



Commentary

Research Priorities to Support Women Veterans' Reproductive Health and Health Care Within a Learning Health Care System

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Women veterans are the fastest growing group of new Veterans Health Administration (VA) health care users. Of the estimated 2.3 million women veterans in the United States, 870,000 women veterans were enrolled in VA in fiscal year 2021, and projections indicate that this number will continue to increase (Frayne et al., 2018). The demand for reproductive health care services within the VA has grown alongside this rapid increase in women veterans using VA services. Reproductive health is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes” (World Health Organization, n.d.). The VA health care system offers a full spectrum of reproductive health care services through on-site services provided by a growing network of VA gynecologists and women's health primary care clinicians, supplemented by community referrals for VA-purchased specialty care including reproductive endocrinology, gynecologic

oncology, and obstetric care (Zephyrin, Katon, Hoggatt, et al., 2014; Zephyrin, Katon, & Yano, 2014).

Increasingly used to support optimal health care, a learning health system (LHS) integrates data with research evidence to inform policy and practice, with the goal of delivering high-quality, patient-centered care (Agency for Healthcare Research and Quality, n.d.). As the largest national integrated health system in the United States, with a yearly research budget of more than \$1 billion, the VA continues to demonstrate the usefulness of an LHS for improving quality of care (Atkins, Kilbourne, & Shulkin, 2017). One area of growth in the VA has been women's health care, with strong partnerships between the VA Office of Women's Health (OWH) and researchers (Yano et al., 2011). For example, the VA Women's Health Research Network (WHRN) hosts several workgroups comprising VA researchers and health system partners such as OWH, including the VA Reproductive Health Workgroup. This workgroup focuses on building a portfolio of reproductive health research to support VA as an LHS, accelerating delivery of evidence-based care (Figure 1).

Research on women veterans' reproductive health has grown tremendously since 2011, as noted in a recent systematic review led by the VA Reproductive Health Workgroup (Danan et al.,

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2017; Katon et al., 2018). The review identified persistent gaps in knowledge regarding infertility, sexually transmitted infections and menopause among women veterans (Katon et al., 2018). These gaps are particularly salient in the context of continued expansion of infertility care for veterans, known trends of increasing sexually transmitted infections in the United States, and the growing number of women veterans entering their perimenopausal or postmenopausal years (Centers for Disease Control and Prevention, 2019; Edmonds, Zephyrin, Christy, & Ryan, 2019; Frayne et al., 2018). The review also highlighted the role of sexual trauma and mental health in shaping women veterans' reproductive health care needs and experiences across the life course. Building on findings from this review, the VA Reproductive Health Workgroup, in partnership with the WHRN and OWH leaders, planned and executed a half-day virtual conference to.

- 1) Review the current state of knowledge with respect to women veterans' reproductive health and health care;
- 2) Engage health system partners in identifying gaps in the literature and unique opportunities for addressing key research questions in VA; and
- 3) Develop a set of priorities for VA reproductive health research.

The purpose of this article is to summarize the research findings presented at the conference and describe development of a set of research priorities for women veterans' reproductive health and health care to advance a LHS approach to reproductive health care in VA.

Conference Planning and Participants

Conference planning was a collaborative effort between leaders of the Reproductive Health Workgroup (E.P., J.K.), WHRN leadership (E.Y., A.R.), and OWH leadership (A.J.). Information regarding the conference was disseminated through VA listservs and social media outlets and registration was open to those interested in reproductive health research and policy. Panel topics were chosen with the goal of summarizing the current state of knowledge, including recent novel research findings that addressed gaps identified in the systematic review (Katon et al.,

2018). Each of three panels consisted of multiple panelists who presented their latest research, followed by a question and answer session facilitated by a discussant. Panelists and discussants included doctoral-level health services researchers, clinician scientists, policy experts, and current and past VA leadership. A fourth panel was designed as a moderated discussion with external reproductive health experts and past and current VA leadership reflecting on findings from the first three panels and potential research needs and directions. The conference was held virtually on September 20, 2021, owing to coronavirus disease 2019 pandemic concerns and secondarily to enhance accessibility (U.S. Department of Veterans Affairs, n.d.).

A total of 192 attendees and 21 panelists participated in the virtual conference. The majority of participants were VA researchers (46%). The remaining participants included VA clinicians (33%), VA operations (13%), and other interested parties (8%).

