

CALS Training for Rural Emergency Health Care Provider Teams

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According to a recent study,¹ the supply of emergency medicine residency-trained, board-certified emergency physicians is not likely to meet demand in the United States in the foreseeable future.

The study's lead author, Dr. Carlos A. Camargo of Massachusetts General Hospital, has stated, "We probably should explore alternatives, such as giving the family physicians currently staffing many US emergency departments extra training in key emergency procedures."²

This need for extra training for emergency providers, especially in rural and remote areas, was the impetus for the creation of the Comprehensive Advanced Life Support (CALs) Program, now in its 13th year. Initially developed in Minnesota, the CALs Program has helped to fill the recognized need for more adequate emergency skills and knowledge in four states and several international venues.

Dr. Camargo has encouraged emergency medicine leaders to reassess emergency department staffing goals and to work more closely with primary care doctors who currently staff emergency departments across the country. Dr. Camargo said, "We might also increase our reliance on nurse practitioners and physician assistants, who can help emergency physicians of any training background better handle the continually rising number of patients."³

Success of caring for critically ill or injured patients depends upon the overall skills and knowledge of the health care professional team. In many cases, rural health care teams have not been adequately prepared. Or, stated a different way, these health care teams could be *more* adequately prepared.

The CALs Single-Curriculum Approach

The CALs Program presents a unique single curriculum that covers information contained in many other advanced life support courses with additional training in advanced airway management. The CALs curriculum presents a majority of the emergency/critical care situations to help health care providers become skilled in treating undifferentiated emergencies. The CALs focus is to train medical personnel in a team approach to anticipate, recognize, and treat life-threatening illness or injury.

The CALs Program is designed for physicians, physician assistants, nurse practitioners, RNs, LPNs, and allied health care professionals (eg, nurse anesthetists and paramedics) who work in rural or remote settings. In these settings, a broad range of medical emergencies must be addressed, but there is a lack

of or limited access to subspecialty health care providers, organized and knowledgeable emergency teams, and/or technologically advanced diagnostic and treatment equipment.

Many reports support the general perception^{5,6} that rural trauma victims experience greater morbidity and mortality rates than their urban counterparts.⁴ For example, rural residents have a 50% greater likelihood to die from trauma than urban residents.^{7,8} In Minnesota, motor vehicle crash death rates are more than twice as high for rural patients in the 15- to 24-year-old and 25- to 64- year-old age groups compared to metro area residents.⁹ While greater physical distances and the potential of adverse weather often increase the time required to transport rural patients to specialized urban medical centers, the resource limitations, including the lack of well-trained emergency care teams, contribute to these statistics as well and place rural communities at a distinct disadvantage.

The CALS Program has been designed to address the limitations in rural and remote settings. The CALS curriculum, conducted in a collaborative environment, consists of three components: home review of the comprehensive CALS Course Manual, a two-day interactive classroom session (CALS Provider Course), and a one-day, hands-on laboratory (CALS Benchmark Skills Lab).

Home review involves preparation for the two interactive components of CALS in the form of studying the comprehensive CALS Course Manual. Then, participants attend the CALS Provider Course, which is comprised of interactive presentations and real-world, scenario-based skill stations in cardiac, traumatic, pediatric, obstetric, neonatal, and medical advanced life support as well as difficult airway management.

The CALS Benchmark Skills Lab includes skills needed for resuscitation, stabilization, and management of critically ill or injured patients. The lab targets both skills and team building and teaches participants to work collaboratively to care for patients. Covering more than 50 skills for stabilization of critical patients, the lab is carried out in medical teaching institutions. The lab simulates a real emergency scenario with a live animal, allowing participants to gain hands-on experience and practice skills. The atmosphere is designed to be realistic, while at the same time the supportive team approach helps to lessen participants' anxiety and fear. Both the CALS Benchmark Skills Lab and CALS Provider Course encourage team interaction, a cornerstone of the CALS teaching approach.

Four Key Concepts That Make the CALS Program Unique

- **CALS Universal Approach** presents a framework for care of all critically ill/injured patients, even when the correct diagnosis may not be initially obvious.
- **The Teamwork** concept defines advanced life support skills as they relate to the role of team members according to patient needs, focusing on patient-centered care. CALS emphasizes teamwork in a team-training environment.
- **Transport Decision-Making** is crucial to rural health practice as many critical patients are stabilized, prepared for transport, and transported to a tertiary hospital. Having a working system to carry out this

function expeditiously enhances patient care and outcomes, especially in those patients with time-sensitive problems (eg, severe airway compromise, acute coronary syndrome, acute CVA, serious trauma, and sepsis).

- **The concept of Clinical Pathways** is the prescribed clinical routine, based on the primary presenting concern, which sets CALS apart from other training programs.

Advantages of CALS

- CALS is adaptable to the specific needs of both rural and urban areas.
- CALS offers a favorable ratio of instructors to students for optimal student learning.
- CALS identifies equipment that is essential for resuscitation, yet is affordable for small, rural hospitals.
- CALS is designed by and for rural healthcare practitioners, especially those practicing in critical access hospitals, which are more isolated and less equipped.
- The CALS Program teaches the knowledge and skills necessary to effectively treat organ or life-threatening emergencies for patients (ranging from newborns to geriatric) before serious organ injury or cardiac arrest occurs.

Distribution of the CALS Program

The first CALS Provider Course was held in Minnesota in 1996, and since then over 185 CALS Provider Courses have been conducted throughout the state with over 3,800 healthcare providers attending. Over 500 CALS Benchmark Skills Labs have also been performed in Minnesota during this time.

