoses by Age Group, FY 2018 – FY 2020



	FY18	FY19	FY20
19-24	7.67	5.24	9.67
25-29	24.58	30.02	26.94
30-34	42.23	41.78	38.08
35-39	38.79	39.56	36.89
40-44	22.68	25.27	20.94
45+	1.48	1.56	1.50

Figure A5. Overall Incidence Rates of Male Infertility Diagnoses by Type and Age Group, FY 2018 – FY 2020

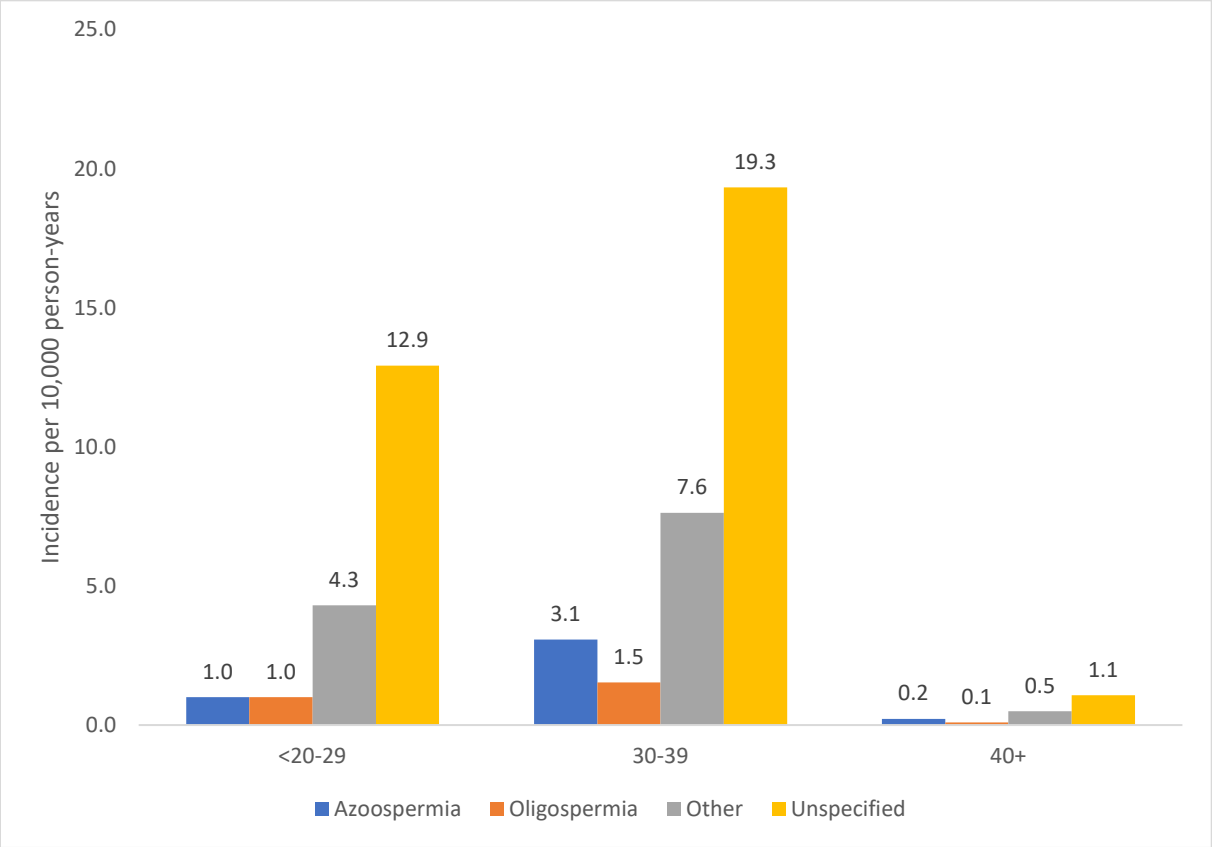


Figure A6. Overall Prevalence Rates of Male Infertility Diagnoses by Type and Age Group, FY 2018 – FY 2020

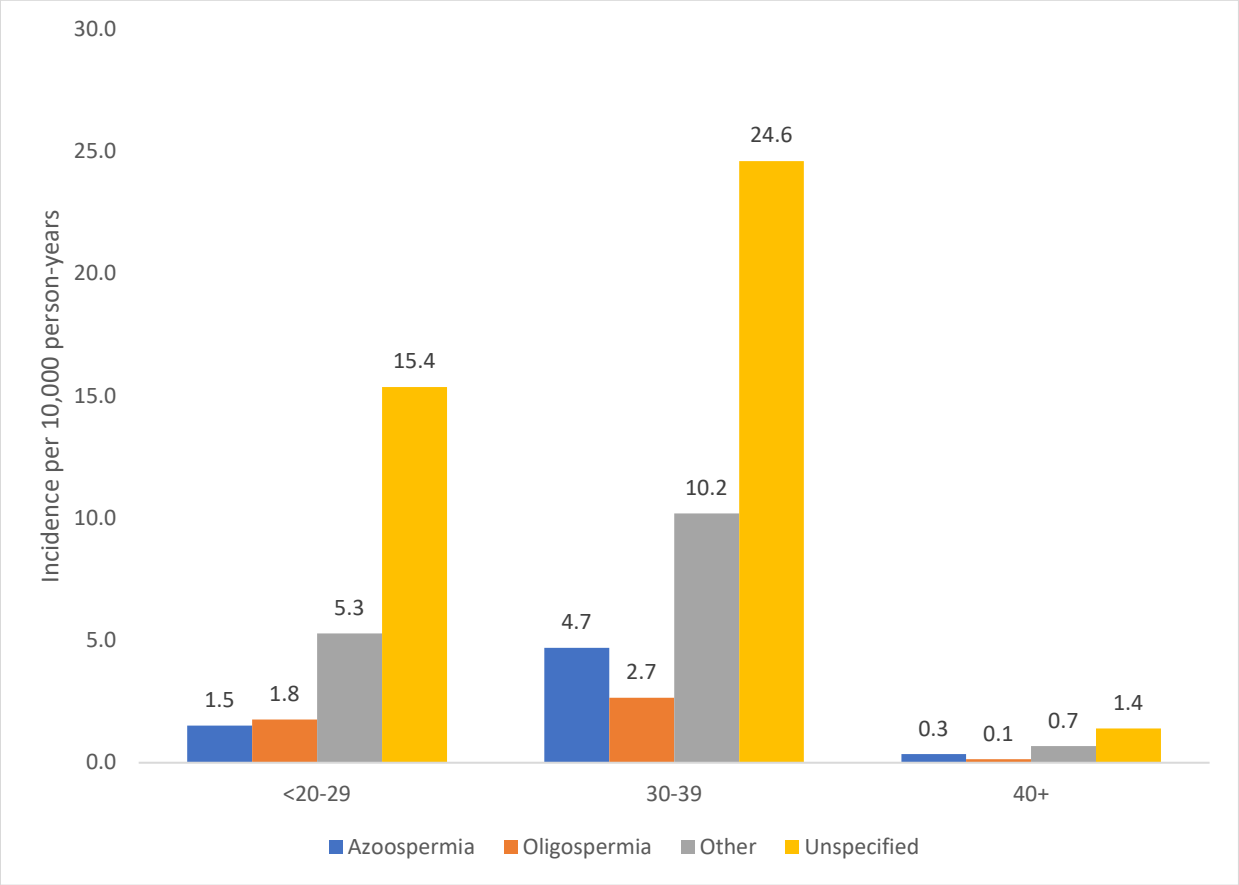


Figure A7. Annual Prevalence Rates of Female Veteran Infertility Diagnoses, FY 2018 – FY 2020

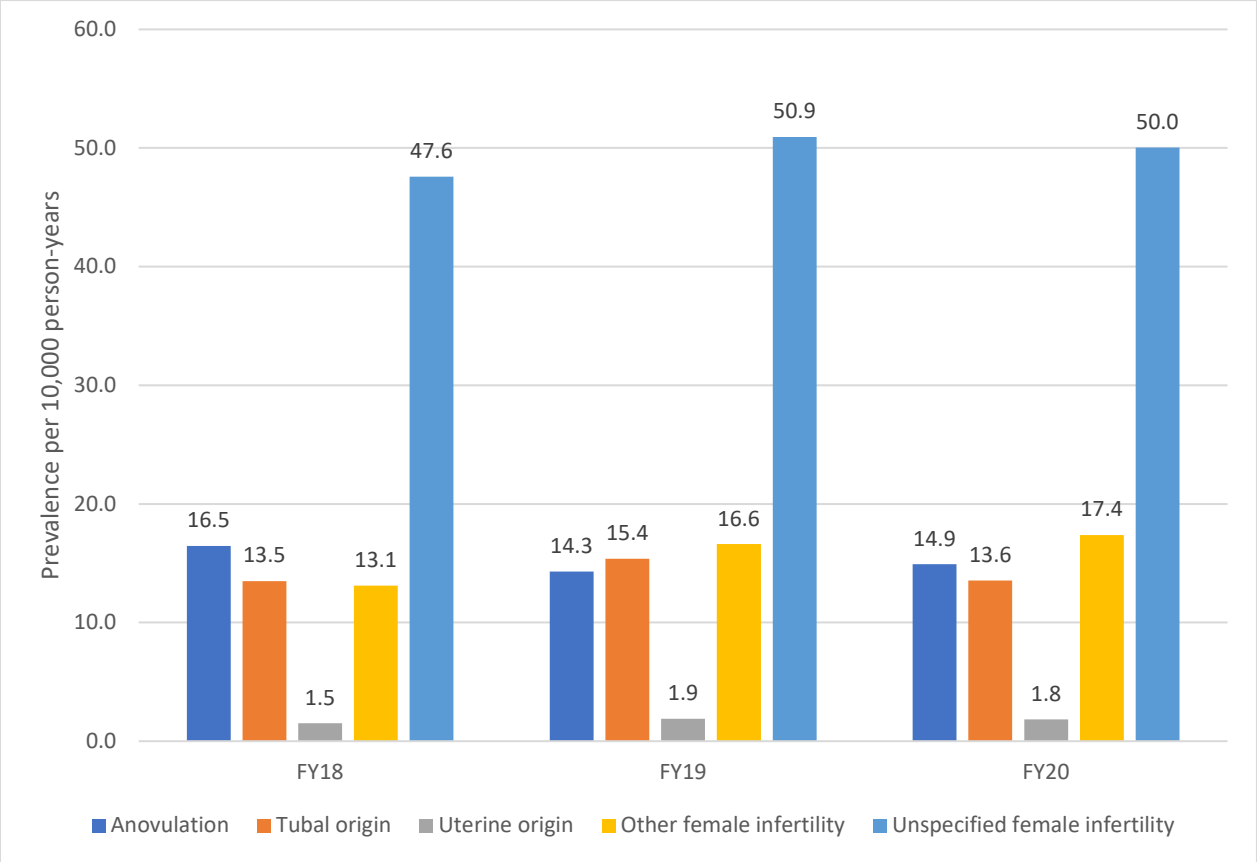
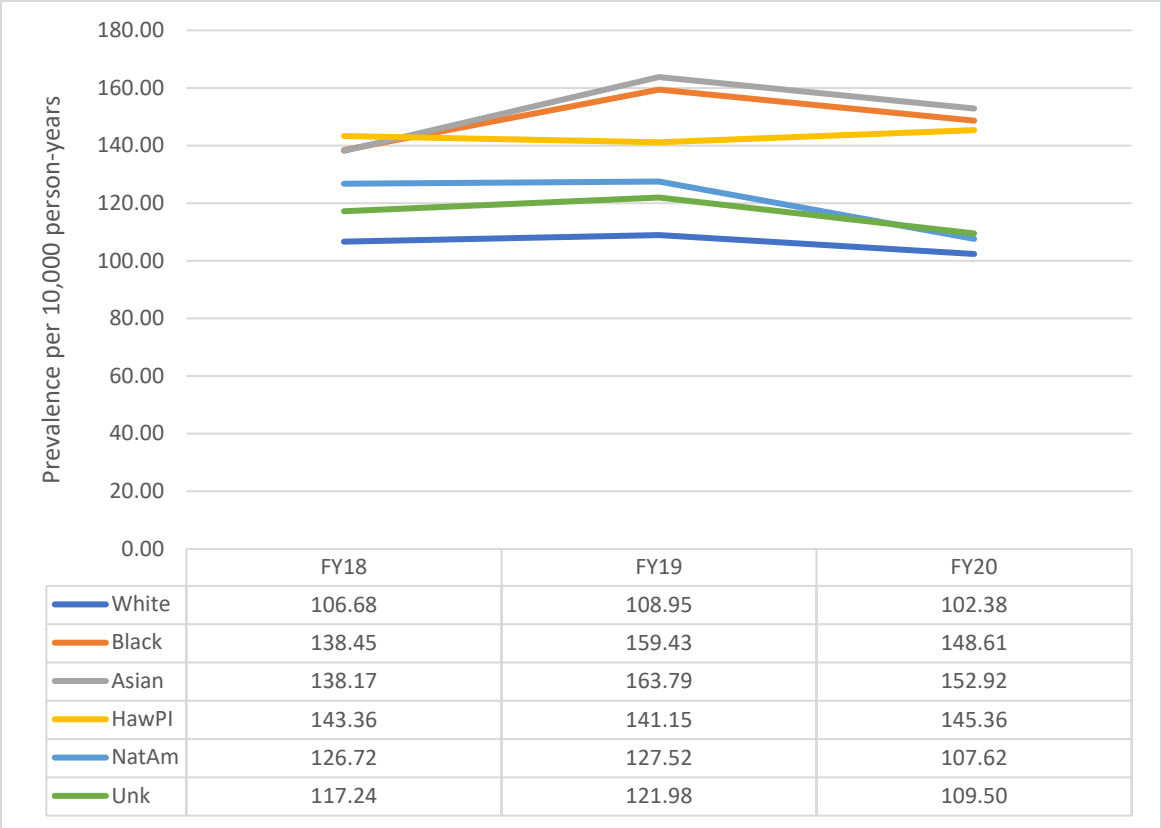
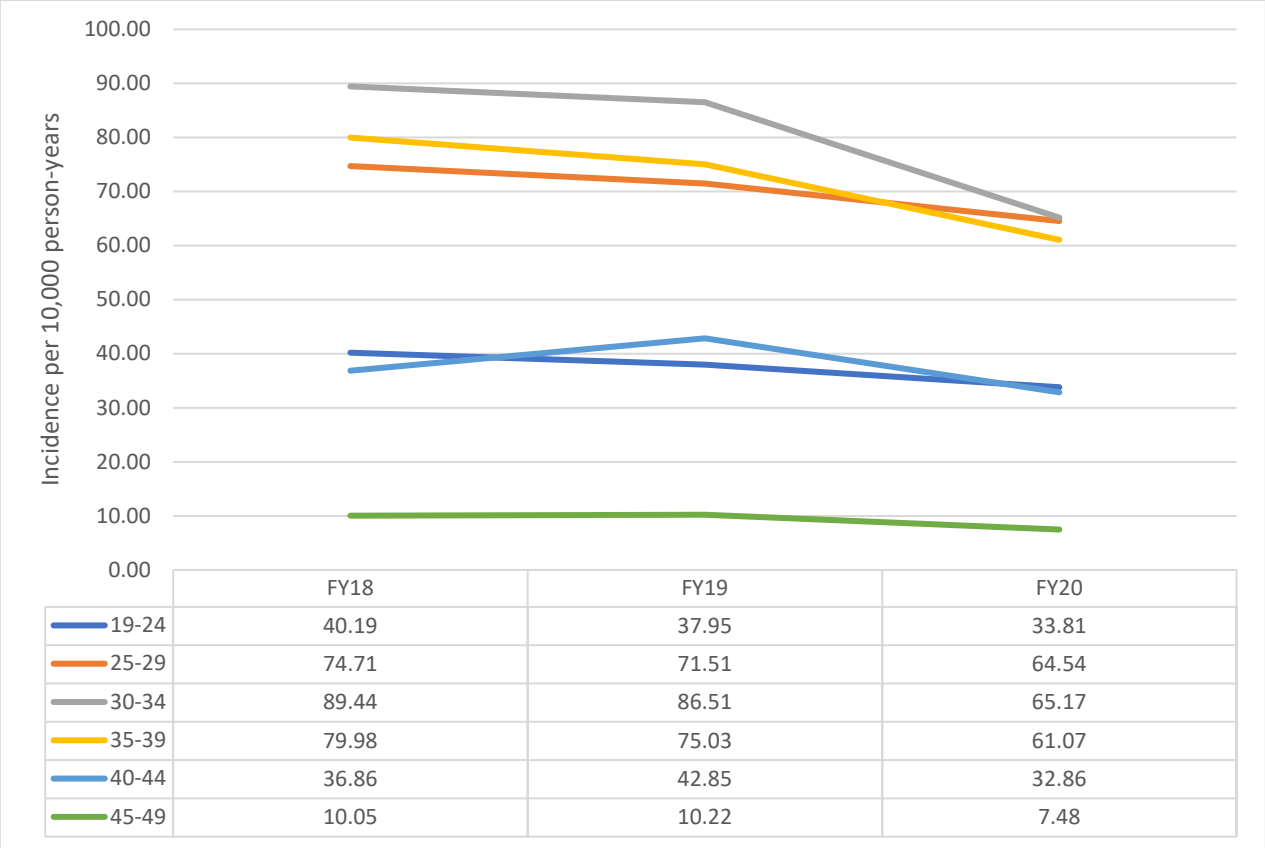


