# International Emergency Medicine in Nepal: Expect the Unexpected

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# Introduction

"Wedged between the high wall of the Himalaya and the steamy jungles of the Indian plains, Nepal is a land of snowy peaks and Sherpas, yaks and yetis, monasteries and mantras." – Lonely Planet

This was undoubtedly the imagery that was conjured in the minds of my envious friends as I told them of my three-month Emergency Medicine posting in Nepal. Indeed, this alluring depiction is not untrue. I felt a definite sense of awe and anticipation as I caught glimpses of the looming white peaks of the Himalaya, silhouetted against a near-cloudless blue sky, as I flew into Kathmandu on a clear, February day.

Kathmandu, however, was not my destination. Within hours I was on another flight, this time heading 400km southeast and descending to a mere 350m above sea level to Dharan (via Biratnagar) in the Eastern Terai region of Nepal. As we landed in the dusty and humid Terai (meaning low-lying plains in Nepali), the Himalaya was all but a memory. It would in fact be another three months before I saw those snowy peaks again.

The Terai is perhaps best summed up, in the words of one of my well-travelled MSF colleagues, as "the near antithesis of much of the world's perception of Nepal". Flat, low-lying and tropical with peoples and cultures more closely akin to that of northern India, the Terai was certainly a part of Nepal about which I had previously known very little. Yet this region, which constitutes almost a quarter of the country, is significant as the most productive and populated part of Nepal.

Thus, beyond the expected exotic pathologies and resource-poor medicine, this posting in the Eastern Terai, working and living with local Nepali, presented a unique opportunity to experience and learn about an often forgotten part of Nepal. And being far off from the usual tourist routes, it also provided candid insights into the resource limitations, under-development, geographical isolation and healthcare challenges that contribute to Nepal's place as one of the least developed countries in the world.

## The Emergency Department at BPKIHS

My destination in Dharan was the B.P. Koirala Institute of Health Sciences (BPKIHS), a large health sciences university incorporating a 700-bed teaching hospital. The hospital serves as the major tertiary referral centre for much of the eastern-most regions of Nepal and is considered second best in the country. My role at the Institute was to provide clinical teaching, support and mentorship in the Emergency Department, particularly for the inaugural trainees in the Institute's new specialist training program in Emergency Medicine, which is part of a wider and long-standing Australasian (and international) effort to improve acute medical care in Nepal.

Despite the pre-departure briefings with Associate Professor Chris Curry (term organiser and remote supervisor) and Dr Rob Currie (emergency registrar previously posted at BPKIHS), there were still aspects of the Emergency Department that came as a bit of a shock. Chaotic, overcrowded and noisy, it was like most Emergency Departments except amplified – patient gurneys crammed side-by-side,

mattresses across the floor and patient relatives amassed in any remaining space. The three-bedded resuscitation area constantly had three, sometimes four, patients with a maze of criss-crossing wires tracing back to archaic-looking monitors with displays in faded monochrome. Meanwhile, lay family members onerously hand-ventilated their critically ill and intubated relatives, although often in obvious dyssynchrony.

Of the many differences between the Emergency Department at BPKIHS and those in Australasia, two aspects stood out in particular:

First, were the medical-ward-like consultant rounds that occurred at 8am and 2pm each day. These rounds of the entire Department, which took between two to four hours, were mandatorily attended by all the doctors on shift, forming an entourage of up to 15 white-coats plodding from bed to bed. The rounds had the triplicate function of consultant review, patient hand-over and bedside teaching. But while these rounds were perhaps advantageous in facilitating bedside hand-over and teaching, they were also the predominant means by which consultant input in patient management occurred; between rounds, the junior doctors were left largely to their own devices. This had obvious impacts on timely initiation and correction of management and on patient flow.

Second, was the requirement for patients or their relatives to purchase and provide all disposable equipment, drugs and investigations necessary for their care (although IV cannulae, endotracheal tubes and IV adrenaline were available for immediate use during resuscitations, to be re-stocked by the patient relatives afterwards). This produced some odd and surreal situations, such as staring idly (and nervously) at the monitor of a patient in shock-refractory ventricular tachycardia while waiting for the patient relative to return with some IV amiodarone. Day-to-day, this user-pays reality of healthcare in Nepal, like in many resource-constrained settings, demanded of the clinician a tighter rationalisation of investigations and treatments. Unfortunately, this also meant that for some cases treatment was detrimentally confined by the financial abilities of the patient.

Beyond these practice-culture and structural differences, there were also the expected differences in presenting pathologies. Examples of encountered cases that would otherwise be rare in the Australasian setting included organophosphate poisoning, tuberculosis and its various sequelae, adult tetanus, symptomatic rabies, leprosy, typhoid fever, visceral leishmaniasis (as part of the differential diagnosis for febrile illness without obvious focus) and multi-casualty trauma from an elephant attack!

More unexpected, however, was the significant proportion of presentations with chronic or noncommunicable diseases, which more resembled the Australasian setting, albeit often more severe or late in presentation. These included ascites and upper GI bleeds secondary to alcoholic liver disease (chronic alcohol abuse is surprisingly common), acute coronary syndrome, exacerbations of congestive heart failure, exacerbations of COPD, complications of diabetes, and chronic renal failure requiring emergent haemodialysis (end-stage renal failure patients are only scheduled for routine haemodialysis once every seven to ten days due to insufficient capacity). But while these conditions were familiar, there were necessary differences in management due to technical and resource constraints, which exist even for an academic tertiary centre such as BPKIHS. One prime example was the lack of on-site percutaneous coronary intervention, which was only available (to financially capable patients) at a private hospital 45 minutes away.

