May 2016 Volume 10, Issue 1

Newsletter

Mountain Medicine Society of Nepal (MMSN)

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Courtesy: Dr. Soumya Adhikari

Editor's Note

Year 2003 was the year that Mountain Medicine Society of Nepal (MMSN) was established. Since its establishment, MMSN has come a long way, with ever-growing number of members who are actively involved in wilderness and mountain medicine. The Nepalese diploma in Mountain Medicine (NepDiMM), now in its fourth installment, has become a flagship project for MMSN. MMSN is also fulfilling its duties towards the Nepalese mountaineering and wilderness community through participation in various activities like the annual Gosainkunda Health Camp during Janai Purnima festival, Everest ER and various training programs for mountain guides and porters, which is done in collaboration with the Himalayan Rescue Association. This has proved to be a good practice ground for the wilderness and mountain medicine enthusiasts within the society. Apart from these activities the society is getting interested members into various research activities in the Nepalese Himalayas. We also have been conducting regular journal clubs to improve the critical thinking of our members interested in the field of research.

With this newsletter we have tried to bring forth inspirational articles from our members as well as our friends related to wilderness, mountains and mountain medicine. These articles will give you information about the lives and experiences of our members while they are in the mountains.

We hope you will enjoy reading this issue. Let us know how you feel about the issue and send us your valuable feedback.

Dr. Sanjeeb Sudarshan Bhandari
MBBS, DiMM

Three Hundred Meters to Everest

Buddha Basnyat

Amazingly, it took 54 years to climb the last 300 meters of Mount Everest without supplemental oxygen. It was in the spring of 1924 that Norton and Somerville reached a point about 300 meters below the summit without supplemental oxygen. They were unable to continue on to the summit chiefly because they were so breathless and exhausted. The difficulty in breathing at these altitudes is captured in many documentaries where the excessive panting of the climber is the dominant noise in the background. The panting is bad enough even with supplemental oxygen.

Edward Felix Norton and T. Howard Somerville, from the UK, were elite climbers in their days. Without insulated boots or down jackets available today, these motivated climbers ascended the mountain with hobnail boots and tweed jackets. What they accomplished that day in terms of exposing the human body to such high altitude and cold was a medical and physiological landmark. And yet the same 1924 expedition is unforgettable for another reason. This was the expedition in which the talented and charismatic Mallory together with Irving lost their lives. But, why did it take 54 years from 1924 for climbers to successfully climb the last 300 meters of Mount Everest without supplemental oxygen?

In the 1924 expedition, there was no oxygen equipment that worked. Climbers were still experimenting with proper oxygen equipment at that time. So, with the aid of oxygen after 28 years (in 1953) Tenzing and Hillary finally climbed Everest. It was only in 1978 that Reinhold Messner and Peter Habeler from South Tyrol (in North Italy) were finally able to climb the final 300 meters without supplemental oxygen, a feat that had eluded Norton and Somerville.

The reasons why it took so long are multifactorial. Many scientists of the time believed that it was impossible for the human body to reach the top of Everest without supplemental oxygen stating that the body would have reached its point of exhaustion and taking even a single step would be an impossibility. This conclusion had sprung from the calculated maximum oxygen uptake which determines the level of fitness of a person. However, the calculations were misleading as Messner and Habeler proved.

Courtesy: Dr. Yogesh Subedi

However there was indeed one little- known Scottish high altitude physiologist and climber at that time, Alexander Kellas, who got his calculations right. Kellas based his observations on his own studies and calculations, and went on record to say that Everest could certainly be climbed with supplemental oxygen. He went even further and remarked that climbing Everest may be possible even without supplemental oxygen. Few believed him at that time. In his famous treatise on "A consideration of the Possibility of Ascending Mount Everest" (written around 1912), Kellas notes that for the last 1000 ft of the Everest climb, the ascent rate would be around 300 ft per hour. The rate of climb in the last 1000 ft by Messner and Habler (the first two people to climb Mount Everest without supplemental oxygen in 1978) was almost exactly what Kellas had predicted decades ago.

The other medical reasons why people thought Everest was unclimbable at that time, were the overpowering hypothermia (cold temperatures) and hypoxia (lack of adequate oxygen) that caused climbers to turn back. It is easy to imagine how severely cold it is in the Everest region and what little protection that tweed jackets and hobnail boots would provide against the cold. In addition, as mentioned earlier, supplemental oxygen equipment of that time were very cumbersome and difficult to use. Many of them were designed so that you could only use them while resting. Clearly climbers like Norton and Somerville were outstanding human beings. Norton went on to become the governor of Hong Kong, and Somerville gave up a promising career as a surgeon in England to become a medical missionary in South India.

Prof. Dr. Buddha Basnyat
MD, FACP, FRCP(Edinburgh)

Lost in the Wilderness

Yogesh Subedi

It was the last day of the course, Diploma in Mountain Medicine (DiMM 2015) and we were on the beautiful Khangla glacier in the Annapurna region. I was having a superb time. Rudra (another participant in the course) was belaying me and I was trying to reach the top of an ice face. All my other colleagues had already climbed it. My crampons were on and I had two ice axes with me. My ice axes looked a bit different from the rest as they had longer handles. They proved to be very long for me considering my short stature, so the mountain instructors provided me with shorter new curved ice axes.

I started climbing and in a while my hands got tired and I decided to rest awhile. I shouted down at Rudra that I wanted to rest for a while and I let go of the rope, leaving my hands dangling by the side. I decided to resume climbing again but as I did so, I realized that the crampons on my left shoe were loose. I kicked the ice wall to test whether it could hold me or not. It did fine and I resumed climbing.

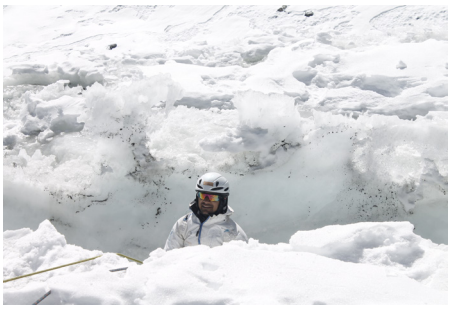
It was a tiring day; we had already done a crevasse rescue using Z-pulley and abseiling from the same ice wall. It was my first attempt at ice climbing using crampons and ice axes. I was the last candidate to climb it but I finally managed to complete it. I was very happy to reach the top of ice wall and I came down safely shortly afterwards. I expressed my gratitude to Rudra, who had kept encouraging me all the while.

The training day was almost over. At the end of the day we decided to pack our bags and head out in a group. I packed my crampons, gear like harness and carabiners, and other equipment. After packing my bag and carrying it on, I started walking down with poles and ice axes dangling by the side of my bag. I could see a group of participants including Shankar in front of me, waiting to return. Our mountain instructors Phurba and Jangbu were behind me. They asked me to carry a small green rope which I somehow managed to fit inside my rucksack.

When I reached the point near

Courtesy: Dr. Yogesh Subedi

the cliff where the participants were supposed to be waiting, everyone had already left. I was there all alone. The two mountain instructors were behind me but I couldn't see them either because the route was not straight. I wanted to retrace the route the group might have returned, but that morning I forgot to pack my headlamp so that wasn't possible. Being stranded in the middle of nowhere, on a massive glacier, late in the evening, I started to think, "What if I get lost on this glacier? I don't even have a head



Courtesy: Dr. Yogesh Subedi

lamp or a torch to find my way back through the slippery icy cliffs and hidden crevasses." I decided to continue on my own. Down the path there was a divergence, and I ended up choosing the wrong way but I quickly realized that my choice was the wrong one. Still, I kept on going hoping to reach the top of a big rock from where I could get a good view of the vast landscape and probably locate my friends and instructors.

Once I reached there, I spotted my glacier camp site far out. Suddenly, I heard somebody yelling "that way, that way!" which made me look around and locate the other participants on the opposite side shouting at me. I was still hopeful that I would meet up with the two mountain instructors. I called out their names as loud as I could for a while but could not hear back any reply, save for my echoes in the cold, gloomy and hostile glacier. Palpitation, sweating and fear set on me. I started looking for the instructors desperately. Luckily, I

saw them both after a while but they were very far away from me. Phurba guided me from afar and I followed his instructions as I walked across the rocky terrain. I was relieved to have been spotted by the skillful mountain instructors but my troubles were not yet over. I had to negotiate the rocky and icy part carefully and safely, that too after a tiresome day of training on the glacier. I finally managed to locate them and join them, and now the three of us were together (a sigh of relief!).

Shortly afterwards, we realized that we were still far away from the proper route. The two of them discussed for a while and we decided to take a detour. We started to climb down the rocky slopes and reached the bottom. The camp was still more than 30 minutes away. Nick (one of the participants) was looking for us while the rest of the group had already reached the camp. After reaching level ground, Jangbu and Phurba decided to take yet another new path. We decided to traverse a rocky and snowy slope. Jangbu led us both and Phurba was behind me this time. We started climbing the sloped snowy terrain while managing to do some bouldering on the way and finally reached the camp. For me it was the most eventful and happening day of DiMM 2015.

Lesson learned -
In the wilderness always carry your necessary gears and equipment and never walk alone or stay behind (if you can).

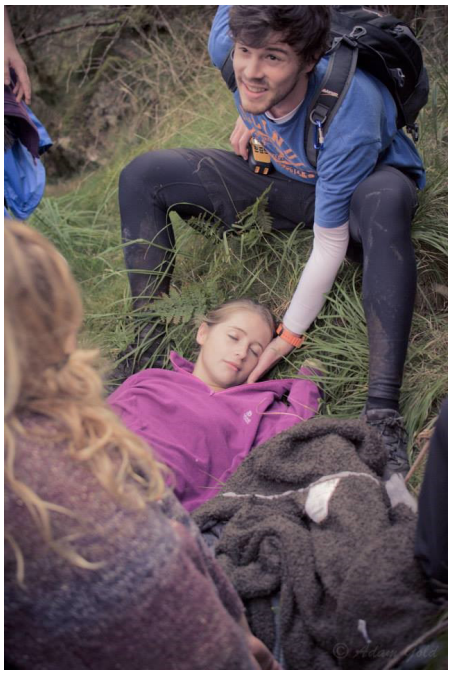
Dr. Yogesh Subedi
MBBS
Maharajgunj Medical Campus

The University of Liverpool's Wilderness Society

Elizabeth Keating

In July this year, I travelled from Liverpool, in the UK, to Nepal to complete my medical elective. I am in my 5th year of medical school and had set up a placement in Kathmandu's Model hospital for 5 weeks in the Emergency Department. While there, I wanted to take the opportunity to learn what I could about the Mountain Medicine Society of Nepal, and your society very kindly allowed me to attend one of your meetings.

