
Needs Assessment for Continuing Medical Education amongst doctors working in Rural Nepal

Katrina Butterworth¹, Mark Zimmerma², Bruce Hayes¹, Steve Knoble²

Abstract

Objectives: To define the Continuing Medical Education (CME) needs of doctors working in rural Nepal.

Methodology: 51 out of the 75 districts of Nepal were randomly selected after stratification by geographical area (excluding Kathmandu). All doctors working in both the public and private sectors in these districts were interviewed using a survey questionnaire.

Results: A total of 213 doctors were interviewed. The majority (80%) had no postgraduate qualifications and 49% had less than 2 years clinical experience. 69.9% had a computer, with 55.3% having internet access. Doctors' main priorities for CME were the management of acute emergency problems in obstetrics, medicine, paediatrics and trauma/orthopaedics. There was a clear preference for skills based courses. Interactive, accessible, up-to-date CME was wanted, although internet and CD ROM methods were low on the preference scale. Many respondents expressed the desire for someone to guide them through a CME programme.

Conclusions: Doctors in rural Nepal want individualized, up-to-date, interactive CME with particular emphasis on acute emergency management. Skills based courses were popular but not easily accessible. Many have access to computer/internet, but would need support in how to use it for CME. Doctors wanted support in the learning process.

Introduction

Like many other countries, Nepal struggles to provide adequate healthcare to those living in rural areas. Over 80% of the population live in rural areas; however the majority of doctors live and work in Kathmandu. In a recent study looking at how to encourage doctors to stay and work in rural areas where there is the greatest health need, a number of important interlinked factors were found (Butterworth, *et al.*, 2008).

One of these factors was the desire for continuing medical education (CME). Engaging in CME has also been found to reduce stress and burnout amongst doctors in other countries (Kushnir, *et al.*, 2000). Ongoing continuing professional development is also a key area for the maintenance of good quality clinical care and has thus been identified as a priority for health care providers in many countries (Peck, *et al.*, 2000). The aim of this study was to define the CME needs of doctors working outside of Kathmandu Valley as the first stage in implementing a CME pilot project.

Methodology

The exact number of doctors working outside of Kathmandu valley is not known. The Nepal Medical Council register of doctors does not indicate the place of work. Consequently it was decided to randomly sample from the 75 districts of Nepal and interview every doctor in that district (cluster sampling). The research team composed of two MBBS doctors and two

¹Department of Family Medicine, Patan Academy of Health Science, Kathmandu

² Nick Simons Institute, a not for profit organization working to train and support rural healthcare workers in Nepal.

Corresponding author : Dr Katrina Butterworth,
C/o United Mission to Nepal,
PO Box 126,
Kathmandu, Nepal
Telephone: 977 1 5527793
Fax: 977 1 4225559
Email: mkbutter@wlink.com.np

health assistants, visited the districts in order of their selection. To ensure a reasonable distribution of doctors from each district no more than ten doctors were interviewed regarding their CME needs, until a total of 200 doctors had been surveyed. The aim was to survey up to 100 doctors from the terai, 80 from the middle hills and 20 from high mountain areas, as a reflection of the presumed number of doctors in these areas.

Inclusion criteria

1. MBBS qualified doctors
2. Doctors working in government district general hospitals, primary health care centres, private clinics, private hospitals, NGO hospitals.

Exclusion criteria

1. Doctors working in Kathmandu valley
2. Doctors working in large teaching institutes

The survey instrument was developed from a similar survey done in Australia, looking at the CME needs of rural physicians (Booth & Lawrance, 2001) and was designed to include both clinical topics and more general professional development. It was piloted on a small sample of ten junior doctors in the place of work of one of the researchers, and some minor modifications were made.

The instrument quantitatively assessed both perceived confidence in a wide range of areas of possible CME need and also the desire for further teaching in that topic, using a 1-5 Likert scale. A broad range of clinical topics were given, together with practical skills and professional management skills. The gap between confidence and desire for further teaching was calculated, to help prioritize areas for CME.

Open questions were included to assess major health problems in the area and participants were asked to prioritize 3 top areas where they wanted CME. This qualitative data was used to triangulate with quantitative data gathered from the given list of CME areas. Preferred method of learning was assessed, together with familiarity with a particular learning format, again using a 1-5 Likert scale. Important demographic data such as years of experience, location of practice and access to computer and internet was collected. Respondents were also asked to comment on what was important to them about CME and what barriers they faced in undertaking CME.

Quantitative data was analyzed using Epi-Info to ascertain mean scores for each area. Qualitative data was independently read and transcribed by three of the authors, identifying main themes emerging and performing initial coding. The themes were refined in discussion with all authors. The qualitative data was then triangulated with the quantitative data to give a broader picture and look for any discrepancies.

