Kyoto University Hospital

Report of the Activities in Bhutan

October, 2013 - March, 2016

京都大学医学部附属病院

Kyoto University Hospital

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Kyoto University Hospital

Report of the Activities in Bhutan

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1. Message from the Director

Prof., Director of
Kyoto University Hospital
Nobuya Inagaki

Before my speech regarding the activity report on Kyoto University Hospital in the Kingdom of Bhutan, I first would like to congratulate the birth of the prince between His Majesty King Jigme Khesar Namgyel Wangchuck and Her Majesty Queen Jetsun Pema.

In October 2013, our hospital, Kyoto University Hospital, signed an MOU with the Ministry of Health in Bhutan and University of Medical Sciences of Bhutan and dispatched our 1st team of medical staff, including doctors, nurses, and clinical examination technicians based on the MOU. Since then, we have continuously provided medical support to the Kingdom of Bhutan by dispatching our medical staff. Recently, we dispatched the 7th team, and the number of our medical staff who has been dispatched has reached approximately 70 people.

In this project, the medical staff from our hospital perform clinical activities at hospitals and medical camps in the Kingdom of Bhutan and and at the same time support the establishment of a program to train medical specialists at Jigme Dorji Wangchuck National Referral Hospital (JDW Hospital) to solve the shortage of doctors in the Kingdom of Bhutan. Presently, training programs for internal medicine, surgery, and pediatrics have been established, resulting in achievement such as establishing two medical specialist interns at each surgical department. Furthermore, we have actively strived to provide education, such as a lecture course on basic life support (BLS) and promotion of "5S activities" to keep things tidy and in order, which we plan to continue. Additionally, from 2016, we plan to dispatch our nutritionist from our hospital to JDW Hospital in order to support the nutrition guidance at the hospital as well as to invite the medical staff from the Kingdom of Bhutan so as to provide them training.

On the other hand, working with the doctors and nurses and serving patients in the medical environment of the Kingdom of Bhutan is a precious experience which cannot be provided through merely working in our hospital, and I expect that our medical staff's "learning", "thinking", "handling issues", and "acting" in a different environment from Japan will enrich their medical activities also at Kyoto University Hospital.

This book reports the activities of our medical staff who have worked in the Kingdom of Bhutan. The reports are mainly made by doctors, nurses, and clinical examination technicians who were sent to Bhutan. However, their dispatch has been supported by many of the medical staff from various departments, such as the departments of pharmacy, infection control and prevention, surgery, and administrative office. Therefore, one can say that this book reports the united activities of the Kyoto University Hospital medical staff in Bhutan.

At Kyoto University Hospital, we would like to continue this project and we hope that the activities by the dispatched medical staff will improve the relationship between Kingdom of Bhutan and our hospital, and eventually Japan.

2. Message from the ex-Director

Prof., ex-Director of
Kyoto University Hospital
Michiaki Mishima

In October 2013, Kyoto University signed an MOU on equal partnership with the Ministry of Health of the Kingdom of Bhutan (hereinafter called “Bhutan”) and the University of Medical Sciences of Bhutan. The MOU was signed with the aim to dispatch medical care staff, such as doctors and nurses, to Bhutan, in order to help nurturing young doctors in Bhutan, along with an opportunity for the Kyoto University Hospital’s medical staff to think about “happiness” in the country which values Gross National Happiness (GNH) under limited conditions, thus to establish a reciprocal and mutually advantageous relationship.

Since the dispatch of the 1st team of doctors and nurses to Bhutan in October 27, 2013, Kyoto University has dispatched 7 teams to provide medical care as of March 2016. The details will be reported in the next and succeeding pages by the team members who visited Bhutan. I believe that each member, through the exchange with the doctors and nurses in Bhutan along with trials and errors, deepened the knowledge of each other as a precious experience.

Furthermore, research by the team members also led to a new objective to utilize our exchange to help the people in Bhutan establish medical schools and create specialized training programs for each medical department. In Bhutan, doctors have been trained in overseas medical schools. Furthermore, even after graduations, the doctors receive specialized trainings for each medical department for 5 to 10 years. This has led to substantial lack of doctors; the number of doctors in Bhutan is approximately 25 doctors per 100 thousand people, compared to approximately 230 doctors per 100 thousand people in Japan. In Bhutan, the government hopes to solve this problem by opening medical schools and creating specialized training programs for each medical department. The medical staff dispatched from Kyoto University Hospital will also help this plan.

As stated in the following report by Prof. Matsubayashi, Bhutan and Kyoto University have maintained friendly relationship for more than half a century through exchanges. This report on the medical care activities by the Kyoto University Hospital staff can be one of such reports on our exchanges.

As Kyoto University Hospital, we hope to continue our cooperation with Bhutan, through activities such as inviting medical staff from Bhutan so as to expand our activities.

I sincerely hope to maintain this relationship.

3. Clinical Practice and Field Medicine in Bhutan

Prof., Center for Southeast Asian Studies, Kyoto University
Kozo Matsubayashi

Two and half years have passed since Kyoto University Hospital started dispatching its regular medical staff to JDW National Referral Hospital. The idea of this project was initially formed when Prof. Michiaki Mishima, then director of the Kyoto University Hospital, visited Bhutan as the representative of the Kyoto University president to sign an MOU with the Royal University of Bhutan. His talk with the director of JDW National Referral Hospital led to an agreement and Prof. Mishima, after returning to Japan, began working on the project upon receiving the approval of the Kyoto University Hospital executive committee. We admire this bold decision by Prof. Mishima along with the Kyoto University Hospital.

The exchange between the Kyoto University Hospital and Bhutan was preceded by the activity of the Center for Southeast Asian Studies 3 years before that in 2010 whereby Dr. Ryota Sakamoto, Program-Specific Assistant Professor at The Hakubi Center for Advanced Research, was dispatched to Khaling in east Bhutan and stayed there for a long period to build a healthcare design for the local elderly people. Its purpose is as follows.

Clinical practice involves serving patients at their bedside. On the other hand, unlike the care for acute diseases, the medical care for the elderly with often chronic diseases requires more than the care at hospitals. Patients at the hospital are merely in their "temporary state". Their true state lies in their homes and communities, where they live. Therefore, to understand the medical problems of the elderly people, the medical staff is required to visit the area where the elderly people live to assess the states of these patients living in various environments and cultural backgrounds.

Hospital-based medical care have greatly contributed to the lifesaving of patients with acute diseases and prolonging of life. However, as a result of medical care at hospitals becoming highly specialized, doctors tend to focus on their specialized lesions without affording attention to other problems. How are elderly people living their life? What kind of friends and families do they have? What do they eat? What kind of medical problems do they have in their daily life? What kind of wisdom do they have to make life worthwhile? These issues are mostly unobservable in the hospital-based medical care. Our "field medicine" to visit communities and homes from hospitals is based on such understanding.

At the Center for Southeast Asian Studies, the Field Medicine team led by Dr. Sakamoto have developed a healthcare design for the local elderly people in Bhutan and it was adopted in the 11th five-year plan of Bhutan's Ministry of Health. In the future, it is planned to be applied throughout the Kingdom of Bhutan. However, the level of medical care at hospitals in rural districts and that of basic health units (BHU) in Bhutan is limited in both the the number of medical care providers and medical facilities. Presently, people such as Dr. Sakamoto and Dr. Fujisawa of the Center for Southeast Asian Studies are providing the program "Training of Trainer (TOT)" in order to foster local medical care providers.

I hope that this will eventually lead to the cooperation between the medical staff with highly advanced medical treatment skills, dispatched from Kyoto University Hospital to JDW National Referral Hospital, and the grass-roots Field Medicine team members from Center for Southeast Asian Studies.

4. Contribution

President, Khesar Gyalpo University of Medical Sciences of Bhutan
Dr. Kinzang P. Tshering

The University Of Medical Science Of Bhutan is the first Medical University ever established in the country. It was established on the 2nd May 2013 by the Act of the Parliament with the aim to address the shortage of health human resources in the country. Furthermore, on 28th of February 2015, Her Majesty Jetsuen Pema Wangchuck, the Queen of Bhutan formally launched the Khesar Gyalpo University of Medical Sciences Of Bhutan.

The University established its first institutional collaboration with the Kyoto University Hospital, Japan by formally signing a Memorandum of Understanding (MoU) on 29th October 2013. This linkage with the Kyoto Hospital helped in further promoting the cooperation and the friendship between the two countries which dates back to early 1950s, where there were numerous exchanges in the field of researches and students.

As a result of the collaboration, numbers of Doctors and nurses from Kyoto University Hospital have come to Bhutan and worked in a various departments at Jigme Dorji Wangchuck National Referral Hospital helping the Bhutanese doctors to gain skills and knowledge. This visit by the health professionals from KUH has had great positive influence to the hospital and the people at large.

Lately 23 Japanese health officials have come into different departments in Jigme Dorji Wangchuck National Referral Hospital in different batches from last September till now. With diverse skills and specialties of the Kyoto Doctors, the exchange program has immensely helped in curbing the shortage of doctors and transfer of knowledge and skills besides cultural exchange to the Bhutanese Doctors.

Different ideology and work ethics of the KUH officials has left a huge impression on the staffs of JDWNRH. All the staffs at JDWNRH are fully inspired and charged up with energy from the hardworking officials of KUH to work tirelessly and evermore effectively to take medical care to a greater height and provide the best health care possible to our people.

