

# Advanced Life Support in Obstetrics in Ecuador: Teaching the Teachers

*Lee T. Dresang, MD, Wm. MacMillan Rodney, MD, Lawrence Leeman, MD, MPH, Jason Dees, DO, Paul Koch, MD, ScM, and Mauricio Palencia, MD*

**The advanced life support in obstetrics (ALSO) course is designed to help maternity care providers prepare for obstetrical emergencies. A team of 12 US physicians and a medical interpreter recently taught the ALSO course in Ecuador, with the goal of addressing Ecuador's high maternal and infant mortality rates. To have a greater impact, a teach-the-teacher model was used so that Ecuadorian physicians can now hold their own ALSO courses. In the process of implementing the courses, valuable lessons were learned which can be applied to future ALSO courses in developing countries and in the United States. (J Am Board Fam Pract 2004;17:276–82.)**

“Give someone a fish and you feed them for a day; teach someone to fish and you feed them for a lifetime.” Following this proverbial advice, a teach-the-teacher model was used when 12 physicians and a medical interpreter went to Ecuador in February 2003 to teach the advanced life support in obstetrics (ALSO) course. This article describes why the ALSO course was chosen, how Ecuador was chosen, how the courses were implemented, and what lessons might be useful for organizers of future international and US ALSO courses.

## Why the ALSO Course?

In 1991, the ALSO course was developed by 2 Wisconsin family physicians, James Damos and John Beasley.<sup>1–3</sup> The course was obtained by the American Academy of Family Physicians (AAFP) in 1993. The curriculum focuses on the management of obstetrical emergencies and is modeled after the advanced cardiac life support (ACLS) and advanced trauma life support (ATLS) courses. Now in its fourth edition, the ALSO course is evidence-based,

categorizing its recommendations according to the strength of supporting evidence. The course uses an adult-learning model, emphasizing interactive workshops and hands-on learning through the use of mannequins, and the course lends itself well to a teach-the-teacher model, whereby students are trained to become future instructors.

The ALSO course has been taught outside of the United States since 1995. In Latin America and the Caribbean, courses have been taught in Haiti and Paraguay. To date, more than 30,000 providers have taken the ALSO course in the United States and 12,239 have taken the course internationally. The United States has 987 approved instructors and 238 advisory faculty, compared with 900 international approved instructors.

Instead of teaching 1 course and then leaving, we wanted to increase our impact by teaching Ecuadorian physicians to put on their own courses. After discussing how we chose Ecuador, we discuss use of a teach-the-teacher model with the Ecuador ALSO courses.

## Why Ecuador?

The decision to teach the ALSO courses in Ecuador was based on its location in Latin America, its high maternal and infant mortality rates, the presence of a family medicine residency, and personal connections with Ecuadorian faculty members.

We speak Spanish and we wanted to introduce the ALSO course to Spanish-speaking Latin America. In preparation for the Ecuador courses, the

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From the University of Wisconsin Medical School and St. Luke's Family Practice Residency, Milwaukee (LTD, PK, MP), Department of Family and Community Medicine, Meharry Medical College and Vanderbilt University School of Medicine, Nashville, Tennessee (WMR, JD), and Departments of Family & Community Medicine and Obstetrics & Gynecology, University of New Mexico School of Medicine, Albuquerque (LL). Address correspondence to Lee T. Dresang, MD, Johnston Community Health Center, 1230 W. Grant Street, Milwaukee, WI 53215 (E-mail: ldresang@fammed.wisc.edu).

ALSO provider course syllabus, instructor manual, handouts, slides, overheads, written examination, and other course materials were translated into Spanish.