The survey was looking at the perceived CME needs of doctors working in rural areas. Many doctors are not good at self-assessment of areas where their medical knowledge is deficient, so the results were compared with Nepal National Health Statistics (from the Nepal Demographic Survey [2006] and the WHO Health Management Information System) to try and give a broad picture of the health care needs of Nepal and the CME needs of doctors caring for these patients. A brief resource assessment was also undertaken to look at what CME materials are currently available in Nepal.

Results

A total of 51 districts were surveyed, four in the mountains, twenty-six in the hills and twenty-one in the terai. Responses were collected from 213 doctors. In most districts there were less than ten doctors working. The research team took considerable effort to ensure all doctors present were interviewed, including walking for 3 or 4 days to the more remote health centres. The majority of those interviewed (80%) were MBBS doctors and 49% of all those surveyed had less than two years experience. Many of these young doctors were working alone in remote areas with no supervision or support. Seventeen doctors were postgraduates in General Practice (MDGP), and thus specifically trained for independent practice in rural areas, while twenty-five had some other postgraduate degree.

Of the 213 doctors interviewed 55% were working on the terai, 40% in the middle hills and 5% in the high mountains. A surprising 69.9% had a computer, with 55.3% having internet access. The best access to technology was in the high mountains (72.7% and 63.6%) while the worst was in the terai (70.5% and 51.3%).

Table 1: Quantitative assessment of desire for teaching in rank order (mean values, max score 5)

Topic for teaching	Mean score	Topic for teaching	Mean score
Ultrasound	4.38	Gynaecology	3.78
Research	4.36	Family Planning	3.77
Pediatric Emergencies	4.31	Teaching Skills	3.76
Medical Emergencies	4.3	Management of orthopaedic outpatient conditions	3.75
Computer Skills	4.27	Counseling	3.75
Trauma Management	4.24	Forensic medicine	3.74
Management of Surgical Emergencies	4.23	Time Management	3.72
Neonatal Health	4.21	Communication Skills	3.72
Interpretation of ECGs	4.14	Management of Burns	3.71
Common Acute Medical Problems	4.12	Chronic Disabilities in Children	3.7
Obstetric Skills	4.1	Palliative care	3.69
Management and Personal Skills	4.1	Malnutrition, Failure to Thrive	3.69
Anesthesia	4.06	Alcohol and Drug Abuse	3.66
Interpretation of X-rays	4.03	Working in a Team	3.66
Management of Fractures	3.95	TB	3.66
Areas of National Health Priorities	3.94	ENT	3.62
Common Chronic Medical Problems	3.94	Health Promotion	3.6
Management of ortho infective conditions	3.92	Ophthalmology	3.59
Ethics / Medico-legal Issues	3.89	Interpretation of Blood Tests	3.54
Common Pediatric Problems	3.84	Socio-cultural Problems	3.53
Public Health Problems	3.83	Dental Procedures	3.4
Maternal Health	3.82	Minor Surgical Procedures	3.3
Mental Health	3.81	Immunization Schedules	2.93
Skin Disease	3.8		

Seventy-nine (37.3%) respondents were working in District hospitals. A further 50 were working in primary health centres (23.6%), while 31 were working in larger Zonal hospitals, and 20 in mission or NGO hospitals. Some doctors were working in private hospitals (20) or private clinics (20). The numbers add up to more than the total number of doctors interviewed because some doctors work in more than one setting.

Reasons for doing CME

The vast majority (92% of total) gave their main reason for wanting to do CME as a way of upgrading knowledge and skills. Of the MBBS doctors, 29.7% wanted to do CME to help them pass the entrance exams for postgraduate study in Nepal, while 25.1% wanted help in passing foreign entrance exams. MDGP doctors also wanted to upgrade knowledge and skills (82.4%), only 5.9% were

interested in passing foreign entrance exams, while 29.4% wanted to gain extra qualifications. Recognition of CME by providing certification was important to 29.4% of MDGPs and 33.3% of MBBS doctors.

CME content desired

Analysis of the quantitative data, revealed that doctor's main priorities for CME topics was the management of acute emergency problems. These came under the four main headings of:

- Obstetrics
- Medicine
- Paediatrics
- Trauma/orthopaedics

This is shown in Table 1. Qualitative data also confirmed the importance to doctors of mastering these acute management skills (Table 2). Calculating the difference between

mean scores for desire for teaching and confidence in a topic kept paediatrics and obstetrics high on the list, whilst mental health and ophthalmology moved up and medical emergencies moved down. This reflects the relative confidence doctors felt in these areas and would highlight priorities in the provision of CME (Table 3).

