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The Advanced Life Support in Obstetrics (ALSO®) Program: Fourteen Years of Progress

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ALSO = Advanced Life Support in Obstetrics

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Abstract

Background: The Advanced Life Support in Obstetrics (ALSO®) program is a highly structured, evidence-based, two-day course designed to provide healthcare professionals with the knowledge and skills to manage the emergency conditions that can occur during childbirth.

Objectives: To document the number of ALSO®-trained clinicians and instructors in the United States and internationally and to promote ALSO® training among prehospital and disaster medicine professionals.

Methods: Records maintained by the American Academy of Family Physicians (AAFP) for each country where ALSO® is taught were reviewed for: (1) the years and locations of the ALSO® courses; (2) the number of ALSO®-trained caregivers; and (3) the number of ALSO® instructors.

Results: Between 1991 and 2005, 54,071 ALSO®-trained caregivers and 2,251 instructors have completed provider and instructor ALSO® courses in 25 countries. Of these, 17,755 caregivers and 1,220 instructors are from outside the United States.

Conclusion: The ALSO® program is a popular, multi-disciplinary course for preparing maternity caregivers to manage obstetric emergencies. Limited evidence suggests it can be effective and efficient in enhancing the knowledge and skills of prehospital and disaster medicine clinicians. Hong Kong provides a model in which emergency physicians have taken the lead in promoting the ALSO® course. As the ALSO® program expands, additional research is needed to assess its impact on educational and health outcomes.

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Introduction

The Advanced Life Support in Obstetrics (ALSO®) program is designed to improve the emergency management skills of healthcare professionals including: family physicians, obstetricians, emergency department physicians, midwives, nurses, and prehospital and disaster medicine clinicians.¹ Additional goals of the course are to promote collaboration between all of the disciplines involved in the provision of maternity care and to increase the supply of maternity caregivers.

The ALSO® course is a highly structured, two-day course with evidence-based content that provides clinicians with training to enhance their knowledge and skills in the management of the emergency conditions that can occur during childbirth. The course content, teaching methods, dissemination, and outcomes have been described previously.¹⁻¹¹ Information about ALSO® can be found at the website: <http://www.aafp.org/also.xml>.

An example of the applicability of this training is the Hong Kong emergency department physicians who have been teaching ALSO® courses since 2001 to prepare emergency department and prehospital clinicians for the obstetrical emergencies they may encounter. This was motivated by the fact that women from elsewhere in China often deliver in, or on their way to, Hong Kong emergency departments due to the economic and other advan-

tages for children who receive Hong Kong citizenship from being born in Hong Kong.

Course content

The ALSO® course has eight required lectures and five required workstations. The content of the ALSO® course is evidence-based. Beginning with the 2000 edition of the ALSO® Provider Manual, recommendations are categorized according to level of evidence based on the system used in the US Preventive Services Task Force and Canadian Task Force on Preventive Health Guidelines.

The required lectures are: (1) First Trimester Complications; (2) Vaginal Bleeding in Late Pregnancy; (3) Preterm Labor/PROM, (4) Labor Dystocia; (5) Safety in Maternity Care; (6) Medical Complications; (7) Maternal Resuscitation; and (8) Post-partum Hemorrhage.

The required workstations are: (1) Intra-partum Fetal Surveillance; (2) Shoulder Dystocia; (3) Assisted Delivery; (4) Malpresentations; and (5) Obstetrics Cases.¹² In addition, the ALSO® course has five optional workstations. The optional workstations are: (1) Perineal Repair; (2) Cesarean Delivery; (3) Diagnostic Ultrasound; (4) Neonatal Resuscitation; and (5) Birth Crisis.¹² Attendees are evaluated using an objective test and a skill-demonstration "mega-delivery" where he or she is required to demonstrate the skills learned during the course.

Teaching methods

The ALSO® course "is based on an adult learning model whereby participants prepare by prior reading of the ALSO® syllabus and take responsibility for their own learning before and during provider and instructor courses."¹² Course revisions have moved away from a lecture format and increasingly utilize workstations and case discussions. The newest lecture to be converted to a workshop combines the maternal resuscitation and post-partum hemorrhage lectures into a workshop addressing maternal resuscitation. This workshop already has been used in courses in the United Kingdom (UK) and Hong Kong, and will be introduced in the United States (US) in late 2005.

