American Training Neonatal Resuscitation Program: an experience in its implementation in Oman

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Abstract Objective: Resuscitation is performed more frequently in the neonatal period than at any other period of life. The purpose of this program is to assure that at every delivery there is someone who is skilled in neonatal resuscitation and additional skilled staff readily available to assist.

Design: The program contains six lessons, each of which addresses a different skill of resuscitation. This allows an individual to acquire a skill and master it before learning another and permits tailoring the program to match one's job responsibilities. The program is self-instructional, self-paced, with an instructor available to answer questions, assist with practice, and administer written and performance tests.

Setting: Twelve courses have been conducted between Sept., 1992 to Sept., 1994 at Sultan Qaboos University Hospital (SQUH): 9 courses for providers and 3 courses for instructors. The course has been conducted for 18 hours regularly every other month. Each course and performance of the teaching staff were evaluated by the participants. The overall two years' activity was evaluated by a committee from the concerned departments.

Results & Evaluation: The number of participants were 92 in provider's courses and 8 in instructor's courses. Eighty percent of the providers were from SQUH. The majority of the participants felt the duration of the course was adequate. Its contents covered all aspects of neonatal resuscitation and was informative and useful. The presentations were well organized and the self-paced instruction and practical demonstrations were effective.

Conclusion: The design of this program will enable any hospital, regardless of size or geographic location, to have its own Neonatal Resuscitation Program. Its self-instructional format allows individuals to study at their own pace, making it readily available to new staff and easily implemented on all shifts.


Keywords: Newborn, resuscitation, asphyxia, education, skills.

Asphyxia is a major problem in neonates. Life support is required in the delivery room or nursery for 6% of all newborns and for a much higher percentage of low birthweight newborns. A prompt, well organized resuscitation effort can prevent or minimize sequelae of asphyxia, with possible life long complications. The purpose of this Neonatal Resuscitation Program (NRP) is to assure that at every delivery there is someone who is skilled in neonatal resuscitation and additional skilled staff are readily available to assist in cases of prolonged and complicated resuscitation.

American training in neonatal resuscitation Introduction to the program: The availability of a trained instructor is essential for coordinating the program. The organization starts with regional instructors in certain geographical areas who train hospital based instructors from other hospitals. These hospital based instructors then go on to conduct courses for training providers in their own hospitals. The providers are those who attend deliveries: physicians, midwives, nurses, etc. so that a successful resuscitation can be achieved. The program follows a self-paced learning format. It contains six lessons, each of which addresses a different skill of resuscitation.

Lesson 1: (Introduction): Describe pathophysiology of asphyxia, preparation for resuscitation.

Lesson 2: (Initial steps for resuscitation): Drying, positioning and suctioning.

Lesson 3: Bag and mask ventilation.

Lesson 4: Chest compression.

Lesson 5: Assisting and performing endotracheal intubation.

Lesson 6: Medications used during resuscitation.

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This unit format allows an individual to acquire a skill and master it, before progressing on to the next section of the program. Personnel involved in neonatal resuscitation, e.g., physicians, registered nurses, licensed practical nurses, and midwives do not all have the same level of responsibility in a resuscitation. The design of the program allows each individual to attain the appropriate skills as defined by his or her job responsibility. It also assures that all members of the team can co-ordinate their activities into a an integrated effort.2

Experience in implementing the Neonatal Resuscitation program.

Materials
- Textbook for providers.
- Instructors manual.
- Instructors video tape: to help instructor on performance checklist.
- Equipment to be used for clinical training.

Methods The course was run every other month, over a period of two years. Each module of the course lasted for three days. The duration of each working day was six hours. The staff attending the course were allowed time off from their routine duties. Those who did not complete the course during this time were encouraged to attend workstations outside their working hours at any time for the rest of the month.

At the time of registration for the course, each provider filled out an “experience record” questionnaire, so that the instructor was sure that he or she had the necessary prerequisite skills (which are taught in the course, e.g. preheating radiant warmer or insertion of umbilical venous catheter). Otherwise a separate teaching session was arranged before the provider started the course. The provider was also given a textbook at the time of registration which should be at least one month prior to the commencement of the course itself.

During the day course there were three areas set aside for practice, where three to four providers were assigned to each instructor. A permanent workstation was available after the third day where all the equipment used or discussed during the course was available for use, day or night, in an area readily accessible for busy providers. In this workstation there was a spacious table, approximately the size of an infant warmer. This was set up with all the equipment required to conduct all the possible scenarios in a megacode. All basic and specialized equipment including oxygen and suction were provided to simulate the real resuscitation situation as closely as possible.

Course evaluation Each course and performance of teaching staff was evaluated by the participants through questionnaires supplied at the end of each course. The overall two years activity was evaluated by a committee representing the concerned departments.