Development of Research Priorities

Research priorities were identified through an iterative consensus process after the conference, involving a review of all conference slides for each of the research panels, a post-conference debrief with VA Reproductive Health Workgroup members, and review of the closing panel notes. Research panel slides were reviewed by the primary and senior authors to summarize research findings and identify cross-cutting themes and key research gaps. A few weeks after the conference, the VA Reproductive Health Workgroup held a postconference debrief meeting with all available members. The co-leads prompted the members with questions around strengths, vulnerabilities, opportunities, and challenges in the current reproductive health research environment in VA. Key takeaways from this discussion were integrated into the research priorities.

Current State of Knowledge, Gaps, and Opportunities

Table 1 provides a summary of key findings from the three research panels. Several research presentations addressed gaps in knowledge identified in the systematic review, including the first estimates of prevalence of infertility in veterans based on time to pregnancy, data on sexually transmitted infection

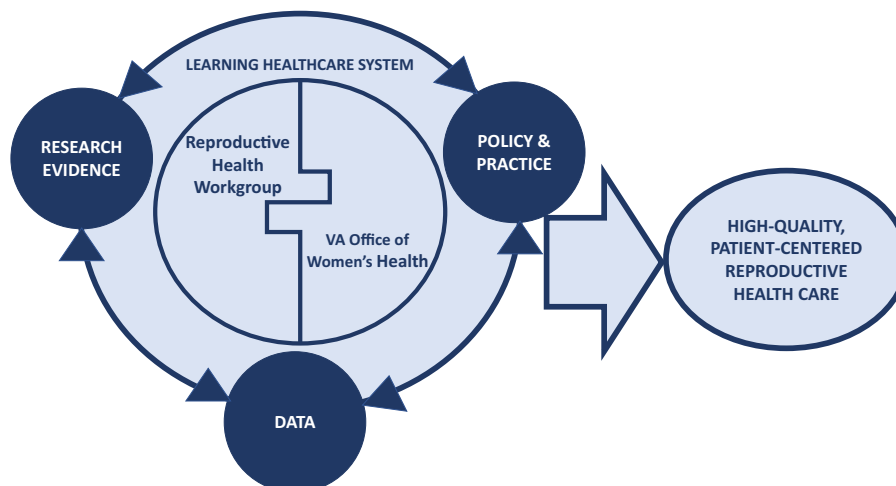


Figure 1. Research and operations partnership to deliver high-quality, patient-centered reproductive health care for women veterans.

Table 1

VA Reproductive Health Conference Research Panels, Topics, and Key Findings

<p>Panel 1: Women veterans' reproductive health: From epidemiology to implementation</p> <p>Key findings</p> <ul style="list-style-type: none"> • A web-based patient-facing tool can effectively enhance patient knowledge and increase likelihood of having a conversation related to pregnancy planning or contraception in the context of VA primary care (Callegari et al., 2021; Callegari, Tartaglione, et al., 2019). • There is a growing knowledge base regarding VA use during and after pregnancy, perinatal mental health, and maternity care coordination; but still significant gaps in knowledge regarding racial disparities in pregnancy care and outcomes, the role of social determinants of health, and the quality of obstetric care purchased by VA (Grekin, Zivin, Hall, Van, & Mattocks, 2020; Keddem et al., 2020; Kroll-Desrosiers, Crawford, Moore Simas, Clark, & Mattocks, 2019; Mattocks, Baldor, et al., 2019; Mattocks et al., 2021; Mattocks, Kroll-Desrosiers, et al., 2019; Shivakumar et al., 2021). • Among women veterans using VA health care, prevalence of infertility varied depending on the metric used and factors that associated with increased likelihood of infertility among women veterans included a greater number of deployments, depression or PTSD, and dissatisfaction with sexual functioning (Mancuso et al., 2022). <p>Panel 2: VA gynecology across the life course</p> <p>Key findings</p> <ul style="list-style-type: none"> • Chlamydia and gonorrhea incidence among women veterans increased substantially between 2009 and 2019. Screening for chlamydia and gonorrhea is particularly low among women veterans using VA health care <24 years old (Beste et al., 2021).* • Cervical cancer screening rates in VA are overall high. Those with a history of lifetime sexual assault experienced greater distress related to pelvic exams, but lifetime sexual assault was not associated with gaps in cervical cancer screening (Danan et al., 2022). • Despite enhanced access Black/white disparities in minimally invasive hysterectomy for uterine fibroids persist in VA and these disparities cannot be wholly attributed differences in fibroid size among Black and white veterans (Callegari, Katon, et al., 2019; Katon et al., 2019). <p>Panel 3: Reproductive mental health from pregnancy to menopause</p> <p>Key findings</p> <ul style="list-style-type: none"> • With respect to pregnancy care VA covers a high-risk population, largely owing to the high prevalence of PTSD and depression (Shaw et al., 2014, 2017, 2018). • Approximately 28% of veterans using VA pregnancy care have symptoms of depression during pregnancy. Those who are unemployed, have a history of anxiety or depression, or past active-duty service are at higher risk of perinatal depression. Partner support is associated with reduced risk of perinatal depression (Kroll-Desrosiers, Crawford, Moore Simas, Clark, Bastian, et al., 2019). • Menopause symptoms are associated with increased likelihood of chronic pain, opioid use, suicide, intimate partner violence and PTSD (Gibson, Li, Bertenthal, et al., 2019; Gibson, Li, Huang, et al., 2019; Gibson et al., 2021).*
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Abbreviations: PTSD, post-traumatic stress disorder; VA, Veterans Health Administration.

