

# Needs assessment and staff education to effect long-term change in emergency medicine in rural Nepal

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## ABSTRACT

Medical work in developing countries is challenging and rewarding. To make a lasting impact on the local community, a health care worker must be willing to listen to the needs of the people. The long-term impact of a needs assessment and staff education on emergency medicine at a rural hospital in Nepal is presented.

The Scheer Memorial Hospital is a 102-bed non-governmental, not-for-profit hospital in Banepa, Nepal. Nepalese and ex-patriot health care professionals staff the hospital. Medical supplies are obtained from local manufacturers or as donations from foreign organizations. The hospital waives fees for those who cannot afford care.

Two academic emergency physicians with expertise in international health undertook a needs assessment to assist in planning for long-term health care goals related to emergency medicine. The assessment focused on health care planning and education of the local health care staff. Based on interviews and objective assessments, a plan was developed and implemented to address 4 key areas: physical plant, equipment, staff training and essential tasks.

Sustainable positive change was accomplished by acknowledging local customs and standards of care, meeting the needs of local health care staff and using available resources.

**Key words:** Nepal; needs assessment; education; international emergency medicine

## RÉSUMÉ

Le travail médical dans les pays en voie de développement est stimulant et gratifiant. Pour laisser sa marque au sein de la communauté locale, un travailleur de la santé doit être prêt à écouter les besoins des gens. Nous présentons l'impact à long terme de l'évaluation des besoins et de l'éducation du personnel pour la pratique de la médecine d'urgence dans un hôpital rural au Népal.

Le Scheer Memorial Hospital est un hôpital de 102 lits sans but lucratif et non gouvernemental situé à Banepa, au Népal. Le personnel soignant de l'hôpital est composé de Népalais et d'ex-patriotes. Les fournitures médicales sont obtenues des manufacturiers locaux ou sont données par des organisations étrangères. L'hôpital soigne gratuitement les patients qui ne peuvent payer.

Deux médecins d'urgence du milieu universitaire possédant une expertise en santé internationale effectuèrent une évaluation des besoins afin d'aider à la planification des objectifs de

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soins de santé à long terme en ce qui a trait à la médecine d'urgence. L'évaluation se concentrait sur la planification des soins de santé et l'éducation du personnel soignant local. À partir d'entrevues et d'évaluations objectives, un plan fut élaboré et implanté pour quatre domaines-clés : les installations physiques, l'équipement, la formation du personnel et les tâches essentielles.

Des changements positifs durables furent obtenus en tenant compte des coutumes locales et des normes de soins, en répondant aux besoins du personnel soignant local et en utilisant les ressources disponibles.

## Introduction

Medical work in developing countries is challenging and rewarding. Many medical schools, teaching hospitals and health care organizations now provide such opportunities. Health care workers often find the combination of travel and medical service appealing, but it is important to consider the impact of this involvement on the local medical community. While developing countries often benefit from direct patient care provided by foreign physicians, this benefit is typically lost when the physicians depart. Meeting the needs of local health care staff and improving their ability to provide care through education and augmenting local health care resources can have lasting effects long after foreign health care workers return home. Perhaps the most important and enduring contribution is to identify the needs of local people and to meet these needs in a culturally sensitive manner. We present our experience as two academic emergency physicians with expertise in international health working in rural Nepal.

### Nepal

Landlocked between China and India, Nepal is one of the poorest and least developed countries in the world. The population is made up of dozens of ethnic groups and is the world's only official Hindu State. Agriculture accounts for 41% of the country's gross domestic product and provides a livelihood for over 80% of the population, yet half of Nepal's population lives below the poverty line. There is considerable potential for economic growth in tourism and hydroelectric power generation, but political instability hampers the government's ability to implement key economic reforms. Prospects for investment in other sectors are poor because of the country's small size, remote, landlocked geography, and poor technological infrastructure.

The government-sponsored public health care system is rudimentary, lacking skilled staff and essential supplies. Those with the economic means typically seek health care in private clinics or travel abroad to obtain health care. Demographic, socioeconomic and health status indicators are listed in Table 1.<sup>1-3</sup>

### Health care in Banepa, Nepal

Banepa is located 26 kilometres east of the Nepalese capital city of Kathmandu, on the road to the Tibet border. Once the centre of the ancient Newari kingdom, it is now a small town (population 15 800) with a vibrant bazaar and many religious temples (Fig. 1).