The leading causes of maternal and fetal death in Ecuador and all the Americas are hemorrhage, preeclampsia, infection, septic abortion, and delivery complications such as labor dystocia or malpresentation. The leading cause of maternal mortality in Ecuador is preeclampsia.<sup>4</sup> All the above except for septic abortion are directly addressed by the ALSO course. The adjusted maternal mortality in Ecuador in 1995 was 210 per 100,000 live births, greatly outnumbering the 12 per 100,000 live births in the United States.<sup>5</sup> The infant mortality rate in Ecuador in 1999 was 27 per 1000 live births, in contrast to the 7 per 1000 in the United States.<sup>6</sup>

Ecuador was chosen from among the Latin American countries with high maternal and infant mortality rates because of its long history of family medicine and because of professional connections with a host institution—Hospital Vozandes—in Quito, Ecuador. Hospital Vozandes has had a family medicine residency since 1986. The US ALSO Advisory Board encourages international courses to be taught through existing family practice programs.

Identifying a supportive host institution is essential for success of ALSO courses. Hospital Vozandes was identified through personal connections between family physicians in the United States and Ecuador. The hospital provided housing, meals, and administrative support for the US instructors teaching the ALSO courses. The course facilitators reserved ample rooms for workshops and provided audiovisual aids. Two administrative aides were available at all times to address any glitches, such as technical problems with audiovisual equipment or a need for additional photocopies. The process of teaching the ALSO courses would have been much more challenging without such extensive support from the sponsoring institution.

Hospital Vozandes is a private institution, but the ALSO courses were taught to maternity care providers from all sectors of the Ecuadorian health system. In Ecuador, 60% of people receive public health care services, 10% receive private health care services, and 30% receive no health care services. In 1994, Ecuador passed *la Ley de Maternidad Gratuita* (Law for Free Maternity Health Services),

which guarantees that all deliveries in public institutions are completely free of charge. In 1998, this was expanded to include infant care. Unfortunately, the public health system is underfunded and many institutions lack personnel and basic medicines and supplies.<sup>7</sup>

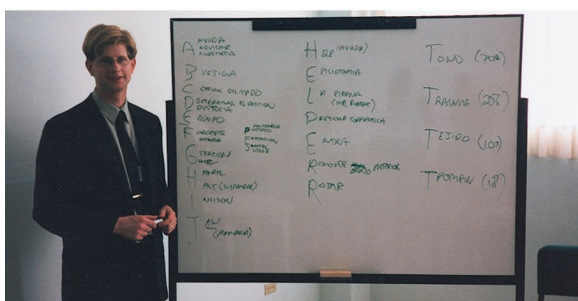
### Implementation of the “Teach-the-Teacher” Model in Ecuador

In Ecuador, the teach-the-teacher method was completed within 5 days, February 10 to 14, 2003. According to ALSO rules, at least half of the faculty for each ALSO course must have ALSO instructor or instructor candidate status, and each course must have an ALSO faculty advisor. Thirty-four Ecuadorian providers, chosen by the host institution, participated in a 2-day ALSO provider course (Figure 1). Then, 33 of the 34 completed a 1-day ALSO instructor course to learn how to teach the provider course. Finally, 29 of these 33 were observed and evaluated as they taught an ALSO provider course to a new group of 33 Ecuadorian providers (Figure 2). Twenty-eight of the 29 were approved as ALSO instructors and 5 were given honorary ALSO Faculty Advisory status. Thus, by the end of the week, enough Ecuadorian practitioners were certified to hold their own officially approved ALSO courses after we left. Hospital Vozandes incorporated ALSO into its residency curriculum and held a course in March 2004.

The course participants chosen by Hospital Vozandes included family practice residents, family physicians, obstetrician/gynecologists, certified midwives (*obstetrices*), and lay midwives. Ecuador offered the opportunity to work with certified midwives: *obstetrices* have 5 years of university education, compared with physicians, who have 9 years. In 1998, Ecuador had approximately 16,000 physicians and 900 *obstetrices* attending deliveries.<sup>7</sup>

Course participants were invited from throughout Ecuador to address the significant health disparities between rural and urban areas in Ecuador. In 1995, the proportion of professionally attended deliveries nationwide was 66.5%, but with substantial differences between the cities (84.3%) and the rural areas (41.9%). In the mountainous areas where the population is largely indigenous, only 15% of deliveries were professionally attended.<sup>7</sup>