Training in the use of ultrasound was a high priority in both quantitative and qualitative needs assessment. This may reflect the lucrative private practice potential of such a skill although it is also a very useful diagnostic tool for rural settings. There was moderate desire for further learning regarding chronic disease, particularly COPD, as well as mental health and skin conditions. According to government data, skin disease is the commonest condition seen in outpatients (Table 3), while COPD comes 8th on the list. Topics that came out high in the quantitative but not in the qualitative analysis included research, computer and management skills. Comparison between Nepal government statistics on outpatient conditions (Table 4)

and the major health problems perceived by doctors showed reasonable agreement, confirming a high prevalence of acute infectious disease and trauma.

Teaching methods

Skills based training

There was a clear preference for practical skills based training, both in quantitative (Table 5) and qualitative data.

“Workshop with practical sessions, I think, is the best of all, because in our field practical approach provides the real help to patients”

“CME must be clinically oriented and must be applied practically, learn practically”

Doctors wanted to upgrade their skills in a practical way, that would help them deal with patients better, providing better quality of care. This would also be the goal of most CME providers.

Table 2: Qualitative analysis of area of CME most wanted by doctors

Topic of CME most wanted (qualitative method)	Total number (out of 213 respondents)	Topic of CME most wanted (qualitative method)	Total number (out of 213 respondents)
Obstetric skills/emergency management/maternal health	77	Dental	6
Medical conditions – acute or emergency	64	ENT	6
Training in USG	60	Poisoning	4
Trauma management	54	Snakebite	4
Paediatric conditions and emergencies	32	Public health/national health priorities	4
Surgical conditions/ surgical emergencies	32	Health promotion	4
Orthopaedic conditions eg fractures	30	Administration/management	4
Emergency medicine	18	Endoscopy	4
Gynaecology	15	Minor surgical procedures	4
Interpretation of XRays	15	Communication skills	3
Mental health problems	15	Palliative care	2
Neonatal emergencies	13	Computer	2
Skin diseases	11	Fever/malaria	2
TB/DOTS	10	Eyes	2
Anaesthesia	10	Neurology	2
Forensic medicine	10	Time management	1
Interpretation of ECG	10	Burns	1
Family planning	10	Vector borne disease	1
Chronic disease (CVS, HTN, DM, COPD)	9	Alcohol/drugs	1
Research	8	Leprosy	1
HIV/ AIDS and ART	6		

Table 3: Gap between confidence in a topic and desire for further teaching

CME topic for teaching	Gap between confidence and desire for teaching	CME topic for teaching	Gap between confidence and desire for teaching
Ultrasound	2.15	ENT	0.39
Research	1.72	Management of ortho/ OPD conditions	0.39
Anesthesia	1.41	Alcohol and Drug Abuse	0.37
Dental procedures	1.34	Family Planning	0.37
Computer Skills	1.24	Ethics / Medico-legal Issues	0.36
Pediatric Emergencies	1.19	Socio-cultural Problems	0.25
Neonatal Health	1.09	Malnutrition, Failure to Thrive	0.24
Management of Surgical Emerg.	1.02	Common Chronic Medical Problems	0.21
Obstetric Skills	0.99	Maternal Health	0.2
Management and Personal Skills	0.97	Common Acute Medical Problems	0.2
Mental Health	0.95	Health Promotion	0.14
Ophthalmology	0.92	Time Management	0.14
Chronic Disabilities in Children	0.86	Teaching Skills	0.14
Management of ortho/ infective cond.	0.85	Common Pediatric Problems	0.14
Interpretation of ECGs	0.78	Public Health Problems	0.11
Areas of National Health Priorities	0.77	Management of Burns	-0.09
Trauma Management	0.75	Communication Skills	-0.09
Forensic medicine	0.69	Counseling	-0.17
Palliative care	0.68	Working in a Team	-0.41
Skin Disease	0.59	Interpretation of Blood Tests	-0.44
Management of Fractures	0.5	TB	-0.46
Medical Emergencies	0.47	Minor Surgical Procedures	-0.98
Gynaecology	0.44	Immunization Schedules	-1.33
Interpretation of X-rays	0.44		

Internet and CD ROM

In terms of actual CME materials the Internet and CD ROM, together with distance learning (paper based) came very low in the preferences for teaching methods. More popular CME materials were clinical guidelines and textbooks. Doctors commented on their choices of CME being dependent on their access to various types of CME materials.

