



Early Pregnancy Assessment Clinics: Expanding Patient-Centered and Equitable Early Pregnancy Care

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Abstract

Purpose of Review This review provides an overview of how early pregnancy assessment clinics (EPACs) provide patient-centered and evidence-based early pregnancy care, increase access to abortion care, and reduce health disparities.

Recent Findings There is growing evidence that early pregnancy care provided in an EPAC is cost-effective, patient centered, and highly valued by patients.

Summary Patients in the USA who have clinical needs in early pregnancy often do not have a standard location to seek care. EPACs have been shown to provide early pregnancy care that is efficient and compassionate while also promoting patient autonomy and increasing access to standardized early pregnancy loss and abortion care. EPACs, while underutilized in the USA, should be integrated into the health system to expand the availability of quality early pregnancy care.

Keywords Early pregnancy · Early pregnancy assessment clinic · Early pregnancy assessment unit · Patient centered · Health equity

Introduction

Early pregnancy can be a stressful time for patients because it poses the possibility of several complications. The most common complication of early pregnancy is early pregnancy loss (EPL), which occurs in approximately 20% of all pregnancies [1]. Other complications include vaginal bleeding, ectopic pregnancy, and molar pregnancy. Furthermore, normal pregnancy may be unplanned and undesired, causing concerns about where to obtain abortion care. EPACs are specialized clinics that are uniquely designed to care for people experiencing early pregnancy complications. EPACs are patient-centered ambulatory units that provide comprehensive early pregnancy care, including clinic ultrasound assessment, all treatment options for EPL, including expectant, medication management, and in-office uterine aspiration, diagnostic uterine aspiration for pregnancy of unknown locations, medication management of ectopic

pregnancies, and emotional resources for EPL. EPACs are staffed by healthcare providers who are trained in diagnosing and treating patients with early pregnancy complications and can provide resources and referrals for emotional care. The concept of an EPAC was first proposed in 1991 in the United Kingdom (UK) by Bigrigg and Read [2]. Bigrigg and Read analyzed the cost and length of stay associated with patients referred for early pregnancy bleeding or pain before and after the establishment of the outpatient EPAC. They showed that the cost of care for an EPL diagnosis and treatment decreased with the establishment of an EPAC. Bigrigg and Read postulated that the EPAC also provided patients with improved quality of care owing to decreased time to diagnosis and limiting unnecessary hospital admissions. Since this publication displaying the benefit of EPACs, the Association of Early Pregnancy Units estimates that about 200 early pregnancy units currently exist across the UK [3]. In contrast, EPACs are uncommon in the USA. The expansion of EPACs in the USA can increase access to evidence-based and standardized early pregnancy services. Recent data has shown that EPACs deliver timely, high-quality care that is valued by patients [4•, 5•], decrease health care costs [5•], and allow for diverse options for treatment of early pregnancy complications [6•]. This article will discuss how EPACs provide patient-centered care, establish a standard

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for early pregnancy care, increase access to abortion care, and promote health equity.

Patient-Centered Early Pregnancy Care

EPACs provide an approach to early pregnancy care that is designed to be patient-centered. Pregnancy can be a tumultuous and challenging time for patients with early pregnancy complications. With the advent of high-sensitivity pregnancy tests, patients are discovering their pregnancy in the early first trimester of pregnancy, at approximately 5–6 weeks gestation [7]. However, prenatal care often is initiated at 8–12 weeks gestation [8]. EPACs offer a bridge to this gap in care by providing early evaluation and management of early pregnancy complications. Recent qualitative studies show the value EPACs provide as it relates to patient-centered care. Hall et al. performed in-depth interviews of patients presenting to an EPAC in the UK and showed that patients were overall very satisfied and greatly valued EPAC care [9••]. The participants specifically reported that the EPAC provided efficient care, sufficient communication, active involvement in their care, and good interactions with clinic staff [9••].

Currently, in the USA, it is common for patients with early pregnancy complications to present to the emergency department (ED) [5•, 10, 11]. However, the ED is not designed to provide comprehensive care for patients experiencing early pregnancy complications. Miller et al. demonstrated in their mixed methods study that patient experiences with EPL management are improved in the ambulatory setting compared to the ED [12••]. Because EPACs are ambulatory clinical settings, this data can be used to support higher levels of patient-centered care and satisfaction in an EPAC. Participants in Miller et al.'s study specifically expressed the importance of value in clarity of diagnosis, efficiency, and provider sensitivity [12••]. This is similar to other studies that demonstrate patients who experience an EPL value emotional support, long-term accessibility to health professionals, and clear information regarding reproductive status [13, 14]. Miller et al.'s study further notes that “ambulatory-only patients observed a sense of efficiency in their care, describing the perceived benefit of same-day treatment options, whereas ED patients described multiple hand-offs and long wait times” [12••]. Additionally, several studies highlight the importance patients place on having the ability to have multiple treatment options for management of EPL [6•, 14, 15] as well as same-day options [12••] and timeliness of treatment [12••, 15]. Overall, several themes emerge in the literature when analyzing what aspects of EPL care patients value. These themes include timeliness, certainty of diagnosis, autonomy and options, and compassionate care [9••, 12••, 15].