The Scheer Memorial Hospital (Fig. 2) is a 102-bed,

**Table 1. Nepal and Canada: selected demographic, socioeconomic and health status indicators**

Indicator	Nepal	Canada
Population total <sup>1</sup>	24 609 000	31 271 000
0-14 yr, %	39.4 <sup>2</sup>	20 <sup>3</sup>
15-59 yr, %	54.1 <sup>2</sup>	68 <sup>3</sup>
≥60 yr, %	6.5 <sup>2</sup>	12 <sup>3</sup>
Crude birth rate (births per 1000 population)	33.58 <sup>2</sup>	11 <sup>3</sup>
Crude death rate (deaths per 1000 population)	9.96 <sup>2</sup>	7.5 <sup>3</sup>
Net growth rate, % <sup>1</sup>	2.3	1.0
Life expectancy, yr <sup>1</sup>		
Men	59.9	77.2
Women	60.2	82.3
Fertility rate (no. of children born per woman) <sup>1</sup>	4.3	1.5
Infant mortality rate (deaths per 1000 live births)	64.2 <sup>2</sup>	5.3 <sup>3</sup>
Physicians per 10 000 population	0.54 <sup>1</sup>	18.7 <sup>3</sup>
Literacy rate, %*		
Men	65.08	99 <sup>3</sup>
Women	42.49 <sup>1</sup>	
GDP per capita, \$ <sup>1</sup>	1 227†	29 235†
GDP real growth rate, %	3.4 <sup>1</sup>	4.5 <sup>3</sup>
Total health care expenditure (as % of GDP) <sup>1</sup>	5.4	9.5

GDP = gross domestic product

\*Defined as age 15 and over who can read and write

†Figures expressed in international dollars: a common currency unit taking into account differences in the relative purchasing power of various currencies, calculated using purchasing power parities (PPP), which are rates of currency conversion constructed to account for differences in price level between countries.

not-for-profit, non-governmental hospital founded by medical missionaries in 1960. The hospital provides inpatient, outpatient, surgical and maternity services to the town and surrounding area. Until recently, it was the only hospital servicing an area of several hundred square kilometres.

Nepalese and expatriate health care professionals staff the hospital. Foreign organizations donate most of the medical equipment and other expensive items. Basic medical supplies are purchased from local manufacturers or accepted as donations from foreign organizations. The hospital charges patients directly for services rendered and supplies used. In keeping with its mission, the hospital waives fees for those who cannot afford care. Unfortunately, funds are not sufficient to provide free medical care to all those in need, and foreign donations are required to fund an increasing proportion of hospital work.

We travelled to Nepal in 2000 to conduct a needs assessment and to help local officials plan for long-term health care goals in emergency medicine. Our previous foreign medical work focused on direct patient care. The high demand for physician services allowed little time for involvement in systems planning or teaching. During this visit, it was tempting to devote our time exclusively to patient

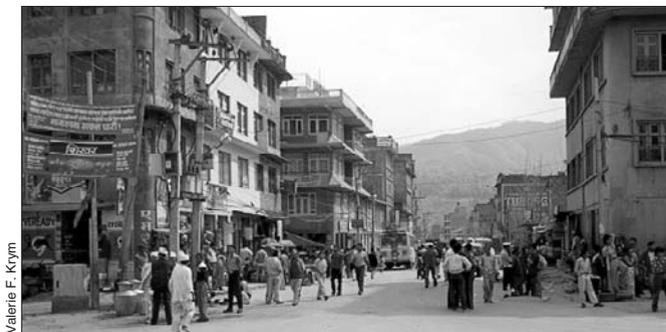
care, as is typical for most volunteer medical staff, but direct patient care was not our prime objective. Instead, local health care workers continued to provide patient care, and we provided physician backup when requested.

### *Emergency medicine in Banepa*

The emergency department (ED) consists of 2 clinic rooms and a larger treatment and resuscitation room (Fig. 3). Lay health care workers treat between 15 and 25 patients each day. The lay health care workers have no formal medical training, but acquired a number of skills after years of observation and “on-the-job” training. They manage routine illness and injury without physician intervention (Fig. 4), and call the physician only for seriously ill patients. Some of their treatment practices were not consistent with current standards of practice.

### *Needs assessment*

To understand local practices, both cultural and medical,



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Fig. 1. Main street, Banepa, Nepal



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Fig. 2. Front gate and main entrance to Scheer Memorial Hospital



Russell D. MacDonald  
Fig. 3. Emergency department treatment room



Russell D. MacDonald  
Fig. 4. Lay health care worker removing cast and sutures from pediatric patient

we interviewed physicians, nurses, lay health care workers, administration and support staff, and identified the primary health care initiatives underway in the community. We reviewed hospital records to identify the illnesses and injuries commonly seen in the ED, and inventoried all available medical equipment, supplies and resources. Finally, we assessed the knowledge base of each ED staff member, and the physician backup available for the ED.

Based on this information, we identified 4 areas of concern: the physical plant, equipment, staff training and essential tasks. We developed a plan to address these areas and presented our findings and recommendations to the hospital administration and medical staff. Our recommendations, the changes that were implemented and their results are described below.