Figure A8. Annual Prevalence Rates of Female Veteran Infertility Diagnoses by Race, FY 2018 – FY 2020



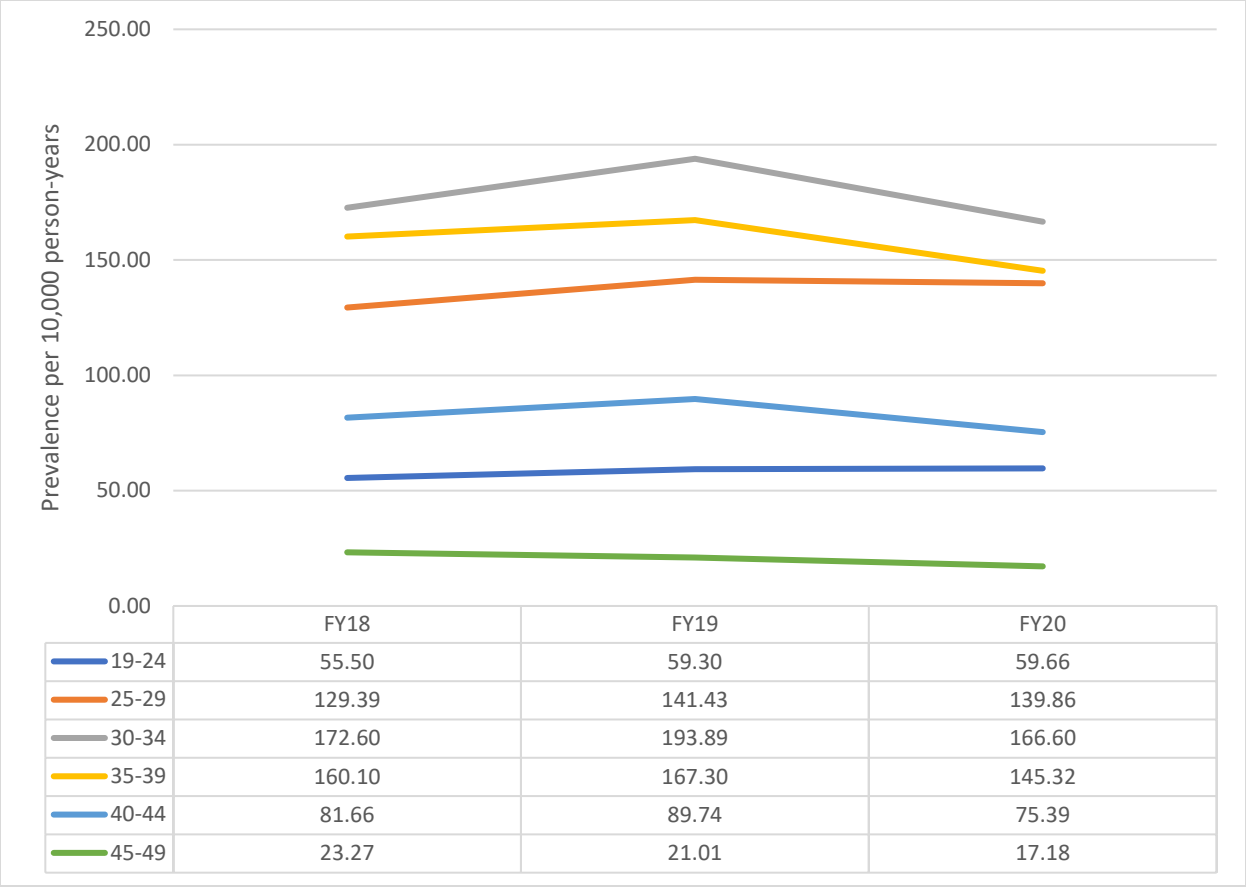
	FY18	FY19	FY20
White	106.68	108.95	102.38
Black	138.45	159.43	148.61
Asian	138.17	163.79	152.92
HawPI	143.36	141.15	145.36
NatAm	126.72	127.52	107.62
Unk	117.24	121.98	109.50

Figure A9. Annual Incidence Rates of Female Veteran Infertility Diagnoses by Age Group, FY 2018 – FY 2020



	FY18	FY19	FY20
19-24	40.19	37.95	33.81
25-29	74.71	71.51	64.54
30-34	89.44	86.51	65.17
35-39	79.98	75.03	61.07
40-44	36.86	42.85	32.86
45-49	10.05	10.22	7.48

Figure A10. Annual Prevalence Rates of Female Veteran Infertility Diagnoses by Age Group, FY 2018 – FY 2020



	FY18	FY19	FY20
19-24	55.50	59.30	59.66
25-29	129.39	141.43	139.86
30-34	172.60	193.89	166.60
35-39	160.10	167.30	145.32
40-44	81.66	89.74	75.39
45-49	23.27	21.01	17.18

Figure A11. Overall Incidence Rates of Female Infertility Diagnoses by Type and Age Group, FY 2018 – FY 2020

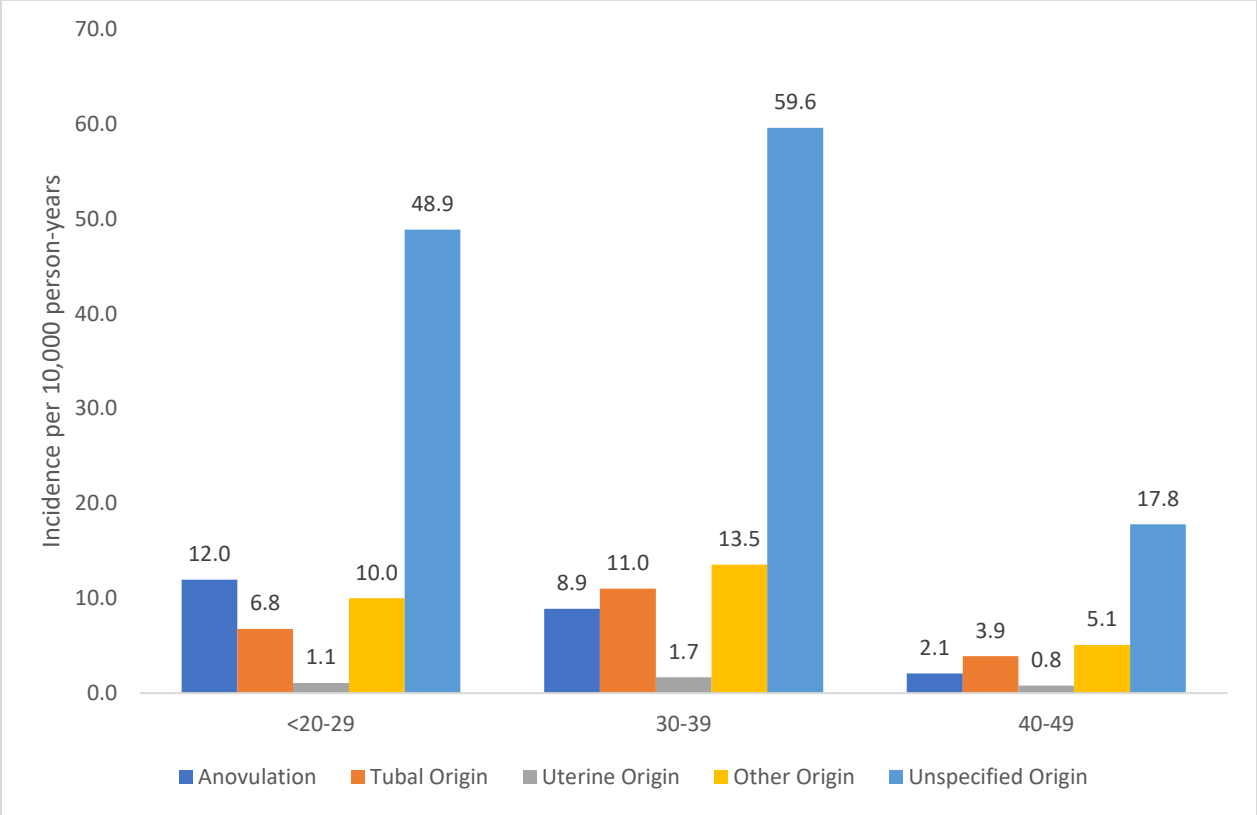


Figure A12. Overall Prevalence Rates of Female Infertility Diagnoses by Type and Age Group, FY 2018 – FY 2020

