

Evaluation of the Influence of Interdepartmental Training on  
Early Pregnancy Loss Management Practice Change

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**Abstract**

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**Background:** Treatment of early pregnancy loss (EPL) with expectant, medical or surgical management in the emergency department (ED) or in the outpatient clinic is safe, saves cost and time, and is preferred by some women. Nevertheless, surgical management in the operating room (OR) by an obstetrician/gynecologist (OB/GYN) remains conventional practice. The purpose of this study was to determine how an interdepartmental education and training intervention for EPL management affects the integration of comprehensive EPL management services within a large academic medical training institution.

**Methods:** The Training Education and Advocacy in Miscarriage Management (TEAMM) project has provided interprofessional EPL management trainings over the past 8 years. In 2016, TEAMM began providing interdepartmental EPL trainings. In order to evaluate this new training approach, qualitative interviews were conducted with training attendees from 5 sites. Questions elicited information about participants' perceptions regarding challenges facing their institution in integrating a full spectrum of EPL management services, ways it was beneficial to have both the OB/GYN and the emergency departments at the training and steps taken at their institution since the training to implement comprehensive EPL management. Interviews were audio recorded, transcribed and then coded with deductive and inductive coding to generate important themes reflected by the responses.

**Results:** A total of 27 training attendees were interviewed. Perceived challenges to implementing full spectrum EPL management were: 1) lack of leadership buy-in, 2) unfamiliarity with manual uterine aspirations (MUAs), 3) institutional memory of a negative experience, 4) lack of systems and protocols, 5) discomfort associated with providing emotional support, and 6) ambiguity regarding the EPL/elective abortion relationship. The most significant positive outcomes of the training were: 1) increased understanding of MUAs, 2) increased understanding of the systems, roles and responsibilities surrounding EPL management, 3) acquisition of communication skills, and 4) clarification of the EPL/elective AB relationship. The majority of steps taken since the training towards the integration of comprehensive management of EPL were aimed at addressing the significant barrier of not having protocols supporting the provision of MUAs outside of the OR.

**Conclusions:** The study results support the continuation of interdepartmental trainings as a means of helping with the implementation of EPL management outside of the OR. Having ED and the OB/GYN staff together to share perspectives and experiences was important to furthering the process of practice change. This study can be used as a resource for institutions wanting to bring a more patient centered approach to EPL management.

## **I. Research Question and Specific Aims:**

In the United States, surgical management of early pregnancy loss (EPL) in the operating room (OR) by an obstetrician/gynecologist (OB/GYN) is the conventional practice. This occurs despite research indicating that treatment with expectant, medical or surgical management in the emergency department (ED) or in the outpatient clinic is safe, saves cost and time,<sup>1</sup> and is preferred by some women.<sup>2-5</sup> Expectant management involves waiting for the woman to expel the pregnancy on her own. Medical management involves giving the woman medication to induce this process. Surgical management involves emptying the uterus by electric or manual uterine (MUA) aspiration. Barriers exist to offering all three of these methods of EPL management. The biggest challenge is moving surgical management out of the OR and into the outpatient clinic and ED. Some of the known barriers include physician preference, limited numbers of clinic support staff with necessary skills, and concerns about how miscarriage management would affect patient flow.<sup>3</sup>

In large academic training institutions, providers in the departments of OB/GYN, family medicine, emergency medicine and midwifery all encounter and manage women with EPL. In order for these institutions to begin offering true comprehensive miscarriage management, which includes performing surgical management in the OR, outpatient office and ED, staff from all of these departments need to be educated on the practice. The Training Education and Advocacy in Miscarriage Management (TEAMM) project has provided EPL management trainings over the past 8 years to family medicine and OB/GYN residency programs, primary care practices and individual practice groups primarily in Washington State. In 2016, TEAMM began providing interdepartmental trainings at large academic medical centers outside of Washington State with the goal of decreasing barriers to comprehensive EPL management in this setting. The effects of this new model of training, where staff from at least two departments are being trained together, have yet to be studied.

### Research Question:

How does an interdepartmental education and training intervention for EPL management affect integration of comprehensive management of EPL within a large academic medical training institution?

### Specific Aims:

1. To determine how an interdepartmental training intervention helps providers and staff address barriers to implementing comprehensive EPL services, with a focus on those barriers related to surgical management outside of the operating room.
2. To determine how an interdepartmental training intervention facilitates collaboration among departments in implementing comprehensive EPL services, with a focus on implementing surgical management outside of the operating room.

## **II. Background and Significance:**

### **Current EPL Management Practices**

Miscarriage is not an uncommon experience for women. It is estimated that 1 in 5 known pregnancies end in miscarriage and that 80% of these happen in the first trimester.<sup>6</sup> Expectant,

medical and surgical management are all accepted options for treatment of miscarriage, and when urgent evacuation of the uterus is not required, all of the options should be offered.<sup>2</sup> Barriers exist to moving miscarriage management out of the operating room. These include provider treatment preferences, inadequate support staff, difficulties integrating the service into the schedule flow, the uncertainty about how to respond to a woman's emotional needs, concerns about safety and the similarity of the uterine aspiration for treatment of both miscarriage and induced abortion which makes some staff not want to participate.<sup>3,7</sup>

### **Factors Affecting a Change in EPL Management**

Studies examining how to facilitate moving EPL management out of the OR have identified recommendations from medical staff on ways to facilitate the process. One recommendation was to provide a specific training for staff to educate them on the emotional, technical, and financial components of EPL management is.<sup>3</sup> Another was to present staff with evidence on the benefits of providing comprehensive miscarriage management for health care providers, the facility and the patients. A third recommendation was to educate staff on the best practices for integrating these services.<sup>3</sup> A retrospective case study concluded that MUA management of miscarriage in the ED was feasible and that the service could be improved by training ED physicians in the use of MUA instead of relying on OB/GYN providers to come to the ED to perform the procedure.<sup>8</sup> It has also been shown that moving MUAs outside of the OR and into the ED leads to savings in both cost and time.<sup>9</sup>