Another key component of patient-centered early pregnancy care is addressing the emotional experience of early pregnancy complications. Inadequate emotional support and access to mental health services is a major gap in early pregnancy loss care [16, 17]. Studies have shown that patients experiencing an EPL highly value compassionate care and emotional support, and EPACs can provide this important aspect of care [14]. Early pregnancy loss is associated with many poor psychological outcomes, including increased rates of clinical depression and anxiety [16, 17]. EPACs are well-designed to integrate multidisciplinary care with access to emotional resources and referrals to appropriate mental health services.

Evidence-Based Early Pregnancy Care

Early pregnancy assessment clinics offer an opportunity to provide high-quality, evidence-based care. In addition to timely, efficient, and emotionally supportive care, EPACs have the potential to streamline the diagnosis and management of early pregnancy complications [18]. In the UK, data from EPACs has led to providing standards of care that can be used to compare clinical performance across the UK [3]. This centralization of early pregnancy care can therefore lead to overall improvements in care.

Verschoor et al. demonstrated that practice variation for the management of first-trimester EPL remains large [19]. This study was conducted in the Netherlands, which offers universal healthcare. In the USA, it is also postulated that there is a large variation in the management of EPL. Currently, evidence-based recommendations support the use of a combination of mifepristone and misoprostol for medication management of early pregnancy loss [20]. The benefit for many patients of medication-induced pregnancy expulsion allows patients to possibly avoid a procedure and have control over the timing of anticipated bleeding. However, misoprostol treatment alone is known to have poor efficacy rates, requiring a second dose in 15–40% of users [20]. Schrieber et al. published the results of a multicenter randomized controlled trial that evaluated EPL treatment success of two different medication regimens (pretreatment with mifepristone followed by misoprostol compared to misoprostol alone). They found that 83% (95% CI 76.8 to 89.3) of participants in the mifepristone pretreatment group had treatment success by the first follow-up visit. This was compared to the misoprostol-alone group, which had 67% (95% CI 59.0 to 74.6) treatment success [20]. Thus, this study demonstrates the improved effectiveness of EPL treatment for patients pre-treated with mifepristone.

Despite strong evidence showing the value and safety of this medication regimen, in the USA, access to mifepristone is blocked by regulations by the US Food and Drug

Administration (FDA) under the program known as Risk Evaluation and Mitigation Strategy (REMS). This program dictates several barriers to access mifepristone, such as limiting prescribing to REMS-certified practitioners and the requirement of a patient-signed agreement. In addition, several state laws have further restricted the use of mifepristone in an attempt to create barriers to abortion care [21]. This has the downstream effect of limiting evidence-based care to patients experiencing EPL who desire medication management. Therefore, the establishment of an EPAC can optimize the standard of care by having a dedicated center able to address barriers to safe and quality early pregnancy care.

Similarly, there are evidence-based and practice guidelines that highlight the optimal procedural care for EPL. Procedural management is predictable, highly efficacious, and offers rapid resolution of the pregnancy [22]. Management of early pregnancy loss used to be largely hospital based [23]. However, recent guidelines recommend in-office aspiration because it is just as safe, quicker to perform, decreases the patient burden, and is amenable to use in primary care settings [23]. However, this requires access to appropriate equipment and resources as well as adequate pain control options. This poses a barrier for many clinics that are limited in resources, space, and time. The expansion of EPACs would allow patients to access timely and safe early-pregnancy uterine evacuation procedures.

EPACs also provide an opportunity to provide evidence-based practices for the management of pregnancy in an unknown location. Algorithms for treatment for pregnancy in unknown locations should center on the desiredness of pregnancy [24, 25]. Goldberg et al.'s study demonstrates the safety of immediate initiation of medication abortion compared to delayed initiation for patients with a non-desired pregnancy in an unknown location [25]. An EPAC has the optimal structure to monitor patients with pregnancy in an unknown location by establishing a system to monitor patients' laboratory values, perform in-clinic ultrasound assessments, and administer methotrexate for the management of diagnosed ectopic pregnancies.

