Services for emergency department patients experiencing early pregnancy complications: A survey of Ontario hospitals

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CLINICIAN'S CAPSULE

What is known about the topic?
Women experiencing early pregnancy complications frequently seek emergency department (ED) care, because most have not yet established care with an obstetrical provider.
What did this study ask?
What services are available for ED patients experiencing early pregnancy loss or threatened early pregnancy loss in Ontario hospitals?
What did this study find?
Over 50% of EDs did not have access to early pregnancy clinic services, and ongoing follow-up was available in the ED only.
Why does this study matter to clinicians?
These results highlight the reliance of the Ontario healthcare system on already overburdened EDs to provide ongoing follow-up care to patients experiencing early pregnancy complications.

ABSTRACT

Objectives: Women experiencing complications of early pregnancy frequently seek care in the emergency department (ED), because most have not yet established care with an obstetrical provider. The primary objective of this study was to explore the services available (ED management, ultrasound access, and follow-up care) for ED patients experiencing early pregnancy loss or threatened early pregnancy loss in Ontario hospitals.
Methods: The emergency medicine chiefs of 71 Ontario hospital EDs with an annual census of more than 30,000 ED patient visits in 2017 were invited to complete a 30-item, online questionnaire using modified Dillman methodology.
Results: Respondents from 63 EDs across Ontario completed the survey (response rate 88.7%). Of the EDs surveyed, 34 (54.0%) reported that they did not have access to early pregnancy clinic services for women who presented to the ED with early pregnancy complications that were safe to discharge home. At these hospitals, it was found that patients were followed up in 14 (41.2%) EDs for the same complications, including pregnancy of unknown location and threatened abortion. Respondents also stated that a radiologist-interpreted ultrasound was available to only 22 (34.9%) of hospital sites for 24 hours, 7 days per week for women with early pregnancy complications.
Conclusions: The results of this study highlight the reliance of some hospitals on the ED to provide ongoing follow-up care to patients experiencing complications of early pregnancy. The lack of clinical resources and specialized personnel in Ontario hospital EDs makes supporting these women longitudinally unrealistic, exposing them to undue risk and complications.

RÉSUMÉ

Objectif: Les femmes qui présentent des complications en début de grossesse consultent souvent au service des urgences (SU), la plupart d'entre elles n'ayant pas encore de plan de soins déjà établi par un professionnel de la santé en obstétrique. L'étude avait pour objectif principal de relever les services (prise en charge au SU, échographie, suivi) auxquels les femmes ayant fait un avortement spontané ou étant en état de menace d'avortement en début de grossesse avaient accès au SU, dans les hôpitaux, en Ontario.
Méthode: Les chefs des services de médecine d'urgence de 71 hôpitaux, en Ontario, ayant reçu plus de 30 000 patients en 2017 ont été invités à répondre à un questionnaire en ligne, composé de 30 éléments et envoyé selon une version modifiée de la méthode de Dillman.
Résultats: Les chefs de 63 SU, de partout en Ontario, ont rempli le questionnaire (taux de réponse : 88,7%). Sur ce nombre, 34 (54,0%) ont indiqué ne pas pouvoir offrir des services cliniques de début de grossesse aux femmes consultant au

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SU pour des complications gravidiques précoces, et jugées en état de retourner à domicile. D'après l'enquête, les femmes étaient suivies pour ces mêmes complications, notamment des grossesses de siège inconnu ou des menaces d'avortement, dans 14 SU (41,2%) de ces hôpitaux. De plus, les femmes connaissant des complications en début de grossesse ne pouvaient profiter de services d'interprétation d'échographies par des radiologistes, 24 heures sur 24, 7 jours sur 7, que dans 22 des hôpitaux participants (34,9%).

Conclusion: Les résultats de l'étude font ressortir la confiance que mettent certains hôpitaux dans les SU pour offrir un suivi continu aux femmes souffrant de complications en début de grossesse. Le manque de ressources cliniques et de personnel spécialisé dans les SU, en Ontario, rend irréaliste le suivi longitudinal de ces femmes et, de ce fait, les expose à des risques indus et à des complications.