We would like to express our deep gratitude to Kyoto University Hospital for generous help extended to us and we look forward to further consolidate and strengthen this collaboration for mutual benefits.

5. Message from Chairperson, KUH-Bhutan Medical Exchange Working Group

Chairperson, KUH-Bhutan Medical Exchange Working Group
Prof., Department of Orthopaedic Surgery
Shuichi Matsuda

At Kyoto University Hospital, from January 2013 we have dispatched 7 teams of doctors and nurses to Bhutan. Each member, through the exchange with doctors and nurses in Bhutan, has had a precious experience. I would like to thank the people who have strived to start and continue this project. Dispatching the staff of many hospital departments may have caused shortage of manpower and difficulties. I thank the people who permitted the dispatch and ask for their continuing support of this project.

This project aims to help train young doctors in Bhutan, but I believe that it has also provided for the dispatched staff a precious experience to live and provide medical care in a different culture. Our staff has also learned and was given opportunities to think about issues. Such a rare experience will contribute to their careers as medical care providers. We hope that people will continue actively participating in this project.

In addition to our staff going to Bhutan, we have started inviting the staff from Bhutan to Kyoto University. We have managed to continue this project to dispatch the staff thanks to the warm support by the people of Bhutan. We hope to provide our best support when Kyoto University receives the people from Bhutan.

I hope that this wonderful exchange with Bhutan will continue and develop, with us learning from each other and growing. I ask for your continuous support.

6. Message from Chairperson, KUH-Bhutan Medical Exchange Subcommittee

Chairperson, KUH-Bhutan Medical Exchange Subcommittee
Associate Professor,
Department of Hepatobiliary Pancreatic Surgery and Transplantation
Hideaki Okajima

My association with the Kingdom of Bhutan began when we visited the Kingdom of Bhutan in October 2013 as the 1st team and provided surgical services for 3 months in JDWNR Hospital within the capital of the Kingdom of Bhutan Thimphu. Through collaboration with local surgery staff, we mostly treated inpatients; our main areas were general, gastrointestinal, and pediatric surgeries, as well as surgery for emergency. We participated in a total of 180 procedures.

Bhutan faced a shortage of doctors. For example, the number of surgeons engaged in medical services on a nationwide basis, including those specializing in neurology, urology, and pediatrics, was limited to 6; therefore, we also assisted in open surgery and a large number of urological procedures. Furthermore, we provided advice on preoperative assessment and treatment policies so as to promote the clear classification of patients into those requiring and not requiring transfer to India or other countries for treatment that is difficult to perform in Bhutan, in order to reduce unnecessary patient transfers. When treating domestically unmanageable patients requiring hepato-biliary-pancreatic surgery, we performed surgery while providing technical guidance so as to avoid transfer of patients to other countries.

In Bhutan, due to the presence of surgeons mainly at hospitals in Thimphu, patients throughout the country are transferred to Thimphu, sometime taking several days. Unfortunately, some of them lose their lives before arrival. To resolve such a situation, surgical camps to provide surgical services for several weeks in hospitals located in rural areas are established, and we participated in some of them. The surgeons, nurses, and anesthesiologists participating in surgical camps held in diverse areas to perform surgery are volunteers. We chose relatively mild cases to perform same-day or overnight surgery. We also made efforts to assess the current status of medical education systems in Bhutan and considered what kind of education system would be required to improve the quality of medical services in Bhutan.

The unavailability of sufficient doctors was also prevalent in rural areas, suggesting the need for doctor support from other countries. We encountered also a serious shortage of medical resource. Referral meetings to identify patients requiring transfer to other countries (mainly India) were held weekly, and approximately 15 to 20 patients were transferred abroad. The costs of such transfers, including treatment, were fully covered by the government, revealing a heavy burden.

Consequently, the quantities of surgical and suture instruments were limited; many expired or reused products were being used. We may have been able to provide more advanced services if only there had been sufficient instruments and supplies, so ensuring the availability of sufficient medical resources may be another challenge.

We were dispatched as a surgical team, but we felt the need to regularly dispatch medical teams, covering as diverse fields as possible, and comprehensively clarify the current status, in order to develop future perspectives on medical services in Bhutan by identifying problems and points of improvement in each medical department.

I was anxious about the provision of medical services in an unfamiliar place without preparation before being dispatched, but Bhutanese people received us very warmly. The current status of medical services in Bhutan was similar to that in Japan when I was a resident or even earlier. We encountered diseases that are uncommon in present Japan. Although I was occasionally confused, I was able to receive support from other members of the first medical team and kind Bhutanese people. This was one of the most valuable experiences in my life.

Furthermore, in 2015, as the leader of our sixth team, I had an opportunity to talk with Bhutanese people and support the team members as their advisor. I hope to continue participating in this project in various forms.

7. Outline and the Condition of Medical Service in the Kingdom of Bhutan

[Outline]
The Kingdom of Bhutan is located east of Nepal and sandwiched between two large countries, China and India. Its land covers approximately 380,000 km2. The land stretching to east and west is mostly comprised of forests and mountainous regions, accounting for 70%, and few plains. Its northern region has Himalaya Mountains reaching 7,000 m above sea level, while its southern region is only 300 m above sea level, having the substantial difference of elevation. Its capital city, Thimphu, in the eastern region is also at a highland of approximately 2,500 m above sea level.
The Kingdom of Bhutan is known internationally for valuing gross national happiness (GNH), and the educational and medical fees are all free in Bhutan. Medical institutions in the Kingdom of Bhutan are comprised of referral hospitals to provide specialized medical treatment, regional and district hospitals at the prefectural level, and basic health units in each area administering out-reach clinics. (See the table "Medical Institutions in the Kingdom of Bhutan".) The 3 referral hospitals are comprised of the one located in the capital city Thimphu, the one located in Gelephu in southern Sarpang prefecture, and the one located in Mongar in the eastern Mongar prefecture. Jigme Dorji Wangchuck National Referral Hospital (JDW National Referral Hospital) in the capital city is the country's top-level hospital.

Medical Institutions in the Kingdom of Bhutan

Medical Institution	Referral Hospitals	Regional Hospitals	Clinics
Number	3	22	192

[Issues Concerning Medical Care]
Thus, while there are hospitals and clinics to some degree, the number of doctors in the Kingdom of Bhutan is insufficient. As of 2014, there are only approximately 200 doctors in the entire country, and the number of doctors in Bhutan is approximately 25 doctors per 100 thousand people (compared to approximately 230 doctors per 100 thousand people in Japan). Doctors are stationed only to the level of district hospitals, and there are not enough medical specialists.
Due to such shortage of doctors in rural areas, many of the residents in the eastern region are required to visit JDW National Referral Hospital, located in Thimphu in the western region to receive full-fledged treatment. However, to travel from the eastern region to the JDW National Referral Hospital, one needs to travel through steep mountain paths for a few days, and it is very difficult to transport patients that way.

[Absence of Education System for Doctors]
The above-mentioned shortage of doctors is further worsened by the absence of education system for doctors in the Kingdom of Bhutan. There is no university in Bhutan with a medical school, so people who aspire to become doctors are required to receive medical education overseas. Furthermore, they return to Bhutan as medical interns after graduating an overseas medical school, but after their initial training in Bhutan (by working at departments in referral hospitals, regional hospitals, or regional clinics as interns), they need to receive trainings overseas to become medical specialists. This training to become medical specialists normally takes 5 or more years. This has led to a decline in the number of doctors working in the Kingdom of Bhutan as well as the decline in the number of young people who aspire to become doctors. In the Kingdom of Bhutan, people tend to value spending time with their families, but becoming a doctor forces one to spend a long period overseas. Thus, many young people hesitate to become doctors.

[Shortage of Mid-Career Doctors and Medical Specialists]
The doctors who receive the training to become medical specialists are mainly in their thirties with some clinical experience, the age which is the best time for working. However, they cannot provide medical care in the Kingdom of Bhutan while receiving the training overseas. Since such mid-career doctors are away to foreign countries, the doctors remaining in the Kingdom of Bhutan are only young medical interns in their twenties and doctors in their forties and above, who are in positions such as the head of the medical department and professors. Thus, medical care is being provided through such an abnormal distributed structure of doctors without the mid-career.
In the Kingdom of Bhutan, the number of medical specialists is especially low, not to mention the overall lack of doctors. For example, there are only 6 surgeons in the entire country, even if we also count urological surgeons. All of these 6 surgeons are working at JDW National Referral Hospital in the capital city Thimphu in order to deal with diversified surgeries and increase number of cases, and they can only afford to work in rotation there. (See the list "Number of doctors at JDW National Referral Hospital [and their specialized fields]".) Under these circumstances, it is difficult for patients to receive specialized surgery or medical treatment at referral hospitals in other regions or at regional hospitals.