Interaction with specialists

A key area to arise from both the qualitative and quantitative data was the desire for access to specialists for discussion and interaction with others. Many respondents commented on the need for someone to guide them as they approached CME. This would make time spent doing CME more focused and efficient.

Individualization of CME

Respondents were clear that they wanted choice. They requested topics relevant to rural areas, with "tailor made" programmes for specific districts.

Barriers to undertaking CME

The three key themes to arise from exploring barriers to undertaking CME were the lack of actual CME resources, lack of time and the perceived need for someone to co-ordinate a CME programme.

Lack of CME resources

In particular many respondents commented on the lack of any CME materials at all, other than out of date textbooks. The desire was for more live and interactive CME, or access to the computer and Internet for up to date material.

**Table 4: Data on 20 top conditions seen in outpatients across Nepal
(Nepal Demographic Survey 2006)**

Rank order	Top Diseases seen in OPD	Number seen
1	Skin diseases	1,433,304
2	Acute Respiratory infections	1,068,533
3	Diarrhoeal disease	921,901
4	Intestinal Worms	611,072
5	Gastritis	593,599
6	Fever of Unknown Origin	556,970
7	Ear Infection	428,477
8	Chronic Bronchitis (COPD)	341,181
9	Eye complaints	329,499
10	Tooth ache and dental complaints	283,778
11	Abdominal Pain	278,598
12	Falls, Injuries, Fractures	275,970
13	Typhoid	215,191
14	Arthritis, Rheumatism, Gout	163,720
15	Urinary Tract Infection	140,993
16	Hypertension	72,212
17	Clinical Malaria	67,780
18	Burns and Scalds	40,320
19	Reproductive Tract Infection (RTI)	38,916
20	Jaundice and Hepatic infections	25,686

Lack of time

Time and feasibility was important to the doctors. Many of them are working in isolation in rural hospitals. There was a general preference for CME that was local, to reduce traveling times and the need to be absent from work. Any courses should be of short duration.

Need for a CME co-coordinator

The final major theme was that of the need for someone to initiate and organize CME and encourage ongoing participation. Some respondents described the need for a resource person to "give" CME, or to be accessible for advice and discussion. CME was seen as an "academic" pursuit that tended to be forgotten in daily work in a rural hospital.

The importance of a peer group for discussion and encouragement was also frequently mentioned.

Resource assessment

There are a number of skills based courses available mainly in Kathmandu valley, but also some of the larger centres peripherally. These include obstetric skills, primary trauma management, paediatric advanced life support, family planning, ultrasound and palliative care courses.

We were not able to discover any planned systems of continuing medical education, except that provided for postgraduate students in specific training programmes within a given institution. Most CME for doctors not in a training programme is in the form of sporadic meetings with formal lectures or weekly in-hospital meetings. There are no distance-learning programmes in place nationally in Nepal.

Table 5: Ranking of preference for Teaching method

1	4.39	Workshop with Practical Sessions
2	4.35	Clinical Attachment at Center
3	4.33	Discussion with Specialists
4	4.23	Workshop with Small Group Discussion.
5	4.16	Clinical Attachment at place of work
6	4.12	Reading Clinical Guidelines
7	4.04	Reading Textbooks
8	4.03	Interactive Workshop
9	3.97	Reading Journals
10	3.93	Observational visit at other hospital
11	3.9	Discussion with Peers
12	3.87	Teaching other Health Care Workers
13	3.81	Medical Conference
14	3.79	Searching the Internet
15	3.75	Audit - self-evaluation of own practice
16	3.73	Self-directed Learning
17	3.56	Question and Answer session
18	3.49	Formal Course
19	3.48	Email/Internet discussion with peers
20	3.46	Internet CME (or satellite)
21	3.46	Teleconference / video conference
22	3.45	CME on CD Rom
23	3.13	Distance learning - paper based
24	2.7	Formal Lecture

Discussion

The lack of record keeping regarding doctors' place of work meant our team had to use a slightly unusual form of cluster sampling by geographical area. Previous experience with postal questionnaires being sent to district hospitals found very low response rates, and also would fail to survey many doctors working outside the government health system who are also providing important health care. While this approach, with structured interviews of all participants, was very resource intensive, as a team we felt it was important to be as inclusive as possible, so that our results would be applicable to the entire physician population working in rural areas.

This survey reveals that almost 50% of doctors working in rural areas have less than two years of clinical experience. This is likely to be due to the recent enforcement of bonding to district general hospitals of medical students sponsored by the Nepal government. Actual CME needs however did not differ greatly between those with more and those with less

experience. The topics most wanted by these rural doctors were the management of acute medical, paediatric and orthopaedic/trauma emergencies as well as obstetric skills training.