We donated 6 mannequins, 5 Kiwi vacuums, an infant intubation mannequin, manual vacuum



**Figure 1. Top: Drs. Palencia (left) and Flores teaching obstetrics cases workshop. Top middle: Dr. Rodney teaching cesarean section workshop. Bottom middle: Dr. Dresang reviewing mnemonics before examination. Bottom: course leaders Drs. Koch, Palencia, Dresang, Leeman and Dr. Brad Quist (left to right).**



**Figure 2. Top: Dr. Fernando Benavides teaching intrapartum fetal surveillance workshop. Center: Ecuadorian physician teaching malpresentation workshop. Bottom: Ecuadorian physician teaching malpresentation workshop.**

aspiration demonstration supplies, and a pair of Tucker-McLane forceps to facilitate future courses.

Ecuadorian participants adapted quickly to the evidence-based and adult-learning aspects of the ALSO course. The lack of evidence-based practice in Ecuador was illustrated by a question regarding a supervising obstetrician who recommended a cesarean section before the onset of labor because he felt a woman was carrying her baby too high. In addition, in Ecuador, mediolateral episiotomies are routine for all primigravida women and many others. By the end of the course, a few students were bringing in relevant articles for discussion.

Likewise, course participants quickly adapted to the adult-based learning aspects of the course. At first, resistance was encountered to the interactive nature of the ALSO course and to the use of mannequins. One participant noted that most Ecuador-



ian medical education is taught in a paternalistic manner in which the professor imparts knowledge through lectures and is not to be questioned or challenged. Another participant noted an initial preference to learn on live patients rather than mannequins. By the end of the courses, the Ecuadorian providers were enthusiastically leading discussions and teaching and learning using the mannequins (Figure 2).

### Lessons Learned for Future International ALSO Courses

Although the ALSO Instructor Course gives very explicit guidelines for developing courses domestically, guidelines are lacking for international course development. Table 1 describes the basic steps necessary to hold an international ALSO course.

On returning from Ecuador, we developed suggestions for future international ALSO courses. First, we suggest the development of a precourse survey (Table 2). A completed survey could be required of the host institution 3 to 4 months before international courses. This would allow time to adjust the course structure accordingly and to obtain approval from the ALSO Advisory Board for any major adjustments.

Because we had not completed a precourse survey, we were instructed by the ALSO Advisory Board to teach the ALSO material without modification. Course participants, however, pointed out a number of recommendations that were impractical in Ecuador. For example, the cost and availability of HIV and group B streptococcus testing in Ecuador make the ALSO recommendations for universal screening unachievable.

We recommend the development of a supplementary manual to the ALSO instructor syllabus for use in developing countries. The manual would address many of the technology and resources issues raised in the precourse survey. The manual would also include strategies and resources for fundraising and obtaining donations for the courses.

Our experience in Ecuador identified a host of technology- and resource-related issues that might be included in a supplementary manual. For example, in developing countries, septic abortion is often a significant cause of maternal morbidity and mortality. A workshop on manual vacuum aspiration for management of first tri-