Pre-hospital medicine is the practice of medicine in remote and often beautiful environments. It tests our abilities in problem solving when resources are limited, honing team working and organisation skills. It incorporates expertise that you will never come across in a hospital environment, from rock-climbing to scuba diving to skiing. And on top of all this, it is incredible fun to learn about. As such, it comes as no surprise that this area of medicine has captured the enthusiasm and interest of medical students and doctors alike across the world for many years. Many universities across the UK have a Medical Wilderness Society, much alike that of the Mountain Medicine Society of Nepal. The University of Liverpool is no exception. Here the society has around 80 students with a committee made up of 12. The main aim of the society is in increasing the awareness of what this particular area of medicine has to offer, doing so by providing as much practical and theoretical experience as possible.



Courtesy: Adam Gold

Over the last year, the committee put on a number of lectures for all years of the medical schools. We heard from a doctor who works in the helicopter emergency services, a doctor who works in the army, as well as having lectures on sports medicine and parasitic infections.

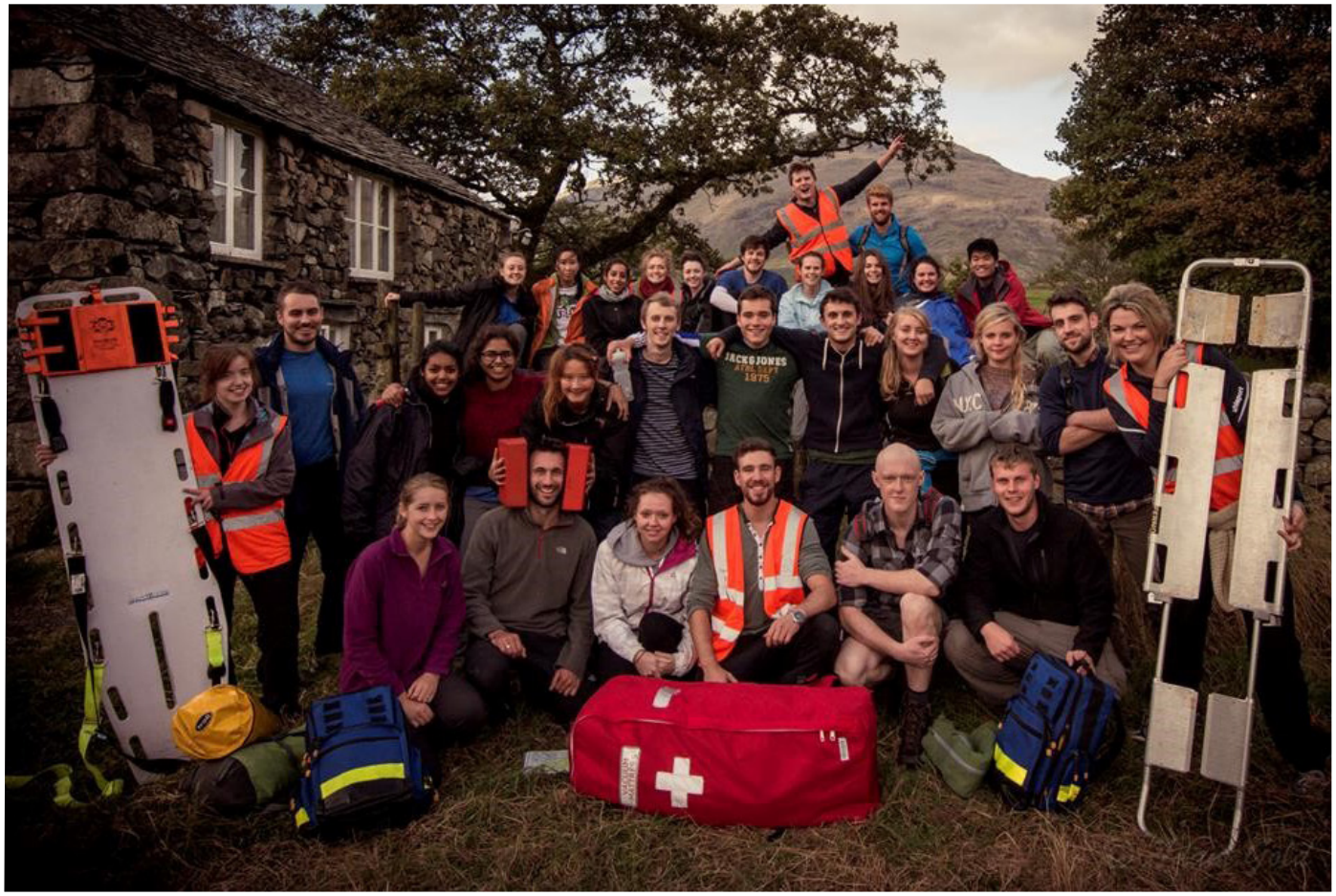
Last October around 35 students travelled to the Lake District, one of the main mountain regions in Britain, to undertake

a weekend of learning about outdoor medicine. Dr Chris Humphries, along with a select few student, taught the group pre-hospital skills such as haemorrhage control, cervical spine immobilisation, log rolling, use of spinal boards and radio control. These skills were then brought together in simulations that included a search and rescue exercise, a car crash, a climbing accident and a motorbike crash. The weekend gave students a chance to get away from their books, apply what they have learnt in a practical sense and be with a group of people with similar interests, making the weekend all the more enjoyable.

Our society has also been asked to host this years' national student conference. It will take place in October over the course of 3 days, with around 300 students from all areas of the country camping in a field on a farm in Snowdonia. Speakers include Professor Jon Cole, who's interest is in conflict psychology, temporal psychology, decision making and prevention science; Dr Matt Waterman, who has worked in diving and hyperbaric medicine since 2007; Dr Joe Rowles, the medical director of Survivor USA, the world's largest reality TV show; Mr Burjor Langadana who is one of the consultant dentists for the British Antarctic Survey Medical Unit, and faculty member at Expedition and Wilderness Medicine, and many more.

We hope as a society to raise awareness of pre-hospital and expedition medicine, to encourage involvement of future doctors, and perhaps ultimately to improve the profession's overall understanding of this fascinating area of medicine.

Dr. Elizabeth Keating
MBChB
University of Liverpool



Courtesy: Adam Gold

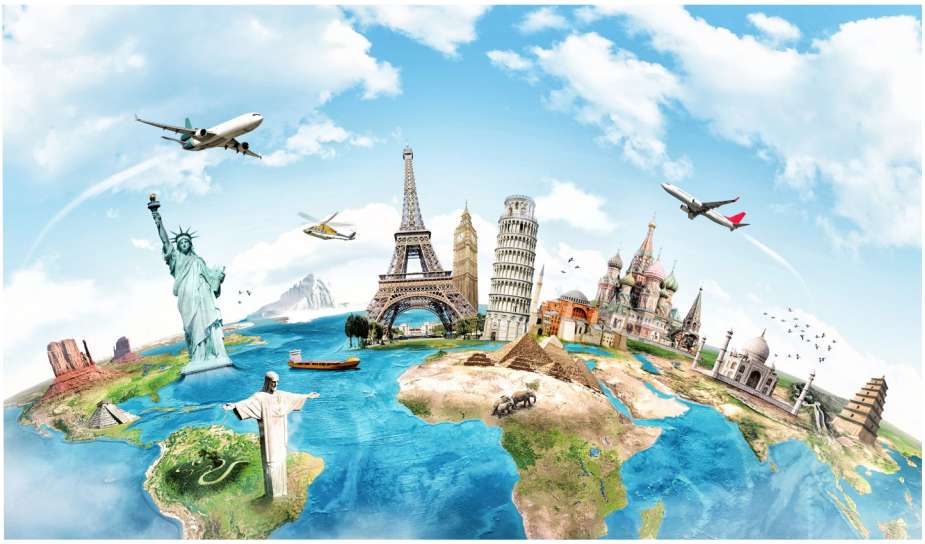
Experience learning with an outside world... at home!!!

Bikash Basyal

If you have to borrow words to express your thoughts, one easy way is to resort to a popular saying and tailor bits of it. The main advantage with that is the convenience of not having to worry about the best possible way to phrase the sentence- because if it is a popular saying, it probably is the best way to phrase it. You need not doubt your decision to not edit your sentence over and over again. So here I go- the grass is mostly greener on the Western side.

I have to admit- these exact words came to my mind while I was meaninglessly strolling in Oxford University parks recently but the sense I want to imply from it had been in my mind long ago. I used to constantly ponder over the differences between the Western world and the world that I grew up and was taught in. Maybe I am too critical of how things are done from where I am, but I have usually been more appreciative of the Western academic style. When it comes to medical field, I first had the opportunity to observe and be a part of blend between Nepalese and International people working together during the first season of Nepalese Diploma in Mountain Medicine in 2011. This was the perfect recipe for my mind that was so pleased to be having a wonderful chance to meet new people from different parts of the world and enjoy new ways of teaching and learning.

Coordinating the DiMM was truly an amazing learning experience. Although not very deeply involved in planning and other managerial aspects in the very first season, I got to familiarize myself with how things happened on a daily basis. The degree of responsibility was on a very comfortable level, with me expected to see that everything went as per schedule. While I sat on a chair, attended the lectures and spoke out few announcements here and there, I felt like I learned something every minute and in fact I did. In the successive seasons, I could utilize the experience I gained to embrace more responsibility, to face the challenges, new and old, and ultimately enjoy the perks of being the chief coordinator of the course.



Courtesy: storypad.info

Having coordinated the course and also undertaken the course last year, I have gained a lot of knowledge and skills with regards to mountain medicine but, what I consider more noteworthy and more advantageous to me on a personal level is what I gained from interaction with instructors and participants from all around the world. This struck at once, as Nepal is what one would normally consider the world headquarter of Mountain Medicine, but from what I gathered there were more foreign (than Nepalese) doctors working voluntary in high altitude aid posts. At the same time, one could question the portion of medical training in Nepal that pertains to things related to altitude and mountain medicine. I quickly realized that despite the potential we believe we have, we would still need to polish our knowledge and skills to reach a whole different level.

The style of teaching during the course seemed more practical, more scenario-based and more interactive compared to what I was used to in my medical school. The learning atmosphere was lively and the seriousness when it came to enacting the scenarios was somewhat new and immensely interesting. I strongly believe there is a lot in front of our eyes and minds to be learned.

The more I got involved with the course, the more deeper issues surfaced. One thing that was constantly discussed was the obvious difference in the level of interaction amongst the Nepalese participants compared to that of the International participants.

It would not need Hofstede to explain social dimensions and its implications here- which I believe has some role when it came to us not joining conversations or sharing experiences instantly. It would certainly take some effort on everyone's part in Nepal so that asking questions, joining discussions and interacting on a higher level would come naturally. A good step would be by incorporating different style of teaching, and willing to change the way we are teaching and being taught.

Having received mostly positive reviews when it comes to organization and coordination of the course, I would again like to echo that there is a lot yet to be done. Working with people from all over the world would definitely provide a wonderful opportunity to grasp all positive things and move towards betterment. It is hard to change things in a day and be a top trend overnight but it goes without saying that with the people and resources at our disposal, we should strive towards making the most of it. This is the one of the most important things I have learnt from the outside world- we could improve/change the way we learn.