Keywords: Early pregnancy complications, ectopic pregnancy, emergency department, follow-up, miscarriage

INTRODUCTION

Complications in early pregnancy, such as vaginal bleeding and abdominal pain, prompt many women to seek evaluation in the emergency department (ED).[1] Women experiencing complications of early pregnancy are frequently exposed to long ED wait times and lack of resources for immediate transvaginal ultrasound assessment and counselling.[2] Continuity of care is also a concern, with many women discharged without a follow-up plan or physician responsible for early pregnancy management.[3] Arguably, there is a need for hospitals to improve their current service delivery models for women with early pregnancy complications.[4]

In the United Kingdom, early pregnancy assessment units have become the standard for evaluating and caring for complications of early pregnancy.[5] These clinics provide centralized, multi-professional service for women with early pregnancy problems, diverting them away from the ED.[6] It has been well documented that early pregnancy assessment units result in positive health service outcomes such as more cost-effective care, more timely management, and improved quality of care and patient satisfaction.[7,8] Despite these findings, not all Canadian EDs have access to early pregnancy assessment services.[6] To date, there is a paucity of Canadian data describing the provision of care available to patients experiencing early pregnancy complications. The primary objective of this study was to explore the services available for ED patients experiencing early pregnancy loss or threatened early pregnancy loss in Ontario hospitals.

METHODS

Study design and population

The emergency physician chiefs at 71 Ontario hospital EDs with an annual census of more than 30,000 ED patient visits in 2017 were contacted by email and invited to complete a 30-item, online questionnaire. These hospitals constitute greater than 85% of the annual ED visits in Ontario, creating a sample reflective of the services available to most women older than age 18 years seeking care for early pregnancy complications in the province. EDs of pediatric hospitals in Ontario were excluded from this investigation. Chiefs who held a leadership designation at multiple hospital sites within the same institution were asked whether the services and management protocols for women experiencing early pregnancy complications were comparable at the various ED sites. If so, these chiefs were asked to complete the survey once with their response weighted to reflect the number of EDs where they held their designation. If the chiefs of multiple EDs declared that the management and services available differed between sites, they were asked to complete separate surveys for each ED site. Participation in the study was voluntary, and completion of any portion of the survey implied consent to participate. There were no incentives provided for completion of the survey. This study protocol was reviewed and approved by the Research Ethics Board at Mount Sinai Hospital in Toronto, Ontario.

Survey and administration

The survey was developed by investigators based on a review of relevant literature as well as consultation with a representative patient, emergency physicians, obstetrician/gynecologists, key stakeholders, and a clinical epidemiologist. The structure of the questionnaire included a variety of multiple choice, Likert, and open-ended questions on topics such as current hospital care paradigms and hospital resources for patients with early pregnancy complications. The survey consisted of 30 questions and was structured using logic, wherein respondents would only be asked questions based on

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key responses. These logic steps ensured that surveys were tailored to the clinical practice and resources available for early pregnancy care at each ED site. Prior to distribution, the questionnaire was peer reviewed by eight emergency physicians and two obstetrician/gynecologists unrelated to the study and tested for face and construct validity, as well as ease of comprehension. The questionnaire was revised based on feedback received from the pilot testing, and this process was repeated until we received consensus and no further revisions were required. Surveys were distributed using the Qualtrics web-based platform (Qualtrics, Provo, UT) as per a modified Dillman methodology, including an initial email invitation with subsequent reminders at 1, 2, and 3 weeks after the initial invitation.[9] Four weeks after the final invitation, the survey was closed. Upon completion of surveys, respondent answers were de-identified and aggregate data were exported from Qualtrics to Microsoft Excel (Microsoft Corporation, Redmond, WA) for analysis. Descriptive statistics were summarized using frequencies and ranges where appropriate.

RESULTS

From the total of 66 ED chiefs invited to participate, 58 completed the survey reflecting the early pregnancy management practices of 63 EDs across Ontario (response rate 88.7%). Five ED chiefs completed the questionnaire on behalf of two hospital sites.