**Table 1. Basic Steps for Organizing an International ALSO Course**

- 1) **Identify a host institution.** Many countries have never hosted an ALSO course. Factors such as language fluency, host country health needs, and personal or professional connections may influence this decision. Ideally, the host institution should have a family practice residency.
- 2) **Identify a course coordinator at the host institution.** The course coordinator will collaborate with the US course director. The host course coordinator will need to secure space to hold the course and advertise the course within the host country. Arrangements need to be made for audiovisual aids, US instructor meals, and accommodations.
- 3) **Assemble a teaching team from the US.** One person needs to be an ALSO faculty advisor and at least half must be ALSO instructors or instructor candidates. The instructors should be fluent in the language in which the course will be taught or interpreter services will need to be arranged.
- 4) **Submit a written proposal for course development to the ALSO International Subcommittee.** Instructions for submitting a proposal can be found at <http://www.aafp.org/x965.xml>.
- 5) **Translate course materials, if necessary.** Permission must be obtained to translate ALSO course materials. Guidelines for obtaining permission to publish translated materials are available at <http://www.aafp.org/x969.xml>. The course has been translated into Spanish, Chinese, and Russian. A Portuguese translation should be available soon. The slides, but not the syllabus, have been translated into French, and a Danish version of the written exam is available.
- 6) **Solicit mannequins to donate to the host institution.** The ALSO instructor manual lists contact information for three mannequin vendors. The mannequins are central to the course and prohibitively expensive for many host institutions. Ideally, 4 to 6 should be donated. They cost approximately \$450 each.
- 7) **Administer a precourse survey.** See Table 2. The ALSO advisory board needs to approve any changes to ALSO curriculum based on the precourse survey.
- 8) **Follow the course development instructions found in the ALSO instructor course syllabus.**<sup>8</sup>
- 9) **Contact Diana Winslow RN, BSN, ALSO Program Manager, with questions.** E-mail: [dwinslow@aafp.org](mailto:dwinslow@aafp.org); Phone: 1-800-274-2237, ext. 6550

mester pregnancy loss may be particularly useful.<sup>9</sup> Because electronic fetal monitoring is not universally available in developing countries, intermittent auscultation skills should be emphasized. Another common issue in developing countries is the lack of access to cesarean section capabilities. An ALSO addendum could include a section with guidelines on when and how to transport a patient to a facility with operative services. Changes in drug recommendations may be indicated for courses in developing countries. For example, because it is inexpensive and easily stored, misoprostol for postpartum hemorrhage may deserve special attention.<sup>10</sup> In addition, for

**Table 2. PreCourse Survey Questions**

- 1) Nationally, who are the maternity care providers and what is their level of training?
- 2) Who will be attending the ALSO course? Where are they from and what is their level of training?
- 3) Where are births occurring—hospitals, homes, birth centers—and what is the level of care at each site (ie, what proportion of rural hospitals can perform a cesarean section)?
- 4) What are culture-specific attitudes and practices relevant to the birthing process?
- 5) What are the rural and urban cesarean section rates?  
Ecuadorian hospitals have rates of 50%, which may mean any woman with a mildly concerning strip, need of operative vaginal delivery, or prior cesarean section is delivered by cesarean. The talk on dystocia may need to be reformulated into a discussion on advantages of vaginal delivery versus cesarean section, issues of patient choice, etc.
- 6) What is cesarean section availability in rural and urban areas?
- 7) What are local practices regarding breech delivery? If vaginal breech delivery is the norm, this becomes a more important focus. ALSO materials could be supplemented with video footage of breech deliveries.
- 8) What are the leading causes of maternal and infant mortality? How common are perinatal conditions such as preeclampsia, preterm delivery, Group B streptococci infection, HIV, and other sexually transmitted diseases?
- 9) Which of the optional ALSO workshops will be most useful?
- 10) Are newborn resuscitation program (NRP) courses available?  
A Spanish-translation of the NRP manual and CD are available. Offering the NRP course before or after the ALSO courses may amplify the potential of the courses to reduce perinatal mortality.
- 11) What is the availability of and experience with different technologies, including: manual vacuum aspiration for first trimester loss, prenatal ultrasound, vacuum, forceps, and fetal monitoring?
- 12) What is the availability of medicines, including: magnesium sulfate, terbutaline, carboprost, misoprostol, and methylergonovine maleate?
- 13) What is the cost and availability of laboratory testing?  
The recommendations for universal testing for group B streptococci and HIV testing may be reconsidered. Recommendations for Kleihauer-Betke testing may not be realistic.
- 14) What audiovisual aids and equipment are available?

maternal cardiac resuscitation, the use of vasopressin and amiodarone could be de-emphasized when epinephrine and lidocaine are less expensive, more available, and similarly effective.

