Medicon Medical Sciences
Volume 7 Issue 1 July 2024
Article Type: Research Article
ISSN: 2972-2721

Effects of One-day Advanced Life Support in Obstetrics Course for Family Medicine Residents

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Received: June 17, 2024; **Published:** June 27, 2024

DOI: 10.55162/MCMS.07.223

Abstract

Objective: The Advanced Life Support in Obstetrics (ALSO) course was designed as a two-day interprofessional course to equip participants to manage various low frequency obstetrical emergencies nationally and internationally. It is used nationally by numerous Family Medicine Residency programs to improve safety in maternity care, optimize team-based care, and showcase obstetrical care by family physicians. In 2017, the course was redesigned into a one-day course, yet the outcomes of this new course design have not been examined. This study assessed non-inferiority for confidence in managing emergencies and skills before and after the single day ALSO course.

Methods: Participants completed questionnaires before and immediately following ALSO training assessing confidence managing OB emergencies: hypertensive disorders of pregnancy, malpresentations/malposition/multiple gestations, assisted vaginal delivery, shoulder dystocia, postpartum hemorrhage, and maternal resuscitation/trauma. A Likert scale was used with response choices ranging from strongly disagree (1) to strongly agree (5) for each item.

Results: Over three sessions, 69 participants received ALSO training (49 pre-surveys and 36 post-surveys completed). Of the participants, 24 (51.0%) were first year residents, 6 (12.2%) were second year residents, 5 (10.2%) were third year residents, 6 (6.1%) were attending physicians, 3 (6.1%) were nurses, 1 (2.0%) midwife, and 6 (12.2%) were medical students. Total confidence managing individual conditions increased significantly from pre- to post-survey ($p<0.001$).

Conclusions: The one day ALSO course demonstrates improved confidence in obstetrical emergencies immediately after the course for all conditions. It is non-inferior to the previous 2- day training course.

Keywords: Family Medicine Obstetrics; Advanced Life Support in Obstetrics

Introduction

The Advanced Life Support in Obstetrics (ALSO) course is an interprofessional and multidisciplinary one-day course that equips participants with the necessary tools to effectively manage low frequency obstetrical emergencies. The course was developed in 1991 by two family physicians who used the learning model for advanced cardiac life support (ACLS) and advanced trauma life support (ATLS) courses [1]. The course was obtained by the American Academy of Family Physicians (AAFP) in 1993 and in 2017 was redesigned into the current one-day course [1]. The ALSO course is a staple in many first year Family Medicine Residency programs. The goal is to provide simulation-based training for high-risk, low-frequency events to family medicine residents in conjunction with their Accreditation Council for Graduate Medical Education (ACGME) required maternity care rotations. The training is provided in an interprofessional team training format. Additionally, it has been used in 62 countries and has trained healthcare providers around the world [1]. The overall goal is to improve evidence-based competency, team-based collaboration, and ultimately improve patient safety in pregnancy care.

Prior to the live course, learners are required to review the ALSO provider manual, watch recorded video lectures with slide presentations, review video demonstrations for the topics included as hands-on stations, work through case studies, use gaming technology to reinforce mnemonics, and answer knowledge assessment questions. Via hands-on workstations the live course focuses on assessing learners' application of knowledge on hypertensive disorders of pregnancy, malpresentations/malposition/multiple gestations, assisted vaginal delivery, shoulder dystocia, postpartum hemorrhage, and maternal resuscitation/trauma. There are also interactive group case studies focusing on eclampsia, labor dystocia, and intrapartum fetal surveillance, and the course concludes with group testing on seven different obstetrical emergency scenarios [2].

Previous studies concluded that participation in the two-day ALSO course increased physician confidence handling various obstetrical emergencies and suggested ALSO course training is an effective tool for empowering family physicians to provide maternity care within their practice [3, 4]. No studies have been published reviewing outcomes of the one-day course. The current study assessed confidence in handling obstetrical emergencies before and immediately after training consistent with prior studies supporting the two-day course [3, 4].

Methods

This study was approved by Kettering Health Institutional Review Board (IRB) as exempt with reference number KHN-2022-145.

Training

Participants completed the Advanced Life Support in Obstetrics (ALSO) course which includes readings, online lectures, hands-on workstations, and evaluations conducted via written exam and team-based skills assessment stations. Participants were taught skills in intrapartum fetal surveillance, preterm labor and pre-labor rupture of membranes, hypertensive disorders of pregnancy, late pregnancy bleeding, labor dystocia, assisted vaginal delivery, postpartum hemorrhage, and maternal resuscitation (Leeman et al., 2020). We conducted three training sessions: October 2022, May 2023, and October 2023.