Approximately 50% of women experiencing pregnancy loss seek care in the ED, and depending on their condition and their preferences, providers from different departments often need to communicate to coordinate appropriate care. There is no research addressing how communication between departments and providers affects the management of miscarriage in the ED or in the outpatient setting. There has also been no published work assessing whether collaboration and coordinated care could increase the provision of full spectrum management, which includes expectant, medical and MUA management, in either the ED or outpatient clinics. An informative study that focused on a different area examined the organizational context of the ED as it relates to implementing change in the management of patients with mild traumatic brain injury. The findings indicated tension between ED providers and specialists, as the ED providers were not supposed to admit patients based on their own judgment and criteria. This was problematic if the ED providers and specialists did not agree on what constituted quality care or upon the "cross-unit" pathways for admittance to the hospital.<sup>10</sup>

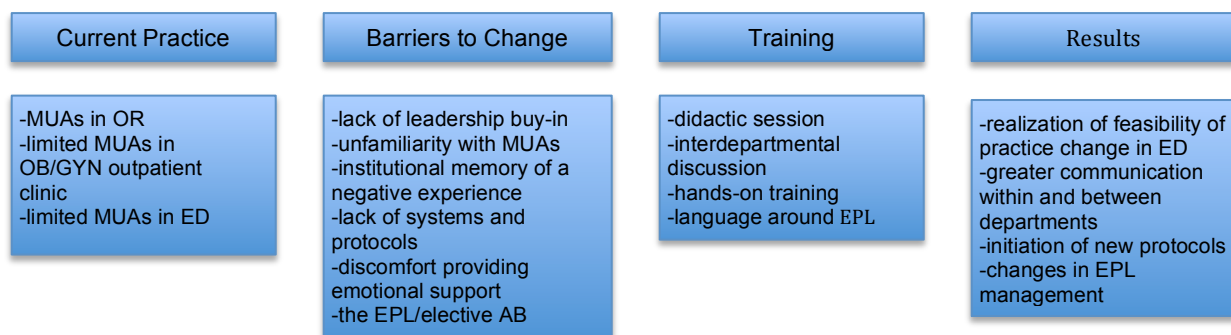
### **Interdepartmental Training**

Over the years, there has been quite a bit of interest in Inter-professional Education (IPE) within the field of medical education. With IPE, students from different professions within the healthcare field learn about, from and with each other. The goal is to prepare a workforce that is experienced in collaborative working relationships that can then lead to improved health outcomes through a less fragmented health care system.<sup>11</sup> TEAMM has been providing interprofessional EPL management trainings for eight years. Including clinicians, nurses, medical assistants, front desk staff and administrators in the trainings has been shown to facilitate the integration of full spectrum EPL management in the outpatient setting.<sup>12-14</sup> Interdepartmental training in an academic medical center gives staff the opportunity to learn together, while learning from each other.

The study described here examines the effects of interdepartmental miscarriage management training on the integration of comprehensive EPL management. The intervention was directed at faculty and staff from the departments of obstetrics and gynecology, emergency medicine, family medicine and midwifery. Through a didactic session, hands-on simulation exercise and a

participatory discussion about opinions and implementation issues, the training aims to create a learning environment that promotes the sharing of knowledge among and between staff and departments. The conceptual model below (Figure 1) illustrates how an interdepartmental training can address barriers to implementing comprehensive EPL management. It is based on the ADKAR (awareness, desire, knowledge, ability, reinforcement) change management model<sup>15</sup>, which is rooted in the concept that in order for change to occur at the organizational level, it must occur at the individual level. Support from staff within all departments involved in EPL management is needed to integrate the full spectrum of EPL services. The TEAMM training facilitates change by building awareness of current EPL practices, providing a comprehensive model for EPL management, addressing barriers to change on individual and institutional levels, and providing training to promote adoption of new practices.

Figure 1. Conceptual Framework of How an Interdepartmental Training Can Address Barriers to Implementing Comprehensive EPL Management



This study fills a gap in research and literature in two important ways. First, it provides information on the effects of an interdepartmental training intervention specifically for miscarriage management. Second, the information gathered can be applied more broadly and can inform health care institutions about the effects of this training approach when implementing a practice change that affects multiple departments.

### III. Methods:

#### A. Setting:

The study was conducted in the setting of interdepartmental miscarriage management training provided by TEAMM at one of five large academic medical training institutions in the continental United States. One of the training sites was in the West, two in the Southeast and two in the Northeast region of the country. The trainings began in March, 2016 and ended in December, 2016.

#### B. Study Design: Qualitative Study Design – A Primary Analysis

The study approach design was guided by grounded theory,<sup>16</sup> though it strays a bit from pure grounded theory. As Creswell writes, “grounded theory is a good design when a theory is not available to explain a process.”<sup>17</sup> There are no known existing theoretical formulations for understanding how an interdepartmental training affects implementation of full spectrum miscarriage management. However, the conceptual framework that we designed, based on our impressions, does provide some direction for the interview guide and analysis.

### **C. Intervention:**

This study examines the impact of conducting a TEAMM intervention with obstetrics and gynecology, emergency medicine, family medicine and midwifery staff together. The intervention consisted of two related half-day trainings. The first half-day training was primarily aimed at clinicians, though support staff were invited and encouraged to attend. This training included three components. The first was a didactic session on office based miscarriage management that includes expectant, medication and MUA management, with an emphasis placed on providing respectful care and informing the patient of all her management options. The second component was a simulation workshop for practicing hands on skills, where a papaya was used as a model uterus and was evacuated with a MUA device. The third component was a participatory discussion that encouraged values clarification, identification of system changes needed for implementation, and concerns about implementing any of these approaches into routine clinical practice. The second half-day session focused on support staff, though clinicians were also invited and encouraged to attend and participate. This training included a brief didactic review of office-based management and then addressed support staff roles as well as clinic and ED flow barriers to implementing the full array of miscarriage management options.