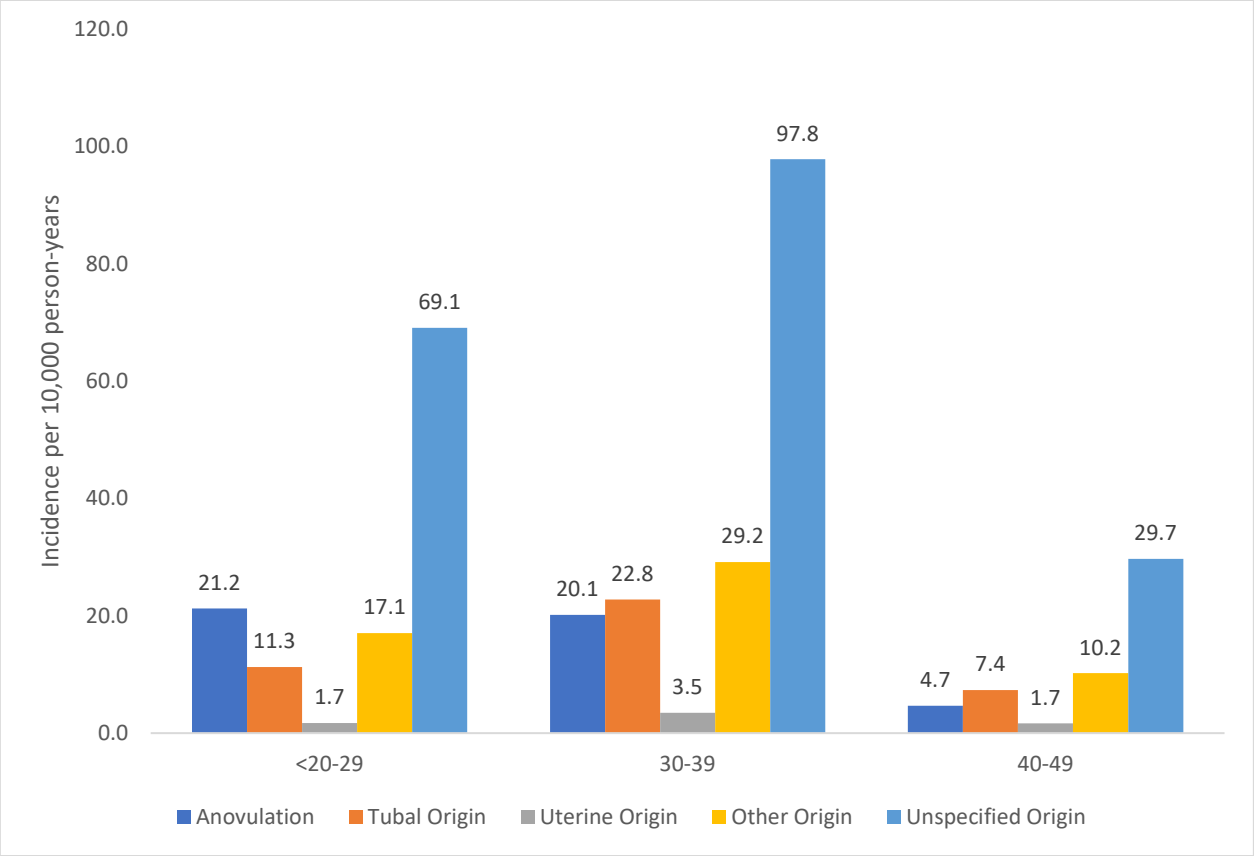


Table 1.2.4. Infertility Procedures Within VHA Facilities for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
Infertility Diagnosis in FY 2018 (N=3,789)						
84443 Assay Thyroid Stim Hormone	1640	46.7%	1316	37.5%	1061	30.2%
83001 Assay of Gonadotropin (FSH)	810	23.1%	239	6.8%	149	4.2%
83002 Assay of Gonadotropin (LH)	793	22.6%	226	6.4%	149	4.2%
84403 Assay of Total Testosterone	750	21.4%	389	11.1%	286	8.1%
84402 Assay of Testosterone	716	20.4%	345	9.8%	247	7.0%
84146 Assay of Prolactin	623	17.7%	176	5.0%	108	3.1%
76870 US Exam, Scrotum	381	10.9%	122	3.5%	73	2.1%
89320 Semen Analysis, Complete	370	10.5%	78	2.2%	28	0.8%
82670 Assay of Estradiol	266	7.6%	107	3.0%	61	1.7%
55400 Repair of Sperm Duct	160	4.6%	38	1.1%	9	0.3%
89321 Semen Anal Sperm Detection	159	4.5%	45	1.3%	20	0.6%
89310 Semen Analysis	141	4.0%	47	1.3%	15	0.4%
89300 Semen Analysis W/Huhner	137	3.9%	38	1.1%	10	0.3%
87070 Culture Bacteria Other	128	3.6%	86	2.4%	69	2.0%
81015 Microscopic Exam of Urine	110	3.1%	92	2.6%	67	1.9%
99070 Hydrosonohysterogram (HSHG)	95	2.7%	115	3.3%	128	3.6%
89329 Sperm Evaluation Test	81	2.3%	28	0.8%	5	0.1%
83516 Immunoassay, Nonantibody	57	1.6%	48	1.4%	33	0.9%
83520 Immunoassay Quant Nos Nonab	31	0.9%	21	0.6%	20	0.6%
55530 Revise Spermatic Cord Veins	27	0.8%	19	0.5%	1	0.0%
84702 Chorionic Gonadotropin Test	26	0.7%	16	0.5%	11	0.3%
82672 Assay of Estrogen	24	0.7%	9	0.3%	6	0.2%
76856 US Exam, Pelvic, Complete	22	0.6%	15	0.4%	11	0.3%
88262 Chromosome Analysis; Count/Karyotype	14	0.4%	7	0.2%	3	0.1%
88280 Chromosome Karyotype Study	13	0.4%	4	0.1%	3	0.1%
76872 Echo Exam, Transrectal	12	0.3%	8	0.2%	2	0.1%

Table 1.2.4. Infertility Procedures Within VHA Facilities for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
84410 Assay Thallium	12	0.3%	5	0.1%	2	0.1%
54505 Biopsy of Testis	9	0.3%	2	0.1%	2	0.1%
54900 Fusion of Spermatic Ducts	8	0.2%	4	0.1%	0	0.0%
76857 US Exam, Pelvic, Limited	7	0.2%	4	0.1%	2	0.1%
55110 Explore Scrotum	6	0.2%	2	0.1%	0	0.0%
84144 Assay of Progesterone	6	0.2%	1	0.0%	2	0.1%
89322 Semen Anal Strict Criteria	6	0.2%	2	0.1%	0	0.0%
37241 Vasc Embolize/Occlude Venous	5	0.1%	2	0.1%	0	0.0%
82397 Chemiluminescent Assay	4	0.1%	4	0.1%	5	0.1%
83498 Assay of Progesterone 17-D	4	0.1%	0	0.0%	0	0.0%
55535 Revise Spermatic Cord Veins	3	0.1%	2	0.1%	0	0.0%
55899 Genital Surgery Procedure	3	0.1%	2	0.1%	0	0.0%
89260 Sperm Isolation, Simple	3	0.1%	0	0.0%	0	0.0%
10021 FNA Bx W/O Img Gdn 1st Les	2	0.1%	1	0.0%	0	0.0%
49320 Diag Laparo Separate Proc	2	0.1%	0	0.0%	0	0.0%
52402 Cystourethro Cut Ejacul Duct	2	0.1%	1	0.0%	0	0.0%
54901 Vasoepididymostomy	2	0.1%	2	0.1%	0	0.0%
80426 Gonadotropin Hormone Panel	2	0.1%	0	0.0%	0	0.0%
82671 Assay of Estrogens	2	0.1%	5	0.1%	1	0.0%
82679 Assay of Estrone	2	0.1%	5	0.1%	3	0.1%
82757 Assay of Semen Fructose	2	0.1%	3	0.1%	0	0.0%
89325 Sperm Antibody Test	2	0.1%	0	0.0%	1	0.0%
54500 Biopsy of Testis	1	0.0%	0	0.0%	0	0.0%
55550 Laparo Ligate Spermatic Vein	1	0.0%	4	0.1%	0	0.0%
74440 X-Ray Male Genital Tract	1	0.0%	1	0.0%	0	0.0%
76831 Echo Exam Uterus	1	0.0%	0	0.0%	0	0.0%
88182 Cell Marker Study	1	0.0%	3	0.1%	1	0.0%
89331 Retrograde Ejaculation Anal	1	0.0%	2	0.1%	3	0.1%
J0725 Chorionic Gonadotropin/1000u	1	0.0%	0	0.0%	0	0.0%

Table 1.2.4. Infertility Procedures Within VHA Facilities for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
10005 FNA Bx W/Us Gdn 1st Les	0	0.0%	3	0.1%	0	0.0%
49321 Laparoscopy Biopsy	0	0.0%	0	0.0%	1	0.0%
Infertility Diagnosis in FY 2019 (N=3,790)						
84443 Assay Thyroid Stim Hormone			1754	46.3%	1176	31.0%
84403 Assay of Total Testosterone			836	22.1%	354	9.3%
84402 Assay of Testosterone			816	21.5%	325	8.6%
83001 Assay of Gonadotropin (FSH)			874	23.1%	256	6.8%
83002 Assay of Gonadotropin (LH)			808	21.3%	243	6.4%
84146 Assay of Prolactin			640	16.9%	187	4.9%
76870 US Exam, Scrotum			410	10.8%	108	2.8%
89320 Semen Analysis, Complete			351	9.3%	81	2.1%
82670 Assay of Estradiol			258	6.8%	103	2.7%
87070 Culture Bacteria Other			117	3.1%	85	2.2%
81015 Microscopic Exam of Urine			127	3.4%	88	2.3%
99070 Hydrosonohysterogram (HSHG)			140	3.7%	131	3.5%
89310 Semen Analysis			197	5.2%	54	1.4%
89321 Semen Anal Sperm Detection			190	5.0%	52	1.4%
83516 Immunoassay, Nonantibody			61	1.6%	39	1.0%
89300 Semen Analysis W/Huhner			137	3.6%	36	0.9%
55400 Repair of Sperm Duct			160	4.2%	36	0.9%
83520 Immunoassay Quant Nos Nonab			27	0.7%	18	0.5%
89329 Sperm Evaluation Test			71	1.9%	11	0.3%
76856 US Exam, Pelvic, Complete			25	0.7%	13	0.3%
84702 Chorionic Gonadotropin Test			31	0.8%	16	0.4%
82672 Assay of Estrogen			23	0.6%	7	0.2%
55530 Revise Spermatic Cord Veins			28	0.7%	11	0.3%
84410 Assay Thallium			18	0.5%	6	0.2%

Table 1.2.4. Infertility Procedures Within VHA Facilities for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
88262 Chromosome Analysis; Count / Karyotype			11	0.3%	7	0.2%
76872 Echo Exam, Transrectal			17	0.4%	6	0.2%
54900 Fusion of Spermatic Ducts			8	0.2%	2	0.1%
88280 Chromosome Karyotype Study			13	0.3%	8	0.2%
54505 Biopsy of Testis			3	0.1%	5	0.1%
55550 Laparo Ligate Spermatic Vein			4	0.1%	2	0.1%
76857 US Exam, Pelvic, Limited			11	0.3%	4	0.1%
82397 Chemiluminescent Assay			5	0.1%	9	0.2%
84144 Assay of Progesterone			4	0.1%	1	0.0%
80426 Gonadotropin Hormone Panel			1	0.0%	0	0.0%
82671 Assay of Estrogens			6	0.2%	7	0.2%
89325 Sperm Antibody Test			2	0.1%	0	0.0%
10021 FNA Bx W/O Img Gdn 1st Les			2	0.1%	1	0.0%
37241 Vasc Embolize/Occlude Venous			6	0.2%	0	0.0%
52402 Cystourethro Cut Ejacul Duct			1	0.0%	0	0.0%
54500 Biopsy of Testis			0	0.0%	1	0.0%
54901 Vasoepididymostomy			3	0.1%	1	0.0%
55110 Explore Scrotum			6	0.2%	2	0.1%
76830 Transvaginal US, Non-Ob			2	0.1%	1	0.0%
76831 Echo Exam Uterus			1	0.0%	0	0.0%
82679 Assay of Estrone			5	0.1%	3	0.1%
83498 Assay of Progesterone 17-D			2	0.1%	1	0.0%
89260 Sperm Isolation, Simple			1	0.0%	0	0.0%
89398 Unlisted Reproductive Medicine Lab Proc			0	0.0%	0	0.0%
J0725 Chorionic Gonadotropin/1000u			0	0.0%	0	0.0%
10004 FNA Bx W/O Img Gdn Ea Addl			0	0.0%	1	0.0%
10005 FNA Bx W/Us Gdn 1st Les			5	0.1%	4	0.1%

