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Travellers' tales: spirometry training in Nepal

[1]

In Nepal there is very little functioning governmental healthcare at the hospital level for a population of around 29 million people. Most hospitals are private initiatives and patients have to pay cash for their treatment. The remote Ampipal Hospital in Gorkha district (fig. 1) is run by a local committee of villagers with the support of non-governmental organisations, like Nepalmed Germany. The report on the World Spirometry Day 2012 event in the Nepalese capital Kathmandu in the September issue of *Breathe* [1] inspired me to write about my training sessions in Nepal. In Germany, I worked as a respiratory physician in private practice for 5 years, after a 10-year period spent working in teaching hospitals. In my spare time, I am chairman of Nepalmed and for 4 years have organised medical surveys in Ampipal, Nepal to learn more about the medical needs of the local population. This helps with planning of medication and equipment supplies. It also helps provide specialised physicians to teach the hospital personnel efficient diagnostic and therapeutic procedures.

Spirometry training in Germany

There has been no dedicated spirometry curriculum in Germany for doctors or nurses. A small group of German respiratory physicians, called The Doctor's Group for Diagnostic

Lung Function, has promoted a standardised approach to teaching. This comprised a half-day session in two parts: a lecture on basic principles, followed by practical training using spirometers provided by the respiratory physician as well as the general practitioner's own spirometers. The event ended with case discussions and a written test, which is discussed after completion with all participants. After 1–2 years, an advanced course or a refresher course can be taken.

I perform between four and five spirometry training sessions per year for general practitioners and nurses, following the German group programme. Therefore, I was excited to read about the proposed ERS Spirometry Driving Licence programme and to attend the first train-the-trainer course at the Vienna congress in September, 2012. This course programme combined a standardised approach to teaching lung function across Europe with high-quality knowledge. It also builds a European spirit amongst respiratory physicians and nurses. For decades in Germany, in contrast to many other countries in Europe and across the Atlantic, body plethysmography has been established as a common diagnostic method among respiratory physicians, in hospitals as well as in general practice. However, many small hospitals and general practitioners opt for spirometry, which is easier and cheaper. For the future, there is a great need for better quality training. I took part in the ERS course

Statement of Interest
None declared.

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Figure 1
Map of Nepal showing the locations of the hospitals.

to improve my teaching skills and learned a lot about teaching, especially about the importance of reviewing and reinforcing knowledge.

Spirometry training in Nepal

My last journey to Nepal was scheduled for October, 2012 when the ERS Spirometry Driving Licence materials were not yet available. I organise these trips for members and friends of Nepalmed who would like to travel with the support of someone experienced in this area. Our supporters can see the projects themselves and meet the partners, seeing for themselves where their donations go. Often new concepts and objects of support emerge



during the tour and the participants develop a strong bond towards voluntary charity work.

During past surveys in Nepal we also included spirometry, because there are a great number of people with shortness of breath and coughing, due to infections and the smoke of open fireplaces in the small cottages. Not very surprisingly, we found a high prevalence of chronic bronchitis and obstructive ventilatory disorders, averaging 22% in males and 14% in females presenting to the hospital during autumn and winter months. The results were presented at the ERS congresses in Vienna 2009 [2] and Barcelona 2010 [3].

For my visit in October 2012, I ordered a number of lung function textbooks for our Nepalese partner hospitals from the British Association for Respiratory Technology and Physiology (ARTP) because the proposed course system for the ERS Spirometry Driving Licence resembles their programme. In the week before Christmas 2012, I received information from the ERS course co-ordinators about the curriculum, the application procedures and papers that should be used in teaching Spirometry under this approach.

Spirometry in Nepal

In Nepal, there are very few spirometers available or in use. At the Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu, there is one spirometer. The doctors have used this to conduct small respiratory surveys. Hardly any other hospitals perform lung function diagnosis. Raising awareness of respiratory medicine among professionals is badly needed, as is equipment.