### **D. Study Participants:**

There were a total of 267 attendees at the five training sites. The exact composition of the attendees differed at each site however, there were resident physicians, attending physicians, registered nurses and medical assistants at all of the trainings. Other common attendees included receptionists, advanced practice registered nurses, and managers. Less common, but also represented were sonographers, licensed practical nurses, administrators, medical technologists, and billing specialists. The majority of attendees were from the OB/GYN department and represented a variety of OB/GYN specialties including family planning, general OB/GYN, reproductive endocrinology, and maternal fetal medicine. At one site, certified nurse midwives (CNMs) who were part of a larger OB/GYN practice attended the training. After OB/GYN, the next most represented department was the ED. There was just one family medicine provider attended the trainings.

At the trainings, all staff were given a folder of informational materials including a form that asked for them to fill in their name, email address and phone number if they were willing to be contacted to complete a telephone interview to share their thoughts and experiences related to early pregnancy loss care. An email was sent out one month later to those who filled out the form asking if they were still interested in talking about their experience. From those who responded, a maximum of 8 from each site received a second email asking to set up a time for an interview. At all but one site, we interviewed all participants who responded to our initial email because not enough responded to be able to use purposive sampling. At the one site we selected participants through a combination of striving for maximum variation and special case sampling. The special case sample was the site champion (the provider who is leading the change in miscarriage management practice), as this provider was most familiar with the goals of the training for the institution.

### **E. Data Collection:**

Semi-structured qualitative individual telephone interviews were conducted 6 to 12 weeks after the training. The interviews lasted 15-30 minutes. They were audio-recorded and then transcribed by a professional transcriptionist who has provided similar services for other research conducted at the University of Washington. The research aims and the conceptual model guided the interview questions used. Participants were asked questions such as "What

challenges would you say your institution faces in integrating a full spectrum of miscarriage management services?” and “In what ways, if at all, do you think it was beneficial to have both the OB/GYN and the emergency departments at the training?” The interview guide is contained in Appendix A. Because the roles the participants filled in their institutions varied, and because the makeup of the attendees at the training sites varied, it was important that the semi-structured format of the interviews allowed for adaptation of the questions.

#### **F. Data Analysis:**

Once the transcribed interviews from the first two training sites were returned, we created our codebook. We reviewed 8 transcripts excerpting responses that related to the research question and specific aims. We used our conceptual model and our interview guide to help us focus on identifying those concepts that were important to understanding an institution’s current EPL management practices, the barriers it faced in integrating full spectrum EPL management and the effects of the interdepartmental training on the integration of comprehensive EPL management. The most prevalent concepts served as the codes for the first version of the codebook.

There were two coders in total, the author and another member of the TEAMM project who has experience in qualitative research. After applying the codes from the initial codebook to two transcripts, we discussed the adequacy of the codes in capturing the most important concepts within the interviews. We then made adjustments by adding and deleting codes. After 3 rounds of applying the codebook to 2 transcripts at a time and making adjustments, we decided we had created a codebook that allowed us to capture the data needed to answer our research question. We coded all transcripts independently using Dedoose, a web-based mixed methods analysis program (Dedoose.com). We then met to reconcile our codes and settle on the final codes for each transcript.

During data analysis, I compared the coded excerpts based on three characteristics of the interview participant: their role, such as attending MD, resident MD, registered nurse (RN), medical assistant (MA); their department, either ED or OB/GYN; and the institution where they worked. While doing this, I examined themes related to the barriers of implementing full spectrum EPL management, with a focus on those related to moving surgical management out of the OR. I looked for themes related to the effects of the interdepartmental aspect of the training on the experience of the participants and how that may or may not have helped to decrease the identified barriers. I also looked for themes related to follow up such as conversations or changes in practice that might have occurred after the training. I then merged themes to arrive at a set most represented by the data and most related to answering the research question.

### **III. Results:**

#### **Sample Characteristics**

The number of attendees at each of the five training sites was 25, 28, 40, 76 and 92. The respective number of interviews completed was 3, 4, 6, 6 and 8 for a total of 27 participants. Table 1. provides the number of participants by department and role.

**Table 1. Participant Characteristics**

<b>Department and Role</b>	<b>#</b>
OB/GYN attending physician	8
ED attending physician	3
OB/GYN resident physician	4
ED resident physician	3
OB/GYN registered nurse	2
ED clinical nurse specialist (CNS)	1
OB/GYN office support staff	1
OB/GYN administrator	2
OB/GYN advanced practice registered nurse (APRN)	1
OB/GYN medical assistant	2
<b>Total</b>	<b>27</b>

### **Challenges to Implementing Comprehensive EPL Management**

Participants were asked to identify challenges to integrating full spectrum EPL management in their institution. Significant challenges to implementing comprehensive EPL management in the ED or outpatient clinic were: 1) lack of leadership buy-in, 2) unfamiliarity with MUAs (often referred to as manual vacuum aspirations (MVAs) by participants), 3) institutional memory of a negative experience, 4) lack of systems and protocols, 5) discomfort associated with providing emotional support, and 6) ambiguity regarding the EPL/elective abortion relationship.

#### Lack of leadership buy-in

Nine staff identified lack of leadership buy-in as a barrier to comprehensive EPL management. A number of reasons were suggested for this lack of leadership buy-in. OB/GYN staff reported that the challenge in the outpatient clinic was the clinic management's lack of flexibility and willingness to accommodate the MUA procedure into provider schedules. OB/GYN and ED staff reported that the challenge in the ED was that the likelihood of MUA procedures occurring in that setting depended on ED administration and leadership support. Five participants reported that the ED attending physician had the power to control whether a MUA procedure could be performed in the ED. In the two institutions where MUAs were performed in the ED, and only by OB/GYN physicians, it depended upon the attitude of the individual ED attending physician involved in the patient's care as to whether a procedure in the ED could be done. As one OB/GYN resident MD stated:

“Yeah, it kind of depends on the attendings in the emergency department and how busy they are. It's just so hard to know and you also have to have really good rapport with them. Like I know that there are certain attendings that would not bat an eye for us to do it, and others that put up a ton of opposition and roadblocks. So it's just very inconsistent.”