Table 1.2.4. Infertility Procedures Within VHA Facilities for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
54840 Remove Epididymis Lesion			1	0.0%	1	0.0%
55500 Removal of Hydrocele			3	0.1%	0	0.0%
55535 Revise Spermatic Cord Veins			4	0.1%	1	0.0%
55540 Revise Hernia and Sperm Veins			0	0.0%	1	0.0%
55870 Electroejaculation			1	0.0%	0	0.0%
55899 Genital Surgery Procedure			4	0.1%	2	0.1%
58555 Hysteroscopy, Dx, Sep Proc			1	0.0%	0	0.0%
74440 X-Ray Male Genital Tract			1	0.0%	0	0.0%
74740 X-Ray, Female Genital Tract			2	0.1%	0	0.0%
82757 Assay of Semen Fructose			7	0.2%	0	0.0%
88182 Cell Marker Study			1	0.0%	1	0.0%
89257 Sperm Identification			0	0.0%	3	0.1%
89261 Sperm Isolation, Complex			1	0.0%	0	0.0%
89264 Identify Sperm Tissue			2	0.1%	0	0.0%
89322 Semen Anal Strict Criteria			4	0.1%	0	0.0%
89331 Retrograde Ejaculation Anal			20	0.5%	6	0.2%
89343 Storage/Year Sperm/Semen			1	0.0%	0	0.0%
S4028 Microsurg Epi Sperm Asp			1	0.0%	0	0.0%
S4030 Sperm Procure init Visit			1	0.0%	0	0.0%
Infertility Diagnosis in FY 2020 (N=3,452)						
84443 Assay Thyroid Stim Hormone					1319	38.2%
84403 Assay of Total Testosterone					619	17.9%
84402 Assay of Testosterone					567	16.4%
83001 Assay of Gonadotropin (FSH)					615	17.8%
83002 Assay of Gonadotropin (LH)					583	16.9%
84146 Assay of Prolactin					441	12.8%
76870 US Exam, Scrotum					255	7.4%
81015 Microscopic Exam of Urine					82	2.4%
99070 Hydrosonohysterogram (HSHG)					124	3.6%

Table 1.2.4. Infertility Procedures Within VHA Facilities for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
87070 Culture Bacteria Other					73	2.1%
82670 Assay of Estradiol					186	5.4%
89320 Semen Analysis, Complete					224	6.5%
83516 Immunoassay, Nonantibody					40	1.2%
89321 Semen Anal Sperm Detection					169	4.9%
89310 Semen Analysis					146	4.2%
89300 Semen Analysis W/Huhner					104	3.0%
55400 Repair of Sperm Duct					91	2.6%
76856 US Exam, Pelvic, Complete					11	0.3%
83520 Immunoassay Quant Nos Nonab					20	0.6%
84702 Chorionic Gonadotropin Test					25	0.7%
82672 Assay of Estrogen					10	0.3%
89329 Sperm Evaluation Test					29	0.8%
55530 Revise Spermatic Cord Veins					14	0.4%
76872 Echo Exam, Transrectal					10	0.3%
88262 Chromosome Analysis; Count / Karyotype					12	0.3%
82397 Chemiluminescent Assay					10	0.3%
84410 Assay Thallium					4	0.1%
52402 Cystourethro Cut Ejacul Duct					1	0.0%
54505 Biopsy of Testis					11	0.3%
55550 Laparo Ligate Spermatic Vein					3	0.1%
82671 Assay of Estrogens					15	0.4%
83498 Assay of Progesterone 17-D					2	0.1%
88280 Chromosome Karyotype Study					8	0.2%
37241 Vasc Embolize/Occlude Venous					0	0.0%
54900 Fusion of Spermatic Ducts					3	0.1%
55110 Explore Scrotum					10	0.3%

Table 1.2.4. Infertility Procedures Within VHA Facilities for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
55535 Revise Spermatic Cord Veins					3	0.1%
74740 X-Ray, Female Genital Tract					1	0.0%
76830 Transvaginal US, Non-Ob					1	0.0%
76857 US Exam, Pelvic, Limited					4	0.1%
80426 Gonadotropin Hormone Panel					0	0.0%
82679 Assay of Estrone					3	0.1%
82757 Assay of Semen Fructose					0	0.0%
84144 Assay of Progesterone					1	0.0%
89325 Sperm Antibody Test					2	0.1%
J0725 Chorionic Gonadotropin/1000u					0	0.0%
S0128 inj Follitropin Beta 75 IU					0	0.0%
10005 FNA Bx W/Us Gdn 1st Les					1	0.0%
10021 FNA Bx W/O Img Gdn 1st Les					0	0.0%
54500 Biopsy of Testis					1	0.0%
54840 Remove Epididymis Lesion					1	0.0%
54860 Removal of Epididymis					1	0.0%
54901 Vasoepididymostomy					3	0.1%
55500 Removal of Hydrocele					0	0.0%
55540 Revise Hernia and Sperm Veins					1	0.0%
55899 Genital Surgery Procedure					2	0.1%
58555 Hysteroscopy, Dx, Sep Proc					0	0.0%
88182 Cell Marker Study					0	0.0%
89257 Sperm Identification					4	0.1%
89261 Sperm Isolation, Complex					0	0.0%
89322 Semen Anal Strict Criteria					5	0.1%
89331 Retrograde Ejaculation Anal					38	1.1%
89398 Unlisted Reproductive Medicine Lab Proc					1	0.0%
S4028 Microsurg Epi Sperm Asp					1	0.0%

Table 1.2.4. Infertility Procedures Within VHA Facilities for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
Note: Procedures depicted here were performed after an infertility diagnosis was made (e.g., procedures for FY 2018 include Veterans diagnosed in FY 2018; procedures for FY 2019 include Veterans diagnosed in FY 2018 or FY 2019; procedures for FY 2020 include Veterans diagnosed in FY 2018, FY 2019 or FY 2020). See Appendix D for a full list of procedures examined. Procedures were performed in VHA.						

Table 1.2.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
Infertility Diagnosis in FY 2018 (N=3,789)						
84443 Assay Thyroid Stim Hormone	11	0.3%	9	0.3%	2	0.1%
84403 Assay of Total Testosterone	8	0.2%	9	0.3%	1	0.0%
55400 Repair of Sperm Duct	7	0.2%	3	0.1%	0	0.0%
89320 Semen Analysis, Complete	7	0.2%	7	0.2%	0	0.0%
89322 Semen Anal Strict Criteria	6	0.2%	4	0.1%	1	0.0%
83001 Assay of Gonadotropin (FSH)	5	0.1%	7	0.2%	1	0.0%
83002 Assay of Gonadotropin (LH)	5	0.1%	6	0.2%	1	0.0%
84146 Assay of Prolactin	4	0.1%	5	0.1%	1	0.0%
99070 Hydrosonohysterogram (Hshg)	4	0.1%	6	0.2%	2	0.1%
87070 Culture Bacteria Other	3	0.1%	6	0.2%	0	0.0%
76870 US Exam, Scrotum	2	0.1%	4	0.1%	0	0.0%
82670 Assay of Estradiol	2	0.1%	5	0.1%	1	0.0%
83520 Immunoassay Quant Nos Nonab	2	0.1%	0	0.0%	0	0.0%
88262 Chromosome Analysis; Count / Karyotype	2	0.1%	0	0.0%	0	0.0%
54505 Biopsy of Testis	1	0.0%	2	0.1%	1	0.0%
54900 Fusion of Spermatic Ducts	1	0.0%	0	0.0%	0	0.0%
58340 Catheter for Hysterography	1	0.0%	1	0.0%	0	0.0%
58700 Removal of Fallopian Tube	1	0.0%	0	0.0%	0	0.0%
58974 Embryo Transfer, IU	1	0.0%	0	0.0%	0	0.0%
76830 Transvaginal US, Non-Ob	1	0.0%	1	0.0%	0	0.0%
76831 Echo Exam Uterus	1	0.0%	1	0.0%	0	0.0%
84144 Assay of Progesterone	1	0.0%	1	0.0%	0	0.0%
84402 Assay of Testosterone	1	0.0%	3	0.1%	0	0.0%
84410 Assay Thallium	1	0.0%	0	0.0%	0	0.0%
84702 Chorionic Gonadotropin Test	1	0.0%	0	0.0%	0	0.0%
89250 Culture of Oocyte(s)/Embryo(s)	1	0.0%	0	0.0%	0	0.0%

Table 1.2.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
89253 Assisted Embryo Hatching	1	0.0%	0	0.0%	0	0.0%
89254 Oocyte Identification Follicular Fld	1	0.0%	0	0.0%	0	0.0%
89255 Prep Embryo for Transfer	1	0.0%	0	0.0%	0	0.0%
89259 Cryopreservation; Sperm	1	0.0%	2	0.1%	0	0.0%
89260 Sperm Isolation, Simple	1	0.0%	1	0.0%	1	0.0%
89261 Sperm Isolation, Complex	1	0.0%	1	0.0%	0	0.0%
89264 Identify Sperm Tissue	1	0.0%	2	0.1%	1	0.0%
89280 Assisted Oocyte Fertilization	1	0.0%	0	0.0%	0	0.0%
89321 Semen Anal Sperm Detection	1	0.0%	0	0.0%	0	0.0%
54901 Vasoepididymostomy	0	0.0%	1	0.0%	0	0.0%
55870 Electroejaculation	0	0.0%	1	0.0%	0	0.0%
55899 Genital Surgery Procedure	0	0.0%	1	0.0%	0	0.0%
58970 Follicle Puncture for Oocyte Retrieval	0	0.0%	1	0.0%	0	0.0%
76948 Ultrasonic Guid Ova Aspiratn	0	0.0%	1	0.0%	0	0.0%
81015 Microscopic Exam of Urine	0	0.0%	1	0.0%	0	0.0%
82397 Chemiluminescent Assay	0	0.0%	1	0.0%	0	0.0%
89331 Retrograde Ejaculation Anal	0	0.0%	1	0.0%	0	0.0%
89335 Cryopreservation, Testic	0	0.0%	1	0.0%	1	0.0%
89398 Unlisted Reproductive Medicine Lab Proc	0	0.0%	1	0.0%	1	0.0%
Infertility Diagnosis in FY 2019 (N=3,790)						
84443 Assay Thyroid Stim Hormone			7	0.2%	1	0.0%
87070 Culture Bacteria Other			5	0.1%	0	0.0%
89320 Semen Analysis, Complete			5	0.1%	0	0.0%
82670 Assay of Estradiol			4	0.1%	1	0.0%
83001 Assay of Gonadotropin (FSH)			4	0.1%	1	0.0%
84403 Assay of Total Testosterone			4	0.1%	1	0.0%

Table 1.2.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
76870 US Exam, Scrotum			3	0.1%	0	0.0%
83002 Assay of Gonadotropin (LH)			3	0.1%	1	0.0%
84146 Assay of Prolactin			3	0.1%	1	0.0%
89322 Semen Anal Strict Criteria			3	0.1%	1	0.0%
54505 Biopsy of Testis			2	0.1%	1	0.0%
55400 Repair of Sperm Duct			2	0.1%	0	0.0%
84402 Assay of Testosterone			2	0.1%	0	0.0%
89264 Identify Sperm Tissue			2	0.1%	1	0.0%
99070 Hydrosonohysterogram (Hshg)			2	0.1%	1	0.0%
58340 Catheter for Hysterography			1	0.0%	0	0.0%
58970 Follicle Puncture for Oocyte Retrieval			1	0.0%	0	0.0%
76830 Transvaginal US, Non-Ob			1	0.0%	0	0.0%
76831 Echo Exam Uterus			1	0.0%	0	0.0%
76948 Ultrasonic Guid Ova Aspiratn			1	0.0%	0	0.0%
82397 Chemiluminescent Assay			1	0.0%	0	0.0%
84144 Assay of Progesterone			1	0.0%	0	0.0%
89259 Cryopreservation; Sperm			1	0.0%	0	0.0%
89260 Sperm Isolation, Simple			1	0.0%	1	0.0%
89261 Sperm Isolation, Complex			1	0.0%	0	0.0%
89335 Cryopreservation, Testic			1	0.0%	1	0.0%
89398 Unlisted Reproductive Medicine Lab Proc			1	0.0%	1	0.0%
Infertility Diagnosis in FY 2020 (N=3,452)						
83001 Assay of Gonadotropin (FSH)					4	0.1%
83002 Assay of Gonadotropin (LH)					4	0.1%
83520 Immunoassay Quant Nos Nonab					2	0.1%
84146 Assay of Prolactin					2	0.1%
84403 Assay of Total Testosterone					4	0.1%

Table 1.2.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Male Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,766)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
84443 Assay Thyroid Stim Hormone					3	0.1%
87070 Culture Bacteria Other					3	0.1%
88262 Chromosome Analysis; Count / Karyotype					2	0.1%
54505 Biopsy of Testis					2	0.1%
76870 US Exam, Scrotum					3	0.1%
82670 Assay of Estradiol					4	0.1%
84146 Assay of Prolactin					5	0.1%
84402 Assay of Testosterone					3	0.1%
84443 Assay Thyroid Stim Hormone					4	0.1%
87070 Culture Bacteria Other					3	0.1%
89264 Identify Sperm Tissue					2	0.1%
89320 Semen Analysis, Complete					4	0.1%
89322 Semen Anal Strict Criteria					2	0.1%
99070 Hydrosonohysterogram (Hshg)					2	0.1%
83001 Assay of Gonadotropin (FSH)					2	0.1%
83002 Assay of Gonadotropin (LH)					2	0.1%
84403 Assay of Total Testosterone					2	0.1%
84443 Assay Thyroid Stim Hormone					2	0.1%
Note: Procedures depicted here were performed after an infertility diagnosis was made (e.g., procedures for FY 2018 include Veterans diagnosed in FY 2018; procedures for FY 2019 include Veterans diagnosed in FY 2018 or FY 2019; procedures for FY 2020 include Veterans diagnosed in FY 2018, FY 2019 or FY 2020). See Appendix D for a full list of procedures examined. Procedures were performed in the community. No data on spouses were available.						