Program dissemination

The promulgation of the course is by the same method used by other "life-support" courses—that is, by the selection and training of a large number of instructors who can produce the standardized course in their communities.

Previously in the US, most attendees were family physicians, but now, "increasing numbers of nurses, midwives, and obstetricians are taking the course as well."² In addition, the course is being promoted within the US military.³ Although only a small percentage of US participants are paramedics and/or emergency department physicians, growth may occur if these clinicians are aware of the ALSO® course and recognize that it may enhance their clinical skills.

Originally, it was believed that ALSO® would be of greatest interest to physicians performing limited numbers of deliveries or practicing in areas without extensive consultative resources. However, it appears that the course is of

significant interest to attendees who perform larger numbers of deliveries and those from sites with greater consultative resources.⁴

Internationally, the promulgation of the ALSO® training has been growing. A "teach-the-teacher" method has been effective in capacitating host country professionals through one week of the delivery of intensive courses.⁵ Host country maternity care clinicians take a two-day provider course followed by a one-day instructor course. They then are observed and evaluated as they hold a two-day provider course for a new set of host country participants. A license agreement is formed with a host country institution. The host country governing body then is able to disseminate the course throughout their country or region.

Unique technology, language, cultural, logistical, and pedagogical issues are encountered when introducing ALSO® to developing countries. A pre-course survey was developed to help assess and address issues in the months prior to initial courses in developing countries.⁵ The manual and materials have been translated into Chinese, French, Georgian, Portuguese, Russian, and Spanish.

Outcomes

Despite the rapid dissemination of ALSO® training, few ALSO® outcome studies have been published. Documenting the effects of ALSO® training on major health indices such as maternal and infant mortality rates will be difficult. Because so many medical and non-medical factors affect mortality rates, it would be difficult to isolate the effect of ALSO® training. In developed countries, mortality rates are low enough that it would require a very large cohort to document the effects of ALSO® training on these health outcomes.

Three studies have documented an increased confidence level of maternity care professionals who have completed the ALSO® course. First, an analysis of data collected from the first three years of course operation suggested that the course was meeting its goals of increasing the participants' level of comfort with managing maternity care emergencies and increasing their stated likelihood of continuing to provide maternity care.⁴ Secondly, Taylor and Kiser⁶ used questionnaires administered immediately before and after course participation, to assess changes in comfort with various situations and procedures. They documented increased levels of comfort with a wide range of activities, including breech delivery, assisted deliveries, shoulder dystocia, and postpartum hemorrhage. Their study was limited by the fact that only confidence levels were assessed and only at the time of the course. Finally, Bower, Wolkomir, and Schubot⁷ examined the effects of the ALSO® course on residents. These authors, with a rather small group of residents, found an increased level of confidence in the residents' ability to manage maternity care emergencies, but they found no increase in the residents' intention to provide maternity care.

The number of instructors and participants trained since the introduction of ALSO into each host country was measured.

Country	Year ALSO® introduced	Number of participants	Number of instructors	Comments
Australia/New Zealand	2001	2,000	130	
Brazil	2000	1,327	129	Portuguese translation-final draft
Canada	1997	2,964	111	French translation of the slides and supporting course materials
Ecuador	2003	67	33	Spanish translation
Greece	2002	265	29	
Guatemala	2004	95	13	Spanish translation
Haiti	1998	600	14	No longer administering courses
Hong Kong (not PRC)	2001	407	24	
Iraq	2003	111	7	
Kenya	2003	23	9	
Kyrgyzstan	2003	60	30	Russian translation
Nepal	2001	56	-	
Nigeria	2004	20	7	
Pakistan	2003	61	22	
Paraguay	1998	50	-	
Peoples' Republic of China	2002	502	28	Chinese translation
Qatar	2002	154	28	
Republic of Georgia	2004	55	25	Georgian translation
Scandinavia/Greenland	2002	298	24	
Sudan	2004	63	21	
United Arab Emirates	2004	32	9	
United Kingdom	1996	8,293	425	
United States	1991	36,316	1,031**	
Uzbekistan	2002	51	30	Russian translation
West Bank and Gaza	2003	201	40 instructor candidates 32 approved instructors	
Total	NA	54,071	2,251	

Table 1—ALSO® statistics (as of 01 February 2005)

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Methods

The attendance data upon which this study is based were obtained from attendance records for ALSO® courses.¹³ These are maintained by the American Academy of Family Physicians with input from the organizing body for ALSO® in each host country.