Cost-Effective Early Pregnancy Care

EPACs increase access to comprehensive, efficient, and patient-centered early pregnancy care. They have also been shown to improve the quality of care and provide cost savings to the healthcare system [2, 5, 14]. EPACs can decrease the clinical burden for primary care and obstetrician and gynecology practices that are unable to schedule patients for timely evaluation of early pregnancy complications. EPACs also serve as an alternative to the emergency department, which is where a vast majority of patients present for early pregnancy care in the USA [11]. In addition

to providing cost savings to the healthcare system, EPACs allow patients to receive cost-effective treatment options for EPL care. The combination treatment of mifepristone and misoprostol for the treatment of EPL has been found to be both efficacious and cost-effective [20, 26, 27]. Berkley et al. demonstrated that a combination treatment of mifepristone and misoprostol is cost-effective for medical management of EPL compared to misoprostol alone. The researchers used Monte Carlo simulations and weighed clinical practice, patient income, and surgical evacuation for failed medication management [27]. Nagendra et al. conducted a prospective economic evaluation on a concurrent randomized clinical trial to commute cost-effectiveness. They demonstrated that the combination treatment is cost-effective, and the probability that this regimen is cost-effective compared to misoprostol alone was 90% [26].

Early Pregnancy Assessment Clinics and Abortion Access

One in four individuals will seek abortion care in their lifetime [28, 29]. Because EPACs are designed to evaluate and manage early pregnancy complications, most EPACs will have the organizational ability to support first-trimester abortion care. With the addition of family planning integration in an EPAC system, full-scope early pregnancy care can be achieved. There is strong evidence for safe abortion care as part of the reproductive health care spectrum [30]. Furthermore, as Borrero et al. describe, abortion care has been segregated from health care, which has led to stigmatization [31]. Borrero et al. advocates that “to help reinforce abortion as standard care, provision of abortion counseling as well as medication and procedural abortion should be incorporated into routine care.” [31].

Recently, the Supreme Court ruled in *Dobbs v Jackson's Women's Health Organization* that the Constitution of the USA does not confer a right to abortion care. This ruling overruled prior precedent and gave individual states the power to regulate abortion care. One of the several downstream effects of this ruling includes the increased demand for self-managed abortion care [32]. Emerging research suggests that self-managed abortion is an overall safe and effective way to end a pregnancy [33]. Per Conti and Cahill, the two concerns about the safety of self-managed abortion care include: whether patients will incorrectly self-identify as appropriate candidates; and secondly, if they are able to access medical care if needed [33]. For the later concern, an EPAC would be able to uniquely care for patients in need of follow-up after self-managed abortion care.

Part of the organization of an EPAC can include the monitoring of patients over time who have been diagnosed with ectopic pregnancies or pregnancies of unknown locations.

Because patients are seeking abortion care earlier in pregnancy [34], there will be more patients with pregnancies of unknown locations presenting for care. As mentioned previously, recent data have demonstrated safety and efficacy of medication abortion and uterine aspiration for undesired pregnancies of unknown locations [25]. The EPAC would be optimally designed to not only care for these patients but also provide adequate follow-up with serial human chorionic gonadotropin monitoring, repeat transvaginal ultrasound scans, and clinical assessments.

Additionally, the integration of complex family planning (CFP)-trained physicians to EPACs brings expertise in early pregnancy and abortion care. CFP specialists have pertinent skills in the clinical and emotional management of early pregnancy complications [18]. Due to the changes in access to abortion care in the USA after the *Dobbs* decision, abortion care has become an egregious health equity issue. The establishment of an EPAC with a focus on early pregnancy complications can work towards both increasing abortion care access and seeking to provide care that promotes health equity.

Health Equity

Early pregnancy care in the USA is highly disparate based on age, education level, sexuality, insurance status, ethnicity, and race. Studies on health equity issues in early pregnancy and abortion care are limited and imperfect. While further research is warranted that centers on the voices of marginalized groups, there are significant findings that show this disparate care. Specifically, Black and Hispanic women are more likely to be seen in the emergency department for vaginal bleeding [11]. Similarly, patients who received care in the emergency department in Miller et al.'s study were more likely to be young, of Black race, and underinsured compared to those who sought care in the outpatient setting [12••]. Therefore, implementation of an EPAC would have significant health equity implications by increasing access to appropriate outpatient care.

Beyond managing early pregnancy complications, EPACs can increase access to adequate pregnancy options counseling and emotional support. The concept of pregnancy intendedness is flawed, as this concept is complex. However, data from the National Survey of Family Growth that evaluated surveys of abortion patients showed that rates of unintended pregnancy and unintended birth among minority groups were more than twice the rates of White participants [35]. Participants who had not completed high school had the highest rates of unintended pregnancy [35], and the total pregnancy rate for poor participants was more than 3 times that of participants in the highest income category [35]. Because pregnancy desiredness

and intendedness are not one and the same, EPAC clinics can offer pregnancy options counseling that would have a significant impact on these marginalized groups.