For our first survey in Ampipal Hospital in 2008, I taught a German student in my own practice spirometry for 1 week during normal working hours. We sent him to Nepal with the EasyOne device (NDD Medical Technologies, Inc., Andover, MA, USA). This is a robust system and gives the opportunity to collect and process data on a notebook computer. We also provided many spare mouthpieces, disinfection solution and laminated instruction sheets, in English, about the procedures and basic interpretation of results. The student performed well and instructed the local nurses. He measured nearly 600 patients identifying a high number of patients with airway obstruction. In 14% of all spirometries we

found an obstruction; in 12% of females (42 out of 337) and 22% of males (41 out of 190). One immediate result of the finding of high number of subjects with airway obstructions was to send a young man from the village to learn how to construct smoke-free ovens, from locally available materials at an affordable price. Since then, he has built more than 400 ovens in the area. Instructional videos about smoking cessation have also been shown on a television set in the waiting area of the outpatient department.

In preparation for the journey in October, we enquired into the need for further spirometry training amongst the partner hospitals in Amppipal, Kirtipur and the Model Hospital Kathmandu and they were all interested. Nepalmed bought three identical spirometers from Microlab (CareFusion Health, Hoechberg, Germany) and I planned the teaching sessions. My practice nurses accompanied me and assisted with teaching lung function, as well as taking the opportunity to visit Nepal and its World Heritage sites. They were overwhelmed by the colourful culture with its multitude of temples and shrines, in sharp contrast to the overpopulation, noise and pollution in the Kathmandu metropolitan area. After 2 days, we left for the remote village Amppipal in the mid-western hill region. It is a full day's journey along deep gorges with wild rivers and lush green forests. Amppipal Hospital is situated on the western slope of Mount Liglig at an altitude of 1020 m, amidst green terraced fields of rice, mustard and millet. Since the monsoon season was already over we had wonderful dry, warm and sunny weather with spectacular views of the snow-capped peaks of the Himalayas.

We knew that there is only one young Nepalese doctor in Amppipal. He and the six nurses were eager to learn about lung function testing. Some of the nurses had already received training in spirometry from our German student during the airway survey. Now we had to introduce them to the newly donated spirometer, which remains in Amppipal. I started teaching with lectures on anatomy and pathophysiology, indications, definition of spirometric values, equipment, technique and interpretation. Afterwards my nurses practiced with each of the Nepalese nurses using the device. By the end, all of the participants felt confident to perform spirometry independently in the



future. We provided them with the ARTP Spirometry textbook, a short concise booklet about spirometry with case discussions and fact sheets for patients.

In Kathmandu, we organised a bigger group of participants due to our very full schedule. We had a lot of appointments with the embassy, medical suppliers, supporters and friends. Six doctors and eight nurses from both Model Hospital Kathmandu and Kirtipur hospital attended the meeting. I started again with the lectures for the entire



group. In the second part, the nurses trained on the spirometer with the three nurses from my practice. Meanwhile, the doctors discussed curve interpretation and problem cases. For some of the nurses from the Model Hospital it was a refresher course, because a year ago Nepalmed introduced spirometry in order to conduct a survey of allergic respiratory diseases. The data collection finished in December 2012, after inclusion of more than 200 patients. This gave them plenty of time to practice. Now it comes to the point of translating the training into practical use on the ward and in outpatient departments. In March 2013, a German medical student, who trained in my practice, will go to Amppipal and the Model Hospital to check the correct usage of the device, as well as to discuss hygiene and answer questions.

Training in the future

With the new ERS Spirometry Driving Licence training manual now at hand, we are planning a session in Kathmandu for refreshing training, as well as a complete, but probably abbreviated new course. The

core modules, including the practical training, have to be shortened to fit into a one day event. This is necessary because the Nepalese working week permits only one day off, on Saturday. Sunday is the start of the week. The most challenging points will be the implementation of the intercontinental filling-in and submission of the Spirometry Workbook from participants in Nepal to Germany. Another near-impossible task is the online completion of module 1 (anatomy) due to very slow internet connections and very frequent power cuts. 2

Respiratory medicine in Nepal has not reached the importance it should have, either in the educational curricula or in every day clinical practice, considering the high prevalence of airway disorders. From our experience with the events in Nepal and the feedback from the participants we know that there is considerable interest and need for further training opportunities in lung function for the doctors and nurses in this country. It has to be discussed whether it would be suitable to sail under the ERS Spirometry Driving License flag or establish something similarly meaningful for Nepal.

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