Table 1.3.4. Infertility Procedures Provided Within VHA Facilities for Female Veterans Diagnosed with Infertility by Year of Diagnosis, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
Infertility Diagnosis in FY 2018 (N=3,789)						
84443 Assay Thyroid Stim Hormone	2190	57.8%	1686	44.5%	1351	35.7%
83001 Assay of Gonadotropin (FSH)	1021	26.9%	272	7.2%	183	4.8%
84146 Assay of Prolactin	929	24.5%	272	7.2%	176	4.6%
76830 Transvaginal US, Non-Ob	845	22.3%	350	9.2%	264	7.0%
76856 US Exam, Pelvic, Complete	799	21.1%	354	9.3%	241	6.4%
83002 Assay of Gonadotropin (LH)	768	20.3%	197	5.2%	123	3.2%
84702 Chorionic Gonadotropin Test	609	16.1%	444	11.7%	306	8.1%
82670 Assay of Estradiol	608	16.0%	169	4.5%	116	3.1%
84144 Assay of Progesterone	377	9.9%	112	3.0%	64	1.7%
84403 Assay of Total Testosterone	328	8.7%	82	2.2%	73	1.9%
84402 Assay of Testosterone	272	7.2%	68	1.8%	58	1.5%
83520 Immunoassay Quant Nos Nonab	271	7.2%	65	1.7%	29	0.8%
74740 X-Ray, Female Genital Tract	247	6.5%	69	1.8%	15	0.4%
83498 Assay of Progesterone 17-D	236	6.2%	66	1.7%	36	1.0%
81015 Microscopic Exam of Urine	219	5.8%	162	4.3%	127	3.4%
87070 Culture Bacteria Other	209	5.5%	188	5.0%	114	3.0%
58340 Catheter for Hysterography	180	4.8%	47	1.2%	9	0.2%
82397 Chemiluminescent Assay	127	3.4%	70	1.8%	58	1.5%
83516 Immunoassay, Nonantibody	86	2.3%	61	1.6%	44	1.2%
82672 Assay of Estrogen	68	1.8%	18	0.5%	24	0.6%
58100 Biopsy of Uterus Lining	66	1.7%	36	1.0%	35	0.9%
58558 Hysteroscopy, Biopsy	44	1.2%	27	0.7%	9	0.2%
99070 Hydrosonohysterogram (HSHG)	44	1.2%	39	1.0%	41	1.1%
76857 US Exam, Pelvic, Limited	33	0.9%	20	0.5%	16	0.4%
58350 Reopen Fallopian Tube	24	0.6%	19	0.5%	6	0.2%
88182 Cell Marker Study	23	0.6%	7	0.2%	8	0.2%
58555 Hysteroscopy, Dx, Sep Proc	20	0.5%	15	0.4%	2	0.1%

Table 1.3.4. Infertility Procedures Provided Within VHA Facilities for Female Veterans Diagnosed with Infertility by Year of Diagnosis, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
58662 Laparoscopy, Excise Lesions	17	0.4%	8	0.2%	7	0.2%
76831 Echo Exam Uterus	17	0.4%	4	0.1%	4	0.1%
49320 Diag Laparo Separate Proc	15	0.4%	10	0.3%	2	0.1%
58345 Reopen Fallopian Tube	15	0.4%	4	0.1%	0	0.0%
82679 Assay of Estrone	12	0.3%	1	0.0%	3	0.1%
88262 Chromosome Analysis; Count / Karyotype	10	0.3%	6	0.2%	1	0.0%
58561 Hysteroscopy, Remove Myoma	9	0.2%	5	0.1%	2	0.1%
58670 Laparoscopy Tubal Cautery	6	0.2%	2	0.1%	1	0.0%
58660 Laparoscopy, Lysis	5	0.1%	5	0.1%	3	0.1%
82671 Assay of Estrogens	5	0.1%	1	0.0%	1	0.0%
88280 Chromosome Karyotype Study	4	0.1%	1	0.0%	2	0.1%
58545 Laparoscopic Myomectomy	3	0.1%	2	0.1%	1	0.0%
58559 Hysteroscopy, Lysis	3	0.1%	0	0.0%	1	0.0%
58672 Laparoscopy Fimbrioplasty	3	0.1%	3	0.1%	0	0.0%
58140 Removal of Uterus Lesion	2	0.1%	2	0.1%	2	0.1%
58146 Myomectomy Abdom Complex	2	0.1%	4	0.1%	0	0.0%
58700 Removal of Fallopian Tube	2	0.1%	1	0.0%	0	0.0%
58750 Repair Oviduct	2	0.1%	2	0.1%	0	0.0%
58760 Fimbrioplasty	2	0.1%	0	0.0%	0	0.0%
76870 US Exam, Scrotum	2	0.1%	2	0.1%	0	0.0%
84410 Assay Thallium	2	0.1%	0	0.0%	0	0.0%
10021 FNA Bx W/O Img Gdn 1st Les	1	0.0%	2	0.1%	0	0.0%
49321 Laparoscopy Biopsy	1	0.0%	2	0.1%	0	0.0%
58673 Laparoscopy Salpingostomy	1	0.0%	0	0.0%	0	0.0%
10005 FNA Bx W/Us Gdn 1st Les	0	0.0%	4	0.1%	4	0.1%
58560 Hysteroscopy Resect Septum	0	0.0%	0	0.0%	1	0.0%
58740 Revise Fallopian Tube(s)	0	0.0%	0	0.0%	1	0.0%
S4035 Stimulated IUI Case Rate	0	0.0%	1	0.0%	0	0.0%

Table 1.3.4. Infertility Procedures Provided Within VHA Facilities for Female Veterans Diagnosed with Infertility by Year of Diagnosis, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
Infertility Diagnosis in FY 2019 (N=4,194)						
84443 Assay Thyroid Stim Hormone			2312	55.1%	1517	36.2%
83001 Assay of Gonadotropin (FSH)			1040	24.8%	225	5.4%
84146 Assay of Prolactin			914	21.8%	229	5.5%
76830 Transvaginal US, Non-Ob			833	19.9%	303	7.2%
76856 US Exam, Pelvic, Complete			811	19.3%	285	6.8%
83002 Assay of Gonadotropin (LH)			735	17.5%	154	3.7%
82670 Assay of Estradiol			649	15.5%	159	3.8%
84702 Chorionic Gonadotropin Test			644	15.4%	389	9.3%
84144 Assay of Progesterone			346	8.2%	101	2.4%
84403 Assay of Total Testosterone			309	7.4%	69	1.6%
82397 Chemiluminescent Assay			289	6.9%	81	1.9%
74740 X-Ray, Female Genital Tract			286	6.8%	58	1.4%
84402 Assay of Testosterone			271	6.5%	66	1.6%
83498 Assay of Progesterone 17-D			240	5.7%	65	1.5%
87070 Culture Bacteria Other			239	5.7%	136	3.2%
81015 Microscopic Exam of Urine			234	5.6%	162	3.9%
83520 Immunoassay Quant Nos Nonab			212	5.1%	49	1.2%
58340 Catheter for Hysterography			134	3.2%	35	0.8%
82672 Assay of Estrogen			65	1.5%	31	0.7%
83516 Immunoassay, Nonantibody			55	1.3%	56	1.3%
99070 Hydrosonohysterogram (HSHG)			53	1.3%	46	1.1%
58558 Hysteroscopy, Biopsy			45	1.1%	19	0.5%
58100 Biopsy of Uterus Lining			43	1.0%	36	0.9%
76857 US Exam, Pelvic, Limited			37	0.9%	17	0.4%
58350 Reopen Fallopian Tube			28	0.7%	6	0.1%
58555 Hysteroscopy, Dx, Sep Proc			26	0.6%	7	0.2%
88182 Cell Marker Study			22	0.5%	9	0.2%
49320 Diag Laparo Separate Proc			16	0.4%	4	0.1%

Table 1.3.4. Infertility Procedures Provided Within VHA Facilities for Female Veterans Diagnosed with Infertility by Year of Diagnosis, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
58662 Laparoscopy, Excise Lesions			15	0.4%	6	0.1%
88262 Chromosome Analysis; Count / Karyotype			14	0.3%	3	0.1%
58345 Reopen Fallopian Tube			9	0.2%	2	0.0%
76831 Echo Exam Uterus			8	0.2%	7	0.2%
88280 Chromosome Karyotype Study			8	0.2%	1	0.0%
58140 Removal of Uterus Lesion			7	0.2%	1	0.0%
58660 Laparoscopy, Lysis			7	0.2%	3	0.1%
82671 Assay of Estrogens			7	0.2%	3	0.1%
82679 Assay of Estrone			7	0.2%	4	0.1%
58561 Hysteroscopy, Remove Myoma			6	0.1%	5	0.1%
49321 Laparoscopy Biopsy			5	0.1%	1	0.0%
58146 Myomectomy Abdom Complex			5	0.1%	0	0.0%
58750 Repair Oviduct			5	0.1%	0	0.0%
10005 FNA Bx W/Us Gdn 1st Les			4	0.1%	6	0.1%
58545 Laparoscopic Myomectomy			4	0.1%	2	0.0%
58670 Laparoscopy Tubal Cautery			4	0.1%	2	0.0%
58672 Laparoscopy Fimbrioplasty			3	0.1%	1	0.0%
58925 Removal of Ovarian Cyst(s)			3	0.1%	0	0.0%
58673 Laparoscopy Salpingostomy			2	0.0%	0	0.0%
58560 Hysteroscopy Resect Septum			1	0.0%	0	0.0%
58700 Removal of Fallopian Tube			1	0.0%	0	0.0%
58740 Revise Fallopian Tube(s)			1	0.0%	0	0.0%
76870 US Exam, Scrotum			1	0.0%	0	0.0%
84410 Assay Thallium			1	0.0%	0	0.0%
89300 Semen Analysis W/Huhner			1	0.0%	0	0.0%
S4035 Stimulated IUI Case Rate			1	0.0%	0	0.0%
10021 FNA Bx W/O Img Gdn 1st Les			0	0.0%	1	0.0%
58546 Laparo-Myomectomy, Complex			0	0.0%	1	0.0%

Table 1.3.4. Infertility Procedures Provided Within VHA Facilities for Female Veterans Diagnosed with Infertility by Year of Diagnosis, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
58559 Hysteroscopy, Lysis			0	0.0%	2	0.0%
Infertility Diagnosis in FY 2020 (N=3,850)						
84443 Assay Thyroid Stim Hormone					1738	45.1%
83001 Assay of Gonadotropin (FSH)					684	17.8%
84146 Assay of Prolactin					607	15.8%
76830 Transvaginal US, Non-Ob					561	14.6%
76856 US Exam, Pelvic, Complete					525	13.6%
84702 Chorionic Gonadotropin Test					486	12.6%
82670 Assay of Estradiol					461	12.0%
83002 Assay of Gonadotropin (LH)					452	11.7%
82397 Chemiluminescent Assay					270	7.0%
84144 Assay of Progesterone					269	7.0%
84403 Assay of Total Testosterone					197	5.1%
84402 Assay of Testosterone					193	5.0%
74740 X-Ray, Female Genital Tract					190	4.9%
87070 Culture Bacteria Other					161	4.2%
83498 Assay of Progesterone 17-D					160	4.2%
81015 Microscopic Exam of Urine					152	3.9%
83520 Immunoassay Quant Nos Nonab					108	2.8%
58340 Catheter for Hysterography					80	2.1%
82672 Assay of Estrogen					56	1.5%
83516 Immunoassay, Nonantibody					53	1.4%
99070 Hydrosonohysterogram (HSHG)					43	1.1%
58100 Biopsy of Uterus Lining					42	1.1%
58558 Hysteroscopy, Biopsy					29	0.8%
58350 Reopen Fallopian Tube					23	0.6%
76857 US Exam, Pelvic, Limited					22	0.6%
49320 Diag Laparo Separate Proc					10	0.3%
58555 Hysteroscopy, Dx, Sep Proc					10	0.3%

Table 1.3.4. Infertility Procedures Provided Within VHA Facilities for Female Veterans Diagnosed with Infertility by Year of Diagnosis, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
58662 Laparoscopy, Excise Lesions					9	0.2%
88182 Cell Marker Study					9	0.2%
76831 Echo Exam Uterus					8	0.2%
82671 Assay of Estrogens					6	0.2%
82679 Assay of Estrone					6	0.2%
88262 Chromosome Analysis; Count / Karyotype					6	0.2%
58561 Hysteroscopy, Remove Myoma					5	0.1%
58345 Reopen Fallopian Tube					4	0.1%
10005 FNA Bx W/Us Gdn 1st Les					3	0.1%
58559 Hysteroscopy, Lysis					3	0.1%
58660 Laparoscopy, Lysis					3	0.1%
49321 Laparoscopy Biopsy					2	0.1%
58140 Removal of Uterus Lesion					2	0.1%
58545 Laparoscopic Myomectomy					2	0.1%
58670 Laparoscopy Tubal Cautery					2	0.1%
58750 Repair Oviduct					2	0.1%
84410 Assay Thallium					2	0.1%
10006 FNA Bx W/Us Gdn Ea Addl					1	0.0%
58145 Myomectomy Vag Method					1	0.0%
58546 Laparo-Myomectomy, Complex					1	0.0%
58560 Hysteroscopy Resect Septum					1	0.0%
58672 Laparoscopy Fimbrioplasty					1	0.0%
74742 X-Ray Fallopian Tube					1	0.0%
Note: Procedures depicted here were performed after an infertility diagnosis was made (e.g., procedures for FY 2018 include Veterans diagnosed in FY 2018; procedures for FY 2019 include Veterans diagnosed in FY 2018 or FY 2019; procedures for FY 2020 include Veterans diagnosed in FY 2018, FY 2019 or FY 2020). See Appendix D for a full list of procedures examined. Procedures were performed in VHA.						