#### Unfamiliarity with MUAs

The integration of the MUA procedure into practice was the aspect of comprehensive EPL management that faced the most barriers. Staff unfamiliarity with the MUA procedure was at the heart of many of the challenges to offering the procedure in the ED and outpatient clinic. Although OB/GYN providers were exclusively the group performing MUAs, not all OB/GYNs performed MUAs because of a lack of experience with the skill or opting out of performing them.

One OB/GYN MD (site champion) reported that her clinic did not have enough providers trained and comfortable in performing MUAs to make the procedure available every day in the outpatient clinic.

There was even greater concern expressed by OB/GYN providers surrounding the ED staff's lack of knowledge with MUAs. Four OB/GYN MDs said the ED staff was unaware of how simple and safe the procedure was. They felt that because the procedure was an "unknown" to the ED, the ED was not comfortable allowing the procedure to occur in their department. One OB/GYN attending MD stated that:

"The barriers in the ED have to do with I think their perception of miscarriages... They don't know how frequently we do these [MUAs] in an outpatient setting and how well they go, and so there's just lack of knowledge about the safety of the procedure and the frequency it's done and the ease and how much better it is for patients and how cost effective it is and all those things. I think it makes it really tough sometimes ... for us to get permission from them to perform it in the emergency department."

A few ED providers identified a lack of knowledge or prior training with MUAs as being a barrier to performing the procedures themselves in the ED. They felt they had not been presented with opportunities to learn about MUAs or how to perform them. This may be part of the reason why at all training sites, OB/GYN providers were considered the appropriate providers to perform MUA procedures in the ED.

Four OB/GYN and six ED staff reported concerns about the length of time the MUA procedure might take in the ED, of which two expressed concerns that this would be reflected in the ED metrics. ED staff perceived that in their perpetually busy ED, the procedure would take up staff time and ED space and make it more difficult to get patients in and out of the ED. As one ED attending MD stated:

"We're always overcrowded... There's always 40 people in the waiting room, and some of them are really sick. We never really feel we have enough nurses and so there's always too many patients and not enough time, not enough beds and not enough staff... So I think anything where they need to spend a few extra minutes with someone - talking, helping, supporting - it feels like we don't have time to do that..."

Unfamiliarity with sedation needs of patients undergoing an MUA procedure also created a barrier to the procedure being done in the ED. Three ED staff expressed that they were very concerned prior to the training that MUA procedures required moderate sedation, which they saw as a reason not to do them in the ED. They believed it would cause problems with the workflow by requiring too much time and too many staff. As one ED RN remarked:

"If we had to do a conscious sedation, we were probably going to call it no... we don't have the staff and we don't have the time."

#### Negative institutional memory

One training site had a patient in the past who experienced a significant vaso-vagal reaction during a MUA procedure being performed in the ED. This very powerful institutional memory was reported by nearly half the participants at that site as the reason why MUA procedures were not being done in their ED. Although none of the interviewees reported being present during that particular procedure, the memory was tremendously influential. One ED CNS recalled:

“... there was an incident in the past when they did MVA's prior with a patient, that there was a negative outcome that could have, or could not have been related to the actual procedure itself, and they stopped doing them in the ED... there's still other providers and nursing staff who are hesitant and are nervous that something bad will happen if they do that procedure in the ED.”

#### Lack of systems and protocols

Frequently mentioned barriers to integration of full spectrum EPL management were related to the lack of well-defined systems and procedures for OB/GYN and ED staff to follow when integrating MUA procedures into clinical practice. The lack of procedures and protocols affected the entire process of providing this service. Six participants identified scheduling of patients as a difficult process for staff. Instead of having a designated time in the clinic schedule to do the procedure or a designated provider to perform it, staff had to track down a provider able and willing to fit the procedure into what is often a complex schedule. As one OB/GYN resident MD explained:

“There's just so many layers of different approvals that you have to go through... if somebody wants to do it [MUA procedure] and they have to do it this Thursday, you don't have clinic then. So, you have to find somebody who's willing to find a resident and make sure they're okay with it ...and then you have to find an attending and then you have to talk to the office manager and they have to talk to the RN...it would be even nice to have just like a block of time that we always know is available at this time, but it's not like that at all.”

Another barrier reported by four OB/GYN staff related to a lack of clear systems and protocols was difficulty providing the desired sedation in the outpatient clinics. One APRN mentioned the challenge of providing oral sedation in her clinic because there was no pharmacy onsite. At a second site where moderate sedation was often used with MUAs, a RN reported that being the only support staff with the necessary skills to assist providers with the administration of moderate sedation was a barrier to performing the procedure as often as it was requested. Similarly, at a third site, an OB/GYN attending MD cited the complete lack of moderate sedation in the clinic as a barrier to offering the procedure:

“I think that the main challenge – one is being able to offer IV sedation in our office so that we can do outpatient MVA's with sedation. At this point all we can offer is local. Which is fine for some people, but I think a lot of people prefer to have sedation and we cannot offer that.”

The lack of definition of staff roles in managing a patient with EPL was also identified as a barrier to providing MUAs in the ED and the outpatient clinic. However, this barrier was most often mentioned in terms of which department, OB/GYN or ED, was going to take responsibility for the various aspects of care for a patient with EPL who presented to the ED. It was often not clear who ultimately was responsible for the patient, particularly if a uterine aspiration was the treatment plan. At one site an ED RN explained:

“Basically, nobody wanted to own the patient. But [in] the emergency department, we need to get rid of the patient. I mean, we're not an inpatient area so we try to get the patient to the best services that we possibly can, and that's OB. So it's been a big struggle between OB and ER, who owns the patient.”