Dr. Bikash Basyal
MBBS, DiMM

Everest Base Camp Avalanche 2015

Aditya Tiwari

It was the 25th of April, 2015. We had been at the Everest base camp for over three weeks working in the Everest ER. Everest ER provides medical care and rescue services to the climbers and Sherpas duiring the climbing season. The ER has been providing its services at the base camp for the past 12 years. This year, the team comprised of three volunteer doctors; Rachael, an Emergency Medicine doctor, Megan, an anesthesiologist and me. Lakpa Sherpa, a technical rescuer was also a member of the team. Up till that date, we had provided medical care to over 150 people and had also evacuated a few of them.

The morning was cloudy and cold, as it had been for the past few days. There was a young girl with mild HACE who, along with her friend, had received inpatient care and had stayed overnight at our clinic. Her condition improved overnight and they descended early in the morning. At around 9 we received a Nepali guy, who presented with acute abdomen. He was brought in by his friends from a nearby camp. We had a busy morning evaluating and treating him. We suspected him to have acute pancreatitis and managed him accordingly. We were trying to arrange an immediate helicopter evacuation for him. Then at 12 pm in the afternoon, when we were with the patient inside the medical tent, we were shaken by a big earthquake for almost a minute. It was strange to feel an earthquake in such a long time. After that, Rachael and I went out of the tent to look around when we heard a loud noise on the Pumori face. Then, in just a few seconds I saw a big avalanche heading towards the base camp and right towards us.

Avalanches were common during our stay but this was an entirely different thing. It looked like it was a hundred feet high and was rushing towards the base camp. All that happened in the next few seconds were just reflexes. I tried to run away from it and felt that it would bury me. After a few seconds I was hit by a white wave. I was pushed to the ground and everything around me became white. I folded myself on the ground and covered my head while small pebbles were pelting on my back. I felt being constantly pushed down by the avalanche. After 2 to 3 minutes of being on the ground, it became silent and I rose up from the ground feeling terrified and realized that I had survived the avalanche. I was covered in snow and my hands were cold, numb and in pain. Dust of snow filled the air and I couldn't see my tent properly. I slowly started walking towards our tent. Then I saw Rachael and we both moved towards the medical tent.

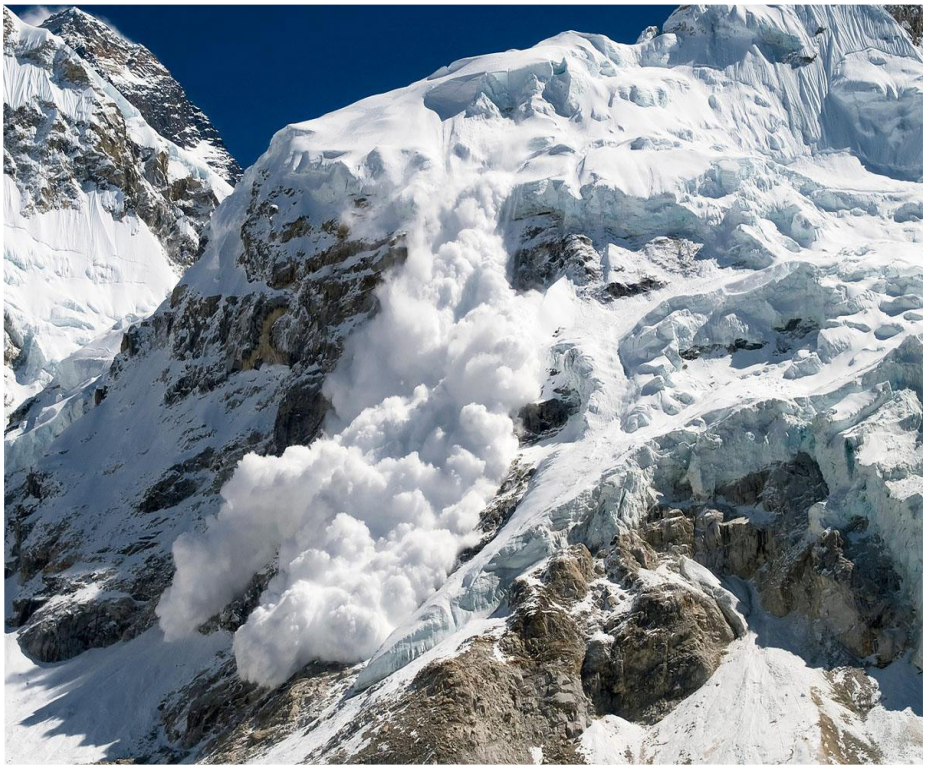
When we reached our camp site, the tent was dismantled but it stood at the same site. Megan was safe with the patient inside the tent but everything including our medications and electronics were scattered on the floor. Our

dining tent had disappeared and the sleeping tents were ripped apart.

Within a few minutes we received a patient, a westerner, with a broken forearm who Megan took care of. Soon Lakpa *Dai* came for help and people from different camps started bringing in the injured. It was a disaster site and we needed to start performing triage of the injured people. Rachael led the operation and we decided to care for the critically injured patients only inside the medical tent. The doctors from the other camp sites came to help as well and we immediately jumped into action by performing triage and initiating the management of the injured patients. I started applying compression bandages over bleeding lacerated scalp injuries and splinting fractures. Dr. Ritesh and one other camp doctor were with me managing the injured. We transferred patients with suspected pelvic injuries inside the tent, where Megan was taking care of the other patients. It was snowing outside and I remember it being difficult to find our medicine stock and intravenous cannulas amidst the things scattered on the floor, and applying the latter in the snowy and chilly condition.

Soon, many injured people were brought on stretchers. We realized we needed to shift our base somewhere else for better care and management. Rachael, in coordination with the other base camp managers, decided to move the medical team to the IMG camps which had been spared by the avalanche. Mark Tucker, Damain, Greg and many others were busy coordinating with us to transfer the injured patients properly and also send the medicine and oxygen to the IMG camps. The bad weather meant no rescue and evacuation was possible that day and we were all on our own in the IMG camps.

We used three tents for medical care in the IMG camps. Dr. David along with me started working in the "walking wounded" section. Many of the patients had lacerations on the scalp and musculoskeletal injuries because of blunt trauma owing to being thrown by the blast of the avalanche.



Courtesy: crometeo.hr

In due time, stable patients with minor injuries were sent to Asian Trekking. We had a Sherpa with broken ribs who needed oxygen and constant monitoring and nursing. We also kept some of the injured who needed monitoring and pain medications. Rachael and Megan along with other doctors were constantly working in the other two tents giving care to the severely injured.

Evening set in and counts revealed that more than 15 people had died in the disaster. It was a really difficult evening. An injured Sherpa in our tent from Adventure Consultants had lost his brother. It was only in the evening that I came to know that the whole country was badly hit by an earthquake and that hundreds had died. I had been unable to talk to my family and prayed for their safety. The cruel day turned into night and we were busy comforting and talking to our patients. We could still hear some avalanches in the silence. Realizing that the mountains were also capable of such cruelty, I tried to get some sleep laying on the floor wrapping myself on the cold and sad night.

The next early morning brought a glimmer of hope with the sound of a helicopter; which meant rescue evacuation was now possible. All the severely injured were evacuated first, two or three at a time. The helicopter was landing despite the bad weather.

After evacuation of the severely injured, we also evacuated the patients with minor injuries who had difficulties walking down. All the injured were evacuated to the HRA Pheriche aid post; later to be sent to Kathmandu for definitive management. The attention then shifted to the people in Camp 1 and Camp 2. There were over a hundred people stuck in the camps who could not come down due to damage to the Khumbu icefall route. They were really lucky to have been unaffected despite the risk of avalanches out there.

We received two patients with mild HACE and HAPE in the morning from Camp 1 whom we managed, and they went on to stay the night with us. All the climbers were evacuated from the camps in the next two to three days. Many of the climbers had lost their friends in the disaster. A bitter sadness had engulfed the base camp. Almost all the teams were returning back, putting an end to their climbing venture. We, at the Everest ER, also began packing up, and I walked back down on the fourth day after bidding goodbye to the team. As I walked down, I realized I had narrowly escaped death and also that we could have done more to help in the right condition. I also dreamt of my home and being able to rest soon enough on my comfortable couch.

Dr. Aditya Tiwari
MBBS
Lumbini Zonal Hospital

MMSN Journal Club

Pawan Karki

Mountain Medicine Society of Nepal (MMSN) comprises of medical doctors, medical students as well as allied health professionals and students with an interest in high altitude physiology and pathology. It is a non-governmental, non-profit organization aiming to understand and explore the science behind altitude related illnesses and utilizing this knowledge to make high altitude travel safer. Regular activities of MMSN include journal clubs, national and international seminars as well as workshops, health camps for high altitude pilgrims, research on altitude related illnesses, publication of newsletters and books, and programs to create awareness among trekkers, pilgrims, porters and other workers going to high altitudes.

Journal club is one of the most important activity carried out by MMSN, with great regularity. It has been instrumental in teaching MMSN members the skill required to carry out critical appraisal of research articles and broadening their knowledge on clinical epidemiology and biostatistics. Similarly, it inculcates the habit of regularly accessing and reading research articles in young doctors and medical students alike, and utilizing the knowledge in their clinical practice. It also serves as a platform for them to showcase their presentation skills and improve upon it based on feedback. Lastly, it always brings together the majority of the members in a single room and as such has been very useful in bringing forward new ideas and activities as well as sharing and having discussion on the ongoing activities of MMSN.

The presenters are from various academic levels and professions ranging from undergraduate medical students to professors. Any interested member can present in the journal club however, young doctors and final year medical students are particularly encouraged to present in the journal club. The articles discussed in the journal club are mostly related to the high altitude medicine. The articles are selected based on their relevance, date of publication and applicability in clinical practice. Non-members are equally welcome to sit through the journal club sessions. The presentations last from 30 to 45 minutes followed by the discussion sessions. The discussions are mainly focused on the methodology, results and the critical appraisal of the articles; and it is ended with a conclusion based on the consensus of the majority.