Other areas for course development include local expertise, course timing, test preparation, and translation issues. Local expertise in maternity and infant care can be assessed before and during the course. Without sufficient expertise, instructors from the host institution may have

difficulty answering questions, and future courses may lack depth. Course participants with extensive knowledge and skill may be granted honorary ALSO faculty advisor status. If no one can be identified, the US faculty advisor and course director may decide to require that an outside faculty advisor return for future courses until an appropriately trained local leader can be identified. The ALSO advisory board asks host institutions in countries outside the United States to sign a license agreement to help maintain quality and consistency for future courses. Course evaluation by a US faculty advisor every 5 years may be a good mechanism to confirm the long-term acquisition of teaching skills.

In addition to training issues, scheduling logistics need consideration. Teaching 3 courses in 5 days was quite draining for all participants. This has to be balanced alongside the need for US instructors to minimize time away from their practices and families. A day off between the instructor course and the second provider course would allow for a needed break and better preparation for the second provider course. Not all US instructors are needed for evaluation and supervision during the second provider course.

In countries outside the US, the testing methods of the ALSO course may be unfamiliar. A higher test failure rate may have more to do with difficulty with the testing methods than with the testing material. Consideration may be given to allocating time for demonstration and practice of the megadelivery, a part of ALSO testing in which participants manage an assisted delivery, shoulder dystocia, and postpartum hemorrhage.

Finally, translation issues should be addressed when the course is not given in English. Mnemonics pose a special challenge for translation. For the Spanish-translation, the mnemonics were not modified. When a Spanish word beginning with the same letter as the English word could not be substituted into the mnemonics, the English word was taught with the meaning written in Spanish in parentheses.

The ALSO syllabus Spanish translation may require multiple revisions after input from participants and instructors. Wording may vary depending on regional idiomatic differences; what is correct in one Spanish-speaking country may be confusing in another. The translated materials

are now available through the national ALSO office.

### ***Potential Applications within the United States***

The teach-the-teacher model implemented in Ecuador could be used inside the United States in isolated, underserved areas. Racial disparities are still significant within the United States. In a study of infant mortality rates (IMR) in the 60 largest US cities, the rate among black infants was 1.4 to 4.8 times higher than the rate among white persons in all 49 cities for which both were reported.<sup>11</sup> Many rural areas in the United States lack quality obstetric care. For example, Perquimans County in northeast North Carolina has an IMR of 32.3 per 1000 births, which is higher than the IMR in Ecuador.<sup>12</sup> Studies have demonstrated the positive effect of improving perinatal skills among community based family physicians.<sup>13–16</sup> Although the United States already has 987 providers trained as ALSO instructors, there are many underserved areas in which maternity care providers are not ALSO-trained. The ability to travel for distant ALSO courses may be limited. A teach-the-teacher model in these settings could empower entire health teams to practice and prepare for managing obstetrical emergencies by regularly holding their own ALSO courses.

A precourse survey would help ALSO instructors adapt their teaching for courses within the United States. Maternity care settings vary greatly within the United States, ranging from remote rural hospitals to large tertiary care hospitals.

The AAFP has been instrumental in the widespread adoption of ALSO across the United States. Many family physicians in the United States have an interest in international medicine but are unable to leave their practices and communities to participate in long-term health projects. International ALSO courses have the potential to decrease the high maternal and infant mortality rates in many developing countries. Future studies are needed to document the impact of the introduction of ALSO into these settings.

International ALSO courses provide excellent cultural and biomedical learning opportunities for residents, fellows, and faculty. Examining the cultural beliefs of others often helps learners look more critically at their own and better understand subcultures within the United States. Clinical skills are often neglected by over-reliance on technology.

For example, Leopold skills may be more accurate when ultrasound is not readily available. Teaching internationally usually benefits the teacher as least as much as the learner.

### **Conclusion**

In an attempt to decrease the high maternal and infant mortality rates in Ecuador, the ALSO course was taught using a teach-the-teacher method. Within 5 days, 28 Ecuadorian physicians were trained to hold their own ALSO courses. Course modification, including a precourse survey and an addendum to the ALSO syllabus, may improve the process of introducing ALSO to other developing countries and adapting ALSO for courses in the United States.

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