On the rare occasion the decision was made to perform an MUA procedure in the ED, there were challenges to doing the procedure. At the one site, where they had protocols and patient

counseling forms for MUA procedures, one participant reported resident and attending physicians often did not know where to find these resources. Five participants representing three sites expressed concern with the lack of protocols or systems for completing tasks such as assigning a room for the procedure, insuring the necessary supplies for the procedure were available, or in identifying the support staff to assist the provider with the procedure.

#### Discomfort providing emotional support

Eight participants identified a lack of knowledge on how to counsel patients after they had been diagnosed with an EPL, as well as how to emotionally support them prior to and during a procedure, as a challenge to providing EPL management. Although two OB/GYN clinic MAs expressed that knowing how to support the patient was a significant challenge, both ED and OB/GYN staff voiced concern that ED staff did not know how to appropriately support and communicate with EPL patients. Part of the problem was ED staff felt it would take too much time to fully address these needs as expressed by an ED attending MD:

“I would say the first and foremost [challenge] is probably education on both the physician and the nursing side...so I think the emergency department probably handles the medical side pretty well but in terms of the emotional support, I don't know so much that we know what to do or have the time to do it.”

#### Ambiguity regarding the EPL/elective abortion relationship

The majority (67%) of participants did not feel that EPL management was perceived as abortion care in their institution. Those who did, however, believed it negatively affected EPL services in their institution. Those participants who identified this perception as a challenge supported a theme that the culture of the region or state where they worked influenced their coworkers' perceptions of EPL management. A second theme was the perception of a few staff that if they were involved in an MUA procedure for EPL management that they were taking part in an elective abortion. The difference was not clear to them:

“Like, some people wasn't comfortable with that because at first when they come onboard and start doing it [MUAs for EPL management], my coworkers was like uncomfortable with that, because they thought maybe – I guess some of them felt like that could be an abortion or something.” (OB/GYN, MA)

### **How the Interdepartmental Training Addressed Challenges**

The training addressed many of the barriers to EPL implementation. The most significant effects of the training reported by participants were: 1) increased understanding of MUA, 2) increased understanding of the systems, roles and responsibilities surrounding EPL management, 3) acquisition of skills for communicating with patients, and 4) decreased ambiguity of the EPL/elective AB relationship. The focus of this study is on the interdepartmental aspect of the training, so participants were asked if and how they felt it was beneficial to have more than one department at the training.

#### Increased understanding of MUA

Participants from all training sites reported the training provided attendees an important level of understanding and familiarity with EPL management, in particular of MUAs. OB/GYN staff felt that having a wide range of staff and disciplines present was valuable because patients receive more emotionally sensitive care when everyone, from receptionists to medical assistants to providers, understands MUAs and EPL management.

One of the most frequently mentioned benefits of the training was the opportunity it gave attendees to share their experiences and perspectives on a variety of aspects surrounding EPL and its management. A large majority (74%) of participants felt it was very helpful to have OB/GYN staff and ED together so both departments could share their experiences managing EPL. Staff from both departments interacted with each other and asked questions, which allowed them to feel that their perspectives were better understood both inside and outside their own departments. One OB/GYN resident physician described how the sharing of perspectives during the training's values clarification activity led to the realization that he was not alone in his points of view and that it was acceptable to have a different perspective from others.

Nine participants felt that ED and OB/GYN staff who were less familiar with the procedure learned from the experienced OB/GYN staff that MUA is safe and simple. Four participants mentioned staff recognition of how quick the procedure can be was an important part of this learning. Hearing from OB/GYN providers that they safely perform the procedure in the outpatient clinic, a less acute setting than the ED, was very reassuring. One OB/GYN provider reported that the ED learned about the range of treatment options for patients with EPL and they learned important triage skills. She hoped this might keep ED staff from reacting as though EPL is always urgent and prevent them from immediately consulting with an OB/GYN provider. Both OB/GYN and ED participants felt that people from different departments sharing their experiences related to the safety and ease of the procedure made the ED more receptive to considering MUA as a treatment option in their department:

"I think the training actually made a difference because then people saw how easy it was, and there was a little bit of discussion to kind of like break down myths and the barriers regarding the procedure. But beforehand it really was like – nope, that's going to take hours and we're not going to do that. It was not even an option."(ED, attending MD)

The training addressed the ED concerns about sedation requirements for MUA patients. Four ED staff expressed great relief in hearing from the OB/GYN department that moderate sedation is not a routine part of MUAs done in the outpatient clinic. This helped them to understand that the procedure does not necessarily require a lot of ED staff time, which led them to being more open to the procedure being done in the ED. One ED CNS reflected that:

"...having the staff in the outpatient offices there who it's part of their normal day that this is done in an outpatient office reassured me about the acuity of the procedure, that if it can be done in an outpatient with no IV, no sedation, no anything like that, then why wouldn't we be able to do it here" (ED, CNS)

#### Increased understanding of systems, roles and responsibilities

Participants felt the training gave attendees a better understanding of what systems need to be in place in order for them to smoothly integrate full spectrum EPL management into the clinic or ED. Seven participants reported that it gave them the opportunity to begin or to continue conversations around logistics and protocols. An OB/GYN clinic administrator reported that she appreciated being able to bring up the issue of logistics at the training. She asked the question of how the OB/GYN department would provide MUAs while also tying in all of the different people and pieces involved in EPL care.