Results Twelve courses have been conducted between September 1992 and September 1994 at the Sultan Qaboos University Hospital (SQUH): nine courses were prepared for providers and three for instructors. Eighty percent of the providers were from SQUH. Seventy-four of the ninety two participants passed the test at the end of the course. Nineteen percent of the total number of participants were doctors, whilst the other 81% were made up of nurses and midwives. The training has now covered more than 50% of the existing staff in the delivery room and special care baby unit (SCBU) which had priority for training, followed by the obstetric ward and then general pediatrics.

The majority of the participants stated that they had adequate time to complete the course. They found its contents covered all the aspects of Neonatal Resuscitation, whilst being both informative and useful. The presentation of the information was well organized and the self paced instruction and practical demonstrations were effective.

Discussion The Sultan Qaboos University Hospital is a regional center in the capital area of Oman. To achieve the Ministry of Health’s stated goal of every hospital having the facilities to provide effective newborn resuscitation, it was necessary to establish provincial programs. A regional trainer set up NRP in the hospital, conducted according to the guidelines of the American Academy of Pediatrics and the American Heart Association. With the self instructional materials, the role of the instructor changed from that of a “lecturer” to that of a “facilitator” of learning and “local expert”.

The facilitator’s major responsibilities are to assist in determining which lessons are to be studied, explain how a particular procedure or lesson fits into the total care of the infant during resuscitation, answer questions, demonstrate procedures, provide information on specific procedures, make equipment available, oversee clinical practice and evaluate knowledge and performance via a written post-test and
performance checklist respectively. In a review of early experience with the NRP, Byrd concluded that there are four successful features of the program: it addresses a topic of concern to all institutions regardless of size (neonatal resuscitation), the material permits full staff participation, the training of hospital-based instructors creates enthusiasm and promotes the continuity of the program, and the use of regional center faculty to train the hospital-based instructors strengthens relationships and communications.

During the first two years attendance priority was given to staff from SQUH, leaving only twenty percent of places for non-SQUH providers. This allowed us to have enough instructors to organize the course taking into account leaves of absence and vacations etc. Inter-hospital communications were strengthened when the course was introduced to their hospitals and future enthusiastic hospital instructors were identified. By the beginning of the third year, a higher number of hospital instructors from the Ministry of Health and Ministry of Defense Hospitals attended Hospital-based instructor’s courses.

During the third year these new instructors could then, with the aid of SQUH set up their own courses, with assistance being in the form of the loan of equipment or participation of SQUH instructors for the duration of the three day course, or the loan of equipment for a further training workstation, if required. The main criteria being placed on the availability of assistance if required.

**Conclusion** The design of the American Heart Association’s Program for Neonatal Resuscitation enables any hospital, regardless of size or geographical location, to implement its own Neonatal Resuscitation Program. The program is designed to take into account the constantly changing staffing situation in a hospital. Its self-instructional format allows individuals to study at their own pace, making it readily available to new staff and easily implemented on all shifts.

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**References**

برنامج أمريكي للتدريب على إقامة حديثي الولادة
خبرة في تطبيقه في عمان
محمد رضا بسيوني - أستاذ مساعد في كلية الطب

الملخص

يحتاج الإنسان لعملية الإقامة في فترة حديثي الولادة أكثر من أي وقت آخر من العمر.

الغرض:

يهدف هذا البرنامج إلى وجود شخص، عند أي ولادة، قادر على إقامة الطفل حديث الولادة بالإضافة إلى وجود أفراد آخرون جاهزون للمساعدة عند احتياجهم.

المحتويات:

يشمل البرنامج ستة دروس يتعلق كل منها بمهمة إقامة مختلفة مما يسمح للمفيد بإجادة المهمة قبل الإنتقال إلى أخرى. وهذا يجعل البرنامج ملائماً لمسؤوليات الأفراد المختلفة. ويعتمد البرنامج في تطبيقه على أسلوب التعليم الذاتي والسرعة الذاتية مع استعداد المعلم للمساعدة في التدريب وإعطاء الاختبارات النظرية والعملية.

الخطة التنفيذية للبرنامج:

ما بين شهرين سبتمبر عامي 1992 و1993 تم عقد نسخ دورات للطفلين بالولادة وثلاث دورات للمعلمين، مدة الدورة تسعة عشرة ساعة. وقد قام المشاركون في كل دورة بتقييمها كما تم تقييم كل لبرنامج بواسطة لجنة من الأقسام المعنية، وبلغ عدد المشاركين 92 عضواً بالإضافة إلى ثمانية مشاركين من دورات المعلمين وكان ثمانين في المائة من الحضور من مستشفى جامعة السلطان قابوس.

النتائج:

لقد عبرت الغالبية المشاركة عن رضاها عن مدة الدورة ومحتواها ومهارات القائمين عليها وكفاءة الأدوات المستعملة وفعالية التدريب العملية.

الخلاصة:

أنه يمكن تطبيق هذا البرنامج في أي مستشفى بغض النظر عن حجمه أو مكانه كما أن طريقة التعليم الذاتي المتبع في الدراسة تتبع للأفراد أن يتعلموا مبتدئ يوقظ قدراتهم مما يجعل البرنامج متاحاً للعاملين الجدد و يمكن تطبيقه في كافة الأوقات.