Results

Between September 1991 and February 2005, 54,071 clinicians received ALSO® provider training, and 2,251

instructors have completed provider and instructor ALSO® courses in 25 countries. Of these, 17,755 ALSO®-trained clinicians and 1,220 instructors are from outside the United States. Table 1 lists results by country.

Discussion

The results shown above demonstrate a rapid dissemination of the ALSO® course, both in the US and internationally. The course has been popular across disciplines and in both developing and more developed countries. While

ALSO® training has grown rapidly in the 14 years since its inception, there is room for expansion. Future research can guide this expansion and document both educational and outcome objectives.

Potential for prehospital and disaster medicine

Training in ALSO® can enhance the knowledge and skills of prehospital and disaster medicine professionals. Hong Kong offers a model in which the course is organized, taught, and taken by emergency physicians. In addition, participation in an ALSO® course may "assist in building management strategies to use until back-up expertise arrives or the patient can be transported to another facility."² Imminent deliveries and obstetrical emergencies will need to be managed at some point in the career of most prehospital and disaster medicine professionals. The ALSO® courses facilitate the development of high-quality, evidence-based skills through the use of mnemonics, supervised practice, and case-based discussions that help prepare clinicians for the important opportunity to save lives.

Future research

The Advanced Life Support in Obstetrics (ALSO®) is an evidence-based course, yet there is little evidence available regarding the effects of the course on health outcomes. The effects of the course on major health indices such as maternal and infant mortality may be difficult to document for reasons discussed earlier. However, hospital-level statistics relevant to subjects such as post-partum hemorrhage, shoulder dystocia, and labor dystocia may be more attainable. The ALSO® Advisory Board is developing a standardized evaluation tool that could be utilized internationally. A number of developing countries have agreed to collect outcome data to assist with the measurement of the effects of participation in an ALSO® course in lieu of royalty fees.

Whether the course will be successful in improving the quality of and access to obstetrical care remains to be seen. There are a few encouraging signs. Other "life support" courses have documented an improvement in care in simulated emergencies¹⁴⁻¹⁶ and, to a very limited extent, in real-world settings.^{17,18} Nonetheless, there are concerns about the retention of skills and knowledge in such courses.¹⁹

Future research can investigate the hypothesis that the multidisciplinary nature of the ALSO® course will help to improve relationships between professionals providing maternity care. There are suggestions in other "life support" courses that following participation in the course, communications with consultants are improved.¹⁵ It is par-

ticularly impressive that in most countries providing ALSO® training, the development and promulgation of the program has represented a true interdisciplinary effort. There is evidence within the US that this would increase the percentage of US family medicine residency graduates who offer maternity care.²⁰

Educational outcomes may be easier to document than health outcomes. In 2002, ALSO® introduced an optional online, pre-course self-assessment tool. Pre-course scores may be compared with post-course written scores to evaluate cognitive improvement following participation in the course. Repeating post-course testing at one, six, and 12 months could define retention. A similar pre-course megadelivery could be used to help document the effect of ALSO® training on the acquisition and retention of technical skills.

Previous studies¹⁻¹¹ have documented improved comfort in managing obstetrical emergencies among clinicians who have taken the ALSO® course. A future study could compare perceived comfort level with managing obstetrical emergencies with actual improvement in and retention of knowledge and skills.

The best methods of teaching ALSO® internationally should be researched. As countries outside the US gain more experience with ALSO®, valuable lessons may be learned. Annually, an international ALSO meeting for the purpose of course development is attended by course leaders from countries around the world. A team of these leaders currently is working on an International ALSO® Supplemental Manual. Research can guide development as ALSO® expands to new frontiers such as emergency medicine in Hong Kong and prehospital and disaster medicine throughout the world.

Conclusion

Training in ALSO® has spread rapidly since 1991 with >54,000 clinicians across the world having completed the course in the 14 years since its inception. One area of potential growth is among prehospital and disaster medicine professionals. As ALSO® expands, research will allow the course to meet the needs of different audiences and to evaluate its impact in different settings.

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