More recently, three other states have begun developing and implementing a CALS Program. Since 2005, nine CALS Provider Courses have been conducted along with numerous CALS Benchmark Skills Labs in Wisconsin. During 2008, the first CALS Provider Courses were held in Missouri and Texas. In Missouri, the first CALS Benchmark Skills Labs were also held in St. Louis. In 2009, more classes are scheduled in each of these states.

Since 2004, fifteen CALS Provider Courses have been held for the US State Department to train embassy medical personnel with over 660 providers attending. Additionally, while CALS has not been actively promoted internationally, the first CALS Provider Course is scheduled in British Columbia, Canada in June 2009. A modified CALS Course (called Afri-CALS) is being developed in Kenya as well.

Over the thirteen years since the first CALS Provider Course was given, approximately 30% of the more than 4700 total providers who have taken the course have been physicians, about 60% have been nurses, and the remaining 10% have consisted of physician extenders, paramedics, medical students, and other allied health care providers.

Acceptance of CALS Training

The vision of the CALS Program has been to develop training designed for rural providers that would help improve rural emergency and critical care. For example, as beneficial as the existing Advanced Life Support (ALS) courses are, they have not generated a rural care system that begins to deliver quality trauma care with the outcomes desired. At the onset, CALS training was viewed as supplemental training for attendees. But as the positive impact of CALS training became apparent, more rural hospitals and even some suburban and metropolitan hospitals in Minnesota have added CALS training for their providers, especially for emergency department personnel. A number of rural Minnesota hospitals, especially critical access hospitals, have added CALS training as an alternative to Advanced Cardiac Life Support (ACLS) and Advanced Trauma Life Support (ATLS) course requirements for their staffs.

CALS is also gaining acceptance as appropriate rural trauma training. In January 2005, during the development of the Minnesota Trauma System, the Minnesota Department of Health submitted the following: "Hospitals that have hosted or successfully completed a CALS course did have a significant head-start in preparation to meet most of the Level III and IV trauma facility criteria. Specifically, education, equipment, and treatment and transfer guidelines were largely in place. The CALS philosophy of rapid assessment, stabilization, and definitive care decisions meshes nicely with the optimal care of the trauma patient."¹⁰ In Minnesota, CALS training may be substituted for ATLS training requirements for physicians or physician assistants working in Level III and IV trauma centers. Nursing educational requirements for trauma centers may also be met by attending a CALS Provider Course. In Wisconsin, CALS training may be used by Level IV trauma center providers to meet their required training.

Perhaps the strongest endorsement for the CALS Program comes from the US Department of State: CALS has become the advanced life support course of choice for training US embassy medical personnel who staff US embassies throughout the world. Larry Brown, MD, former Medical Director, Department of State and Foreign Service, provided this feedback after taking the CALS Provider Course, "It's unanimous that this [course] was among the best we have ever had."

Impact of CALS Training

While there have been no controlled outcomes studies on the effects of CALS training on emergency care, numerous anecdotal accounts document that CALS training is improving rural emergency/critical care in Minnesota. A number of CALS surveys have shown a change in the comfort levels of rural providers in handling critical emergencies after taking the CALS Provider Course and Benchmark Skills Lab. A number of informal, CALS-conducted studies also indicate improvement in skills quality and management of serious emergencies (especially airway emergencies) in rural hospitals that have participated in the CALS Program. Some implications from these studies include:

- The CALS Program teaches a comprehensive, realistic, team-based approach to providing emergency medicine in rural hospitals.
- The CALS Benchmark Skills Lab increases comfort levels of rural emergency personnel by exposing them to procedures rarely encountered on the job.
- CALS training has enhanced the quality of airway management in rural communities. Specifically, significant improvement has been observed in the success rates for endotracheal intubation and other advanced airway techniques. Transport teams and referral centers who receive these rural referrals have reported improvement in airway management by rural hospitals who have participated in the CALS Program.
- Rapid Sequence Intubation (RSI) is now successfully performed by primary care providers in numerous rural hospitals throughout Minnesota, representing a significant change from a decade ago.
- CALS training is an excellent foundation upon which to develop a Rapid Response Team (RRT) in a rural hospital. RRTs are valuable resources for rural hospitals as they respond to critical patients with their limited resources.
- CALS establishes a rural-based standard for assessing the medical equipment needs of small hospitals and clinics.
- CALS teaches participants to anticipate and prepare for a patient's needs prior to arrival, improving the speed and efficiency of treatment, leading to better patient outcomes.
- CALS has improved the speed and efficiency of transferring critical patients to higher levels of care.

While the CALS Program provides emergency patient care with a rural focus, the Program also provides much-needed guidance to rural hospitals to understand their limitations. The CALS philosophy is not that rural hospitals will be able to take care of all clinical situations on their own, but that rural hospitals be able to determine patients' critical needs, to stabilize patients rapidly, and to transfer them rapidly to appropriate care.

Conclusion

More than sixteen years ago, the all-volunteer grassroots provider coalition that founded the CALS Program embarked on its mission to improve emergency patient care through advanced education of rural health care providers, especially those practicing in remote settings or in areas of limited health care resources. Now an independent organization, the CALS Program continues to expand and develop in the hopes of achieving its mission to improve emergency patient care and thus patient outcomes in the Twenty-First century.

Given current levels of staffing of emergency departments as well as the ever increasing number of patients in both rural and urban environments across the United States, adequate preparation, knowledge, and guidance is essential for training emergency health care providers to manage a broad range of medical emergencies. The CALS Program has been shown to be successful in improving rural emergency care and thus is one approach to helping rural hospitals and providers to improve emergency care.

Further information about the CALS Program may be obtained from the CALS website www.calsprogram.org. A link to a video explaining the value of CALS is located at

http://www.calsprogram.org/provider_course_video.aspx .

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