Number of doctors at JDW National Referral Hospital (and their specialized fields)

Specialized Field	Number
Surgery (general surgery, urology, etc.)	4
Internal medicine (cardiovascular medicine, gastrointestinal medicine, nephrology, neurology, etc.)	6
Anesthesiology	5
Obstetrics and Gynecology	4
Orthopedics	4
Otorhinolaryngology	3
Ophthalmology	4
Pediatrics	4
Dermatology	3
Dentistry	6
Psychiatry	3
Radiology	3
Pathology	5
Emergency	2
Total	56

[Strain on the National Finances]
The current state of doctors receiving trainings overseas to become medical specialists is also imposing a strain on the national finances of the Kingdom of Bhutan. The government of the Kingdom of Bhutan is covering all the expenses for the overseas medical education and medical specialist training. The cost covered includes not only the school and training fees but also the living expenses during one's stay and travel expenses. The government of the Kingdom of Bhutan also covers the expenses for public health and medical services for its citizens. However, due to the lack of medical specialists as stated above, patients requiring advanced surgeries must be sent overseas to receive medical treatment in India or other countries. To do that, the expenses such as those for sending the patients overseas are covered by the government of the Kingdom of Bhutan. In Japanese yen, it would be as high as several hundred millions of yen.

[Policy]
In light of the present situation, to help solve the shortage of medical staff in the rural areas in the Kingdom of Bhutan, we are striving to establish a system whereby doctors can receive medical training in the Kingdom of Bhutan so as to prevent mid-career doctors from being in foreign countries and solve the shortage of doctors in the Kingdom of Bhutan. This is expected to help stationing sufficient number of doctors at referral hospitals in rural areas, where there are only sufficient medical equipment at present. Furthermore, establishing a medical training system in the Kingdom of Bhutan would lead to reducing the strains on the national finances and the budget for overseas medical training and overseas patient transfer could be spent on other policies for the welfare of citizens and residents.
The government of the Kingdom of Bhutan is also aware of the importance of establishing a training system for doctors and medical specialists in the country. In 2013, the government founded the University of Medical Sciences of Bhutan (UMSB) and established Postgraduate Medical Education Centre (PGMEC) in the JDW National Referral Hospital. However, so far, they have only started faculties, namely the Faculty of Nursing and Public Health and Faculty of Traditional Medicine, along with the Midwifery course. An essential medical school is lacking. It is partly due to the shortage of doctors who can become medical instructors. Therefore, in the Kingdom of Bhutan, prior to the opening of the medical school, JDW National Referral Hospital and Kyoto University Hospital are working together to start a "medical specialist training program". We also plan to develop this medical specialist training program through this project. If it becomes possible to train medical specialists of all fields so as to solve the shortage of doctors and sufficient number of doctors can afford the time to provide training as medical instructors, we believe that it helps them focus on the training of medical students in the Kingdom of Bhutan and eventually lead to the establishment of a medical school.

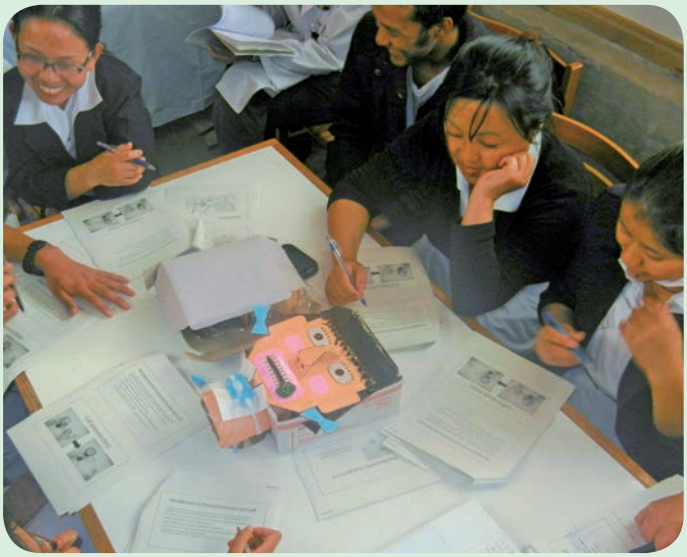
8. Kyoto University Hospital Delegation 1st team~7th team -

	Term	Name	Department	Occupation
1st team	2013.10.27–2013.10.31	**Shinji Uemoto**	Department of Hepatobiliary Pancreatic Surgery and Transplantation	Deputy Director,Professor
	2013.10.27–2013.11.2	**Megumi Iida**	Nursing Department	Head Nurse
	2013.10.27–2013.11.2	**Mayumi Tsujioka**	Nursing Department	Head Nurse
	2013.10.27–2013.11.2	**Tetsuya Ino**	Administrative Office	Head of General Affairs Section
	2013.10.27–2014.1.25	**Hideaki Okajima**	Department of Hepatobiliary Pancreatic Surgery and Transplantation	Associate Professor
	2013.10.27–2014.1.25	**Tadahiro Uemura**	Department of Hepatobiliary Pancreatic Surgery and Transplantation	Assistant Professor
	2013.10.27–2014.1.3	**Sae Maeda**	Nursing Department	Nurse
	2013.10.27–2014.1.25	**Kanami Muramoto**	Nursing Department	Nurse
2nd team	2014.1.19–2014.1.24	**Kazuo Matsubara**	Department of Clinical Pharmacology and Therapeutics	Assistant Director,Professor
	2014.1.19–2014.3.28	**Shigeru Tsunoda**	Surgery	Assistant Professor
	2014.1.19–2014.3.28	**Mitsuhiro Nikaido**	Gastroenterology and Hepatology	Clinical Fellow
	2014.1.19–2014.4.14	**Yoko Takahashi**	Nursing Department	Nurse
	2014.1.19–2014.4.14	**Sae Maeda**	Nursing Department	Nurse
	2014.1.19–2014.2.28	**Yusuke Sakai**	Administrative Office	Staff
3rd team	2014.6.29–2014.7.3	**Satoshi Ichiyama**	Clinical Laboratory	Deputy Director,Professor
	2014.6.30–2014.7.5	**Tsutomu Chiba**	Gastroenterology and Hepatology,Cancer Center	HoD,Professor
	2014.6.29–2014.7.3	**Kiyomasa Machida**	Clinical Laboratory	Clinical Laboratory Technician
	2014.6.29–2014.7.3	**Hiroaki Yamaki**	Administrative Office	Head of Administrative Office
	2014.6.29–2014.7.5	**Masaharu Oda**	Administrative Office	Chief
	2014.6.30–2014.7.3	**Yusuke Sakai**	Administrative Office	Staff
	2014.6.30–2014.9.20	**Yoshiyuki Matsui**	Urology	Senior Lecturer
	2014.6.30–2014.7.28	**Yuzo Kodama**	Gastroenterology and Hepatology	Assistant Professor
	2014.7.26–2014.8.26	**Yoshihisa Tsuji**	Gastroenterology and Hepatology	Assistant Professor
	2014.8.22–2014.9.20	**Norimitsu Uza**	Gastroenterology and Hepatology	Assistant Professor
	2014.6.30–2014.9.20	**Ayuko Ishii**	Nursing Department	Nurse
	2014.6.30–2014.10.2	**Kanami Muramoto**	Nursing Department	Nurse
4th team	2014.9.16–2014.9.22	**Tomoya Akiyama**	Nursing Department	Assistant Director, Head of Nursing Department
	2014.9.16–2014.9.23	**Tatsuo Tsukamoto**	Nephrology	Associate Professor
	2014.9.30–2014.10.10	**Yumi Matsuno**	Nursing Department	Deputy Head of Nursing Department
	2014.9.30–2014.10.10	**Yuki Adachi**	Nursing Department	Head Nurse
	2014.10.27–2014.10.30	**Hiromu Ito**	Orthopaedic Surgery	Associate Professor
	2014.10.27–2014.10.30	**Bungo Otsuki**	Orthopaedic Surgery	Assistant Professor
	2014.10.14–2014.10.27	**Hiroyuki Yamada**	Nephrology	Clinical Fellow
	2014.11.16–2014.12.15	**Hirotaka Imamaki**	Nephrology	Assistant Professor
	2014.9.16–2014.11.5	**Yuri Dowa**	Pediatrics	Clinical Fellow
	2014.11.10–2014.12.15	**Tomoyoshi Matsui**	Pediatrics	Clinical Fellow
	2014.9.30–2014.12.30	**Yoko Nishi**	Nursing Department	Nurse