Of the hospitals surveyed, 29 (46.0%) reported they had access to an early pregnancy clinic for women who presented to the ED with early pregnancy complications that were safe to discharge home. Early pregnancy clinics accepted patients up to varied gestational ages, including 12 weeks (n = 9, 31.0%), 13 weeks (n = 4, 13.8%), 16 weeks (n = 2, 6.9%), 19 weeks (n = 1, 3.4%), 20 weeks (n = 7, 24.1%), and respondents were unsure up to which gestational age their early pregnancy clinic accepted in six (20.7%) institutions. The typical follow-up time between the index ED visit and the early pregnancy clinic appointment ranged from the same day (n = 1, 3.4%), the next working day (n = 3, 10.3%), 2 working days (n = 12, 41.4%), 3 working days (n = 6, 20.7%) to more than 3 working days (n = 7, 24.1%). Hospital sites varied in how many days their associated early pregnancy clinic was open to see patients between 1 and 2 days per week (n = 5, 17.2%), 3 days per week (n = 5, 17.2%), 3–5 days per week (n = 17, 58.6%), or more than 5 days per week (n = 2, 6.9%). Very few (n = 5, 17.2%) early pregnancy clinics were available to see patients outside of standard business hours (e.g., Monday–Friday 0800–1600 hours).

More than half (n = 34, 54.0%) of Ontario EDs that responded to the survey did not have access to an early pregnancy clinic. In these hospitals, if a patient had a threatened abortion, 14 (41.2%) sites reported that these women would follow up in the ED, 8 (23.5%) reported that they would follow up with their family physician, 5 (14.7%) reported that they would follow up with an obstetrician/gynecologist at their hospital site, and 7 (20.6%) sites specified that the follow-up procedure would vary by individual case. Similarly, if a patient had a pregnancy of unknown location (PUL), 14 (41.2%) sites reported that these women would follow up in the ED, 1 (2.9%) site reported that they would follow up with their family physician, 18 (52.9%) reported that they would follow up with an obstetrician/gynecologist at their hospital site, and 1 (2.9%) site reported that the follow-up procedure was patient dependent. The follow-up data for women presenting to the ED with early pregnancy complications, including threatened abortion, confirmed spontaneous abortion, missed abortion, PUL, and stable ectopic pregnancy are summarized in Table 1.

Of hospital site respondents, 55 (87.3%) reported using point-of-care ultrasound (POCUS) in the ED for patients with early pregnancy complications. Of these sites, 27 (49.1%) reported the ED had access to transvaginal ultrasound probes for POCUS assessment by emergency physicians, and 17 (30.9%) reported that their ED uses software to archive POCUS images. The proportion of ED physicians who were Canadian-POCUS certified independent practitioners (CPOCUS-IP) ranged from 10% to 100%. All hospital sites surveyed stated that patients presenting to their ED with early pregnancy complications could undergo a radiologist-interpreted ultrasound on-site, but only 22 (34.9%) EDs reported that radiologist-interpreted ultrasound was available to these patients 24 hours a day, 7 days a week. The 41 (65.1%) EDs who did not have 24/7 access to radiologist-interpreted ultrasound reported variable access, ranging from weekday daytime hours to weekends and other hours unique to their institution; however, all sites reported having access to next-day radiologist-interpreted ultrasound for patients with early pregnancy complications.

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Table 1. Follow-up procedures for hospitals without access to an early pregnancy clinic (n = 34)

	Early pregnancy complication				
Follow-up location	Threatened abortion (95% CI)	Confirmed spontaneous abortion (95% CI)	Missed abortion (95% CI)	Pregnancy of unknown location (95% CI)	Stable ectopic pregnancy (95% CI)
ED	41.2% (0.26, 0.58)	11.8% (0.05, 0.27)	14.7% (0.06, 0.30)	41.2% (0.26, 0.58)	8.8% (0.03, 0.23)
Family physician	35.3% (0.19, 0.49)	70.6% (0.54, 0.83)	20.6% (0.10, 0.37)	2.9% (0.01, 0.15)	0%
Obstetrician/gynecologist at same hospital	17.6% (0.08, 0.34)	17.6% (0.08, 0.34)	64.7% (0.48, 0.79)	55.9% (0.39, 0.71)	82.4% (0.66, 0.92)
Obstetrician/gynecologist at a different hospital	0%	0%	0%	0%	8.8% (0.03, 0.23)
Other	5.9% (0.03, 0.23)	0%	0%	0%	0%

ED = emergency department; 95% CI = 95% confidence interval around the point estimate.