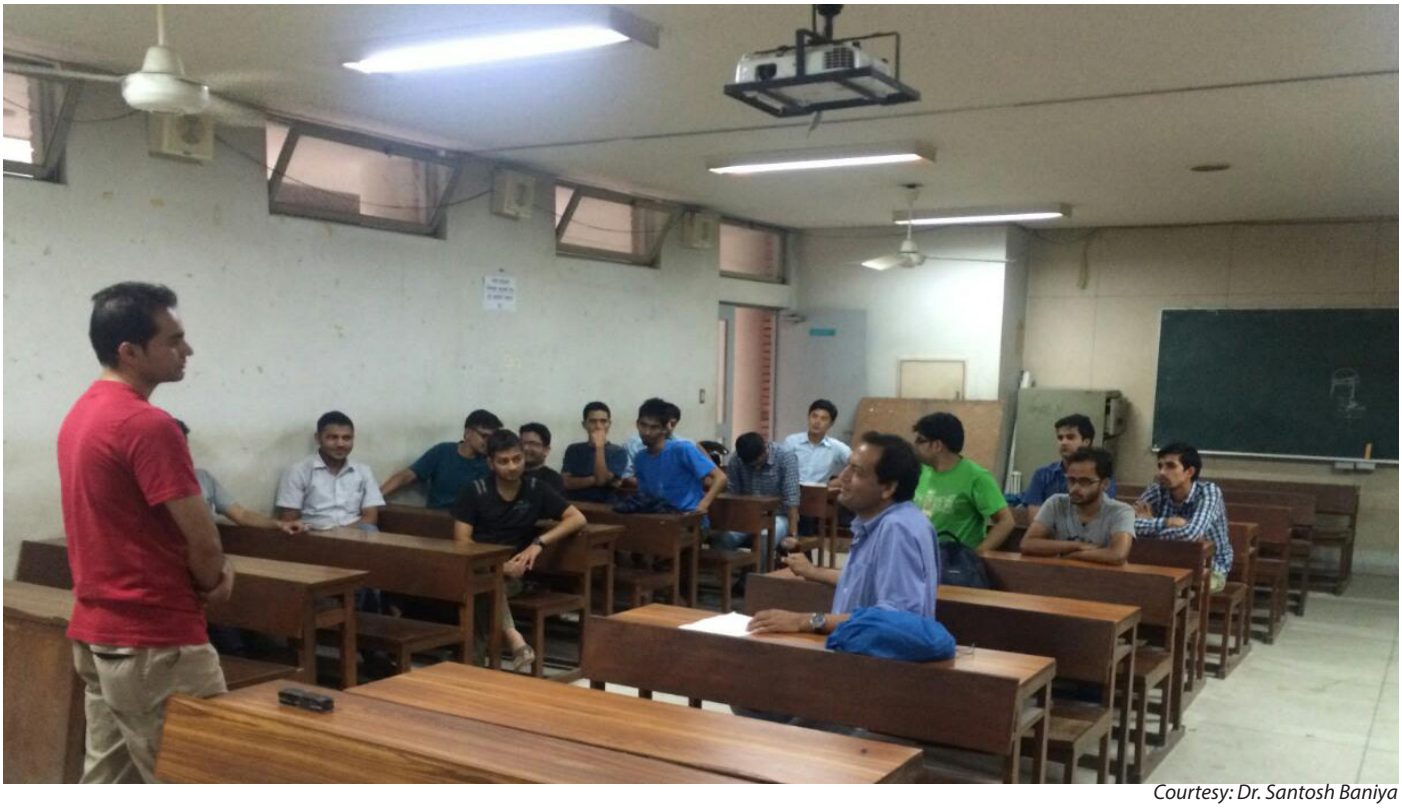
MMSN has always encouraged its members to think out of the box. In a country where reading from books and being evaluated by traditional exam systems has been the basic way of carrying out medical education, an activity like the journal club helps young medical doctor like me to develop a habit to be acquainted with the vast ongoing medical

research and the ever changing medical field. Personally, I feel very excited to participate in every journal club because the articles are always very interesting and there is so much to learn from each article. Every time someone is presenting, there is always some input given by the members, in the form of criticism or appreciation, that helps bring forth new ideas through the discussion.

I have been participating in the journal clubs since the first year of my medical school and I have learnt something new every time I have participated. Recently, I got an opportunity to present in one of the journal clubs myself. The experience of presenting was very different from that of being a passive participant. We are not taught neither encouraged to perform medical researches as an undergraduate student, which I think is one of the many setbacks of our country's medical education. Apart from a few of us who are motivated and informed enough to go through various articles presented in assorted journals, I believe many of us have never felt the need or understood the importance of doing so.

While I was preparing for my journal club, the first challenge I faced was accessing the research article to be presented because it was not a free article. I just had the abstract of the article but I needed the whole text to prepare my presentation. Though I faced similar situations in the past, I never bothered enough to go through the trouble of getting access to the entire text. Even though I knew that our medical school had a *Hinari* account, for all those who need to read paid articles on internet, I had never used it. So, in my first journal club I did another thing for the first time which was to use the *Hinari* account of our medical school to get access to the full text. While I was preparing my presentation, there were various biostatistics' terms that sent me to the books so that I could read up to understand them. Had I not been presenting I probably wouldn't have bothered to look them up.

It was always nice to see my seniors presenting in the journal clubs but it turned out be an even better experience to be a presenter. As the chinese proverb goes, "I see I forget, I do I remember", it was an unforgettable experience to present on a research article in the journal club. Unlike the other activities of MMSN like health camps, expeditions, sending volunteer doctors to high altitude, where we learn from the mountain itself, journal club is more of an academic activity where incubation of all these ideas take place.



Courtesy: Dr. Santosh Baniya

Journal clubs are conducted on the last Tuesday of each month.

Dr. Pawan Karki
MBBS
Maharajgunj Medical Campus

Mustang

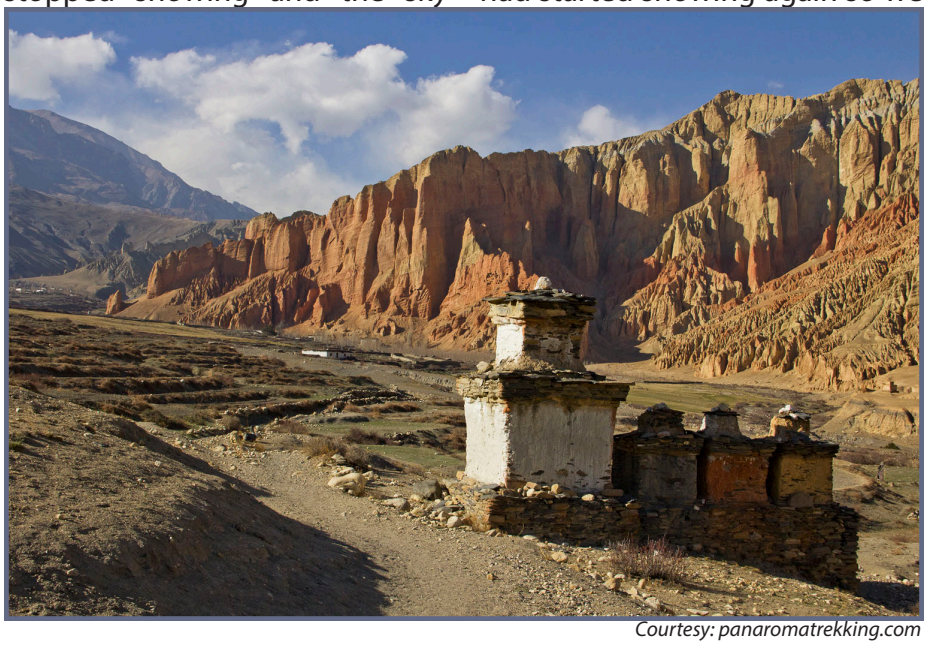
Utsav Joshi

It was never going to be easy but I sure didn't think it would be this difficult. Looking at the sandy terrain extending in front of Kagbeni, we stood in awe. We began to think how the other silly guys could have left for Jomsom without going to the mystical walled city. Muktinath was enough for them.

The trip began on the banks of the Kaligandaki River. We climbed high into the semi-desert hills as walking was not possible along the bank. Passing by landslides and a few more landslides, it was getting adventurous. The soft and fragile soil of the hills of restricted Upper Mustang would simmer around in the air with slightest of wind. Long, sandy, dusty paths paved way to a small village of Chusang. A little ahead of that village, we saw magnificent caves, that Upper Mustang is so famous for. The caves were like small windows carved out in the mammoth rocky hill at a great height; one could only fathom how. Ahead we went and reached another village of Tsaile. By this time, it was beginning to get cloudy. "No snow, no snow please" we thought. The deep gorges made by the river Kaligandaki were by our side now as we again began the ascent. Slowly we were entering into snowy land. By the time we had walked for about half an hour, the snow was so deep that it was difficult to move on. Yet, we moved on. Then when we thought it couldn't get any worse, it began to snow. Luckily enough, we reached the village Samar, soon. Such a blissful sight.

Staying at the hotel was the worst part. Looking outside, you could only see whiteness. Nothing else. Snow, snow and more snow. I couldn't feel more sorry for ourselves. After all, we were returning back the next day. How much fun would the others make of us? I felt miserable.

Thankfully, the next day, it stopped snowing and the sky had partially cleared up, and we thought "LETS DO IT". As soon as the village got out of sight, we took a wrong turn and went down a hill and reached its base. There was no turning back. The snow had already got up to our knees and climbing back uphill was plain impossible. We then started climbing a steep landslide which didn't have much snow. After a lot of hustle and tussle with the stone and mud, we reached the top.



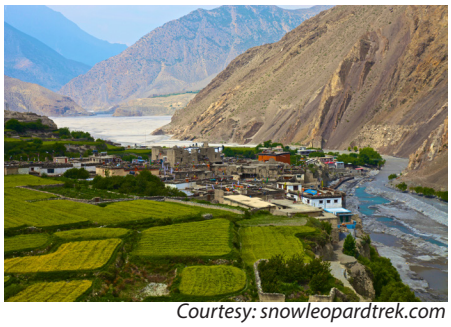
Courtesy: panaromatrekking.com

Oh my god!, there was nothing in front of us. Just plain white and no living creature in sight. We continued walking for the next I- don't –know- how- much time. I never thought I'd hate snow that much. We had started to think about frost bite already. After a painstaking journey of five hours, we conquered the summit. A pass at 4000m from where you could see the village of Syanmochen down below. Never thought it would take a good part of two hours just to reach the village. It had started snowing again so we wrapped ourselves in plastic from top to bottom. Thank god the wind was blowing on our back and not our face. After two hours of trek, we reached Ghilling. A mere thirty minutes' walk from there led us to Chunkar. We then called it a day.

The sight next day was just awesome. No snow. It was so good to feel the sun again after two days of snow. We were going to ascend another pass covered in knee-high snow. that day. Three hours of walking and we were done with another pass at 4000 m. We reached Ghami at around one in the afternoon. The hills there were so astonishing. The constant erosion by wind

had formed pillar like structures in those hills. The wind had done a fine job over thousands of years. Two hours of walking and we reached the village of Charang.

The next day was "THE DAY". The day we were to reach Lo-Manthang. Defying the wind blowing at I-don't-know-how-much speed, walking past sand, caves, snow and ice, we reached the Tibetan heart of Mustang. The walled city of Lo-Manthang was situated at an altitude of 3700 m, the same as that of Muktinath, but it took us four days to hit



Courtesy: snowleopardtrek.com

that altitude. The reward was just awesome… Buddhist monasteries dating back to 10th century, the lost caves, wind, snow and an immortal story about the lives, hardship and the beauty of those far-flung, remote, high altitude places.

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Stagecoach Oxford

Bidur Pandit

I visited the University of Oxford, John Radcliffe Hospital as a medical elective during the months of September and October, 2015. MMSN has been organizing this program in collaboration with the Department of Acute General Medicine, John Radcliffe Hospital for the past several years and this year, I got the opportunity of a lifetime upon getting selected as an elective student. This was to be my first time outside Nepal so I had expected everything to be new and exciting which came very true.