8. Kyoto University Hospital Delegation 1st team~7th team -

	Term	Name	Department	Occupation
5th team	2014.12.26–H27.1.2	**Tetsuo Shioi**	Cardiovascular Medicine	Senior Lecturer
	2015.1.12–2015.2.9	**Junichi Tazaki**	Cardiovascular Medicine	Assistant Professor
	2015.2.8–2015.3.7	**Masao Imai**	Cardiovascular Medicine	Assistant Professor
	2014.12.15–2015.3.13	**Bungo Otsuki**	Orthopaedic Surgery	Assistant Professor
	2014.12.26–2015.3.13	**Ayuko Ishii**	Nursing Department	Nurse
	2015.1.7–2015.3.13	**Yoko Nishi**	Nursing Department	Nurse
6th team	2015.9.6–2015.9.10	**Hideaki Okajima**	Department of Hepatobiliary Pancreatic Surgery and Transplantation	Associate Professor
	2015.10.12–2015.10.14	**Toshiya Shibata**	Clinical Radiology Service Unit	Associate Professor
	2015.9.16–2015.9.23	**Shigeo Muro**	Respiratory Medicine	Senior Lecturer
	2015.9.6–2015.10.7	**Tomoharu Mori**	Primary Care and Emergency Medicine	Clinical Fellow
	2015.10.5–2015.11.6	**Manabu Shimoto**	Primary Care and Emergency Medicine	Assistant Professor
	2015.10.28–2015.12.1	**Shigeru Ohtsuru**	Primary Care and Emergency Medicine	Senior Lecturer
	2015.9.6–2015.12.1	**Ai Matsuyama**	Nursing Department	Nurse
	2015.9.6–2015.12.1	**Ikumi Ueda**	Nursing Department	Nurse
	2015.10.5–2015.10.17	**Yasuhiko Tanaka**	Shizuoka Children's Hospital Department of Neonatology	Head
	2015.10.12–2015.11.6	**Rinpei Imamine**	Clinical Radiology Service Unit	Assistant Professor
	2015.10.28–2015.11.20	**Akihiro Furuta**	Clinical Radiology Service Unit	Assistant Professor
7th team	2016.1.8–2016.1.15	**Bungo Otsuki**	Orthopaedic Surgery	Assistant Professor
	2016.1.8–2016.1.15	**Ayano Kimura**	Administrative Office	Assistant Staff
	2016.2.24–2016.3.1	**Ami Matsubara**	Metabolism and Clinical Nutrition	Dietician
	2016.2.24–2016.3.1	**Shigeru Tsunoda**	Surgery	Assistant Professor
	2016.2.24–2016.3.1	**Mitsuhiro Nikaido**	Gastroenterology and Hepatology	Graduate Fellow/Doctor
	2016.2.24–2016.3.1	**Ai Matsuyama**	Nursing Department	Nurse
	2016.1.8–2016.1.29	**Akihiko Yoshizawa**	Diagnostic Pathology	Senior Lecturer
	2016.1.8–2016.1.29	**Masahiro Hirata**	Diagnostic Pathology	Clinical Laboratory Technician
	2016.1.8–2016.2.5	**Yoko Tanaka**	Clinical Laboratory	Clinical Laboratory Technician
	2016.1.11–2016.2.5	**Chiaki Suzuki**	Otolaryngology, Head and Neck Surgery	Clinical Fellow
	2016.2.2–2016.2.29	**Morimasa Kitamura**	Otolaryngology, Head and Neck Surgery	Assistant Professor
	2016.2.24–2016.3.19	**Tatsunori Sakamoto**	Otolaryngology, Head and Neck Surgery	Assistant Professor
	2016.2.2–2016.2.29	**Yasuhiro Tsuchido**	Infection Control and Prevention	Graduate Fellow/Doctor
	2016.2.19–2016.2.29	**Tadao Nagasaki**	Respiratory Medicine	Clinical Fellow
	2016.3.1–2016.3.11	**Shinsaku Tokuda**	Respiratory Medicine	Clinical Fellow

9. Report of the Activities in Bhutan
1st team ~ 7th team of Kyoto University Hospital,



Kyoto University Hospital
Department of Hepatobiliary Pancreatic Surgery and Transplantation
Report of the activities of the first team
Term: October 27, 2013 – January 25, 2014

Associate Professor,
Department of Hepatobiliary Pancreatic Surgery and Transplantation
Hideaki Okajima

Assistant Professor,
Department of Hepatobiliary Pancreatic Surgery and Transplantation
Tadahiro Uemura

Content of Activity

We provided surgical services for 3 months in JDWNR Hospital within the capital of the Kingdom of Bhutan Thimphu. Through collaboration with local surgery staff, we mostly treated inpatients; our main areas were general, gastrointestinal, and pediatric surgeries, as well as surgery for trauma (emergency). We participated in a total of 180 procedures in consideration of the medical situation in Bhutan, facing a shortage of doctors. For example, the number of surgeons engaged in medical services on a nationwide basis, including those specializing in neurology, urology, and pediatrics, was limited to 6; therefore, we also assisted in open surgery and a large number of urological procedures. Furthermore, with the aim of reducing unnecessary patient transfers, we promoted the clear classification of patients into those requiring and not requiring transfer to India or other countries for treatment that is difficult to perform in Bhutan by providing advice on preoperative assessment and treatment policies. We also avoided such transfers by performing surgery while providing technical guidance when treating domestically unmanageable patients requiring hepato-biliary-pancreatic surgery. Due to doctor shortages, patients throughout the country are transferred to Thimphu, taking several days, and, sadly, some of them lose their lives before arrival. To resolve such a situation, surgical camps to provide surgical services on a 24-hour basis for several weeks in hospitals located in rural areas are established, and we participated in some of them. The majority of surgeons, nurses, and anesthesiologists participating in surgical camps held in diverse areas to perform surgery are volunteers. We chose relatively mild cases to perform same-day or overnight surgery. We also made efforts to clarify the current status of medical education systems, in addition to points of improving them, and increase the quality of medical services in Bhutan.

Challenges and problems

In Bhutan, there seemed to be 3 potential base hospitals, including that located in the capital Thimphu. However, as surgeons were available only in the hospital of Thimphu, all patients requiring surgery throughout the country are transferred to it, taking several days. In other medical departments, the unavailability of sufficient doctors was also even more marked in rural areas, highlighting the necessity of doctor support from other countries to address this.

Not only surgical departments, but also others were facing resource, in addition to doctor, shortages. Referral meetings to identify patients requiring transfer to other countries (mainly India) were held weekly, and approximately 15 to 20 patients were transferred abroad. The costs of such transfers, including treatment, were fully covered by the government, revealing a heavy burden to it.

The quantities of surgical and suture instruments were also limited; expired or reused products were routinely used. As we may have been able to provide more advanced services if only there had been slightly more sufficient instruments and supplies, ensuring the availability of sufficient medical resources may be another challenge.

Future perspectives

Although this report focuses on surgery, as we were dispatched as a surgical team, it may be necessary to regularly dispatch medical teams, covering as diverse fields as possible, and comprehensively clarify the current status, in order to develop future perspectives on medical services in Bhutan by identifying problems and points of improvement in each medical department.

Impressions

I was anxious about the provision of medical services in an unfamiliar place without preparation before being dispatched, but Bhutanese people received us very warmly. The current status of medical services in Bhutan was similar to that in Japan when I was a resident or even earlier. We encountered diseases that are uncommon in present Japan. Although I was occasionally confused, I was able to receive support from other members of the first medical team and kind Bhutanese people. This was one of the most valuable experiences in my life. Thank you.

Report of the Activities in Bhutan of the first and second teams

Term: October 27, 2013 – January 3, 2014, January 19 – April 14, 2014

Nurse, Nursing Department

Sae Maeda

Content of activity

I worked on the surgery ward for 6 months with the first and second teams. When I came to Bhutan with the first team, I did not know details regarding healthcare in Bhutan. Therefore, initially, I obtained necessary information by checking the environment of my workplace, and by visiting a suburban healthcare facility (BHU). I spent days understanding the healthcare systems of Bhutan, as well as having discussions with other team members about what kind of intervention we could provide.Our activity base was National Referral Hospital (JDW Hospital), one of the three main hospitals in Bhutan. Although this hospital was a top-rated medical center in the country, it lacked in some infrastructure, such as medical equipment and supplies, and the center's sanitary conditions were poor. Therefore, we nurtured the hospital environment, and organized medical supplies based on the principles of 5S in a manner so that these supplies could be used without wasting them.

When I came to Bhutan with the second team, we promoted the provision of technical skills regarding ERCP. Previously, all Bhutanese patients requiring ERCP were transferred to hospitals in India, and so the medical staff in Bhutan had never dealt with such patients. Therefore, we provided them with necessary information using relevant materials and through study meetings. In addition, we created postoperative checklists to facilitate postoperative patient management after surgery. Initially, these staff members often missed checking items. However, as they accumulated experience with patients, they became able to understand the points that should be monitored, as well as to complete a checklist without missed items. On a daily basis, I encountered various nursing care-related cases at my workplace. As the second team, we have successfully contributed to suction procedures and respiratory management. At the early stage, several bedridden patients with a history of tracheostomy were hospitalized; however, due to a lack of manpower in the hospital, their family members were generally in charge of some medical procedures (e.g., suction) for these patients. As we perceived the need for providing the nursing staff with knowledge in a manner enabling them to acknowledge the importance of managing patients undergoing tracheotomy, we held study meetings with the local staff, and gave demonstrations using a model. Many staff members actively participated in these meetings, which covered not only tracheotomy, but also respiratory management for postoperative patients. Although it was meaningful to provide such knowledge, the lack of manpower made me recognize the need for further intervention in order to utilize that knowledge in the hospital.

Challenges and problems

In Bhutan, all individuals are able to receive medical care for free. Because all medical costs are borne by the government, hospital staff commonly have no interest in the financial aspect of hospital operations, and do not pay enough attention to the costs of medical supplies. Therefore, I felt that the medical staff in Bhutan are less likely to develop the idea of appropriately managing these supplies and to know where the supplies are when they have to be used. However, it may be possible to help these staff members to understand the importance of supply management by performing 5S-based activities. In addition, one of the major tasks in future activities is to secure sufficient drugs and medical supplies; however, Bhutan has a unique distribution system, and the government plays a significant role in hospital operations, including the distribution of resources. Therefore, I thought that it is difficult for our teams to establish a connection and obtain reliable information, as team member turnover occurs at intervals of several weeks to 3 months.