For patients who presented to the ED with a spontaneous abortion deemed safe to discharge home, it was reported that only 29 (46.0%) EDs surveyed provided discharge instructions specific to early pregnancy loss. In regard to confirmed ruptured ectopic pregnancy requiring emergency surgical management, 57 (90.5%) EDs specified that the patient would undergo surgical management at their institution, 4 (6.3%) reported that the patient would undergo surgical management at a hospital less than 20 km away, and 2 (3.2%) reported they would undergo surgical management at a hospital more than 20 km away.

Moreover, respondents reported limited psychological and social supports available to women experiencing early pregnancy loss in the ED. For example, only 32 (50.8%) EDs had social workers available to counsel patients experiencing early pregnancy loss. Hospitals cited a combination of support delivery models for these women, including written information about pregnancy loss (n = 22, 34.9%), outpatient counselling referrals (n = 19, 30.2%), peer support groups (n = 4, 6.3%), online outpatient supports (n = 4, 6.3%), and other means of support (n = 5, 7.9%). These sites also instructed women to follow up with their family physician (n = 53, 84.1%), early pregnancy clinics (n = 18, 28.6%), and the ED (n = 6, 9.5%) for psychological supports.

When ED chiefs at hospital sites without an early pregnancy clinic were asked whether their institution would benefit from an early pregnancy clinic, 17 (50.0%) strongly agreed with this statement, 11 (32.4%) agreed, 5 (14.7%) were neutral, and 1 (2.9%) hospital site disagreed with this statement. ED chiefs with and without an early pregnancy clinic were also asked about follow-up procedures, return ED visits, and psychological supports for women experiencing early pregnancy complications at their hospital sites, the results of which are summarized in Figure 1.

DISCUSSION

This investigation sought to characterize the care and services available to women experiencing early pregnancy complications in Ontario EDs. Our survey found that early pregnancy clinics were not universally available in Ontario hospitals, with less than half of the hospitals surveyed having access to an early pregnancy clinic. Consequently, EDs without access to an early pregnancy clinic had less access to follow-up care for women experiencing early pregnancy complications, often resulting in follow-up care taking place in the ED. The results of this study highlight the reliance of the Ontario healthcare system on already overburdened EDs to provide ongoing follow-up care to patients experiencing complications of early pregnancy.

To our knowledge, the present study is the first to examine the clinical care offered to patients experiencing early pregnancy complications in Canada. In the ED environment where continuity of care is neither intended nor feasible, this survey found that a large proportion of women with a PUL were being followed up in the ED in hospitals without access to an early pregnancy clinic. The lack of continuity of care is worrisome for this patient group, because late diagnosis of an ectopic pregnancy, the most feared outcome of a pregnancy of

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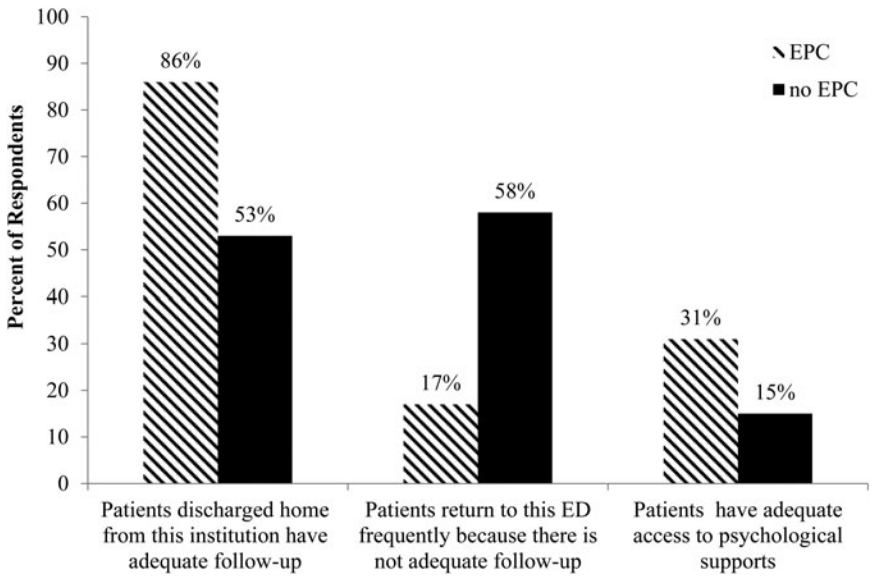