The training also provided the opportunity to clarify the roles and responsibilities between departments and staff. An OB/GYN attending MD mentioned that she hoped the large training with a wide variety of staff would help attendees recognize that the provision of patient centered, comprehensive EPL management extends beyond the responsibility of the clinician. Four ED

and two OB/GYN participants reported that a benefit of having OB/GYN and ED together was that staff were able to share their current EPL management practices. In particular, the OB/GYN department was able to gain more understanding of the ED “point of view”. Both OB/GYN and ED participants mentioned that the OB/GYN staff helped to clarify what the expected or hoped-for responsibilities for the ED would be for managing patients with EPL. ED staff came to the training wary of the prospect of MUA procedures being done in the ED. However, once they felt listened to and understood what was being asked of them, they opened up to the idea that supporting MUAs in the ED could be a part of their role. One OB/GYN MD (site champion) described how the inclusivity of the training helped enable a potential change of practice:

“I thought it was very effective, very helpful. I completely understand why you all included everyone, now it makes perfect sense, but so many times these trainings occur with only the MDs, and we have a hard time figuring out on our own how to translate that into practice. But the fact that you incorporated everyone to begin with facilitated everything immensely including emergency medicine.”

#### Acquisition of skills for communicating with patients

Seven participants reported that the training gave staff helpful language to use when supporting and communicating with patients with EPL. There were some OB/GYN staff who felt this was particularly important for ED staff who were not accustomed to counseling patients and therefore tended to pass them onto an OB/GYN provider quickly. An ED clinical nurse specialist was representative of others in reporting a lack of prior training on how to support EPL patients. She and others greatly appreciated this part of the TEAMM training. Participants felt the training provided attendees more clinical familiarity with EPL, which also helps when communicating with patients:

“[We learned] how to answer certain questions and stuff like that, the best way to respond to the patient. Because at that time is a difficult moment for the patient. So what they did with us was really good. It was really educational. It was fun for me, more knowledge for me.”  
(OB/GYN, MA)

#### Decreased ambiguity of the EPL/elective abortion relationship

The training helped clarify for support staff the difference in the circumstances when performing an MUA procedure for an EPL versus an elective AB. One OB/GYN site champion felt that a benefit of the TEAMM training was having people from outside the institution who were not identified as abortion providers (the TEAMM trainers), discuss EPL management. Two MAs reported that the knowledge they gained about MUAs cleared up confusion caused by the similarities between the management of EPL and elective abortion:

“Well, at first we thought it was that (an elective abortion procedure), and then once we did the training, then we had a better understanding of it, to know that it's not that. Once that happened, then we were all fine with it and more comfortable ... I mean just having the knowledge, that was more helpful... We just had the misconception of how it was and once we really got the training, it was different.” (OB /GYN, MA)

#### **What Has Happened Since the Training**

Interview participants from each training site reported conversations and steps taken in their institutions towards providing full spectrum EPL management in the ED and OB/GYN clinic. Because each institution came to the training at a different point in the process of working towards this goal, each was at a different stage at the time of the interviews. To facilitate

understanding the progress made since the training and therefore the training's possible effects, these results are presented by training site instead of by theme.

#### Site A

For site A, the goal of the training was that it would lead its various OB/GYN outpatient clinics to provide MUAs. By the time of the interviews, the reproductive endocrinology OB/GYN practice had begun to do this. A goal set after attending the training was to use the implementation of MUAs in the OB/GYN clinics as a way to test and refine the systems surrounding the integration of outpatient MUAs before moving the procedure into the ED. One ED attending MD described their process:

“We are working on building essentially like an OB cart that has all the supplies we would need to do this relatively smoothly all in one place, so we have a list of what needs to be there and we have to figure out logistically who stocks that, who keeps an eye on it... so their goal is to do it in clinic first and see how user-friendly, the patients, the nurses, kind of how it went, and then transition to the emergency department.” (ED, attending MD)

Conversations occurred post training among certain OB/GYN staff about the importance of understanding each patient's individual situation when presenting with EPL to determine the best place for its management. The OB/GYN department also worked on creating and standardizing EPL protocols:

“So one of the things that came after the training is that we realized we all had to have standardized instructions to give to people for expectant management as well, and that they might need narcotics for managing the pain when they actually do pass spontaneously. So it was little things like that that we hadn't even standardized as a group. (OB/GYN, attending MD, site champion)

Participants reported general plans for educating nurses and physicians in the ED to assure everybody's comfort with the MUA procedure prior to its implementation. Since the TEAMM training, a few of the ED nurses had attended an outside training specific to providing emotional support to women with EPL. This was seen as jumpstarting more conversations in the ED related to the eventual integration of MUAs into the ED. Other education plans included grand rounds given by the OB/GYN providers on EPL management.

#### Site B

Site B began providing MUA procedures in the ED after the training. Work was done prior to the training towards implementing MUAs in the ED, but during and after the training, more progress was made. After the training, they worked on educating people on the policy changes. They also supported efforts to increase knowledge of the procedure itself, to teach staff how to be prepared to do the procedure, and to decrease the staff's fear of complications:

“One of the OB attendings came to a few of our – we actually have huddles with the nursing staff and they came and discussed that this procedure was going to be done and where to find the equipment and what to troubleshoot – who they can call if they have a problem, who the identified champions in our department are and ways that they can get their questions answered...they also have plans to come to our staff meetings.” (ED, CNS, site champion)

Another step ED leadership took towards successful implementation of MUAs in the ED was to ask staff to evaluate the experience after a procedure was done:

“I know that we recently got an eval from one of our OB/GYN attendings...just kind of detailing where the supplies were kept. I know that they've been wanting us to email her whenever we've been able to do an MVA in the emergency room, just so they can keep

track, get real time feedback on how things are going.” (OB/GYN, attending MD, site champion)

#### Site C

At site C no ED staff attended the training. Nevertheless, one OB/GYN resident physician felt that two changes had occurred following the training. One was that the ED residents were in general more aware of MUAs, though they were “certainly not talking” about performing the procedure in the ED. Perhaps ED residents were made more aware of the procedure during EPL related consultations with OB/GYN providers who had attended the training. The second change since the training was that medications used during the procedure had become more readily available in the outpatient OB/GYN clinic.