### *Physical plant*

The existing ED was small, frequently used as an outpatient clinic, and no longer met the community's increasing demands for outpatient services. The hospital had developed plans for an ED expansion, and the staff and community requested specific changes including a dirty utility area, additional workspace, desks and chairs for staff, and adequate storage space for equipment and supplies. Staff also identified a potential problem with crowding in the treatment area due to limited adjacent space. We proposed additional space to accommodate these needs, taking into account the local custom of having several family members present with each patient. We consulted with the construction foreman and hospital administrator to modify the construction plans, which resulted in a more functional and culturally suitable new ED.

### *Medications and supplies*

Because the hospital depends largely on donated medications and supplies, there is often an overabundance of

some items and a shortage of others. In consultation with staff, we developed a list of essential ED medications and supplies. Based on patient volume and case-mix, we helped determine the requisite amount of each essential item. We identified items that were available from local suppliers and those available only from foreign sources. ED staff now use this list to ensure an adequate supply of each locally available item, while administration uses the list to target specific drug, supply and equipment donations from foreign donor agencies.

### *Staff and training*

There were no formally trained health care providers in the ED. Lay medical workers acquired new knowledge and skills by observation and "on-the-job" training. We spent several days monitoring staff to determine their level of expertise. Despite an apparent lack of "formal" education, their ability to care for routine outpatient problems served their patients well.

To address the staff training needs, we presented a half-hour teaching session daily. The staff chose the topics, reflecting their needs. These sessions included didactic and practical instruction on measurement of vital signs, basic patient assessment skills, and cardiopulmonary resuscitation. We produced posters, diagrams, and teaching aids using local materials. We also provided each staff member with a notebook and pen so they could keep their own notes.

The staff also requested that we present teaching sessions for common presenting problems, such as asthma, chest pain, vomiting and diarrhea, emergency childbirth and trauma. We developed suitable treatment algorithms for these problems, which were then approved by the hospital's medical staff. In addition, we delivered the teaching sessions (Fig. 5) for each presenting problem using the approved algorithms.

The ED staff identified a lack of a dedicated physician to provide supervision and oversight. To address their request, we proposed the position of physician "ED Chief" to the hospital's administrator. The physician would be responsible for staff support and training, and would deal with ED-related issues, but would not be present in the ED at all times. The hospital administrator approved the concept and approached a physician for this position. The physician accepted this role and now addresses ED staff needs on an ongoing basis.

We also identified the need for formal health care training for the ED manager and approached the hospital administration with a proposal. We identified an overseas donor to sponsor the ED manager in a nationally recognized community health care worker program that in-



Fig. 5. Principal author (VFK) delivering daily teaching session.

cluded instruction in primary and community medicine. The ED manager completed the program and is the hospital's first formally trained ED staff member. This was the hospital's first financial investment in its ED staff.

### **Essential tasks**

Using direct observation and discussion with the medical staff, we assessed the tasks related to patient care and noted inconsistent or inadequate practices in 3 broad categories: organizational, operational and educational. These had been addressed in other parts of the hospital, but not in the ED.

Basic job descriptions and responsibilities were available for staff in other areas of the hospital, but did not exist for ED staff. As a result, ED staff members were not clear on their roles and responsibilities. This was evident when we discovered that no one was assigned to certain key tasks, like taking dirty instruments to the sterile supply area for processing. We assisted the ED manager and hospital administration to develop basic job descriptions for each ED position. The ED manager and staff reviewed and accepted the job descriptions. The result was that staff now have a better understanding of their roles within the ED.

Staff in other hospital areas were familiar with a core skill set, including universal precautions, aseptic technique, patient confidentiality, hospital record keeping, recognition of the seriously ill patient and cardiopulmonary resuscitation. The ED staff required these skills, but had no formal mechanism to acquire them. In conjunction with the ED manager, the physician ED Chief outlined a plan to provide training sessions for ED staff so they could learn and maintain these skills.

After completing the needs assessment and implementing our recommendations, we provided the administration and medical staff with a progress report. Local staff reported feeling empowered because local customs and standards of care were acknowledged and because existing strengths and resources were used to overcome deficiencies. Staff took ownership of these changes, improving the chance of long-term acceptance.

Ongoing contact with hospital staff suggests that our initiative has made a lasting impact. The construction project was completed, and the new ED functions well. Administration successfully targeted overseas donors for critical equipment including a defibrillator, a pulse oximeter and an ambulance. Overseas donors also funded the education of a second staff member and local ED staff education is ongoing. Finally, in August 2001, Kathmandu University opened its medical school with a campus at the Scheer Memorial Hospital. The hospital is a primary clinical teaching site, and the ED is one of the core clinical teaching opportunities for medical and nursing students.

### **Conclusion**

Staff at the Scheer Memorial Hospital reported that our contribution to the hospital differed from that other foreign health care workers. Our presence augmented but did not interrupt normal ED operations, and our contributions led to sustained culturally-sensitive beneficial change that made maximal use of local people and resources.

**Competing interests:** None declared.

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