In Bhutan, as is the case with physicians, the number of nurses is insufficient. I had the impression that much of the hospital's medical practice was divided to perform, and that the hospital's medical setting was supported mainly by professionals other than physicians. At my workplace, patients are cared for by various healthcare providers, such as nurses specialized in dressings, otolaryngologists performing the management of patients undergoing tracheotomy, orthopedists, and physical therapists who help postoperative patients regain their ability to walk; however, because patient information is not sufficiently shared, it is difficult for nursing staff to understand patient characteristics, which hinders the practice of EBN.

Future perspectives

Bhutan is a small Himalayan country ranging from subtropical thick forests, whose sea level is approximately 200 m, to a mountainous region whose sea level is over 7,000 m. Many citizens of the country practice Tibetan Buddhism. Bhutan is renowned for placing emphasis on GNH (Gross National Happiness) instead of on GDP. In fact, as I stayed in the country, I often encountered cases in which I felt that Bhutanese people were happy. They are not materialistic or restricted by time, and such a lifestyle may not be familiar to Japanese people. However, it may be possible to understand them by enjoying the lifestyle differences and learning the country's culture. Furthermore, although local nursing schools provide systematized nursing education, postgraduate education(e.g., OJT) aimed at improving knowledge and skills at a working level has yet to become a common practice. I thought that, to help local healthcare providers to advance their expertise, it is necessary to implement OJT led mainly by these workers, and perform other activities in cooperation with them, instead of providing them with knowledge and skills based only on the ideas of our teams.

Impressions

When I was dispatched to Bhutan with the first team, I was constantly distressed about my new life and how to provide nursing care. The local staff was also distressed about how to communicate with us, the two Japanese nurses who popped up. However, as we carried out what we could do, our relationship with these staff members became closer, and we became able to enjoy our activities. This was significantly attributable to Japanese physicians who worked with us and provided medical tips for local nursing staff as well as for us.

Both before and during my stay in Bhutan, I received support from many people. For example, the nursing staff of the Radiology Department encouraged my challenge, and the personnel of the Clerical Department made the necessary adjustments with our activity base (JDW Hospital) and medical universities.

In addition, staff of the Nursing Department gave me activity-related advice, relevant materials, and support for living in Bhutan. Furthermore, I was informed about the current state of healthcare in Bhutan by professors from the Center for Southeast Asian Studies (Kyoto University), and I also learned about the country's school education and architecture during interaction with members of the JICA. These experiences became the basis for our project, and made my life in Bhutan productive. I am really grateful for this wonderful opportunity to work in Bhutan.

Report of the Activities in Bhutan of the first and third teams

Term: October 27, 2013 – January 25, 2014, June 30 – October 2, 2015

Nurse, Nursing Department

Kanami Muramoto

Content of activity

In Bhutan, where the number of physicians is insufficient, I thought that nurses had a wider range of duties (e.g., suturing, removing drains, and prescribing drugs) than in Japan. I had various surprising experiences at my workplace, and even felt that the local staff performing ward duties did not require our support. I often talked with another member of the first team about what kind of intervention we could provide. As we observed each department of the hospital with the aim of finding what we could do, we realized that pre- and post-operative nursing care was only a part of our duties on the surgery ward. This is why we began to promote the principles of 5S.

The local staff was surprised when I carried infusion equipment by myself, and when I performed hospital room-related duties that were not familiar to these staff members, such as changing suction bottles and checking the outlets. As I continued to work on things that I thought should be improved, local staff members increasingly helped me when they had a spare moment during their work. We promoted many different things from the viewpoints of inventory count for hygiene materials, regular checking of emergency carts, infection control, medical safety, as well as the organization of linen closets and medical records. However, the in-ward 5S principles were handed over to the second team before the local staff became accustomed to these principles. In spite of the interval between the second and third dispatches, the principles were still followed by these personnel when I came to this hospital with the third team, which made me glad and impressed. In addition, when the chief nurse of the surgery ward visited the ward, she stated that our activities aided in the operation of the entire ward. I was very happy to hear that.

The third team provided necessary supplies, and opportunities to hold study meetings regarding the: principles of 5S, handling of CVC, management of gastric tubes, and stoma control. In addition, the team routinely provided nursing care in cooperation with local staff. From the second team, the third team took over information/duties regarding urologic patients and regarding nursing care provided both before and after ERCP. I learned a lot through such information and duties.

The environment of patients should be nurtured according to the level of medical care they receive, and such an environment is markedly influenced by the quality of nursing care. Even if an attempt is made to improve medical practice in Bhutan by explaining the need for EBM- and EBN-based care, which is commonly provided in Japan, this attempt would not necessarily be accepted by healthcare providers in Bhutan. Through trial and error, I experienced challenges in having our ideas accepted and ensuring the continuity of nursing care, and I could learn a lot through these challenges.

In addition to our activities in the hospital, we visited local hospitals and a medical center referred to as BHU, in order to understand the medical conditions of Bhutan. I learned that the country's community healthcare is supported not only by health assistants, who are in charge of such healthcare, but also by all other medical professionals, such as nurses and technicians. In Bhutan, where family and other interpersonal relationships are usually close, many residents are willing to preserve their own community regardless of the presence or absence of access to medical care in the community. Such relationships and willingness may facilitate medical development in the country.

Challenges and problems

In Bhutan, patients generally take their medical records home at discharge, therefore, these records do not remain in hospitals. Afterwards, some patients lose their medical records, or forget to bring them at the time of a medical consultation or re-admission. To follow patients constantly, there is a need to store their medical records, and improve the methods to store them. Furthermore, in Bhutan, nursing records are not being made appropriately; therefore, the continuity of nursing care may be ensured by improving education on how to extract, resolve, and record nursing problems.

In addition, the percentage of nursing aides is lower in Bhutan than in Japan, and so Bhutanese nurses are very busy with various duties. By appointing ward clerical workers, such as ward clerks, it may be possible for these nurses to share some duties (e.g., answering telephone calls and organizing paperwork) with these workers, as well as to spend more time doing nursing work.

Future perspectives

Life in Bhutan can be exciting for foreigners in various ways, such as working in a cross-cultural setting, and eating various spices on a daily basis. In addition, Bhutanese people are usually gentle, helpful, and interested in many things.

Because our activity base is located in the capital city of Bhutan, we seldom feel inconvenienced in life. In local areas, we can refresh ourselves by appreciating the beauty of nature or the stateliness of temples.

Our project may be further improved by involving more staff members. Although dispatched workers would likely face hardships, they could accumulate valuable experience, and forge special bonds with local people. I wish success to members who will be dispatched in the future. Tashi Delek!!

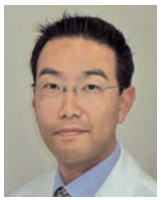
Impressions

In Bhutan, families commonly stay close to their patients to provide personal care. Therefore, when I provided patients with certain types of nursing care, particularly when performing hygiene maintenance or cleaning up after a diaper change, I was always told that these types of work were not my duties, but were their families' duties. However, when I was fighting over who should deal with dirty sheets and used diapers, other families in the same hospital room, which had no partitions, laughed at me. In addition, they began to treat us warmly despite the language barrier. Thus, on a daily basis, I learned a lot through my work in the hospital.

The activities of our team were supported not only by general affairs department staff of Kyoto University Hospital, and relevant parties from the Nursing Department, but also by the nursing department general chief of JDWNRH, the chief nurse of the surgery ward, and other ward staff. Our accomplishments were also attributable to the understanding and cooperation of both patients and their families. We are grateful for our opportunity to participate in this dispatch project, and will value the bonds that we forged in Bhutan.

Report of the activities of the second team

Term: January 19, 2014 – March 28, 2014



Assistant Professor,
Department of Surgery

Shigeru Tsunoda

Content of activity

The second team was made up of Doctor Nikaido of the Department of Gastroenterology and Hepatology and I, Tsunoda of the Department of Surgery, based on the information that gastric cancer was prevalent in Bhutan, and we were introduced by Doctors Okajima and Uemura who were members of the previously dispatched first team. As first team members had already established a favorable relationship with each department of the hospital, particularly in the same field of gastrointestinal disorders, we could start our clinical duties, including the handover process, very smoothly.
Similarly to the first team, we mainly provided medical services in Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) within the capital Thimphu. In Bhutan with a population size of slightly less than 700,000, this was the only general hospital having full-time surgeons. Therefore, patients with diverse diseases were transferred to it not only from adjacent areas, but also throughout the country. The country is smaller than Kyushu in Japan, with an east-west length of approximately 200 km, and there are no tunnels for domestic roads; so, it takes a couple of days to cross a mountain pass from an eastern town to Thimphu by car. Even patients living in suburban areas of Thimphu need 1 or 2 days to visit this hospital on foot and using other means of transport. In such a situation, the majority of patients with malignant tumors were transferred to the hospital after the progression to the markedly advanced, and frequently end stage, and the number of those receiving radical surgery was limited.
The surgical team consisted of 1 oncological surgeon, 1 neurosurgeon, 1pediatric surgeon 2 urologists and other 2, who had not yet established their subspecialties, to perform outpatient and ward management, endoscopy, and outpatient chemotherapy. All members could manage general surgical procedures, such as appendicitis, gut perforation, and inguinal hernia, while specialized cases were treated by the specialists.
Regarding the number of surgeries for malignant tumors in the gastrointestinal region as my specialty, 11 and 4 surgeries were performed for gastric and colon cancers, respectively. We also provided consultation on various surgical problems, including consultation about CT images from the Department of Radiology. In addition to duties in JDWNRH, we also participated in surgical camps established by hospitals located in areas out side of Thimphu, such as Punakha and Haa. In such camps, we performed dozens of endoscopies from early in the morning, as well as general surgical procedures such as inguinal hernia treatment and cholecystectomy to midnight. During our 10-week stay in Bhutan, we performed approximately 70 surgeries and 180 endoscopies in total. We experienced a variety of treatments that are rarely performed in Japan, such as surgeries for echinococcosis and tuberculous lymphadenitis.
As patients with domestically unmanageable diseases (such as those requiring hepat- or pneumonectomy, radiotherapy, heart surgery, or renal transplantation) were transferred to Kolkata of India, we also had the opportunity to visit MEDICA Superspecialty Hospital and TATA Medical Center within the city to observe their services. The costs of treatments for Bhutanese and their families to stay in India were fully covered by the government. It was impressive that administrative officers in charge of medical services visited inpatients daily, and systematically arranged for their transfers. On the other hand, treatment seemed to be unfeasible for a large number of transferred patients, indicating the necessity of establishing systems for appropriate patient selection and transfer as part of advanced and specialized treatment. Hopefully, this cooperative dispatch program will promote the provision of treatment within Bhutan, consequently reducing the heavy financial burden of transferring patients to other countries in the future.