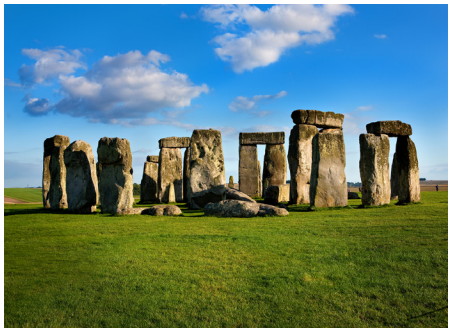
Oxford, the historical heart of England, is one of the beautiful cities in the world with ethnically diverse population and awe-inspiring architecture. John Radcliffe hospital is the main tertiary teaching hospital of Oxford University and is famous for specialist services in Accident and Emergency, Pediatrics, Orthopedics, Neurosciences, Women's services, ENT and uncountable medical researches. I had heard about British people being nice and polite which I learned to be true, very soon after my arrival. Soon after I set foot on English land, I felt like I had landed on a different world. I felt relieved from the dusty roads of Kathmandu and was amazed to see some very tall skyscrapers. The atmosphere was warm and welcoming, and I felt as if the leaves had turned yellow and red for my arrival. After a few days of exploring, sightseeing and settling in my accommodation, my course in the hospital started. The hospital is like a big white elephant, which led to me getting lost on my very first day. No sooner had I started to notice the differences, I realized one of my school teacher's saying "The act of observation is the greatest tool worth mastering". I underwent various blood tests as a part of occupational health and then appointed to a team.

On my first two weeks, I was receptive and learning the way the system worked there. Soon I started contributing medical opinions which helped significantly in a lot of cases and later, the team started to ask for my judgments. That was extremely motivating for me and I grew confident. On one occasion, a 52 year old man came in with abdominal pain. X-ray abdomen showed gas under diaphragm. It was immediately recognized as pneumo-peritoneum and the patient was almost handed over to the surgical team. I soon realized that the pneumo-peritoneum was false and it was merely the infamous "Chiladitti's sign". The man was saved from unnecessary surgery and this made my presence distinguished amongst the team. On that day, the consultant bought me a coffee and gave me a day-off for sightseeing. That was one of the happiest moments in my life and will live forever in my memory.

The important thing is that we are humans and we can make

mistake wherever it is. We are not the first to make mistakes and we will not be the last. There were also several other occasions where many patients praised me in front of other students and the team during the ward rounds. That was encouraging too. I am not bragging but I felt that we, Nepalese, are equally competent in terms of clinical expertise. Most of the people here think that every doctor in Oxford is extra-ordinary. That is true because of the researches they have done which has contributed to technological advancement in medical field but, modern medicine is evidence-based and a certain protocol is followed for management so we can safely say that things are similar everywhere.

As the days went by, I came to realize that there were small things making big differences. The work of doctors is to treat the illness and/or patient with a holistic approach. However, when the doctors are not around, it is the paramedical team or caretakers who have significant impact on patient's health. Unlike our setting where nurses administer drugs to the patients, there are pharmacist to administer the drugs and they also check for the indication, dosages and also report on any adverse effect the patient is having. On one occasion, cycloserine was prescribed instead of cyclosporine and it was immediately corrected by the pharmacist. Likewise, the nurses have specialty too, such as Chest Nurses, Diabetic Nurses, etc. and they do an excellent job in counseling patients, such as how to take insulin, or drugs for asthma. This makes work a lot easier for doctors, whereas in Nepal these things are also taken care of by the doctors. The number of nurses taking care of patients is also high. Each nurse has to take care of only four to five patients whereas in our setting, two to three nurses do the same thing for an entire ward. There were also many physiotherapists in each ward. Their work is to make the patients mobile as soon as they can. This helps prevent DVT and PE, increases vascularity and makes healing early, improves hyperglycemia, prevents hypostatic pneumonia and all other complications of prolonged immobility. They just won't let you lie on your bed.



Courtesy: picsfab.com

One of the extremely fascinating things is the "pipeline" used to transport the culture media from the ward to the lab. Usually, there are porters to take away the blood and body samples from the ward to the lab but for any culture and sensitivity test, the samples, after they are taken, are put in a special cylinder which is put inside a pipeline and it flies from any ward directly to the lab like a fast-track train. This is done to prevent contamination. It was one of the coolest things I'd seen; just like in a science fiction movie.

Another extremely striking point is that there is apparently no antibiotic resistance. Trimethoprim is used empirically for UTI and the organisms are sensitive to it, and the patient gets better with in 3-5 days of its use. It is virtually not found in our market because it's useless now (except for malaria). Similarly, if any patient has micro-organisms with antibiotic resistance and higher antibiotics are to be used, then a consultation with a microbiologist was mandatory. That would be a tough job in Nepal.

The list of new and amazing things I saw is too long to include here but I can't miss to point out that the records of the patients are entirely electronic, handled by the system known as "Electronic Patient Record" (EPR). That being said, all the investigations are updated automatically in the system. The charts or notes are used only on first contact with the patient for initial assessment and then updates on *Dai*ly ward rounds. A laptop is placed on a trolley that charges it and is moved around. About one billion pounds was put in by the NHS to make the system electronic throughout the country and it was put into action just 6 months before my visit. The advantages of this electronic system are massive. It prevents most of the medical waste such as radio-imaging films, investigation forms, etc. The results of the investigations also get updated to the system as soon as they arrive. Individual investigation parameter such as CRP or Creatinine or any marker can be

easily viewed in graphical form to monitor the progress. Doctors can also access the patient's past medical and drug history through the IP number and all his/her visit to the GPs and/or hospitals which help significantly in management. Unlike a tangible copy where an X-ray film is printed at certain exposure, the exposure or contrast can be changed in the EPR so that any doubts such as superimposition of rib over other opacities can be easily cleared. Likewise, the radio-imaging reporting done by the radiologists are also updated automatically to the system with the IP number. This saves a lot of time in making a diagnosis. The drug prescription is also done on the EPR and if anything goes wrong, it will be easy to trace the doctors through their signature, i.e. their login account. Good for the lawyers too! On top of that there is a separate EPR Research Team, who have access to the health record of each individual throughout the hospital and I believe the NHS too has access to the health record of the entire population in the UK. Such a huge database is unimaginable, and the team works incessantly to find out the relation between several health markers and diseases. This will have a tremendous effect on preventive medicine. All the researches that have been done so far, for instance, relationship between elevated homocysteine and atherosclerosis related diseases such as MI or stroke, can be easily established and I believe new relationship between several other markers and diseases will be found out in the coming years. I wished that we too had such a system, but it will be decades or more (or maybe not in this lifetime, who knows?) before it gets implemented in Nepal.

Above all, the most fascinating and the satisfying thing I felt was the British health system. The NHS is something that British are proud of and they rightly have the reason to be so. The NHS has almost made the entire health care system free (except for dentistry and ophthalmology). People also don't need to pay for yearly health insurance. Any investigation ranging from simple blood tests to nuclear imaging or genetic testing is free. Any surgical procedures, like surgical resection/correction, PCI, CABG, organ transplantation, or insertion of prosthesis, is free. However, people need to pay for their medications but not if they have a chronic disease or for children, elderly or critically ill patients. This creates a sense of security for the people. They don't need to have separate funds to prepare for medical emergencies. I was stunned to realize this and I applauded the country which has given so much to its people.

Besides having a new experience in the field of medicine, it was an opportunity to make new friends, try new things, new foods, visit places, learn new culture, interact and communicate with people, be more social, to open up and enjoy the small things life had to offer. One of their qualities which everyone should integrate is their discipline and manners, the theme being "Manners maketh man". I visited almost every corner of Oxford but some of the places that I visited in UK worth mentioning are the Windsor Castle (The Queen's Residence), Oxford Natural History Museum (Dinosaurs were REAL!), Christ Church (where Harry Potter was filmed), Blenheim Palace (where Winston Churchill was born), Emirates Stadium Tour (a dream come true although I could not get a ticket to watch a match), Stonehenge (one of the strangest places on earth), Stratford-upon-Avon (Shakespeare's birthplace), Bournemouth (my first time on beach) and all the exciting places in London. This experience has definitely brought a wider perspective in me. It was a life defining experience which I will treasure forever. It was as if a fish was picked up from a pond and thrown into the sea. The experience and adaptation I had to undergo was overwhelming. The good news is that the fish did survive, adapted and evolved, and is back with more muscles and confidence. Now, I am back home from a country which is ahead of us in every aspect by at least a century. In other words, I've seen the future. Having said that, I now know the way, our strengths and weaknesses and things needed to walk on the right path. I believe I can make a difference, I can be the difference.

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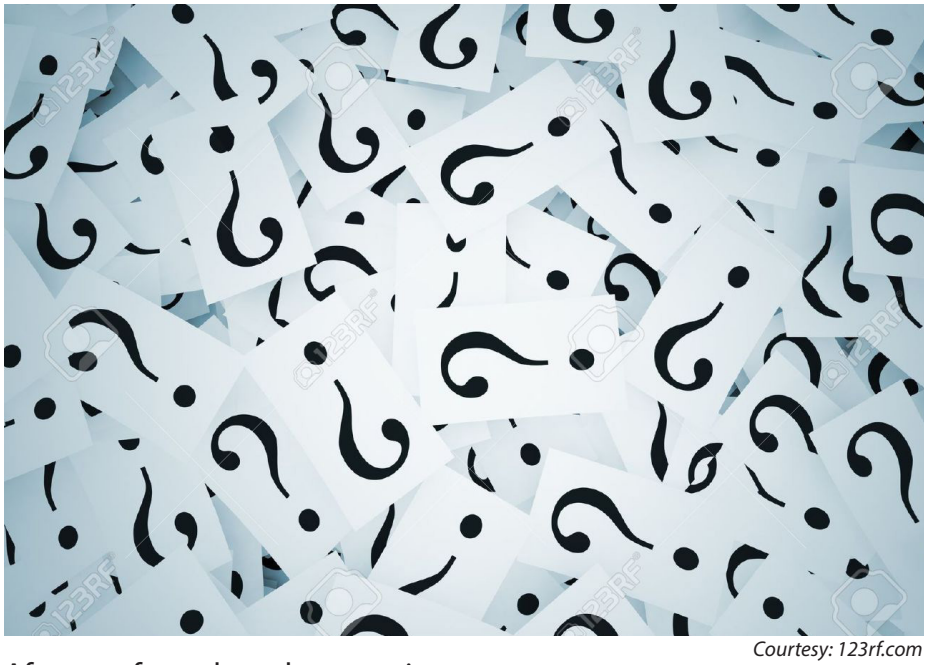
Asking a great research question

Matiram Pun

Finding a research question?