In a study of over 4000 participants based on self-reported data, people of the Black race were found to have higher rates of pregnancy loss compared with White participants [36]. Large survey data also indicates that sexual minority patients are more likely to report having an EPL [37]. As previously stated, EPL and early pregnancy complications are emotionally fraught events that are best managed in an EPAC compared to emergency department visits, in part due to the availability of follow-up. Neugebauer et al. demonstrated in a cohort study that 11% of participants experiencing pregnancy loss meet criteria for major-depressive disorder [38], and further, Shorter et al. demonstrated that participants of black race are more likely to experience major depressive symptoms after medication management of EPL compared to non-Black participants (57% vs 43%, respectively) [39]. Healthcare providers in an EPAC are specifically trained in the clinical and emotional care of early pregnancy complications [14], and increasing access to this comprehensive and specialized early pregnancy care is an essential step in promoting health equity [18].

Increasing the number of EPACs in the USA also has the potential to address the racial and socioeconomic disparities in ectopic pregnancy management and outcomes. Studies have shown that Black patients are at higher risk of having an ectopic pregnancy compared with white patients and have a higher risk of ectopic pregnancy-related mortality [40, 41]. When looking specifically at methotrexate administration, insurance status has been found to play a role in which patients are able to receive this indicated and less invasive treatment option. Medicaid recipients and uninsured patients were less likely to receive methotrexate compared to patients with commercial insurance [42]. Many of these disparate outcomes are exacerbated by barriers to care, including delays in care, fragmented care, and patients being lost to follow-up. Studies have shown that patients with fragmented care were more likely to be Medicaid recipients and experience an ectopic pregnancy-related complication compared to patients with non-fragmented care [43]. Filling the gap in early pregnancy care may help to decrease severe morbidity and mortality from ectopic pregnancy-related complications. Stulberg et al. demonstrated improved ectopic pregnancy outcomes for patients who presented for preconception or early prenatal care [44]. EPACs are structured to provide pre-pregnancy and early pregnancy care. Increased access to expedient and appropriate early pregnancy care for marginalized populations may reduce health disparities and, overall, promote health equity.

Implementation of EPACs

An EPAC constitutes a care model that can improve early pregnancy care in the USA. Establishment of a national association of EPACs would be an important next step to advocate for and increase access to high-quality evidence-based early pregnancy care. Stanford Health Care's Early Pregnancy Clinic serves as an example of an EPAC created to improve access to streamlined, comprehensive early pregnancy care. Our EPAC is embedded into our general gynecology clinic. We provide the full range of early pregnancy services, including in-clinic sonography, medication and procedural management of EPL and induced abortion, diagnostic uterine aspiration for pregnancy of unknown location, in-building laboratory services, methotrexate and Rhogam administration, and all contraceptive options. We also offer a wide range of pain control options, including moderate sedation for in-clinic procedures. These services are available 5 days per week and are staffed by complex family planning specialists, generalist obstetricians and gynecologists, and advanced practice providers.

The implementation of EPACs in the USA is an opportunity to fill a gap in fragmented early pregnancy care. EPACs should be integrated into existing healthcare systems in settings where patients can receive the full spectrum of early pregnancy care. For example, ambulatory settings where skilled clinicians provide abortion care would be an appropriate setting to integrate EPAC care. A national association would regulate EPAC services and advocate for standardized and evidence-based care that is covered by public and private insurance. The complex family planning specialist community would be essential in forming an association of EPACs and promoting the implementation of EPACs in the USA. Expanding EPAC care around the country would increase overall access to abortion and early pregnancy care.

Conclusions

EPACs provide patient-centered and evidence-based early pregnancy care. Research from multiple countries demonstrates that EPACs provide care that is efficient, well communicated, respects and promotes patient autonomy, and provides compassionate care. Various studies presented in this review demonstrate that a diverse population of patients have similar expectations and values for early pregnancy care. Recent research also demonstrates that the implementation of an EPAC can provide cost-effective care for both the patient and the health system. Overall, the studies described in this review support the importance

of expanding EPAC services in the USA, which can ultimately expand the availability of early pregnancy care and abortion access. Increasing the number of EPACs in the USA can also help to reduce barriers to optimal care for patients with early pregnancy complications and potentially improve patient outcomes and experiences. Marginalized communities experience higher rates of early pregnancy complications and have increased barriers to comprehensive early pregnancy care. The expansion of EPACs provides an opportunity to promote health equity and reduce health disparities in the early pregnancy period.

Data Availability The data that support the findings of this study are available upon reasonable request.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

Human and Animal Rights This article does not contain any studies with human or animal subjects performed by any of the authors.

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