#### Site D

At the time of the training, site D was developing plans for a one day per week “EPL clinic” that would be staffed by the OB/GYN family planning abortion providers. Some OB/GYN staff expressed the hope to eventually have more trained providers and the ability to provide MUAs in the OB/GYN clinics on other days. Since the TEAMM training, efforts to create this clinic continued.

To facilitate the movement of EPL patients through the OB/GYN clinic since the training, a provider had created an EPL patient information sheet and a flow sheet for staff to follow when a patient is diagnosed with an EPL in the ultrasound department. This ED attending physician explains:

“...they're going to be implemented shortly, sort of templates or workflows for patients who are diagnosed... So I think this [flow sheet] was really trying to appeal to all of our different divisions.”

ED staff at this site expressed interest in getting more training on EPL management so they could better support OB/GYNs performing the procedure in the ED. This was the only site where ED physicians expressed wanting to acquire the MUA skill themselves in order to comfortably perform it. In response to this interest, and because not many ED physicians were at the TEAMM training, an OB/GYN provider and an ED staff educator have teamed up to put together an EPL training for ED staff.

#### Site E

At Site E, participants reported a few actions or discussions that have occurred since the training. One OB/GYN clinic staff received further training on MUA kits and instrument set up. In addition, staff that attended the training brought back information for others regarding how to speak to patients with compassion and empathy. An OB/GYN administrative participant reported hearing conversations after the training about it being interesting and a very good thing to bring to the institution. An OB/GYN resident physician felt that since the training, leadership was continuing to try to make MUAs more mainstream in the clinics.

### **IV. Discussion:**

This study is the first to look at how an interdepartmental education and training intervention for EPL management affects the integration of comprehensive management of EPL within a large academic medical training institution. Our data demonstrate that the training as a whole and the interdepartmental nature of the training in particular, helped staff to address barriers to implementing EPL services outside of the OR and facilitate actions towards the implementation of MUAs in the ED and in the outpatient clinic.

The joint presence of the OB/GYN and ED staff at the training influenced a change in attitude towards the procedure, encouraged conversations and inspired actions towards the integration of MUAs in the ED. The most significant effect of combining departments was that it allowed OB/GYN and ED staff to share perspectives on, and experiences regarding EPL and its management. Previous research found that physician preference for performing MUAs in the OR was a barrier to moving the procedure outside of that setting<sup>3,7</sup> and that concerns about the safety of MUAs outside of the OR decreased the likelihood of providers performing them in the office setting.<sup>3</sup> We found ED staff, not OB/GYN staff, were worried about the safety of MUAs in the ED. Although OB/GYN staff were comfortable with MUAs in the ED, they recognized that a barrier to their being able to perform MUAs in the ED was the ED's lack of knowledge about the procedure and its safety. During the training, ED staff were relieved to learn from the OB/GYN providers that MUAs were a quick and safe procedure and appropriate to be performed in the ED.

The sharing of perspectives also allowed the OB/GYN and ED staff to better understand each other's expected roles and responsibilities in managing patients with an EPL. This was a relief for ED staff who, prior to the training, were very concerned about the burden EPL management in the ED would pose. We found that they were worried about the amount of time and the number of staff it would take to perform a MUA. Study findings are supported by previous literature that suggests it is difficult to integrate EPL management into practice outside of the OR due to challenges faced when fitting patients into the patient flow and schedule.<sup>3</sup> The training eased ED staff's concerns about patient flow. They were relieved to find out that the OB/GYN staff was not expecting them to perform the procedure, but instead to recognize when a MUA would be appropriate and then to facilitate the process within the ED as needed. The few ED providers who were interested in performing the procedure themselves acknowledged that the current system of EPL management in their ED did not support this, but hoped it would in the future. Not only did the ED staff appreciate learning from the OB/GYN staff, but the OB/GYN staff also appreciated having the opportunity to communicate their experiences with the ED staff. They especially felt it was important to inform them of the relative simplicity of the procedure.

Earlier research found that the inclusion of support staff in a training intervention to implement MUA procedures for EPL management was necessary for the successful adoption of this practice.<sup>14</sup> Similarly, we found that having OB/GYN staff in a range of roles and from a wide variety of specialties such as maternal fetal medicine, ultrasound, and reproductive endocrinology was beneficial to the process of implementing EPL management, particularly MUAs in the OB/GYN clinics. The training allowed OB/GYN staff to come together as a large group to begin, or to continue, conversations and efforts for improving systems and protocols for facilitating practice change.

Confirming previous study findings,<sup>3</sup> we found that one barrier to moving EPL management out of the OR was inadequate numbers of support staff trained in providing care to EPL patients. Our findings also support previous research concluding that staff lack knowledge on how to provide emotional support to EPL patients.<sup>3</sup> Unlike previous research, we found that the number of OB/GYN providers comfortable with and able to offer the procedure were inadequate. The TEAMM training provided support staff with new skills for providing clinical care and emotional support to patients, and increased the number of providers who felt comfortable offering the procedure. Some sites continued to work on building this capacity after the training.

Our study found the lack of protocols and systems to be a larger barrier to comprehensive EPL management than previously presented in research.<sup>3,7,14</sup> Problems included not knowing where the MUA instruments were in the ED, not knowing who was responsible for keeping those instruments stocked, not knowing how to manage the flow of an EPL patient in the ED or the outpatient clinic, and not knowing which patient was appropriate for what type of EPL management. Since the training, the majority of steps taken towards the integration of comprehensive management of EPL were aimed at addressing the lack of protocols supporting the provision of MUAs outside of the OR. These steps involved collaboration between the ED and OB/GYN departments as well as collaboration between staff within these departments, in order to standardize protocols and systems throughout the EPL management process. The similarity between an elective abortion procedure and EPL management with MUA has previously been shown to be a significant barrier to EPL management.<sup>3,14</sup> Interestingly, we found that it was not the majority, but a concerned minority that saw this as a barrier. That this barrier was found to be less significant in our study may be in part because our research was recent and opinions of health care staff have changed since previous studies. Another reason could be the difference in setting, since our study was conducted at large academic institutions where practice change is often initiated.