Every grant proposal will intensely explore the best research question they can think of within their discipline and research interest. Obviously, all of us would like to investigate interesting ideas and test hypotheses. Before anything else, an understanding of existing knowledge on the subject is important, so that we can build the question, research hypotheses and others on that. But, how do we know what knowledge already exists regarding the subject? We all have access to the required resources to some degree. We review them and it is possible that we might miss some of them, but, we obviously do not want to miss the important and relevant ones. Some of the relevant work might not have been published, either due to rejection from journals or simply because the authors/ investigators thought that their results are not interesting. Some of the published work might be hidden in some 'not so famous' journals that are not indexed in the database or not even put up online. Finally, some of the works might still be in the investigation phase (which includes designing, experimenting or analysing). The latter ones are very difficult to track, especially if they are not randomised controlled trials (RCTs). RCTs must be registered in the clinical trial registry e.g. www.clinicaltrials.gov [1] and hence the evidence of the study is visible in some form. After we review the literature, we will have lots of questions regarding their methods, results, analysis, interpretation and other particulars. Some of the questions, we would like answered.

Then comes the important phase, wherein we select which question that we want answered. This is a rigorous phase and it is important to formulate questions that may lead to further questions in the field in which we are working.



Courtesy: 123rf.com

After we formulate the question and decide to work in its direction for a while, we have to think on how we may answer the question in the best possible manner. This is achieved by selection of proper methodology, statistical tools to analyse the results, and the interpretation of it all with the help of current literature present in the field. The results may not always be one that we like and in fact may be completely different than the current prevailing notion. In such a scenario, it will challenge the current belief and findings. Even if the findings are truthful, it might be taken with a pinch of salt and will have to be proven by subsequent studies before it is finally accepted, taking a long time. Sometimes, further validation of the results is hampered owing to the lack of suitable verification techniques. This is risky and poses a massive challenge but it is this aspect which makes the question great, sometimes. I would like to present an example in this context wherein a great research question was asked but was only fully proven after more than quarter of a century:

Research questions come with challenges: Example from High Altitude

In the late seventies and early eighties, there was a young, motivated and highly academic-research driven American anthropologist who was wandering in the Nepalese Himalayas and Tibetan Plateaus studying population growth, aging, work and dependency and other biological functions like menstrual cycle among Sherpas

and some Tibetans. At that time, physiologists as well as the entire medical community had accepted the fact that people who live at high altitude have a higher haemoglobin concentration. There were scores of publications from South American Andes, especially by Carlos Monge (who discovered chronic mountain sickness, also called as Monge's Disease) [2]. Individuals suffering from Monge's Disease have higher haemoglobin as compared to those who live at lower altitude. There were other groups of people who were studying individuals who were being exposed to high altitude acutely e.g. trekkers, hikers, climbers and miners (e.g. Charles Houston, John B West, Peter Hackett, John Severenghaus, Thomas Hornbein). The latter group was mainly interested in acute illness of high altitude exposure among low-landers who are suddenly exposed to altitude. They were performing the studies in White Mountain (California, USA), Mt Everest (and Khumbu region) and Andes. All of these groups seemed to confirm the concept that the blood haemoglobin level rises when a low-dwelling individual goes to high altitude.

Then, there came a publication by physical anthropologist Cynthia Beall in 1984 in the American Journal of Physical Anthropology [3]. Surprisingly to her and many (who read this at that time) she found normal levels of blood haemoglobin among high altitude adapted population from The Himalayas. The publication remained unnoticed by physiologists and clinicians who were interested in the field of high altitude medicine and biology. This fact did not bother a determined and confident researcher who had firm belief in her findings and research questions. She reproduced the results, rechecked the values comparing different populations (for example she has compared the levels from high altitude with sea-level population from USA) and went on a long hunt to find more high altitude-dwelling pure cohorts. Why does the high-altitude adapted population from Nepal Himalaya have normal haemoglobin level, contrary to our present understanding and hypothesis? Is it a part of high-altitude adaptation or is it a part of mal-adaptation? Is it the same in other high altitude dwelling population as well? Research questions!

Research questions bring new challenges: Dr. Cynthia Beall and Dr. Lorna Moore

Of course, these findings brought excitement but there were even bigger challenges ahead. To prove their authenticity, she had to pursue the objective once again and prove them yet another time. Dr. Beall was up for it and she started a long journey of academic research. Dr. Beall travelled to Tibet to study Tibetans [4]. She visited Tibet many times, stayed there, and learned their language and culture in the process. The studies proved her findings correct again and again. She tracked highlanders in Ethiopia (Simien Plateau) [5] and went there to study them. Her results from the high altitude adapted population based there proved her correct once again. She then travelled to South America to study Andean high-landers [6]. She went all over the globe where she could find high-altitude dwelling cohorts. There were no clear and clean results from all these different groups from three different continents, for sure. She had mixed results from some groups e.g. from Andean population from South-America but, all of them were close and consistent with her findings, especially from the cohorts who were well-adapted to high altitude. As a smart and hardworking scientist, she came with different ideas and methods to explain her findings. One of them was to go to finer molecular level details to prove those findings and correlate with clinical and physiological characteristics. The other explanation was that different groups from these different high-altitudes of different continents probably have different modalities of adaptations. Another anthropologist who was independently looking into this high-altitude adaptation matter intensely was Lorna Moore (USA). Dr Moore was looking into how fetuses cope with the high-altitude stress (low oxygen) [7,8]. It was an extremely interesting perspective since the fetal environment is in itself a hypoxic state. The placental developments and fetal growth leading to adaptation were some of her research questions. They were also exploring other aspects of physiology like, role in blood pressure regulation.

Closing the loop: Pursuit and perseverance gets rewarded

As the work of Dr. Beall and Dr. Moore drew recognition and appreciation alike from all disciplines, there came yet another bearing from a biomedical research. Scientists of genetics, biochemistry and molecular biology (Eric Lander, MIT, Francis Collin, USA and Craig Venter, Celera Genomics) were working extremely hard towards mapping the whole

human genome (termed the Human Genome Project) [9-11]. Once it was completely mapped and available for all researchers, it led to further researches in the field of genetics (and many genetically applied fields). The field of high altitude medicine and biology was no exception to this. Of course, the untiring and hardworking leaders– Dr. Beall and Dr. Moore as well as others were in it. It is also important to note that Dr. Beall had already been looking into molecular and genetic basis (Major gene for percent of oxygen saturation of arterial hemoglobin in Tibetan highlanders, American Journal of Physical Anthropology, 1994 and Quantitative genetic analysis of arterial oxygen saturation in Tibetan Highlanders, Hum Biol. 1997) [12,13], but the completion of the human genome project and the technology to scan the complete genome changed the landscape of research.

In 2010, we saw some of the greatest publications in the field of high altitude medicine and biology focusing on the genetic basis of high altitude adaptation. The human genome project and affordable techniques (technology) had made it possible to scan the whole genome of a high altitude cohort to see if there were any specific genes associated with them (genome-wide allelic differentiation scan). At the same time, ability to scan individual genes in particular (candidate gene analysis) also became possible. These publications (to name few here: Beall et al., PNAS, 2010; Simonson et al., Science, 2010; Yi et al., Science, 2010; Bigham et al., PLoS Genet. 2010) associated single nucleotide polymorphisms, EPAS1 and EGLN1, to be associated with high altitude adaptation [14-17]. Here, it is important to note that these associations have pointed that those well adapted, had these SNP signatures to have normal haemoglobin level in their blood. While studies are ongoing, it looks like we are moving in the right direction; this is a good example of how a research question, that was challenging many decades ago, can be established with time if we invest dedication to our effort. The question that Dr. Beall pondered over in the early eighties has come full circle with genetic basis for the phenotypic presentation.

If we ask a great question today or if we find something exciting or something that challenges current evidences; it might take decades to come full circle with evidence. It does matter what we ask, how we seek the evidence and how long we are willing to pursue it.

Good luck for the hunt for a great research question to all of you!

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TYBU study and my travel experience

Aditya Tiwari

Our twin otter made a big noise. The airport was buzzing as I was left Kathmandu for a month. My destination was a narrow inclined airstrip in Lukla, one of the nation's most dangerous. Within a few seconds we were in the air saying goodbye to the capital. Our adventure started when our plane landed in a different airport, in Okhaldhunga, due to some technical problem. It didn't take long before we were in Lukla. After a cup of tea in the chilly Lukla air, our trip to Dingboche began.

I was there with two other Emergency Medicine residents from USA; Tom and Dana. We, as researchers, were there to carry out a double blinded randomized control trial to compare the efficacy of Tylenol or Paracetamol and Ibuprofen (hence the name TYBU) in the prevention of Acute Mountain Sickness (AMS). The hypothesis in this scenario was that Tylenol, given 1g TID will be as effective as Ibuprofen 600mg TID in the prevention of AMS. The research was meant to study the possibility of drugs other than Acetazolamide in managing AMS.

For our research we headed out to Dingboche (4300 m), the valley where we planned to enroll the participants in the research. Saying goodbye to lively Lukla we trekked towards Monjo. We hiked in the cold hilly terrain of Khumbu with the roar of Dudhkoshi pushing us. We crossed the first of many suspension bridges across the deep gorges of Dudhkoshi. The trail moved into a valley and we passed a few lodges crowded together along either side of the path. The first valley to welcome us was Phakding. It was already dark as we crossed the valley with the aid of torches on our heads. We then hiked towards Monjo; searching for the lodge we were meant to stay over at. After we found the lodge at Monjo we had a heavy dinner and I fell asleep in no time to the soothing music of Dudhkoshi.

Next day was a 5 hour hike to Namchhe. Walking on a high suspension bridge (about 100 m above the river) was fun with the low bridge, which collapsed few years ago, in sight below it. The climb was steep from here onwards for a few hours and the sweating literally drenched us. We passed lots of zopkios (cross breed between yaks and oxen) and yaks, which at times was tricky owing to the narrow trails at some places. We also passed plenty of porters carrying their ridiculously heavy loads which made me feel sad at times.

Namchhe was amazing with its nice big lodges, pubs, busy streets; the capital of Khumbu looked like Thamel. After arriving at our lodge I drank a cup of mint tea which soothed my sore muscles. Purushottam and the other guys, who were also doing a contemporary research out there, welcomed us. We stayed over for a day to acclimatize. I went to Khumjung, a nice green valley, where I came across the Edmund Hillary School founded by Edmund Hillary. Whilst there, we also visited a monastery which housed the scalp of a Yeti. The weather was overcast so the first view of Everest still eluded us. The musical evening spent at the Irish pub with my American friends was memorable.

The trek to Tengboche was something. There were now five of us after Dave and Matt of the other study group joined us. The hike became exciting when we lost our way and had to climb a gorge to catch the right way some 50 m above us. It was really difficult, but somehow, taking hold of shrubs and bushes, we climbed it. The clouds were looming and there were eagles and vultures scanning for prey in the sky. I wondered if they were waiting for trekkers to collapse. Ama Dablam was indeed the beauty of the trail with its two peaks catching everyone's eyes. A heavy snowfall followed us as we hiked and it was such a relief to reach our lodge, unpack and get ready for dinner. It was a nice cold buzzing evening in the dining room with heavy snowfall outside and lots of tourists looming near the heater. I had a nice sleep and the next morning was one of the most pleasant mornings I have ever had. The clouds had cleared and the bright sun reflected on the white snow which covered the whole place. Everything looked white, bright and pleasant, and the first view of Mt Everest soaring above Nuptse was gratifying. The dramatic AmaDablam was though still my favorite. We went to the Tengboche monastery to watch the morning prayers and we also meditated for a while. We came out of the monastery feeling peaceful. A white blanket of snow was everywhere. Slipping while walking on the ice and snow was really fun.