Obstetric complications are recognized to be a major health problem in Nepal. While maternal mortality rate has reduced significantly from 539 per 100,000 live births in 1996 to 281 per 100,000 live births in the 1999-2005 survey, there is still much room for improvement. There are several excellent skills based courses available in Nepal (Complete Obstetric Care, Complete Abortion Care, Post Abortion Care) which many doctors taking part in this research mentioned and requested help to attend.

Sick children are another common, important health problem in rural Nepal, where Neonatal mortality rate is 40 per 1000 live births (UNICEF Nepal, 2000) and under 5 year mortality rate is 74 per 1000 (UNICEF Nepal, 2005).

When doctors were asked to identify major health problems in their area, a high burden of infectious disease was noted, particularly of pneumonia, diarrhoea, enteric fever and malaria. In fact, the majority of rural hospitals would not have facilities for making a good diagnosis of enteric fever (which requires blood cultures) and it would be interesting to know how many of the cases of malaria were smear positive. Another important area of CME may be the approach to an individual with fever and no localizing signs. Fever of unknown origin is the 6th commonest condition to present to general outpatient departments according to Nepal government data (table 4). Trauma is another major health problem in Nepal, identified in Nepal's 2nd Long Term Health Plan for Essential Health Care Services. The majority of trauma in Nepal occurs in the economically active group of young men.

Training in research may have been popular because it is a factor included in admission to foreign postgraduate training programmes. Research is often not taught at an undergraduate level.

Overall, the emphasis given by these doctors, most of whom had less than two years experience, was on further learning regarding acute emergency management rather than chronic conditions and public health issues. While this may reflect youth and enthusiasm for more "exciting" conditions, government data also suggests that there is a great deal more acute trauma and infectious disease in rural areas than among sedentary populations in urban areas.

Teaching methods

Interactive workshops and skills based courses have been shown to improve clinical practice compared to formal lectures (Davis & Mazmanian, 2002). They also give an opportunity for social interaction with others, a break from heavy clinical loads and the chance to discuss problems with experts. The disadvantage of such courses is the cost and the need for doctors to leave their post to attend (Smith *et al.*, 2007), a particular issue in rural parts of Nepal.

Internet/CD ROM is a popular, interactive format of CME in the West and is moderately effective in changing behaviour (Curran & Fleet 2005; Fordis *et al.*, 2005; Harris *et al.*, 2001). This survey found these methods to be less popular, despite the fact that 69.9% had a computer, and 55.3% Internet access. This

may be due to lack of familiarity. Only 30% of doctors overall had used CME from a CD ROM before and they were more enthusiastic about the format.

The finding that doctors wanted a resource person to guide CME is fascinating, as this has not been practiced at all in Nepal. Mentors have been used in the West to enhance the quality of a learning experience. Mentors can be an important source of support and external feedback to help doctors make a better assessment of their learning needs, thus allowing them to direct their CME efforts more efficiently (Davis *et al.*, 2006; Evans *et al.*, 2002). One of the issues that would need to be addressed if a mentoring system were to be used in the context of Nepal, would be the appropriate training of these mentors as well as developing a support network (Connor *et al.*, 2000).

Limitations

This study examined the perceived CME needs of rural doctors. We were not able to assess these doctors actual knowledge or skills to know how accurate they were in their self-assessment. Government data suggests however that they are reasonably accurate in their assessment of common conditions that they encounter.

Conclusions

This survey of rural doctors in Nepal, found that most wanted CME was on management of acute emergency problems rather than chronic conditions and public health issues. In our pilot programme of CME we will therefore focus on these areas. Doctors need to be motivated for independent learning, so we need to start with their felt needs, particularly where these match with government data on disease prevalence. Allowing doctors to select from a range of critically appraised, evidence-based learning resources, in addition to considering external sources of health needs assessment is thought to be key to maintaining competence through life-long learning (Davis, 2001)

In terms of format for CME, the most popular by far were short skills based courses. The main aim of respondents was to develop not just knowledge but skills. There are some practical difficulties with regard to providing these on a regular basis, such as time restraints and limited manpower to cover for doctor absences. There is a need to have up-

to-date, interactive CME materials that can be related directly to patients being seen. Many doctors do have access to computer/internet, but would need support in how to use it for CME. Any CME project in Nepal that was going to undertake using electronic media would have to be carefully piloted to look for acceptability and feasibility.

There was a strong desire for support in the learning process and an expressed need for someone to coordinate a CME programme – to initiate it and encourage doctors to continue in it. This could potentially be provided by a system of mentors and is another area that would warrant further research in the context of Nepal.

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