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
Infertility Diagnosis in FY 2018 (N=3,789)						
84702 Chorionic Gonadotropin Test	101	2.7%	163	4.3%	11	0.3%
76830 Transvaginal US, Non-Ob	71	1.9%	109	2.9%	10	0.3%
84443 Assay Thyroid Stim Hormone	71	1.9%	115	3.0%	5	0.1%
84144 Assay of Progesterone	57	1.5%	78	2.1%	5	0.1%
58340 Catheter for Hysterography	49	1.3%	80	2.1%	8	0.2%
76856 US Exam, Pelvic, Complete	48	1.3%	57	1.5%	4	0.1%
82670 Assay of Estradiol	44	1.2%	76	2.0%	5	0.1%
76857 US Exam, Pelvic, Limited	39	1.0%	63	1.7%	10	0.3%
74740 X-Ray, Female Genital Tract	38	1.0%	61	1.6%	8	0.2%
84146 Assay of Prolactin	32	0.8%	32	0.8%	1	0.0%
83001 Assay of Gonadotropin (FSH)	29	0.8%	39	1.0%	5	0.1%
83002 Assay of Gonadotropin (LH)	23	0.6%	40	1.1%	3	0.1%
58322 Artificial Insemination; Intra-Uterine	20	0.5%	39	1.0%	5	0.1%
83520 Immunoassay Quant Nos Nonab	20	0.5%	29	0.8%	0	0.0%
76831 Echo Exam Uterus	19	0.5%	25	0.7%	1	0.0%
87070 Culture Bacteria Other	19	0.5%	25	0.7%	1	0.0%
82397 Chemiluminescent Assay	16	0.4%	22	0.6%	3	0.1%
84403 Assay of Total Testosterone	14	0.4%	12	0.3%	4	0.1%
58558 Hysteroscopy, Biopsy	11	0.3%	16	0.4%	2	0.1%
58750 Repair Oviduct	11	0.3%	6	0.2%	1	0.0%
83498 Assay of Progesterone 17-D	11	0.3%	11	0.3%	1	0.0%
89261 Sperm Isolation, Complex	10	0.3%	14	0.4%	1	0.0%
58974 Embryo Transfer, IU	9	0.2%	15	0.4%	0	0.0%
99070 Hydrosonohysterogram (Hshg)	9	0.2%	11	0.3%	0	0.0%
89258 Cryopreservation; Embryo(s)	8	0.2%	7	0.2%	0	0.0%
89272 Extended Culture of Oocyte(s)/Embryo(s)	8	0.2%	9	0.2%	0	0.0%

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
58662 Laparoscopy, Excise Lesions	7	0.2%	10	0.3%	1	0.0%
58970 Follicle Puncture for Oocyte Retrieval	7	0.2%	9	0.2%	0	0.0%
83516 Immunoassay, Nonantibody	7	0.2%	12	0.3%	0	0.0%
49320 Diag Laparo Separate Proc	6	0.2%	6	0.2%	0	0.0%
76948 Ultrasonic Guid Ova Aspiratn	6	0.2%	9	0.2%	0	0.0%
58100 Biopsy of Uterus Lining	5	0.1%	5	0.1%	2	0.1%
58323 Sperm Washing for Artificial Insemination	5	0.1%	9	0.2%	0	0.0%
89250 Culture of Oocyte(s)/Embryo(s)	5	0.1%	7	0.2%	0	0.0%
89254 Oocyte Identification Follicular Fld	5	0.1%	7	0.2%	0	0.0%
89255 Prep Embryo for Transfer	5	0.1%	13	0.3%	0	0.0%
89280 Assisted Oocyte Fertilization	5	0.1%	3	0.1%	0	0.0%
58350 Reopen Fallopian Tube	4	0.1%	10	0.3%	1	0.0%
89253 Assisted Embryo Hatching	4	0.1%	4	0.1%	0	0.0%
89352 Thaw Cryopreserved; Embryo(s)	4	0.1%	11	0.3%	0	0.0%
58140 Removal of Uterus Lesion	3	0.1%	1	0.0%	0	0.0%
58146 Myomectomy Abdom Complex	3	0.1%	2	0.1%	0	0.0%
58555 Hysteroscopy, Dx, Sep Proc	3	0.1%	7	0.2%	0	0.0%
58660 Laparoscopy, Lysis	3	0.1%	3	0.1%	0	0.0%
84402 Assay of Testosterone	3	0.1%	5	0.1%	2	0.1%
89342 Storage/Year Embryos	3	0.1%	2	0.1%	0	0.0%
58560 Hysteroscopy Resect Septum	2	0.1%	1	0.0%	0	0.0%
58561 Hysteroscopy, Remove Myoma	2	0.1%	3	0.1%	0	0.0%
88262 Chromosome Analysis; Count / Karyotype	2	0.1%	8	0.2%	0	0.0%
88280 Chromosome Karyotype Study	2	0.1%	0	0.0%	1	0.0%

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
89353 Thaw Cryopreserved; Sperm/Semen	2	0.1%	4	0.1%	0	0.0%
49321 Laparoscopy Biopsy	1	0.0%	1	0.0%	0	0.0%
58345 Reopen Fallopian Tube	1	0.0%	0	0.0%	0	0.0%
58700 Removal of Fallopian Tube	1	0.0%	0	0.0%	0	0.0%
80415 Assess Estradiol	1	0.0%	0	0.0%	0	0.0%
81015 Microscopic Exam of Urine	1	0.0%	6	0.2%	1	0.0%
82671 Assay of Estrogens	1	0.0%	1	0.0%	0	0.0%
89264 Identify Sperm Tissue	1	0.0%	0	0.0%	0	0.0%
89268 Insemination of Oocytes	1	0.0%	2	0.1%	0	0.0%
89281 Assisted Oocyte Fertilization	1	0.0%	5	0.1%	0	0.0%
89290 Biopsy, Oocyte Polar Body or Embryo Blastomere	1	0.0%	2	0.1%	0	0.0%
89291 Biopsy, Oocyte Polar Body or Embryo Blastomere	1	0.0%	1	0.0%	0	0.0%
89310 Semen Analysis	1	0.0%	0	0.0%	0	0.0%
J0725 Chorionic Gonadotropin/1000u	1	0.0%	1	0.0%	0	0.0%
58321 Artificial Insemination; Intra-Cervical	0	0.0%	1	0.0%	0	0.0%
58546 Laparo-Myomectomy, Complex	0	0.0%	1	0.0%	0	0.0%
58559 Hysteroscopy, Lysis	0	0.0%	1	0.0%	1	0.0%
58672 Laparoscopy Fimbrioplasty	0	0.0%	1	0.0%	0	0.0%
58805 Drain Ovarian Cyst(s)	0	0.0%	1	0.0%	0	0.0%
58999 Genital Surgery Procedure	0	0.0%	1	0.0%	0	0.0%
84410 Assay Thallium	0	0.0%	1	0.0%	0	0.0%
88182 Cell Marker Study	0	0.0%	2	0.1%	0	0.0%
88285 Chromosome An >25 Cells	0	0.0%	1	0.0%	0	0.0%
89251 Culture of Oocyte(s)/Embryo(s)	0	0.0%	1	0.0%	0	0.0%
89259 Cryopreservation; Sperm	0	0.0%	1	0.0%	0	0.0%
89260 Sperm Isolation, Simple	0	0.0%	3	0.1%	0	0.0%
89322 Semen Anal Strict Criteria	0	0.0%	2	0.1%	0	0.0%

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
89398 Unlisted Reproductive Medicine Lab Proc	0	0.0%	1	0.0%	0	0.0%
S0128 Inj Follitropin Beta 75 IU	0	0.0%	1	0.0%	0	0.0%
Infertility Diagnosis in FY 2019 (N=4,194)						
84702 Chorionic Gonadotropin Test			92	2.2%	9	0.2%
76830 Transvaginal US, Non-Ob			73	1.7%	9	0.2%
84443 Assay Thyroid Stim Hormone			56	1.3%	2	0.0%
84144 Assay of Progesterone			51	1.2%	6	0.1%
58340 Catheter for Hysterography			47	1.1%	5	0.1%
82670 Assay of Estradiol			47	1.1%	3	0.1%
76856 US Exam, Pelvic, Complete			41	1.0%	1	0.0%
76857 US Exam, Pelvic, Limited			37	0.9%	6	0.1%
74740 X-Ray, Female Genital Tract			34	0.8%	5	0.1%
83002 Assay of Gonadotropin (LH)			30	0.7%	2	0.0%
83001 Assay of Gonadotropin (FSH)			27	0.6%	3	0.1%
84146 Assay of Prolactin			26	0.6%	1	0.0%
58322 Artificial Insemination; Intra-Uterine			21	0.5%	6	0.1%
76831 Echo Exam Uterus			18	0.4%	0	0.0%
82397 Chemiluminescent Assay			17	0.4%	3	0.1%
83520 Immunoassay Quant Nos Nonab			15	0.4%	0	0.0%
58558 Hysteroscopy, Biopsy			12	0.3%	2	0.0%
58974 Embryo Transfer, IU			12	0.3%	0	0.0%
87070 Culture Bacteria Other			11	0.3%	0	0.0%
58350 Reopen Fallopian Tube			10	0.2%	1	0.0%
83498 Assay of Progesterone 17-D			10	0.2%	1	0.0%
84403 Assay of Total Testosterone			10	0.2%	2	0.0%
89255 Prep Embryo for Transfer			10	0.2%	0	0.0%
89261 Sperm Isolation, Complex			10	0.2%	1	0.0%

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
58970 Follicle Puncture for Oocyte Retrieval			9	0.2%	0	0.0%
89272 Extended Culture of Oocyte(s)/Embryo(s)			9	0.2%	0	0.0%
89352 Thaw Cryopreserved; Embryo(s)			9	0.2%	0	0.0%
76948 Ultrasonic Guid Ova Aspiratn			8	0.2%	0	0.0%
89250 Culture of Oocyte(s)/Embryo(s)			8	0.2%	0	0.0%
99070 Hydrosonohysterogram (Hshg)			8	0.2%	0	0.0%
58662 Laparoscopy, Excise Lesions			7	0.2%	1	0.0%
83516 Immunoassay, Nonantibody			7	0.2%	0	0.0%
89254 Oocyte Identification Follicular Fld			7	0.2%	0	0.0%
89258 Cryopreservation; Embryo(s)			7	0.2%	0	0.0%
58100 Biopsy of Uterus Lining			6	0.1%	1	0.0%
58323 Sperm Washing for Artificial Insemination			6	0.1%	0	0.0%
84402 Assay of Testosterone			6	0.1%	1	0.0%
49320 Diag Laparo Separate Proc			5	0.1%	0	0.0%
58555 Hysteroscopy, Dx, Sep Proc			5	0.1%	0	0.0%
58750 Repair Oviduct			5	0.1%	0	0.0%
81015 Microscopic Exam of Urine			5	0.1%	0	0.0%
88262 Chromosome Analysis; Count / Karyotype			5	0.1%	0	0.0%
89281 Assisted Oocyte Fertilization			5	0.1%	0	0.0%
89253 Assisted Embryo Hatching			4	0.1%	0	0.0%
58140 Removal of Uterus Lesion			3	0.1%	0	0.0%
58146 Myomectomy Abdom Complex			3	0.1%	0	0.0%
58561 Hysteroscopy, Remove Myoma			3	0.1%	0	0.0%