In previous research it was shown that one barrier to performing MUA procedures beyond 1<sup>st</sup> and early 2<sup>nd</sup> trimesters was that restrictions on sedation outside the OR limited providers ability to perform that procedure.<sup>3</sup> In our study, we found that barriers to performing the procedure in the outpatient OB/GYN clinic were having too few staff trained in assisting with moderate sedation and the absence of a pharmacy on site to provide minimal sedation. We also found that ED staff were under the impression that moderate sedation was required for a MUA procedure. During the training they learned that moderate sedation was not the norm in the outpatient setting, and as a result, they became receptive to the idea of performing the procedure in the ED. In our study, perhaps the concerns about sedation needs were so significant because the ED participants were accustomed to prioritizing the treatment of pain for their patients.

One major limitation of our study is not knowing if those who agreed to participate in the study were representative of all those who attended the trainings. The participants may have been more enthusiastic about the training and most invested and interested in the practice change. We were also limited in only being able to use purposive sampling at one site. Because of the small number of attendees who volunteered to be interviewed, at all but one site we interviewed everyone who volunteered. Another limitation of the study is that there was low attendance at the trainings by the ED staff, except at the largest site. At the smallest training site, there were no ED attendees. We interpret the low participation rate of the ED as being representative of the challenges of implementing a practice change, especially one that involves participation of multiple departments. More specifically, we see this as representing the challenge of implementing MUA management of EPL in the ED.

Despite not using purposive sampling as intended to get variation among our participants, we did get participants representing a wide range of positions within the workplace, especially those from the OB/GYN department. Another strength of the study was using grounded theory and not beginning with any a priori codes. This allowed us to generate themes truly based on the participants' experiences. The semi-structured interviews strengthened our study by allowing us to adapt questions so they were relevant to the participants coming from different departments and having different roles within those departments. Additionally, all of the study sites were large academic medical training institutions, making our findings applicable to similar

institutions. Finally, our training sites represented geographic variety, with two in the northeast, two in the south and one in the western region of the country.

Our data suggest that it is important for institutions in the process of implementing a practice change to provide clear protocols and procedures identifying the new roles and responsibilities of all staff. In the case of implementing EPL management changes, it is also important to have systems to guide the staff in managing supplies, patient scheduling, sedation needs, patient flow, and triage. Our study results support the continuation of the TEAMM interdepartmental trainings as a means of helping with the implementation of EPL management outside of the OR. In addition, our data suggest that it is important for these trainings to continue including a wide range of staff within the OB/GYN and ED departments. We found that the low attendance rate of ED staff at the trainings should be addressed and increasing the number of ED staff at future trainings should be a priority. Having ED and the OB/GYN staff together to share perspectives and experiences was tremendously important to furthering the process of practice change.

In order to make trainings such as these more effective, it would be helpful to understand how to more fully include representatives of all departments in trainings. In our case, we need to answer why the overall ED attendance at the trainings was low; was it circumstantial or was it due to resistance from administrators, providers, or support staff? In order to achieve more efficient implementation of practice changes, it would be useful to study how protocols are developed and disseminated while instituting a practice change. Finally, continued contact with study sites would be helpful in assessing the extent to which our trainings result in increased access to comprehensive EPL management.

Because there are women experiencing EPL who prefer to be managed in the outpatient setting, this study can be used as a resource for institutions wanting to bring a more patient centered approach to EPL management. By training staff involved in EPL management in an interdepartmental fashion, it is the women seeking EPL care that will benefit most from the adoption of comprehensive EPL management practices.

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## Appendix A. TEAMM Training Follow Up Interview Guide

The purpose of this interview is to gather data that will contribute to the research study we are conducting regarding interdepartmental training for miscarriage management. As noted on the consent information sheet, this interview should take between 20 to 30 minutes and you have the right to refuse to participate or to stop the interview at any time without any penalty or any effect on your clinical site. I will audio-record your interview so that we have an accurate record. When we transcribe the audio-recording, we will assign a unique study code to the transcript and will remove any identifying information. Partial responses may be included in written manuscripts and presentations, but never your name or identifying information.

1. What is your role at your work site/clinic/hospital? How long have you been there?
2. What would you say are your overall impressions of the TEAMM miscarriage management training you attended.

PROBE: How was the training relevant, or not, to your work in miscarriage management?

3. What challenges would you say your institution faces in integrating a full spectrum of miscarriage management services?

PROBE: Institutional policies, lack of support from colleagues, patient flow issues.

PROBE: Are there any particular challenges related to other departments such as the ED, family medicine or OB/GYN?

PROBE: Do you feel patients present to the ED unnecessarily and if so, why does that occur?

4. Since the TEAMM training, what have you and/or your leadership done to address those challenges?

PROBE: If nothing has been done, what do you think can be done to address these challenges?

PROBE: Has your practice changed any part of how miscarriages are managed or have you all talked about doing so?

5. In our experience with these trainings, we have found that miscarriage management can be perceived by some providers and staff as abortion care. If this is true, in your institution, how does this impact your ability to provide miscarriage management services?

6. In what ways, if at all, do you think it was beneficial to have multiple departments and at the training together?

PROBE: By including the \_\_ department with yours how does that affect the integration of miscarriage management into your departmental practice and the institution?

PROBE: Were there challenges with having these departments together in the training? If so, what were they?

7. Has the training led to conversations about changes in miscarriage management at your facility, and if so, what were those conversations like and who were they with?

PROBE: Can you think of anyone it would have been beneficial to include who wasn't there?

PROBE: How would it be beneficial to include them?

8. Is there anything else you would like to add about the TEAMM training and miscarriage management services at your institution?