* Addresses a gap in the literature identified in the prior systematic review.

screening rates and prevalence, and the impact of menopausal symptoms on mental health (Beste et al., 2021; Gibson, Li, Bertenthal, Huang, & Seal, 2019; Gibson, Li, Huang, Rife, & Seal, 2019; Gibson et al., 2021; Mancuso, Mengeling, Holcombe, & Ryan, 2022). All but one of the studies was observational, with the exception being an implementation study that leveraged technology in the context of primary care to address barriers and improve quantity and quality of family planning discussions (Callegari et al., 2021; Callegari, Tartaglione, et al., 2019). The observational studies employed a range of quantitative and qualitative methods such as semistructured interviews, patient surveys, and use of VA administrative data. Several researchers reported on racial and ethnic disparities in reproductive health with one study explicitly using a health equity framework (Katon

et al., 2019; Keddem, Solomon, Marcus, Schapira, & Mattocks, 2020; Mattocks et al., 2021). Researchers also incorporated various methods of veteran and stakeholder engagement including study specific engagement panels, interviews, and use of the VA Women's Health Practice Based Research Network (Frayne et al., 2013).

Using the research presentations as a foundation, panelists in the fourth panel discussed key priorities for VA reproductive health research in the next 3–5 years to support the VA's continued growth as an LHS. These priorities included identifying gaps in the research and opportunities for novel and innovative reproductive health research in the VA.

Research Priorities

Informed by the systematic review, research panels, and final discussion panel we co-developed a set of research priorities for VA reproductive health research with health system partners (Table 2). These research priorities were designed to provide an evidence base for continued efforts to improve VA reproductive health policy and practice to ensure high-quality, patient-centered reproductive health care for women veterans. Given the importance of responding to the needs of our health system partners in a rapidly changing policy environment, and diverse range of research topics, we did not rank these priorities in terms of significance and impact.

Priority 1. Improving Patient–Clinician Communication for Reproductive Health Decision-Making

Effective patient–provider communication is an essential component of patient-centered care. This includes communication and counseling regarding reproductive health and, where appropriate, shared decision-making. However, such approaches can be challenging to implement effectively in the context of competing health care needs and limited time with patients. Novel uses of technology, such as Callegari et al.'s (2021) development of an app to inform shared-decision making for contraception, can facilitate shared-decision making in a way that is acceptable to patients and feasible in the context of care. Such interventions may also be helpful with other types of reproductive health care decision-making, such as gynecologic care and the management of menopausal symptoms.

Priority 2. Enhancing Care Coordination for Reproductive Health Care

In 2012, the VA implemented a policy requiring that all VA health care systems have a maternity care coordinator, whose responsibility is to ensure that pregnant veterans receive the care they need (VHA Handbook 1330.03: Maternity Health Care and Coordination, 2012). Multiple studies demonstrate the importance of this program, particularly for connecting veterans with perinatal mental health care (Kroll-Desrosiers, Crawford, Moore Simas, Clark, & Mattocks, 2019; Mattocks, Kroll-Desrosiers, Kinney, & Singer, 2019). Other types of reproductive health care present similar opportunities for care coordination; for example, the majority of gynecologic oncology care is purchased from the community and requires coordination between multiple VA and non-VA specialists (Zuchowski et al., 2017). Additionally, limitations in the current electronic health record can make it difficult to track and ensure appropriate follow-up for routine sex-specific screenings (e.g., Pap smears). Thus,