Challenges and problems

The levels of doctors and individual staff members were generally high, and we could learn a lot from them. However, when focusing on hospital systems, we realized that various problems had yet to be addressed.
Sufficient medical resources, such as drugs, medical supplies, surgical gowns, and suture materials, were not available at all times. For example, in the ICU, noradrenaline or adrenaline were frequently unavailable, while shortages of aspirin, PPI, or carbapenem antibiotics occurred without notification. In the operating room, surgical masks or gowns were sometimes missing.....such a situation confused us at the beginning. In contrast, local staff remained calm. When surgical masks were unavailable, some staff members personally covered the shortage. Similarly, other problems were somehow resolved. In the absent of a domestic manufacturing industry, all items, including medical supplies, were imported after following bidding procedures, presumably as part of government-operated systems, and this was likely to further increase the burden of obtaining necessary resources. When X-ray was in need of repair, it was necessary to askIndian service providers to repair, and this also seemed to be burdensome in terms of the time and cost.
Work arrangements in the operating room, such as assigning morning or night shift, was also difficult, possibly due to chronic staff shortages. Consequently, almost all operating room staff members worked only from 9 to 15 as a fixed work schedule, making it difficult to admit patients to the operating room at 9 in the morning. Furthermore, they took a rest for lunch at a fixed time, and made a complained if surgery was not completed by 15:00. In addition to such "bureaucratic" behavior, inefficient systems were frequently observed. On the other hand, the avoidance of extended work hours may have been inevitable, as there was no overtime payment.
Behavioral variations among staff members were also noted, as some were highly motivated, while others were not. Such variations may have been associated with the absence of competition among hospitals or doctors.

Future perspectives

Coming from Japan with a well-established medical environment, we were confused at the beginning to see different medical and social systems with marked limitations. However, such experience provides us with the opportunity to review our daily practice in Japan's extensive medical service system, promoting the development of insights as a medical professional.
Regarding communication, local medical staff members had been educated in English, so all of them were able to speak it fluently, and create medical records in it. In contrast, while English daily conversation was possible to a certain extent among younger generations, only a limited proportion of patients comprehended detailed explanations of treatment in English. Therefore, we needed to ask local staff to interpret our instructions in the local language (Dzongka). Although direct oral communication was difficult, this was not a problem for us, as patients seemed to highly trust foreign doctors in general, and all staff members showed a cooperative attitude toward us.
Regarding living conditions, we rarely became tired of local food. There were also various types of restaurant. As foods, excluding seafood, are relatively easily available, it is possible to cook dishes similar to Japanese meals. If miso and soy sauce are indispensable, it is advisable to bring them from Japan.

Impressions

As I recognized when I previously studied abroad, common sense among Japanese is only specific to Japan. Bhutanese people certainly have their own methods and rules. So, my daily practice in Bhutan was a series of new experiences and confusions. However, once I learned the beneficial challenging aspects of each method, I became able to adopt more multifaceted perspectives, and this may have provided me with the opportunity to grow as a person. Before being dispatched, insufficient information and other factors made me quite anxious, but such anxiety was completely unnecessary. I could learn a lot of the "country of happiness", including its culture, in 3 months as a valuable experience.
Regarding the cultural aspects of Bhutan, I was impressed by strong family bonds (the concept of family extensively covers relatives). Even patients living in remote areas came to visit the hospital in Thimphu, relying on their relatives living in the city, and all of them were accompanied by their families; if such families were absent, their friends accompanied them. In short, those without relatives were rarely observed there, unlike Japan.
Lastly, I would like to express my deep gratitude to Professor Kazuo Matsubara of the Department of Pharmacy as the team leader, Doctor Mitsuhiro Nikaido of the Department of Gastroenterology and Hepatology, Nurses Sae Meda and Yoko Takahashi of the Department of Nursing, and Staff Yusuke Sakai of the Section of General Affairs for sharing such exciting experiences in Bhutan as the second team. I also thank Professor Yoshiharu Sakai and staff of the Department of Surgery who agreeably sent us off despite their busy schedules, as well as my family who took care of our house during my 3-month absence.

Report of the activities of the second and third teams

Term: January 19, 2014 - March 28, 2014, June 30, 2014 - September 20, 2014

Clinical Fellow, Department of Gastroenterology and Hepatology

Mitsuhiro Nikaido

Assistant Professor, Department of Gastroenterology and Hepatology

Yuzo Kodama

Assistant Professor, Department of Gastroenterology and Hepatology

Yoshihisa Tsuji

Assistant Professor, Department of Gastroenterology and Hepatology

Norimitsu Uza

Content of activity

Doctors of the Department of Hepatobiliary Pancreatic Surgery and Transplantation as first team members had previously reported to us that they had to give up the adoption of ERCP in Bhutan due to difficult manual techniques, and, therefore, the procedure was not feasible at that time despite the availability of exclusive endoscopy devices and related instruments. This had led to the necessity of transferring 1 or 2 patients monthly to other countries, including India, to undergo ERCP. Based on such information, we, gastroenterologists, performed endoscopy and other medical activities for 6 months, with the aim of supporting again the adoption ERCP in Bhutan.

In Bhutan, endoscopy was feasible only in Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) within the capital Thimphu and a general practitioner's office. In JDWNRH as a base for our activities, endoscopic examinations were conducted by a surgeon and a gastroenterologist alternatively every day. The daily number of examinations ranged from 15 to 40, and the main procedure was gastroscopy.

As the surgeon who had previously attempted to adopt ERCP was busy with the provision of surgical or urological treatment for out- and inpatients, we mainly provided guidance for the gastroenterologist, in addition to nurses and technologists in charge of the endoscopy room, while supporting them to adopt ERCP.

During our stay, we performed ERCP for 33 patients (41 cases). While improvements were observed in local doctors' and staff's skills related to pre-examination procedures, intraoperative monitoring, and endoscopy, as well as X-ray fluoroscopy and related instrument handling, they seemed to need further experience in medical practice to appropriately provide diagnosis and select/use related instruments. We also provided guidance on postoperative management for local doctors and nurses through collaboration with dispatched nurses.

When there were no appropriate patients for ERCP, we actively participated in and supervised other examinations, such as gastroscopy and colonoscopy. In JDWNRH, more than 4,000 endoscopies were performed annually, and gastroscopy accounted for the majority. Similarly to Japan, Helicobacter pylori infection was prevalent; however, despite a high incidence of gastric cancer, awareness of the importance of early diagnosis was poor. Considering such a situation, we developed a diagnostic manual, and provided guidance in using it, setting the early identification of gastric cancer as the main goal. We also created an original model for gastroscope insertion, and helped young doctors master techniques to appropriately manipulate gastroscopes.

Challenges and problems

While approximately 180 doctors were based in Bhutan, there was only 1 gastroenterologist who was simultaneously engaged in general internal medicine-related duties, such as treating more than 50 out- and 60 inpatients while supervising doctors in training daily. Under such a condition, it was difficult to sufficiently deal with gastrointestinal diseases and perform endoscopy. Unlike in Japan, emergency cases, such as gastrointestinal hemorrhage and obstructive and suppurative cholangitis, and malignant diseases, were mostly dealt with by surgeons. As there was only 1 portable X-ray fluoroscopy device, it was frequently unavailable, being used for surgery or other purposes. In addition, it went malfunctioned on some occasions, interfering with examination. Systems to stably supply related instruments were also insufficient, and this made it difficult to conduct blood testing and CT examination or immediately obtain test results for emergency patients. The other problems we faced included the markedly limited availability of drugs. In order to continue ERCP use that may involve serious complications such as pancreatitis, it may be necessary to resolve these problems, and further improve systems.