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
89353 Thaw Cryopreserved; Sperm/Semen			3	0.1%	0	0.0%
58546 Laparo-Myomectomy, Complex			2	0.0%	0	0.0%
89268 Insemination of Oocytes			2	0.0%	0	0.0%
89280 Assisted Oocyte Fertilization			2	0.0%	0	0.0%
89342 Storage/Year Embryos			2	0.0%	0	0.0%
49321 Laparoscopy Biopsy			1	0.0%	0	0.0%
58559 Hysteroscopy, Lysis			1	0.0%	0	0.0%
58560 Hysteroscopy Resect Septum			1	0.0%	0	0.0%
58660 Laparoscopy, Lysis			1	0.0%	0	0.0%
58700 Removal of Fallopian Tube			1	0.0%	0	0.0%
58805 Drain Ovarian Cyst(s)			1	0.0%	0	0.0%
58925 Removal of Ovarian Cyst(s)			1	0.0%	0	0.0%
84410 Assay Thallium			1	0.0%	0	0.0%
88182 Cell Marker Study			1	0.0%	0	0.0%
88280 Chromosome Karyotype Study			1	0.0%	0	0.0%
88285 Chromosome An >25 Cells			1	0.0%	0	0.0%
89251 Culture of Oocyte(s)/Embryo(s)			1	0.0%	0	0.0%
89259 Cryopreservation; Sperm			1	0.0%	0	0.0%
89260 Sperm Isolation, Simple			1	0.0%	0	0.0%
89290 Biopsy, Oocyte Polar Body or Embryo Blastomere			1	0.0%	0	0.0%
89291 Biopsy, Oocyte Polar Body or Embryo Blastomere			1	0.0%	0	0.0%
89322 Semen Anal Strict Criteria			1	0.0%	0	0.0%
89343 Storage/Year Sperm/Semen			1	0.0%	0	0.0%
89398 Unlisted Reproductive Medicine Lab Proc			1	0.0%	0	0.0%
S0128 Inj Follitropin Beta 75 IU			1	0.0%	0	0.0%
Infertility Diagnosis in FY 2020 (N=3,850)						
76831 Echo Exam Uterus					9	0.2%

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
58974 Embryo Transfer, IU					9	0.2%
89261 Sperm Isolation, Complex					9	0.2%
82397 Chemiluminescent Assay					8	0.2%
87070 Culture Bacteria Other					8	0.2%
89272 Extended Culture of Oocyte(s)/Embryo(s)					8	0.2%
84403 Assay of Total Testosterone					7	0.2%
58970 Follicle Puncture for Oocyte Retrieval					7	0.2%
76948 Ultrasonic Guid Ova Aspiratn					7	0.2%
89254 Oocyte Identification Follicular Fld					7	0.2%
89255 Prep Embryo for Transfer					7	0.2%
89258 Cryopreservation; Embryo(s)					7	0.2%
58974 Embryo Transfer, IU					6	0.2%
89258 Cryopreservation; Embryo(s)					6	0.2%
89261 Sperm Isolation, Complex					6	0.2%
89272 Extended Culture of Oocyte(s)/Embryo(s)					6	0.2%
99070 Hydrosonohysterogram (Hshg)					6	0.2%
84403 Assay of Total Testosterone					6	0.2%
89352 Thaw Cryopreserved; Embryo(s)					6	0.2%
84702 Chorionic Gonadotropin Test					6	0.2%
58662 Laparoscopy, Excise Lesions					5	0.1%
58970 Follicle Puncture for Oocyte Retrieval					5	0.1%
81015 Microscopic Exam of Urine					5	0.1%
58662 Laparoscopy, Excise Lesions					5	0.1%
83516 Immunoassay, Nonantibody					5	0.1%

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	FY 2018		FY 2019		FY 2020	
	N	%	N	%	N	%
89250 Culture of Oocyte(s)/Embryo(s)					5	0.1%
99070 Hydrosonohysterogram (Hshg)					5	0.1%
76830 Transvaginal US, Non-Ob					5	0.1%
58100 Biopsy of Uterus Lining					4	0.1%
58323 Sperm Washing for Artificial Insemination					4	0.1%
58558 Hysteroscopy, Biopsy					4	0.1%
76948 Ultrasonic Guid Ova Aspiratn					4	0.1%
83498 Assay of Progesterone 17-D					4	0.1%
84402 Assay of Testosterone					4	0.1%
89250 Culture of Oocyte(s)/Embryo(s)					4	0.1%
89254 Oocyte Identification Follicular Fld					4	0.1%
58558 Hysteroscopy, Biopsy					4	0.1%
81015 Microscopic Exam of Urine					4	0.1%
83498 Assay of Progesterone 17-D					4	0.1%
89253 Assisted Embryo Hatching					4	0.1%
89281 Assisted Oocyte Fertilization					4	0.1%
89253 Assisted Embryo Hatching					3	0.1%
89255 Prep Embryo for Transfer					3	0.1%
89280 Assisted Oocyte Fertilization					3	0.1%
89352 Thaw Cryopreserved; Embryo(s)					3	0.1%
89353 Thaw Cryopreserved; Sperm/Semen					3	0.1%
58100 Biopsy of Uterus Lining					3	0.1%
58146 Myomectomy Abdom Complex					3	0.1%
58323 Sperm Washing for Artificial Insemination					3	0.1%
58350 Reopen Fallopian Tube					3	0.1%

Table 1.3.5. Infertility Procedures Provided in the Community, Authorized by VHA, for Female Veterans Diagnosed with Infertility by Year of Diagnosis and Year of Procedure, FY 2018 – FY 2020 (N=8,450)						
	Year of Procedure					
CPT Code and Procedure Description	**FY 2018**		**FY 2019**		**FY 2020**	
	N	**%**	**N**	**%**	**N**	**%**
84402 Assay of Testosterone					3	0.1%
89280 Assisted Oocyte Fertilization					3	0.1%
58350 Reopen Fallopian Tube					2	0.1%
58561 Hysteroscopy, Remove Myoma					2	0.1%
58750 Repair Oviduct					2	0.1%
89281 Assisted Oocyte Fertilization					2	0.1%
49320 Diag Laparo Separate Proc					2	0.1%
58660 Laparoscopy, Lysis					2	0.1%
58750 Repair Oviduct					2	0.1%
88182 Cell Marker Study					2	0.1%
88262 Chromosome Analysis; Count / Karyotype					2	0.1%
89268 Insemination of Oocytes					2	0.1%
89342 Storage/Year Embryos					2	0.1%
58322 Artificial Insemination; Intra-Uterine					2	0.1%
84144 Assay of Progesterone					2	0.1%
Note: Procedures depicted here were performed after an infertility diagnosis was made (e.g., procedures for FY 2018 include Veterans diagnosed in FY 2018; procedures for FY 2019 include Veterans diagnosed in FY 2018 or FY 2019; procedures for FY 2020 include Veterans diagnosed in FY 2018, FY 2019 or FY 2020). See Appendix D for a full list of procedures examined. Procedures were performed in the community.						

Appendix B. Data Sources, Compilation and Analytic Decisions

Data Sources

Data were obtained from Corporate Data Warehouse tables accessed through the VINCI operations interface. Tables included SPatient, SVeteran, PIT Patient, Patient Race, Patient Ethnicity, Military Sexual Trauma, SPatient GIS Address, DSS.OUT, DSS.OUT2, DSS.PHA, DSS.SUR, DSS.SUA, DSS.TRT, Inpatient Diagnosis, Inpatient Fee Diagnosis, Inpatient Discharge Diagnosis, Inpatient CPT Procedure, Inpatient ICD Procedure, Outpat.V Diagnosis, Outpat.Visit, Outpat. V Procedure, RxOutpatFill, PIT Claim Diagnosis, PIT Payment Diagnosis, PIT Professional Claim Diagnosis, PIT Professional Claim Details, PIT VA Payment, PIT Claim Procedure, Fee Service Provided, Fee Notification Request, Vital Sign and associated dimension tables. Data were extracted in Microsoft SQL Server Management System then written out for subsequent recoding and analysis. All data were compiled and analyzed in SAS (version 9.2, Cary, NC).

Analytic/Cohort Decisions

Diagnosis codes used to identify infertility and related procedures and medications examined were based on past work and a review of current diagnosis codes utilized by major insurers.[1,2,3] The study team based cohort age restrictions (males 18–89; females 18–49) on similarly published work examining infertility among active duty Service men[2] and Service women[3], with some logical modifications after a review of on available VHA data. The index date for incident cases was based on the earliest diagnosis date.

[1] Mattocks, K., Kroll-Desrosiers, A., Zephyrin, L., Katon, J., Weitlauf, J., Bastian, L., Haskell, S., & Brandt, C. (2015). Infertility care among OEF/OIF/Operation New Dawn women Veterans in the Department of Veterans Affairs. Med Care, 53(4 Suppl 1), S68-75. https://doi.org/10.1097/MLR.0000000000000301.

[2] Williams, V. F., Atta, I., & Stahlman, S. (2019). Brief report: Male infertility, active component, U.S. Armed Forces, 2013-2017. MSMR, 26(3), 20-24. https://www.ncbi.nlm.nih.gov/pubmed/30912665.

[3] Stahlman, S., & Fan, M. (2019). Female infertility, active component Service women, U.S. Armed Forces, 2013-2018. MSMR, 26(6), 20-27. https://www.ncbi.nlm.nih.gov/pubmed/31237765.

Priority Group Definitions Used to Categorize Veterans

Priority Group Categories based on VHA Definitions	
Priority Group	**Categorization Definition***
Priority Group 1	Any of the below: • Service-connected disability rating of 50% or more • Service-connected disability related to unemployment • Medal of Honor recipients
Priority Group 2	• Service-connected disability rating of 30% or 40% disabling
Priority Group 3	Any of the below: • Former prisoners of war • Purple Heart Medal recipients • Discharged for a disability that was caused or exacerbated by active-duty service • Service-connected disability rating of 10% or 20% disabling • Awardees of special eligibility classification under 38 U.S.C § 1151, "benefits for individuals disabled by treatment or vocational rehabilitation"
Priority Group 4	Any of the below: • Recipients of VHA aid and attendance or housebound benefits • VHA determination of being catastrophically disabled
Priority Group 5	Any of the below: • No service-connected disability or a non-compensable service-connected disability rating of 0% disabling and an annual income level below adjusted income limits (based on resident ZIP Code) • VHA pension benefits recipients • Eligible for Medicaid programs
Priority Group 6	Any of the below: • Service-connected disability rated as 0% disabling • Exposure to ionizing radiation during atmospheric testing or during the occupation of Hiroshima and Nagasaki • Participation in Project 112/Shipboard Hazard and Defense • Served in the Republic of Vietnam between 1/9/1962-5/7/1975 • Served in the Persian Gulf War between 8/2/1990-11/11/1998 • Served on active duty at Camp Lejeune for at least 30 days between 8/1/1953-12/31/1987 Or all of the below: • Currently or newly enrolled in VHA health care AND • Served in a theater of combat operations after 11/11/1998 or were discharged from active duty on or after 1/28/2003 AND • Discharged less than 5 years ago

Priority Group Categories based on VHA Definitions	
Priority Group	**Categorization Definition***
Priority Group 7	All of the below: • Gross household income is below the geographically adjusted income limits for residence AND • Agrees to pay copays
Priority Group 8	All of the below: • Gross household income is above VHA income limits and geographically adjusted income limits for residence AND • Agrees to pay copays
* https://www.va.gov/health-care/eligibility/priority-groups/	