After a heavy breakfast, our trek towards Dingboche started. The trek held Everest in view for a while until it disappeared behind Nuptse. The constant

uninterrupted view of many peaks (names difficult to remember) on the trail was amazing. After crossing Pangboche (another valley) we climbed gradually, stopping for lunch in Somare. We all still felt good as we arrived at Dingboche (4400 metres) with none of us having any altitude related discomforts. We met the people who had started our three month research and who had already enrolled around 100 participants. We took the papers, the pills, saturation probes and started our work from the next day. We bid goodbye to our friends who had stayed over during the first month of research with heavy hearts.

Our research required us to enroll healthy individuals, trekking to Everest Base Camp through Lobuche, without any symptoms of AMS at present and who were not taking any drugs like Acetazolamide or NSAIDs (which would confound the study). We would give them a form to fill up with questions regarding their demography and rate of ascent. We would then measure their oxygen saturation and randomize them in a double blind fashion to Ibuprofen and Tylenol group. After taking their respective tablets for 2 to 3 days, they were required to fill a form judging their Lake Louise score, symptoms of other acute illness and side effects of the drugs at Lobuche (4900 m). They would also have their oxygen saturation measured there. The study was complete at this point and the forms showing the outcome of subjects taking the pills for prophylaxis could compare the two drugs.

One of us had to go to Lobuche periodically to collect the forms in order to evaluate the results. We planned to do so in a rotation pattern. I planned to go there first. The next day, my hike to Lobuche was a pretty easy one. The constant view of many above 6000 meter peaks like Island peak, Makalu, Peak 38, Ama Dablam, Thamserku, Lhotse and Nuptse all at once was thrilling. The terrain soon became pretty barren with only a few shrubs surviving at the altitude. My Lobuche hike ended in the evening and it strangely felt a lot colder. After a heavy dinner in the buzzing dining room, I got to my chilly bed and fell asleep all wrapped up. The first two days were pretty much boring with me waking up early in the cold mornings to find the enrollees of our research and evaluating their AMS status along with their Oxygen saturation, and collecting the forms. My sleep became patchy and the first episode of periodic breathing was pretty terrifying which, luckily, relieved with low dose acetazolamide. The nights were freezing as temperature fell down to -20 C. Even the water bottle on the side of my bed totally froze at times. At Lobuche, I found many trekkers with mild to severe AMS and instructed them not to go any higher and to descend on persistence of symptoms while taking drugs to speed up acclimatization at the same time.

One early morning, Yeta's mother (Yeta was a German actress who had become good friends with our group since Monjo) came with severe AMS. After medicating and helping her descend, it was relieving to know that she got well. At night, Matt (one of the Hypertension study researcher) woke me up when he suspected High Altitude Cerebral Edema in a Kiwi trekker. We made her tandem walk in the freezing night and evaluated her consciousness and coordination after which we realized that she had severe AMS. We administered her Dexamethasone, Diamox, antinausea medication and headache medication and advised her to descend the next day. The next morning we felt good once she descended. Hiking a local peak with Matt was also fun and we saw some majestic lakes on the lap of snow covered peaks. I also made a lot of friends during the stay. Days passed and after a week I descended back to Dingboche, where I had to work for another two weeks.

The next two weeks stay in Dingboche was also amazing. The food was great and the hospitality displayed by Mingma aunty and Sonam didi, our lodge owners, was amazing. Heavy American style breakfasts, nice lunches, popcorn and French fries in the afternoon and yummy chocolate cakes after dinner was a daily routine. We all gained some weight. In the evenings we scoured lodges to find the right people who could participate in the research, and motivate them to help us in our study. It was not an easy task and we often had days where we could enroll only one or two participants. We sometimes felt like salesmen and selling free pills was not easy.

We often took some local hikes during our stay. The hike to Chhukung (5300 m) was really fun. As I lay on the plateau, I could see Lhotse so near with clouds hovering speedily near its peak and it all felt so peaceful. The trip to the Ama Dablam lakes was also great. The blue silent waters at the base of Ama Dablam was the best view for me in the Khumbu. We often visited Pheriche, which was just half an hour away and where stood a clinic established by Himalayan Rescue Association where we met up with volunteer doctors working in the clinic. They were often busy treating and rescuing sick trekkers afflicted with altitude sickness. Days were

often boring for me and I thrilled myself reading "The Silence of the Lambs". It often snowed heavily. The view of the night sky was the clearest that I had ever seen, with our galaxy and many constellations clearly visible. I got the chance to meet lots of trekkers, from every nook and corner of the world and every one of them were so excited to be at Everest region. By the end of two weeks we had gathered around 130 participants, the total count being 230.

Our one month stay at Khumbu neared an end as the next research group came in. We received a nice farewell party and the next day, after bidding goodbye to Mingma aunty, we left Dingboche, vowing to return to this majestic valley again. I felt sad to leave but took with me so many good memories of the place and its people. I moved down, closing a beautiful chapter of my life.

Dr. Aditya Tiwari
MBBS
Lumbini Zonal Hospital

Gosainkunda: A Wonderful Experience

Prakash Kharel

Getting selected for the Gosainkunda Camp was like a surprise gift to me. Earlier, I was informed that no volunteer medical student would be going to Gosainkunda this year owing to the recent earthquake and prevalent risky scenario. Surprisingly, I got a call from my teacher Matiram Pun asking me if I was interested to go. How could I ever say NO to such an amazing opportunity?

I had been on a single trek previously but this would the first time that I would be trekking for such a long duration and to an altitude as high as Gosainkunda. Since this was my first trip to Gosainkunda, I had no idea about what to pack. I took some ideas from my more experienced seniors. They gave me numerous advices but the one that everybody seemed to mention was, "*Bhai*, even raincoats and umbrella can't protect your clothes from being wet." So, I asked them what could be done. I heeded what they told me and kept my clothes in plastic bags which in turn was covered altogether by a bigger plastic. So, it meant that whenever you wanted to get something out of your bag you had to pass through 5-6 layers of covering before getting to the thing you needed.

Courtesy: Dr. Soumya Adhikari

Monday (2072 Bhadra 14):

Our trip was jeopardized by the fact that there was a landslide in Kalikasthan, Rasuwa. I was totally disappointed and just hoped the landslide was cleared in time so that we could make the trip.

On Tuesday, the team decided to take a risk and set forth on the trip knowing the landslide had not been cleared yet. In the morning, the vehicle was parked in front of the Boys Hostel. Our medical team met up with Dr. Zaffren and the people from HRA who all seemed very friendly. We reached Dhunche safely at around 6 pm in the evening after passing through the landslide (which had just been cleared). After we reached there, we had a walk around Dhunche. The small hill town was a cool and beautiful place. At dinner, we all had a talk on various aspects of Mountain Medicine; AMS, HAPE, HACE and many more. This was the first time that I was hearing terminologies related to high altitude medicine. Santosh *Dai* and Dr. Zaffren shared the experiences of their last Gosainkunda trek. Out of the seven members, only three had previous experience with the route and remaining four of us were first timers. So obviously, their talk was interesting and informative. We had to wake up early in the morning so we went to bed early. As planned, we all took Diamox before sleep. As

expected, I developed tingling of my extremities as a side effect.

First day of trek: Bharku to Chandanbari (3050 m)

We had a difficult time climbing up on the first day. As we moved up, the seven members got divided into three groups (fast, average and slow hikers). I was among the average hikers. En route, we ran out of water and were out of water for almost 2-3 hours. This was because someone had disconnected the water pipe line at the source. At some places, Thaneswar *Dai*, Sachin *Dai* and I had to shake broken pipes in the hope of obtaining some water in the process. We experienced heavy rain and a cold wave on the way from Dhimsa to Chandanbari. We were so tired that once we caught view of Chandanbari from down below I became extremely happy. I was even happier than being selected for the camp.

I was totally exhausted when I reached the hotel. The hotel was felt heavenly to me. The hotel, Red Panda, had a warm kitchen and we were served hot tea; a perfect combo.

This was the first time that I had ever reached an altitude above 3000m.

Second day of trek: Chandanbari to Lauribina (3900 m)

It was a nice walk to Cholangpati. We walked through a dense forest which was so thick that sunlight reaching us was minimal. The uphill trek to Lauribina was good. I could not sleep well that night. I don't know why. I had vivid, bizarre dreams. Maybe I was having difficulty adjusting to the altitude, the low oxygen levels, and a nagging uncertainty about the hike ahead.

Third day of trek: Lauribina to Gosainkunda (4350 m)

This was the steepest climb that I had ever done. The view of the mountains can't be put in words. Langtang was so close; I felt that if I walked towards it, I could probably reach there in a day. View of Ganesh Himal and the other mountain ranges were equally breathtaking. After Budhha Mandir (4200m), the route was very unique and made me feel like I was walking in a new world like Mars. Warmth, water and life all become sparse with altitude. The first view of the *kundas* (lakes) was majestic. The view of the hills, flora and the kundas on the way reminded me how beautiful my country really is. Passing by Saraswati kunda and Bhairav kunda, we finally reached Goasainkunda. As soon as we reached there, we set up our camp and patients started to pour in.

Courtesy: Dr. Soumya Adhikari

Headache, vomiting and dizziness were complaints common to all. I was surprised to see a patient of AMS who was an officer in the armed police force. I saw for the first time what HAPE, HACE and AMS really were. I had never imagined that these conditions were so common. Almost 70% of the people had some degree of AMS; youth and elderly alike. The most interesting case that I got to see was a patient who had come to seek treatment for leg pain. The man from Rasuwa, who was around 40 years of age, didn't know how to open up a sealed tablet. He eventually used his Khukuri to take the tablet out.

On Janai Purnima, we all took a dip in the frigid lake. We took some time to hike up to the water source upon which a temple was built as well. We then packed our things and left Gosainkunda at around 12 pm. We reached Chandanbari the same day. We then trekked downhill, boarded our vehicle and reached

Kathmandu the next day.

My trek to Gosainkunda made me learn so many things. Traveling far to seek adventure creates energy, builds excitement and fosters life-enriching experiences. We endure the temporary discomfort of high altitude life so that we may earn experiences that we'll carry with us for the rest of our lives. At the end I would like to express my sincere thanks to all who made this trek a memorable one for me.

Prakash Kharel
4th Year Medical Student
Maharajgunj Medical Campus

A Sigh of Relief!