Questionnaires

We developed a questionnaire, using a Likert scale, based on the instrument created by Taylor and Kiser (1998) to assess confidence in managing obstetrical emergencies taught in the ALSO training. Participants completed the questionnaire before and immediately following the one-day training. For each of the following conditions (first trimester bleeding, third trimester bleeding, preterm labor/premature rupture of membranes, dysfunctional labor, malpresentation, breech delivery, shoulder dystocia, preeclampsia, postpartum hemorrhage, vacuum delivery, maternal resuscitation, and neonatal resuscitation) participants indicated their level of agreement with "I am confident I can manage a patient with the following conditions." Response choices ranged from strongly disagree (1) to strongly agree (5) for each item.

Analyses

Descriptive statistics summarized study variables. An overall confidence score was calculated by summing scores for each item and dividing by the number of items. A higher score indicates greater confidence. Independent samples t-tests comparing group scores for pre and post data were used to determine changes in overall confidence and changes in confidence on individual items.

Results

Over three sessions, 69 participants received ALSO training. Fifty-one pre-surveys were completed (73.9% response rate) and 36 post-surveys were completed (52.1% response rate). Of the participants who completed surveys, 24 (51.0%) were first year residents, 6 (12.2%) were second year residents, 5 (10.2%) were third year residents, 6 (6.1%) were attending physicians, 3 (6.1%) were nurses, 1 (2.0%) midwife, and 6 (12.2%) were medical students. Total confidence scores increased significantly from pre- to post-survey as did confidence scores for individual items (Table 1). Conditions that showed the greatest increase in confidence were breech delivery, vacuum delivery, and malpresentation.

Conditions managed	*Pre survey scores, N=78 (M, SD)*	*Post survey scores, N=63 (M, SD)*	*P value**
First trimester bleeding	3.4 (1.0)	4.0 (.8)	<.001
Third trimester bleeding	3.2 (.9)	4.1 (.7)	<.001
Preterm labor/PROM	3.1 (1.0)	4.1 (.7)	<.001
Dysfunctional labor	2.8 (1.0)	4.1 (.7)	<.001
Malpresentation	2.5 (1.0)	4.2 (.6)	<.001
Breech delivery	2.5 (1.0)	4.4 (.5)	<.001
Shoulder dystocia	2.9 (1.1)	4.4 (.6)	<.001
Preeclampsia	3.7 (.8)	4.4 (.5)	<.001
Postpartum hemorrhage	3.2 (.9)	4.4 (.6)	<.001
Vacuum delivery	2.4 (1.0)	4.3 (.6)	<.001
Maternal resuscitation	3.0 (1.0)	4.2 (.7)	<.001
Neonatal resuscitation	3.1 (1.0)	3.9 (.8)	<.001
Total confidence score	3.0 (.7)	4.0 (.5)	<.001

*All significant at p<.004, Bonferroni correction for multiple comparisons.

Table 1: Comparisons of pre-and post-survey confidence scores (1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4=agree, 5=strongly agree).

Discussion

The pre-and post-course responses demonstrated significantly increased confidence in all areas consistent with previous studies and demonstrates non-inferiority of the new course format [1-6]. While confidence does not always correlate with competence, it has been used to evaluate advanced medical training courses [3, 5]. It is reasonable to assume that learners who feel more confident are more likely to use skills in real time when caring for patients. This is of particular importance in family medicine obstetrical rotations, where residents are often working with obstetrics and gynecology attendings or residents in fast-paced high-stress situations. In this environment, residents who lack confidence can easily be relegated to an observer or assistant role and miss out on invaluable learning experiences that could reinforce their knowledge and skills.

Most family medicine residents do not include maternity care in their practices and recent estimates show less than 10% continue to perform deliveries after residency [6]. As maternity services become more limited in underserved areas of the United States [7], family medicine physicians may be called upon to manage obstetrical emergencies in other settings. Having exposure to the most likely scenarios with a standardized, straightforward approach to managing them could be invaluable.

The rate of pregnancy-related deaths during or within one year of pregnancy in the U.S. has steadily increased from 7.2 deaths per 100,000 live births in 1987 to 32.9 deaths per 100,000 live births in 2021 [8]. Rural areas of the United States often have limited access to quality obstetrical services [9], but well-trained family physicians can help to fill this gap [10]. Training family medicine residents in the ALSO course increases their confidence in managing labor complications with the hope that this will not only increase the quality of the obstetrical care they provide, but also empower them to pursue including obstetrical care in their practice. Although there have been changes in the format of the ALSO course, it continues to increase confidence for learners.

For future studies, evaluation of confidence over time would be useful, particularly as ALSO is designed to be retaken every three years. Additionally, further consideration of whether family medicine residents use the knowledge from ALSO in their obstetrical rotations and continuity deliveries is a helpful initial step in determining impact of the course. Lastly, another significant way to study the impact of the ALSO course would be to examine its effect on family medicine residents' choice to practice maternity care after graduation, particularly in underserved areas.

Funding

HRSA Primary Care Training and Enhancement- Community Prevention and Maternal Health. Award 2022-2026. Total award $ 765,724.

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