Table 2
Identified Research Priorities for VA Reproductive Health

Priority	Examples
1. Improving patient–clinician communication for reproductive health decision-making	<ul style="list-style-type: none"> • Veteran- and clinician-centered processes that can be successfully integrated into clinical workflow
2. Enhancing care coordination for reproductive health care	<ul style="list-style-type: none"> • Novel uses of technology to enable shared decision-making • Expansion of care coordination to reproductive health care other than pregnancy (e.g., gynecology–oncology) • Novel tools or approaches to increase efficiency of current care coordination programs for reproductive health (e.g., cervical cancer screening and follow-up; expansion of maternity care coordination to 12 months postpartum)
3. Addressing persistent gaps in VA reproductive health research (e.g., pelvic pain, sexual function)	<ul style="list-style-type: none"> • Basic epidemiologic research examining correlates and outcomes of these conditions • Organizational assessments of VA capacity to treat or manage these conditions • Evaluation of multimodal treatment interventions for these conditions tailored to needs of women veterans
4. Expanding reproductive mental health research beyond perinatal mental health (e.g., mental health and infertility)	<ul style="list-style-type: none"> • Research that examines the bidirectional associations of mental health and reproductive health (e.g., menopause), including in the context of substance use disorders • Addressing the role of mental health in infertility and experiences of infertility care • Role of mental health in experience of gynecologic symptoms and treatment decision-making and outcomes • Examining feasibility and acceptability of models for integration of reproductive health and mental health care
5. Developing, testing, and implementing models for trauma-informed reproductive health care	<ul style="list-style-type: none"> • Strategies to integrate a trauma-and resilience-informed frameworks into VA reproductive health care • Development, testing, and implementation of interventions that address quality of life and well-being and not just the organic causes of disease
6. Incorporating health equity frameworks into all reproductive health research	<ul style="list-style-type: none"> • Research that moves beyond descriptive first-generation health disparities work to meaningful and sustainable interventions • Research that incorporates health equity and anti-racism scholarship and frameworks across the spectrum of research activities • Examination of the equity implications of new policies or practices within VA • Research focused on the reproductive health needs or inclusion of LGBTQAI veterans
7. Increasing veteran-engaged reproductive health research	<ul style="list-style-type: none"> • Research that explores innovative means of veteran engagement, including but not limited to involvement with existing veteran engagement groups • Partnerships with community organizations that focus on veterans' needs

Abbreviations: LGBTQAI, lesbian, gay, bisexual, transgender, queer, intersex, and asexual; VA, Veterans Health Administration.

there remains an ongoing need to enhance tools for care coordination for reproductive health care other than pregnancy-related care.

Priority 3. Addressing Persistent Gaps in VA Reproductive Health Research

Although emerging research is rapidly addressing prior gaps in knowledge, additional areas in need of research evidence were identified, including basic descriptive data on reproductive health conditions known to have greater prevalence in midlife, such as pelvic floor disorders and sexual dysfunction (Alspaugh, Im, Reibel, & Barroso, 2021; Good & Solomon, 2019; Katon, Gerber, Nillni, & Patton, 2020; Lamvu, Carrillo, Ouyang, & Rapkin, 2021). Little is known about the prevalence of these conditions among veterans, barriers and facilitators to care, or VA's capacity to provide care for veterans with such diagnoses. However, the growing population of women veterans using VA health care who are 45–64 years old suggests that there will be increasing demand (Frayne et al., 2018). Thus, foundational research is needed on these topics so that the OWH can make evidence-based decisions regarding how to provide care for these conditions and build capacity to meet future demand for care.

Priority 4. Expanding Reproductive Mental Health Research Beyond Perinatal Mental Health

Although there has been rapid growth in research on perinatal mental health, findings related to mental health and menopause symptoms as well as mental health and gynecologic

care highlight the need for research addressing the intersection of mental health and reproductive health across the entire life course (Callegari, Katon, et al., 2019; Gibson, Li, Bertenthal, et al., 2019; Gibson, Li, Huang, et al., 2019; Gibson et al., 2021; Katon, Callegari, et al., 2020; Kroll-Desrosiers, Crawford, Moore Simas, Clark, Bastian, et al., 2019; Kroll-Desrosiers, Crawford, Moore Simas, Clark, & Mattocks, 2019; Shivakumar et al., 2021; Gerber, 2019). Additionally, limited research has addressed the intersection of substance use, mental health, and reproductive health among women veterans despite the high prevalence of substance use disorders in this population (Frayne et al., 2018). Research is also needed to better understand the often bidirectional associations between mental health and reproductive health, including infertility, and experiences of noncancerous gynecologic conditions (e.g., uterine fibroids, chronic pelvic pain).