Appendix C. Complete Listing of Infertility Diagnoses Examined

Table C1. Infertility Diagnoses Examined and the Proportion of Veterans who received the Diagnosis*, by FY (sorted by FY 2018 prevalence)			
Diagnosis Code and Description	**FY 2018 (N=7,704)**	**FY 2019 (N=8,394)**	**FY 2020 (N=7,667)**
	%	**%**	**%**
N46.9 Male infertility, unspecified	30.8%	31.7%	31.7%
N46.8 Other male infertility	12.1%	11.2%	11.0%
N46.01 Organic azoospermia	3.3%	3.3%	3.6%
N46.11 Organic oligospermia	2.8%	2.8%	3.0%
N46.023 Azoospermia due to obstruction of efferent ducts	2.7%	2.7%	2.7%
N46.029 Azoospermia due to other extratesticular	<1%	<1%	<1%
N46.129 Oligospermia due to other extratesticular	<1%	<1%	<1%
N46.021 Azoospermia due to drug therapy	<1%	<1%	<1%
N46.123 Oligospermia due to obstruction of efferent ducts	<1%	<1%	<1%
N46.125 Oligospermia due to systemic disease	<1%	<1%	<1%
N46.1 Oligospermia	<1%	<1%	<1%
N46.121 Oligospermia due to drug therapy	<1%	<1%	<1%
N46 Male infertility	<1%	<1%	<1%
N46.022 Azoospermia due to infection	<1%	<1%	<1%
N46.024 Azoospermia due to radiation	<1%	<1%	<1%
N46.025 Azoospermia due to systemic disease	<1%	<1%	<1%
N46.122 Oligospermia due to infection	<1%	<1%	<1%
N46.02 Azoospermia due to extratesticular factors	<1%	<1%	<1%
N46.0 Azoospermia	<1%	<1%	<1%
N46.124 Oligospermia due to radiation	<1%	<1%	<1%
N97.9 Female infertility, unspecified	38.1%	38.9%	41.3%
N97.0 Female infertility associated with anovulation	11.1%	11.0%	10.9%
N97.8 Female infertility of other origin	8.4%	9.4%	8.1%
N97.1 Female infertility of tubal origin	7.7%	7.4%	7.6%
N97.2 Female infertility of uterine origin	1.0%	1.0%	1.0%
N97 Female infertility	<1%	<1%	<1%
**Note: Includes female Veterans ages 18–49 and male Veterans 18–89.*			

Appendix D. Complete Listing of Infertility Procedures Examined

CPT Code and Description
0058T CRYOPRESERVATION OVARIAN
0568T INTRO MIX SALINEandAIR F/SSG
10004 FNA BX W/O IMG GDN EA ADDL
10005 FNA BX W/US GDN 1ST LES
10006 FNA BX W/US GDN EA ADDL
10021 FNA BX W/O IMG GDN 1ST LES
37241 VASC EMBOLIZE/OCCLUDE VENOUS
49320 DIAG LAPARO SEPARATE PROC
49321 LAPAROSCOPY BIOPSY
52402 CYSTOURETHRO CUT EJACUL DUCT
54500 BIOPSY OF TESTIS
54505 BIOPSY OF TESTIS
54840 REMOVE EPIDIDYMIS LESION
54860 REMOVAL OF EPIDIDYMIS
54900 FUSION OF SPERMATIC DUCTS
54901 VASOEPIDIDYMOSTOMY
55110 EXPLORE SCROTUM
55400 REPAIR OF SPERM DUCT
55500 REMOVAL OF HYDROCELE
55530 REVISE SPERMATIC CORD VEINS
55535 REVISE SPERMATIC CORD VEINS
55540 REVISE HERNIA and SPERM VEINS
55550 LAPARO LIGATE SPERMATIC VEIN
55870 ELECTROEJACULATION
55899 GENITAL SURGERY PROCEDURE
58100 BIOPSY OF UTERUS LINING

CPT Code and Description
58140 REMOVAL OF UTERUS LESION
58145 MYOMECTOMY VAG METHOD
58146 MYOMECTOMY ABDOM COMPLEX
58340 CATHETER FOR HYSTEROGRAPHY
58345 REOPEN FALLOPIAN TUBE
58350 REOPEN FALLOPIAN TUBE
58545 LAPAROSCOPIC MYOMECTOMY
58546 LAPARO-MYOMECTOMY, COMPLEX
58555 HYSTEROSCOPY, DX, SEP PROC
58558 HYSTEROSCOPY, BIOPSY
58559 HYSTEROSCOPY, LYSIS
58560 HYSTEROSCOPY RESECT SEPTUM
58561 HYSTEROSCOPY, REMOVE MYOMA
58660 LAPAROSCOPY, LYSIS
58662 LAPAROSCOPY, EXCISE LESIONS
58670 LAPAROSCOPY TUBAL CAUTERY
58672 LAPAROSCOPY FIMBRIOPLASTY
58673 LAPAROSCOPY SALPINGOSTOMY
58700 REMOVAL OF FALLOPIAN TUBE
58740 REVISE FALLOPIAN TUBE(S)
58750 REPAIR OVIDUCT
58760 FIMBRIOPLASTY
58800 DRAIN OVARIAN CYST(S)
58805 DRAIN OVARIAN CYST(S)
58920 WEDGE RESECT OF OVARY

CPT Code and Description
58925 REMOVAL OF OVARIAN CYST(S)
58999 GENITAL SURGERY PROCEDURE
74440 X-RAY MALE GENITAL TRACT
74740 X-RAY, FEMALE GENITAL TRACT
74742 X-RAY FALLOPIAN TUBE
76830 TRANSVAGINAL US, NON-OB
76831 ECHO EXAM UTERUS
76856 US EXAM, PELVIC, COMPLETE
76857 US EXAM, PELVIC, LIMITED
76870 US EXAM, SCROTUM
76872 ECHO EXAM, TRANSRECTAL
76948 ULTRASONIC GUID OVA ASPIRATN
80415 ASSESS ESTRADIOL
80426 GONADOTROPIN HORMONE PANEL
81015 MICROSCOPIC EXAM OF URINE
81224 INTRON8 POLY-T AN (EG MALE INFERT)
82397 CHEMILUMINESCENT ASSAY
82670 ASSAY OF ESTRADIOL
82671 ASSAY OF ESTROGENS
82672 ASSAY OF ESTROGEN
82679 ASSAY OF ESTRONE
82757 ASSAY OF SEMEN FRUCTOSE
83001 ASSAY OF GONADOTROPIN (FSH)
83002 ASSAY OF GONADOTROPIN (LH)
83498 ASSAY OF PROGESTERONE 17-D
83516 IMMUNOASSAY, NONANTIBODY
83520 IMMUNOASSAY QUANT NOS NONAB
84144 ASSAY OF PROGESTERONE
84146 ASSAY OF PROLACTIN

CPT Code and Description
84402 ASSAY OF TESTOSTERONE
84403 ASSAY OF TOTAL TESTOSTERONE
84410 ASSAY THALLIUM
84443 ASSAY THYROID STIM HORMONE
84702 CHORIONIC GONADOTROPIN TEST
84830 OVULATION TESTS
87070 CULTURE BACTERIA OTHER
88182 CELL MARKER STUDY
88248 CHROMOSOME AN FOR BREAKGE SYND
88261 CHROMOSOME AN FOR BREAKGE SYND
88262 CHROMOSOME ANALYSIS 15-20
88273 CYTOGENETIC AN 10-30 CELLS
88280 CHROMOSOME KARYOTYPE STUDY
88283 CHROMOSOME AN KARYOTYPES
88285 CHROMOSOME AN >25 CELLS
89250 CULTURE OF OOCYTES <4DAYS
89255 PREP EMBRYO FOR TRANSFER
89257 SPERM IDENTIFICATION
89260 SPERM ISOLATION, SIMPLE
89261 SPERM ISOLATION, COMPLEX
89264 IDENTIFY SPERM TISSUE
89300 SEMEN ANALYSIS W/HUHNER
89310 SEMEN ANALYSIS
89320 SEMEN ANALYSIS, COMPLETE
89321 SEMEN ANAL SPERM DETECTION
89322 SEMEN ANAL STRICT CRITERIA
89325 SPERM ANTIBODY TEST

CPT Code and Description
89329 SPERM EVALUATION TEST
89331 RETROGRADE EJACULATION ANAL
89343 STORAGE/YEAR SPERM/SEMEN
G0027 SEMEN AN MOTILITY/PRESENCE EXCL HUHNER
J0725 CHORIONIC GONADOTROPIN/1000U
J3355 INJ UROFOLLITROPIN 75 IU

CPT Code and Description
S0128 INJ FOLLITROPIN BETA 75 IU
S0132 INJ GANIRELIX ACETAT 250
S4017 IVF INCOMPLETE CYCLE, CANCLD <STIM
S4018 FRZN EMBRYO TXF CANCELLED
S4022 ASSISTED OOCYTE FERTLZN CASE RATE
S4028 MICROSURG EPI SPERM ASP
S4030 SPERM PROCURE INIT VISIT
S4035 STIMULATED IUI CASE RATE

Appendix E. Complete Listing of Infertility Medications Examined

Complete Listing of Infertility Medications Examined (listed alphabetically)			
Drug (generic name)	**Brand Names**	**Drug Class**	**Notes**
Bromocriptine	Parlodel; Cycloset	Antihyperglycemic - Dopamine Receptor Agonists · Antiparkinson Therapy - Ergot Alkaloids and Derivatives - Prolactin Inhibitor	Males and Females. Off-label use for infertility; used to treat symptoms of hyperprolactinemia (including lack of menstrual periods, discharge from the nipples, infertility and hypogonadism)
Buserelin	Suprecur; Suprefact	GnRH analogue; GnRH agonist; Antigonadotropin	Males and Females. Approved for the treatment of hormone-responsive cancers including prostate cancer and premenopausal breast cancer, sex hormone-dependent uterine diseases including endometrial hyperplasia, endometriosis and uterine fibroids and in assisted reproduction for female infertility.
Cabergoline	Dostinex	Prolactin Inhibitor - Ergot Derivative Dopamine Receptor Agonists	Males and Females. Off-label use for infertility; used to treat symptoms of hyperprolactinemia (including lack of menstrual periods, discharge from the

Complete Listing of Infertility Medications Examined (listed alphabetically)			
Drug (generic name)	**Brand Names**	**Drug Class**	**Notes**
			nipples, infertility and hypogonadism)
Cetrorelix	Cetrotide	LHRH (GnRH) Antagonists	Females. This medication is used by females having certain fertility treatments (controlled ovarian stimulation). Cetrorelix is usually used in combination with other hormones (FSH and hCG).
Chorionic gonadotropin	Ovidrel; Prengyl; Novarel; Chorex	Human Chorionic Gonadotropin (hCG)	Males and Females. In females, usually given in combination with other drugs such as menotropins and urofollitropin. Chorionic gonadotropin is also used in in vitro fertilization programs. In males, stimulate the testes to produce testosterone and increases the production of sperm.
Clomiphene Citrate	Clomid; Serophene	Fertility Enhancer - Ovulation Stimulant - Synthetic (Non-FSH)	Used as an infertility treatment in females to stimulate an increase in the amount of hormones that support ovulation; often prescribed

Complete Listing of Infertility Medications Examined (listed alphabetically)			
Drug (generic name)	**Brand Names**	**Drug Class**	**Notes**
			off-label for treatment of male infertility.
Follitropin alfa	Gonal-F	Follicle-Stimulating Hormone (FSH)	Females. Follitropin alfa is a hormone identical to follicle-stimulating hormone (FSH) produced by the pituitary gland. FSH helps to develop eggs in the ovaries.
Follitropin beta	Follistim	Follicle-Stimulating Hormone (FSH)	Males and Females. FSH helps to develop eggs in the ovaries of females and sperm in the testes of males.
Ganirelix	Antagon; Orgalutran	LHRH (GnRH) Antagonists	Used by females having certain fertility treatments (controlled ovarian stimulation). Usually used in combination with FSH and hCG.
Glyburide	Diabeta; Glycron; Glynase; Micronase	Antihyperglycemic - Sulfonylurea Derivatives	Off-label use for infertility
Gonadorelin	Factrel	Gonadotropin releasing hormone	Gonadotropin-releasing hormone that causes the pituitary gland to release luteinizing hormone and follicle-stimulating hormone.
Goserelin	Zoladex	Antineoplastic - LHRH (GnRH) Agonist Analog Pituitary Suppressants	Females. Injectable gonadotropin releasing hormone agonist, used in

Complete Listing of Infertility Medications Examined (listed alphabetically)			
Drug (generic name)	**Brand Names**	**Drug Class**	**Notes**
			assisted reproduction
Leoprolide	Lupron Depot; Eligard; Lupron Depot-Ped; Lupron	Antineoplastic - LHRH (GnRH) Agonist Analog Pituitary Suppressants · LHRH (GnRH) - Central Precocious Puberty · LHRH (GnRH) Agonist Analog Pituitary Suppressants	Off-label use for infertility; used to prevent premature ovulation in cycles of controlled ovarian stimulation for IVF.
Letrozole	Femara	Antineoplastic - Aromatase Inhibitors - Antiestrogen	Off-label use for infertility; used for ovulation induction.
Menotropins	Menopur; Repronex; Pergonal; Humegon	Follicle-Stimulating and Luteinizing Hormones	Provides FSH and LH to stimulate ovulation, usually used in combination with hCG.
Metformin	Glucophage; Glumetza; Fortamet; Riomet; Glucophage XR	Insulin Response Enhancers - Biguanides	Off-label use for infertility; helps restore normal menses and reverse infertility by lowering insulin concentrations.
Nafarelin	Synarel	LHRH (GnRH) Agonist Analog Pituitary Suppressants	Females. Stimulates the release of LH and FSH
Progesterone	Prometrium; Endometrin; Crinone; Prochieve	Fertility Enhancer - Luteal Phase Supporting, Progesterone-type · Progestins · Vaginal Progestins	Helps support implantation during IVF.
Urofollitropin	Bravelle; Fertinex	Follicle-Stimulating Hormone (FSH)	Females; some off-label use in males for infertility treatment.