Figure 1. Proportion of respondents who agree with early pregnancy statements.
ED = emergency department; EPC = early pregnancy clinic.

unknown location, can lead to rupture with maternal morbidity and mortality.[10] The lack of clinical resources and specialized personnel in Ontario hospital EDs makes clinically managing these women after initial ED assessment unrealistic.

The survey also found that radiologist-interpreted ultrasound was only available to a small percentage of ED sites for 24 hours a day, 7 days per week for patients with early pregnancy complications. For the remainder of the hospitals, next-day radiologist-interpreted appointment was available to patients. Current guidelines recommend that all women with pain and/or vaginal bleeding should undergo a transvaginal ultrasound to identify the location of the pregnancy and determine whether there is cardiac activity; however, the results of our survey suggest that current transvaginal ultrasound availability may not meet these recommendations.[11,12] This lack of available imaging is especially concerning for hospitals without access to early pregnancy clinics, where follow-up care is provided by the ED. In recent years, there has been an increase in the availability and use of bedside ultrasound in the ED.[13] The results of our investigation are consistent with this trend, because most hospital EDs surveyed reported the use of POCUS in the assessment and diagnosis of patients with early pregnancy complications. Previous research has supported the use of ED POCUS in the evaluation of patients with early obstetrical issues.[14,15] When asked about POCUS certification, respondents reported certification levels as low as 10%–20% with Canadian Emergency Ultrasound Society Independent Practitioner (CEUS-IP) status. Figures this low are concerning, suggesting that this investigation may be underutilized; however, ED physicians may very well be POCUS certified or trained by other means besides CEUS, which was not captured in our survey.

This survey revealed that many Ontario EDs lack the necessary psychological supports to address the emotional needs of women undergoing early pregnancy loss, with less than half having access to on-site counselling supports such as a social worker. Women who experience early pregnancy loss commonly report feelings of grief, emptiness, and guilt, and may experience prolonged psychological morbidity such as anxiety and depression.[16] A pregnant woman who is hemodynamically stable may experience prolonged wait times in a crowded, chaotic environment, exacerbating the difficult circumstances associated with early pregnancy complications and loss.[17] Providing emotional supports in the ED may mitigate these adverse psychological outcomes.

This study is not without limitations. First, only hospital EDs seeing more than 30,000 patient visits per year were included in our survey population so the results may not be generalizable to smaller institutions. However, the hospital EDs included in our study constitute greater than 85% of the annual ED visits in Ontario, creating a

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sample reflective of the services available to most women seeking care for early pregnancy complications in Ontario. This survey may not be representative of other provinces' early pregnancy services and may not be generalizable across Canadian hospitals. Additionally, the questionnaire used in this study was not previously validated. Nevertheless, the survey was carefully designed using relevant literature and specialists in the field of emergency medicine and obstetrics and gynecology. The survey was also piloted on a group of emergency medicine physicians independent to the investigation to ensure ease of comprehension and that questions highlighted the important management principles relevant to women experiencing early pregnancy complications in the ED. Moreover, the surveys were completed by the ED chief of each hospital, who may not be aware of all available early pregnancy services in his or her communities.

CONCLUSION

In conclusion, the results of this investigation support the need for better services for women experiencing early pregnancy complications in Ontario EDs. This study highlights the fragmented care that exists in Ontario hospitals without early pregnancy clinic services and reliance on their EDs to provide ongoing follow-up for women experiencing complications of early pregnancy. The lack of clinical resources and specialized personnel in Ontario hospital EDs makes supporting these women longitudinally unrealistic, exposing them to undue risk and complications.

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