Priority 5. Developing, Testing, and Implementing Models for Trauma-Informed Reproductive Health Care

Given the high prevalence of mental health conditions and of traumatic experiences, including sexual violence across the life-course among women veterans, there is a need for implementing models of trauma-informed reproductive health care (Blosnich, Dichter, Cerulli, Batten, & Bossarte, 2014; Katon et al., 2015; Sadler, Booth, Mengeling, & Doebbeling, 2004). Such models are intended to maximize physical, psychological and emotional safety in clinical encounters and to rebuild a patient's sense of control and empowerment (Gerber, 2019). Thus, trauma-informed care can also aid in addressing quality of life and

well-being in addition to the organic causes of disease. Research is needed to identify optimal approaches for incorporating trauma-informed care into reproductive health care.

Priority 6. Incorporating Health Equity Frameworks into all Reproductive Health Research

Women veterans using VA health care are increasingly diverse in terms of race/ethnicity, gender identity, and sexual orientation. Research is beginning to demonstrate that many of the racial/ethnic disparities in reproductive health outcomes observed outside VA are also present within VA (Katon et al., 2019; Keddem et al., 2020; Mattocks et al., 2021). To date, little research has addressed the reproductive health needs of sexual and gender minority veterans. Explicit use of health equity frameworks can ensure that research studies on these topics are designed with the goal of identifying strategies to eliminate health disparities (Ford & Airhihenbuwa, 2010a; 2010b; Lett et al., 2022).

Priority 7. Increasing Veteran-Engaged Reproductive Health Research

A key component of health-equity informed research is patient and community engagement, which is increasingly recognized by VA HSR&D (Knight et al., 2022). The majority of studies of reproductive health and health care needs of women veterans employed traditional means of engagement such as patient interviews and surveys to engage veterans as participants in research and ensure incorporation of their needs and perspectives. One study used a study-specific veteran engagement panel that provided iterative feedback throughout the design of the intervention (Callegari et al., 2021). Promisingly, the WHRN now supports the VA Women's Improvement Network, a national group of women veterans who generate research ideas and provide feedback and insight to researchers. To date no research studies in this area have used approaches such as community-based participatory research. Building expertise and capacity to overcome the regulatory and other hurdles within VA to conduct more veteran-engaged research on reproductive health is needed (Chrystal et al., 2022).

Conclusions

The National VA Reproductive Health Research Conference provided a unique opportunity to survey the current state of knowledge on women veterans' reproductive health and catalyze discussion and identification of research priorities to support improving VA reproductive health care in the context of an LHS (U.S. Department of Veterans Affairs, n.d.). Based on the research presentations and discussion, we developed a set of seven VA reproductive health research priorities intended to address knowledge gaps and provide research evidence to inform policy and practice. These priorities highlight the need for reproductive health research ranging from observational studies to studies focused on developing, testing, and implementing interventions at the individual and system levels. Across all topic areas and types of reproductive health research, growing capacity for veteran-engaged research and explicitly incorporating health equity frameworks into study designs is also needed. Specifically, research that moves beyond descriptions of

disparities, is grounded in principles of health equity, and that engages veterans as full partners is necessary if the VA is going to provide the best possible care for all veterans.

The 1-day virtual conference provided a unique opportunity to highlight the continued growth in women veterans' reproductive health research in VA and solicit feedback from leadership inside and outside VA on current gaps in evidence and future research directions. This finding is particularly important in the rapidly changing legal and policy environment surrounding reproductive health care in the United States, including the Supreme Court ruling overturning abortion rights. Priorities developed based on conference presentations and discussions are intended to ensure that VA reproductive health researchers continue to provide evidence to support OWH policy and practice decisions in the context of an LHS. The supports and resources offered through the VA WHRN to support the reproductive health workgroup are critical to advancing reproductive health research and innovation in VA and to ensure VA provides high-quality reproductive health care.

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