

*Meeting Abstracts*

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## **Simulation training in forceps assisted vaginal birth: trainee competence, clinical behavior and procedural competence**

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### **Background**

Obstetric forceps use has declined in recent years in the USA leading to a reduced number of physicians competent in their use. Diminishing training and experience in operative delivery, and specifically forceps delivery, has resulted in a steady decrease in forceps delivery even being offered to women. Concurrently, Cesarean delivery has increased, accounting for approximately one third of all births. Cesarean delivery increases the risk of maternal complications. Also women with multiple Cesarean deliveries are at increased risk for abnormal, invasive placentation and at increased risk for uterine rupture, both of which can cause catastrophic hemorrhage and/or death of the fetus and/or the mother.

The American College of Obstetricians and Gynecologists (ACOG) recommends increasing instrumental birth training to reduce Cesarean deliveries. Data from the UK supports that obstetricians who use only vacuum are more likely to resort to Cesarean delivery, and suggested that increasing forceps deliveries might decrease overall Cesarean rates. A recent study from Australia demonstrated that a formalized educational program in forceps delivery, involving simulation training with a mannequin, increased the rate of forceps birth compared to vacuum birth.

### **Objective**

To determine whether simulation training in forceps assisted vaginal delivery affected:

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- The confidence of the trainee in offering and performing forceps assisted vaginal delivery before and after the intervention
- The frequency with which forceps assisted vaginal delivery is offered to the parturient compared to vacuum assisted vaginal delivery.

### **Educational intervention**

UIHC residents in Obstetrics & Gynecology were provided with a didactic session, reading materials, and 3 simulator training activities. The simulator sessions included one session to go over basic principles of forceps application, one session to go over principles of sliding lock forceps application for asynclitism, and one for skill assessment.

### **Evaluation Plan and/or Preliminary Data**

All residents participated in an anonymous pre-intervention survey within 14 days before the intervention. For 6 months following intervention, participants will complete an information sheet regarding any time an operative vaginal delivery is offered to a parturient with regard to what was offered to patient, whether patient accepted, and whether a vaginal delivery occurred.

Pre-intervention survey (N= 20) showed that 70% of the residents had never performed a forceps assisted delivery, and 45% would offer forceps assistance first compared to 30% offering vacuum assistance first. The post-intervention survey had a small N (5) with 60% saying they would offer forceps first (p=0.55).

Over the ensuing six months, residents logged 36 deliveries in which instrumental delivery was offered. There was no statistical difference in whether forceps was offered first depending on whether the trainee attended the training. Patients offered a forceps (N=19) assisted delivery were receptive with 89.5% agreeing to use. This is similar to 82.5% of patients offered a vacuum who agreed to its use (N=17). There was also no difference in whether the patient ultimately had a vacuum delivery or forceps delivery, based on training.

### **Discussion**

Forceps were offered first over vacuum in over 70% of the cases in which the resident had NOT attended training. This may indicate that our residents' knowledge of forceps was already strong at baseline. Another potential confounder in these data is that some of the obstetrics attending staff do not perform forceps, thus a resident who attended the workshop may have offered vacuum based on the attending staff on call rather than reflecting the training.

Only a small number of residents were able to attend all three sessions of the workshop due to night float and attending cases in the operating room during didactics. We continue to address the challenge of the concomitant needs of operating room experience versus didactic session attendance.

Notably, 35 of 36 patients offered assisted vaginal delivery had a successful vaginal delivery (97.2%). This result suggests that our providers

are demonstrating excellent clinical judgment regarding to whom operative vaginal delivery is offered. It was also anecdotally observed that residents who attended the workshop had better forceps application technique, and many residents who attended the workshop sessions stated that the workshop

increased their confidence in performing a forceps delivery under faculty supervision. In future studies, we will expand the training to include more faculty and to ascertain whether the choice to offer vacuum or forceps assisted delivery was driven by the resident or attending.