Future perspectives

During our approximately 6-month activities as gastroenterologists, the level of demands for our services seemed to have gradually increased. Therefore, it is strongly recommended that an exclusive department be organized within our hospital to regularly dispatch medical teams. While it is necessary to continue to provide technical guidance, such as that for appropriate ERCP use, and improve the quality of medical services in Bhutan, it should be noted that the availability of domestic medical resources is limited due to the current economic and other conditions, consequently limiting the feasibility of on-site technical support. In 2012 when the Khesar Gyalpo University of Medical Sciences of Bhutan was founded, intern training was initiated in JDWNRH as a domestic medical training system. As resident training also started during the third team's stay, it may be desirable to similarly support the establishment of educational systems. To help Bhutanese people doctors and staff learn specialized techniques, the provision of training for them in Japan for a certain period may be effective.

Impressions

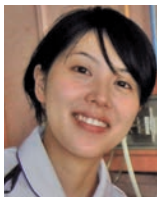
As this was my first medical activity abroad, I was markedly anxious before departure. However, thanks to first team members' practice with enthusiasm, Kyoto University Hospital staff was highly trusted by local staff, and, therefore, we were warmly welcomed. Some patients visited the hospital, wishing to undergo treatment with a good reputation by Japanese doctors. It was very useful for us, third team members, to contact first team members by e-mail to previously clarify necessary supplies, and work with them for several days in Bhutan, covering the handover process. Previously dispatched team members' efforts and active practice were also beneficial to the third team, as they were able to more smoothly perform their practical activities, such as providing medical services in actual settings and education.

Communication with simple, genial, and warm-hearted Bhutanese people was indeed refreshing. Observing the families of patients to stay in hospitals all day long, and cooperate with nurses, I realized the importance of family bonds, which is being underrated in Japan's modern society with an increasing number of nuclear families.

The presence of wonderful staff members who were dispatched with me, as well as the consultation and support provided by my colleagues in Japan by e-mail, helped me perform such productive activities, and obtain more new experiences than expected. Thank you very much.

Report of the Activities in Bhutan of the second teams

Term: January 19, 2014 – April 14, 2014



Nurse, Nursing Department

Yoko Takahashi

Content of activity

I worked as a nurse on the surgery ward for 3 months. My main duties were to support patients for their daily lives, promote the in-ward 5S principles handed over from the first team, provide nursing care for patients who had undergone surgery involving ERCP, improve suction procedures, and give presentations on the management of tracheal cannulas. We wanted to introduce Japanese nursing techniques; however, due to a lack of necessary materials, we had difficulty advancing ideas about how to adapt these techniques to Bhutan. In addition, our attempts to introduce such techniques and to help local staff use them independently were more challenging than we had expected, because of the language barrier and the different attitude towards work between Japanese and Bhutanese healthcare providers. For example, when I checked patients who were using a tracheal cannula, a decreased cuff pressure was sometimes noted, or suction was sometimes not appropriately performed due to sputum attached on the mouth of their cannula. When I reported these problems to ward staff members, they told me that the management of tracheal cannulas was not performed by them, but by otological professionals referred to as ENT technicians, and that these professionals did not on a daily basis check patients using a tracheal cannula. Under such circumstances, patients are at risk for sputum-associated accidental swallowing or choking. Essentially, ENT technicians should ideally educate ward staff on the daily management of tracheal cannulas. However, on the basis of my experience with Bhutanese people, I realized that they do not often teach other people, or share their knowledge with each other. The chief nurse of the surgery ward also felt the same way, and requested us to teach the ward staff the methods for suction and cannula control. We created a suction model, and prepared English-language material in cooperation with local staff. When we held a seminar to teach these methods, many local staff members attended.
Furthermore, compared with Japan, Bhutan's lack of manpower is more marked and family/relative bonds are stronger, and so families of patients usually stay close to them 24 hours a day. I noticed that families were very dedicated to their patients. As we considered that patients may be able to receive higher-quality care by giving appropriate guidance for their families, we decided to do so. After we (second team) went back to Japan, members of the third team told us that these families were still following the guidance we had provided. I was very happy to hear that.

Challenges and problems

In Bhutan, where physician shortages exist and nurses do not spend much time for each patient, hospitals can hardly afford to use enough time and human resource staff in order to guarantee patient safety and the quality of medical/nursing care. It is difficult to ensure a sufficient number of trained and licensed medical staff members. However, by appointing nursing aides, it may be possible to improve the quality of care, and to reduce the burden on patients' families. For this purpose, there is a need to develop concepts, based on which trained personnel provide education for staff members, and these members then educate other workers. By doing so, the quality of nursing care may be improved within a short time and at a low cost.

Future perspectives

As many projects implemented in Bhutan are run by foreign volunteers, dispatched members may be simply treated as a part of the county's workforce, depending on how they work. In general, Bhutanese people are proud of themselves, and act at their own pace. While keeping these characteristics in mind, dispatched members should clarify their needs. I hope that, by introducing the merits of approaches used in Japan, and by accepting opinions given by local people, these approaches will be adopted by them. I recommend that dispatched staff begin their work by understanding local people with the motto "equal partnership". Because Bhutanese people are usually pro-Japanese, dispatched Japanese staff would likely be accepted by them, and build a favorable relationship with them.

Impressions

Bhutan is renowned for high-level GNH, and I understood this as I stayed there for 3 months. I noticed that Bhutanese people live a slow life, and are kind, warm-hearted, and strongly devoted to Buddhism. My daily experience with these people markedly changed my sense of values, and made me realize how immature I was as a human. In addition, by working in a different medical environment than in Japan, I was able to clarify my strengths and weaknesses, as well as to begin considering my orientation as a nurse. I am really grateful that department staff in my hospital supported and advised me on the dispatch project, and that local staff and the members on the second team assisted me with our activities. I hope that the bonds between our medical center and JDWNR Hospital will become even stronger, the newly established organization aimed at fostering Bhutanese physicians will operate successfully, the level of nursing care will improve, and Bhutanese citizens will be able to receive high-quality medical and nursing care.

Report of the activities of the third team

Term: June 30, 2014 – September 20, 2014

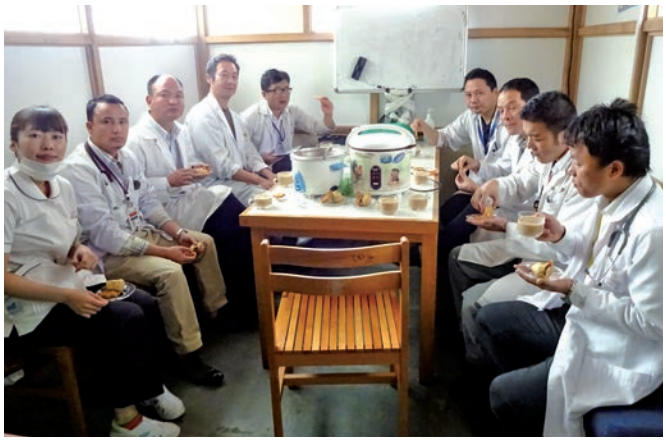
Senior Lecturer,
Department of Urology

Yoshiyuki Matsui

Content of activity

In Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) and Military Hospital of Bhutan, we mainly supported urological surgery. When limited to surgeries performed in operating rooms, we participated in a total of 114 surgeries, 62 (ureteral double-J stentings and replacements) of which we performed as operating surgeons. Our surgeries were mainly to address urolithiasis and prostatic hyperplasia, and we frequently performed transurethral ureterolithotripsy (TUL), urolithotomy, and transurethral resection of the prostate (TURP). At the same time, we occasionally provided surgical treatment for malignant tumors, such as TUR for bladder cancer, total cystectomy, nephrectomy for renal tumors, and inguinal orchiectomy for testicular tumors. We also participated as assistants in laparoscopic surgeries (lithotomy and renal cyst fenestration) and shunting performed by Doctor Lotay, in addition to a large number of general abdominal surgeries, including laparoscopic cholecystectomy and surgery for inguinal hernia.

We initially examined methods to adopt percutaneous nephrolithotripsy (PNL) for nephrolithiasis in Bhutan; however, considering the insufficient availability of equipment, such as fluoroscopy and ultrasound devices, and a limited time frame for each surgery due to an excessively large number of surgical patients, we had to give up this idea. When surgery was not scheduled, we were engaged in outpatient services in JDWNRH, mainly minor surgeries (lipoma and atheroma removal) through collaboration with nurses or doctors in training. Furthermore, as the residency system started in Bhutan from this period, we frequently held medical conferences with staff, residents, and interns before and after surgical rounds. We also gave lectures on urology to enhance their understanding of urologic diseases.



Challenges and problems

Regarding PNL use in Bhutan we considered before being dispatched, we judged it difficult to safely perform the technique with insufficient fluoroscopy and ultrasound devices, as previously mentioned. Similarly, ureteroscopes, laser products, guidewires, or ureteral stents were not sufficiently available, suggesting difficulty in stably performing endoscopy. The use of extracorporeal shock wave lithotripsy (ESWL) may have markedly reduced the number of surgeries; this reveals a limitation of personal support. Renal transplantation was likely to be technically feasible, but priority had been given to the establishment of perioperative management systems (blood collection, dialysis, pathological diagnosis, immunosuppressant dose adjustment, and infection control). The current surgical situation may also have prevented renal transplantation from being promoted. As an overall challenge of surgery, marked differences between the numbers of scheduled and actually performed surgeries were noted; in short, a large number of patients were discharged on the same day, and readmitted on following days. Therefore, it may be important to establish systems for appropriate surgical scheduling on a hospital-wide basis.