## **Opportunities and Challenges for Change**

During my posting, I adopted the recommended modus operandi of partnering with one of the Emergency Medicine (EM) trainees, accompanying them on their various day or evening shifts through the Nepali working week of Sunday to Friday. The EM trainees held the role of managing the Emergency Department and supervising the junior doctors on shift, especially during the periods of consultant absence between rounds.

The partnering was an ideal means of providing the intended clinical support and mentorship, but in a more collegial manner through mutual exchange of knowledge, case discussions and joint supervision of junior doctors. This approach also provided the advantage of gaining useful commentary and insights from the EM trainees on local practices (and their rationale), hospital dynamics and Nepal's health system in general. It was also useful for negotiating the potential perils of language barriers, cultural differences and internal hospital politics.

Each shift provided ample opportunity for bedside teaching, particularly to the junior doctors, who were extremely keen in improving their knowledge. This teaching ranged from disease-specific management (e.g. ACS and DKA) to interpretation of core investigations (e.g. ABG, CXR and ECG) to demonstration or supervision of procedures (e.g. femoral nerve blocks, pleural or ascetic taps and shoulder relocation). With the assistance of visiting FACEM, Dr David Symmons, we were also able to introduce simulation teaching, using only a CPR training manikin, some basic props and an iPhone app for cardiac rhythms. These sessions, which were a novel experience for many of the Nepali doctors and nurses, not only taught resuscitation protocols but also practiced communication skills and teamwork.

Overall, the key areas of focus for clinical improvement or practice change, which were identified during the posting and from prior visits by Dr Chris Curry, included:

- Airway management and improved preparation for intubation
- Resuscitation algorithms
- Teamwork and communication during resuscitation
- Rational use of inotropes with adequate and accurate blood pressure (BP) monitoring (in the absence of automated or invasive BP monitoring)
- Rational use and choice of antibiotics
- Improved analgesia use, particularly with IV morphine (rather than IM ketorolac)
- Improved consultant and senior supervision on the floor

However, while there were certainly observable positive changes, such as improved senior presence and supervision, during my time at BPKIHS, I learnt (with the mentorship of Dr Curry) that effecting change required patience and a broader perspective – that is, recognising the wider factors that may

impede change despite teaching or improved knowledge or skills. For example, the necessary use of old and faulty manual BP cuffs and the lack of automated or invasive BP monitoring equipment due to resource constraints are structural factors that somewhat impede the practice of careful initiation and titration of inotropes based on accurate and close BP monitoring. There are also cultural factors, such as the strong emphasis within Nepali culture on hierarchy and seniority, which can hinder the adoption of newer practices due to top-down propagation of out-dated dogma. Examples include aversion to IV morphine for analgesia with preference to out-dated IM ketorolac, and aversion to muscle relaxants (or RSI) for intubations with preference for nothing more than 5mg of IV midazolam. Lastly, political factors, namely resistance from other specialties in relinquishing certain roles or procedures to the Emergency Department (such as chest drain insertion, shoulder relocations and procedural sedation) obstruct the acquisition and application of interventions that are considered the domain of the emergency physician in Australasia. Although, as I have learnt from Dr Curry, this resembles the challenges faced by Emergency Medicine in its nascency in Australasia.

# **Concluding Thoughts**

This posting was undoubtedly a unique and enriching experience that fulfilled much more than my original objectives, which were to gain clinical knowledge in tropical diseases and other pathologies less commonly seen in Australasia, to experience the practice of Emergency Medicine in the resource-constrained setting of a developing country, to further my skills in clinical teaching and supervision, and to contribute to the efforts in developing and improving emergency care in Nepal. However, the greatest privilege was in working alongside and building collegiality (and friendships) with the EM trainees, who will go on to become the pioneers and leaders of Emergency Medicine in Nepal. And even though trying to effect change felt frustratingly slow and challenging at times, it was still rewarding to have been able to contribute, however small, to the wider Australasian efforts to advance Emergency Medicine training at BPKIHS and Nepal – efforts which will be continued and sustained by ongoing visits from FACEMs and emergency registrars, including Drs Kim Poole and Byron Booth, who will be taking on this same post at BPKIHS for six months later this year.

## **Further Information**

This posting at BPKIHS is accreditable as a 3-6 month non-ED, Category T Special Skills Post in International Emergency Medicine. It would be advisable to contact ACEM for the required application forms, and to return these as early as possible, preferably 2-3 months prior to the intended date of commencement. A Special Skills Log-book needs to be kept during the term, and a paper ITA completed and submitted at the end of the term.

For further information, please feel free to contact myself <u>kh.hsiao@yahoo.co.nz</u> or Associate Professor Chris Curry (organiser and remote supervisor/DEMT) <u>chris@chriscurry.com.au</u>.

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Above: Outside the Emergency Department at BPKIHS with the local EM trainees (Fellows) Drs Sonai Chaudhuri and Rabin Bhandari, and Associate Professor Chris Curry