Santosh Baniya

MMSN carries out fun and academic activities like journal clubs, climbing for fun and Diploma in Mountain Medicine (DiMM) among many others. DiMM is an internationally recognized course certified by International Society of Mountain Medicine (ISMM), The International Commission for Alpine Rescue (IKAR) MEDCOM and The International Climbing and Mountaineering Federation (UIAA) Medical Commission. It is quite a challenging course, especially for Nepalese participants. I, being one of the candidates of DiMM 2015, had just been back from the mountains of Manang. Driven by the inspirational DiMM training, I was encouraged to transfer that knowledge to our younger members who hadn't participated in DiMM (who, though, may be future DiMM participants). With this objective in mind, we organized a hiking program on 12th December, 2015 to practice a few medical scenarios encountered on field, with special focus on first aid.

On that Saturday morning, we packed our gears and headed to the rock face quite early, in a van. Although our moods were uplifted by the jokes we shared amongst ourselves in the van, we were all a little worried too regarding the success of the activity. Our van stopped nearby the beautiful Nagarjun Forest Rock Face, where we would be hanging on ropes and rescuing simulated patients all day long. Planning of the activities was a little challenging but after doing so we donned our gears and prepared to tackle the outdoors hanging on our harnesses. "Yeah!! Let's do it!" shouted one of my colleagues as we headed towards the rock.

After a while, the day leader all of a sudden started blowing her whistle and shouted for help. I started running towards her with coiled rope around my shoulders immediately. Five of my friends were already at the site surrounding the victim. Someone was checking the airway, while the other one was looking at the chest and yet another one was feeling the pulse. One of them was opening the live kit and supplying the medicine, and the airway devices while the fifth one was anchoring the stretcher to a tree. I was asked to check if the patient had any injuries in the lower limbs. I looked for injuries on the right lower limb while my other friend inspected the left. The patient cried as I ran my hand over the right thigh, which felt uneven due to injury. One of the instructors added that there was a pool of blood on the floor just below the aforementioned injury.

Responding to emergency situations in the wilderness is extremely challenging. I had to follow the algorithm and work ensuring the safety of the patient, my team and myself. In due course of management, I somehow came to know that this was actually a medical scenario being enacted!

With a sigh of relief, I responded to the scenario leader that the patient might possibly have a right femoral fracture, following which we were asked to put on a Kendrick's splint; which we did. We evacuated the stabilized "patient" to a nearby safe land from where he could be transported to a nearby medical center for further management.

Following suit, we continued simulating such medical scenarios while cycling the team leaders at the same time.

Dr. Santosh Baniya
MBBS
Maharajgunj Medical Campus

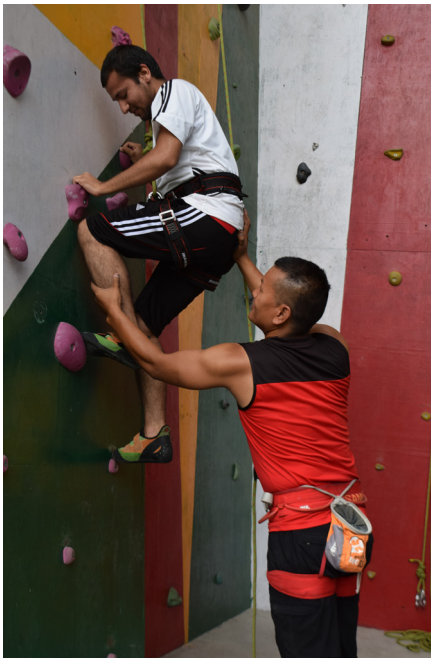
News and Activities

The third iteration of the Diploma in Mountain Medicine course was conducted in Kathmandu and Langtang in the months of February and March of 2014.

In the 2014 climbing season, Dr. Sanjeeb S. Bhandari volunteered in Everest ER, the highest health setup in the world.

The Annual Gosainkunda Health Camp was set up within the premises of Gosainkunda Lake at 4380m on the occasion of Janai purnima festival in the month of August of 2014. Five doctors from MMSN participated: Dr. Matiram Pun, Dr. Nirajan Regmi, Dr. Sujan Jamarkattel, Dr. Subarna Gautam, and Dr. Shankar Raj Lamichhane, along with a medical student Mr. Suman Acharya.

MMSN members took part in ISMM World Congress held at Bolzano, South Tyrol, Italy in May-June 2014. Many of our members presented on various topics on a designated Nepal day.



Courtesy: Dr.Sanjeeb Bhandari

Dr. Bikash Basyal participated in a 4 week long placement at John Radcliffe Hospital, University of Oxford, UK which was organized and coordinated by MMSN on September – October, 2014.

Courtesy: Dr. Sanjeeb Bhandari

Training programs for porters working at high altitudes was conducted by MMSN members Dr. Matiram Pun, Dr. Sanjeeb S. Bhandari, Dr. Nirajan Regmi and Dr. Bikash Basyal on the premises of Himalayan Rescue Association Nepal on two different occasions.

In the month of October of 2014, we celebrated World Spirometry Day. Lung function tests were conducted on more than 150 people in a stall set up to raise awareness about pulmonary health.

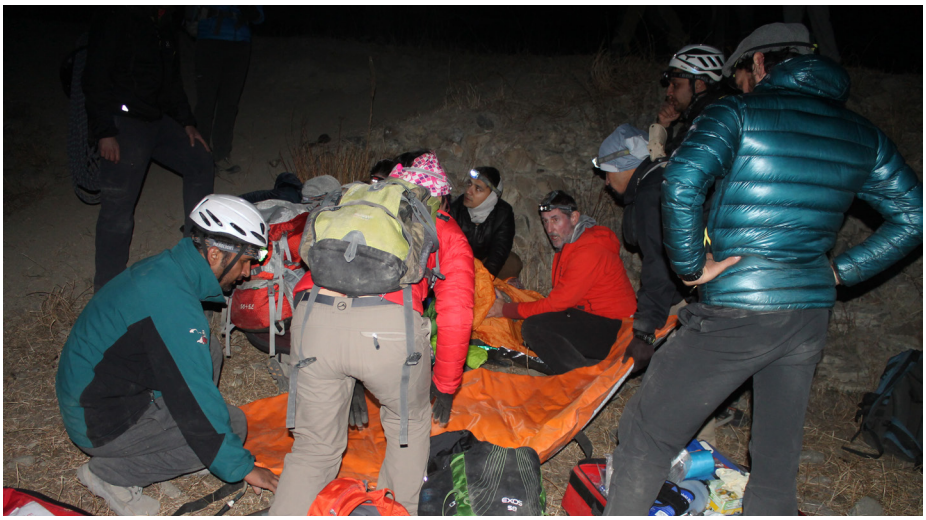
In November 2014 Dr. Nirajan Regmi and Dr. Purshottam Paudel accompanied Dr. Linda Keyes and Team in the research "Blood Pressure and other vascular parameters in high altitude" in the Everest region. The same month Dr. Bikash Basyal and Dr. Aditya Tiwari accompanied Prof. Buddha Basnyat and Team in another high altitude research in the higher parts of Everest Region. All four doctors shared their experiences in the discussion session titled "Research at High Altitude".

MMSN members Dr. Ashish Lohani and Dr. Maniraj Neupane completed their PhD from Ludwig-Maximilian University, Germany. Both of them were supervised by Prof. Basnyat. Dr. Lohani and Dr. Neupane completed their PhD in High Altitude Cough and Household Air Pollution respectively.

In the 2015 Climbing season, Dr. Aditya Tiwari volunteered in the Everest ER.

In August 2015, The Annual Gosainkunda Health Camp was held in collaboration with HRA. Owing to the recent earthquake and expected low patient flow only three doctors from MMSN, Dr. Santosh Baniya, Dr. Soumya Adhikari and Dr. Sachin Bhandari participated accompanied by a medical student, Mr. Prakash Kharel.

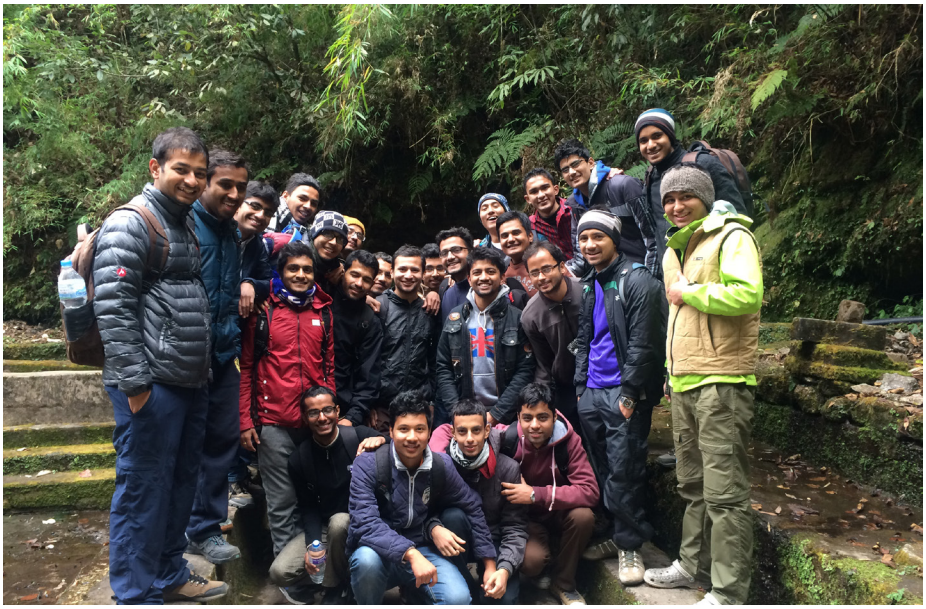
MMSN in association with Himalayn Rescue Association and European Academy of Emergency Mountain Medicine conducted the Mountain Emergency Medicine Instructor course in the month of August, in Kathmandu, which was the first ever Instructor course conducted in the world.



Courtesy: Dr. Sanjeeb Bhandarii

Talk programs with international speakers are being held at regular intervals. Prof. Annalisa Cogo from University of Ferrara, Dr. Scott Macintosh from University of Utah, Prof Jeremy Farrar from Oxford University and Wellcome Trust were among the guests.

"Climbing for fun" an MMSN initiative to train the interested medics and medical students in the field of mountain and wilderness rescue medicine was regularly conducted. We trained the interested ones in basic wall climbing, rock climbing, basic first aid, medical training and basic survival skills.



Courtesy: Dr. Sanjeeb Bhandari

The fourth iteration of the Diploma in Mountain Medicine course was conducted in Kathmandu and Manang in the months of November and December of 2015.

Journal Clubs have been continuing with presentations from Dr. Sanjeeb S. Bhandari, Dr. Shankar R. Lamichhane, Dr. Bidur Pandit, Dr. Pawan Karki and Prof. Buddha Basnyat.

New members are constantly joining MMSN. In 2015 alone, more than 100 new members joined the society. Now we have a separate log of the members.

In 2016 we will give continuity to our journal clubs, talk programs, outdoor programs for medics and bigger events like Diploma in Mountain Medicine.

Stay tuned and keep checking our webpage mmsn.org.np, MMSN Google group page and the MMSN Facebook group.

Send us your feedback and articles for the next issue of MMSN Newsletter at:
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