Future perspectives

In an environment that is completely different from Japan, there seem to be more for us to learn from Bhutanese people than to teach them. In this respect, this stay has been a very valuable experience for us. On the other hand, when considering appropriate methods to contribute to Bhutan, it may be effective to set goals for each period and throughout this program, and previously discuss approaches to achieve them, in order to establish cooperative systems more smoothly in actual settings.

Impressions

We could accomplish our 3-month tasks, thanks to support from Bhutanese people and other dispatched members. For me personally, meeting Doctor Lotay as the only urologist in Bhutan and learning from his attitude toward surgery and medical services has been a particularly irreplaceable experience. On the other hand, from a critical viewpoint, I regret my limited contribution to Bhutan' medical systems, and expect that this dispatch program will further expand based on our experiences.

Report of the Activities in Bhutan of the third and fifth teams

Term: June 30, 2014 - September 20, 2014, December 26, 2014 - March 13, 2015

Nurse, Nursing Department

Ayuko Ishii

Content of activity

I worked at JDW Hospital, the largest general hospital in Bhutan, for 6 months. When I came here with the third team, I worked on the surgery ward for approximately 1 month. After that, to obtain information needed for support activities at the NICU, I visited perinatal settings in Bhutan, including pediatric wards, obstetrics/gynecology wards, and child birth centers. In 2013, the annual number of births at JDW Hospital was 4,248. Thus, this hospital plays a major role in perinatal care in Bhutan. I met several families who came to the hospital after a two-day journey from eastern Bhutan, in order to give birth there. The perinatal mortality rate has decreased annually, and the number of patients admitted to the NEONATE AND NICU is showing a tendency to increase (number of admitted patients in 2014: 2,016). In addition, as a perinatal medical center is planned to be constructed, it is expected that the perinatal mortality rate will further decrease along with improvement in the medical environment of the hospital. Furthermore, in Bhutan, tubal ligation is being actively performed as encouraged by the Bhutanese government and, and so the birth rate is showing a tendency to decrease.

Annual number of child births, Perinatal mortality rate, Rate of cesarean section (JDW Hospital)

	Number of child births	Perinatal mortality rate	Rate of cesarean section
2011	3557	23.6%	22.8%
2012	4052	21.5%	22.2%
2013	4248	19.5%	25.9%

At my workplace, I identified several issues, such as a limited number of available respirators due to frequent malfunction of these devices. When I stayed in Bhutan with the third team, I often perceived the importance of medical devices that are kept clean and ready for use at all times. Under circumstances where the number of available respirators was insufficient, we performed 5S-based activities, such as placing drying racks for respirators in a manner facilitating their re-assembly immediately after washing them, and nurturing an environment in which the parts of CPAP devices are all dried together. As medical care advances, it may become more important to nurture the healthcare providers' working environment in order for them to understand the location and number/amount of medical supplies. In cooperation with local staff, I provided daily nursing care in the same way as I do in Japan, such as measuring vital signs, managing respirators, preparing and administering long-acting drugs, implementing pre- and post-operative patient management, and taking patients out of their wards for thoracic/abdominal ultrasound examination. On the basis of these experiences, we improved our movement, kept infusion tables tidy, and placed injectors in a manner facilitating the preparation of drugs within a short time.

When I came to Bhutan with the third and fifth teams, we introduced developmental care to the hospital. Because bedsores were noted in some newborns, we mainly promoted changes in posture by adopting a prone position. These bedsores were cured early after initiating the promotion of posture changes. A prone posture has many beneficial effects in premature infants, such as protecting their skin, preventing respiratory complications, and reducing gastric residuals. On the other hand, compared with when adopting a spine position, higher skills are required of nurses, and more equipment is needed in order to stabilize children's posture. Therefore, it took a certain amount of time for us to adapt prone position-based posture changes to the hospital. To facilitate this, using dishwashing sponges, we made pillows and cushions for infants with low birth weight. Concerning diapers, previously, because a cloth was simply placed beneath the breech, the use of a prone position often resulted in breech and thoraco-abdominal contamination. This issue was also needed to be resolved. In Bhutan, where supply shortages are common, it would take a long time to adopt care-related approaches used in Japan. In addition, it took a long time for us to standardize the methods of nursing care as well as of information sharing among healthcare providers, because there was a great disparity in their skills and experience, and because the ways in which they produced records markedly differed between them, regardless of their age. By giving presentations, and by having one-to-one conversations with local healthcare workers after giving a brief demonstration, the members of our dispatch project teams have continued intervening for these workers in order to promote their shared awareness. Furthermore, we assumed that, by treating records made at the NICU as those of severely-ill patients, it would become easier to keep track of changes in their medical conditions, and to help nurses share necessary patient information with one another. From this perspective, we created a framework regarding these records, as well as examples for producing them. However, we first needed to ensure that auscultation is performed as a common practice. In addition to this, we could only familiarize local staff with recording the length of the inserted part of gastric tubes before tube feeding is performed for patients with a history of accidental swallowing.

In Bhutan, infection control is also important. We encountered several situations which could have caused the spread of infection. For example, a gown used by an infant with resistant bacteria was reused by a parent of another newborn. Therefore, in cooperation with the chief nurse, we assigned a gown to each bed with the aim of promoting individual use.

Challenges and problems

Some local staff had received nursing education in Bhutan, while others had done so in other countries, such as India or Thailand; hence, there was a disparity in their expertise. This hampered standardization of the methods for nursing care and information sharing among these staff members. As exemplified by the establishment of the Highly-Professional Physician Fostering System, the medical education of Bhutan has improved each year. Along with this, advancement in the country's nursing education may be achieved. For such advancement, experienced healthcare providers need to educate less experienced staff members; however, currently, there are limited opportunities for such education. In Bhutan, nursing students spend much time in their clinical training, which is a good thing. However, I noted that, during their training, many students were simply working as caregivers without understanding the principles of nursing care.

Future perspectives

As exemplified by new living-body monitoring devices that were introduced during my dispatch period, Bhutan is in the process of medical development. Hence, it is important to ensure that supply management is conducted appropriately, and that necessary patient information is shared among the healthcare providers involved. As the 5S promotion activities are performed differently by dispatched members depending on their clinical experience (medical department to which they belong in Japan), I expect that various ideas will be generated by them.

In Bhutan, where supply shortages are common, it took a long time for us to adopt care-related approaches used in Japan. As we patiently and repeatedly showed local staff how to replenish supplies and do cleaning up, they became accustomed to these routines as well as to the idea that these supplies should be accessible at all times. Although our duties were challenging, we strongly perceived the significance of continuing them when we noted that severe bedsores in an adult patient, which had been deemed difficult to treat, were alleviated. Thus, even when facing a hardship during a dispatch project, it is important to wait for things to favorably change.

If the number of physicians increases, it may be possible to provide medical care which is currently unavailable, and to meet a wider range of patients' needs. In that case, nurses may be required to make more reports to physicians than they do now. To facilitate such reporting, there is a need to develop tools that enable senior-level nurses to help newly hired nurses to improve their assessment skills, including the ability to make nursing records.

Impressions

During this dispatch project in Bhutan, I was able to re-recognize the concept of infection control and safety management that I had developed in Japan. In addition, I often encountered cases in which I reflected on my work, and recalled the motto "Patients' basic desires should be met, and their safety should be protected", which is the principle of nursing care. As patients' desires could be met frequently at my workplace despite supply shortages, I thought that nursing care is practicable almost anywhere. On the other hand, I sometimes felt that not all proposals, including those regarding points to be improved, were acceptable to the local staff. However, in spite of the cross-cultural differences, these staff members and we had common values; for example, both local staff and we congratulated the growth of low birth-weight infants with their families, and felt good after doing cleaning up. Initially, I was shocked at the different views regarding death between Japanese and Bhutanese people, but I learned a lot about the views of life and death that are characteristic of Buddhism, and these views help me to organize my thoughts. In addition, in Bhutan, families of patients usually stay close to them 24 hours a day in order to provide nursing care. For example, tube feeding for premature infants is performed by their families. As is the case with Japanese individuals, upon delivering a premature newborn, Bhutanese parents showed a sense of fear. However, they were actively involved in treatment, and supported the growth of their children in cooperation with nurses. These attitudes were beneficial in developing mothers' sense of tenderness towards their children. Thus, the time these parents spent with their children must have been valuable, even when it was short.

Report of the activities of the fourth team

Term: September 16, 2014 – December 15, 2014

Associate Professor,
Department of Nephrology
Tatsuo Tsukamoto

Clinical Fellow,
Department of Nephrology
Hiroyuki Yamada

Assistant Professor,
Department of Nephrology
Hirotaka Imamaki

Content of activity

We mainly performed treatment while conducting surveillance in the dialysis unit of Jigme Dorji Wangchuck National Referral Hospital (JDWNRH) that is playing a central role in the Kingdom of Bhutan, being located in its capital, Thimphu. To domestically provide dialysis treatment, 1 nurse had already been dispatched from the JICA, who had offered the following information by web mail to us before our departure: 1) the dialysis unit was mainly managed by nurses in the absence of nephrologists, 2) it was difficult to sufficiently provide dialysis services due to a limited number of available dialysis devices, 3) dialysis was mostly performed using catheters, frequently causing infectious diseases and thrombosis, and 4) the insufficient prescription of hematopoietic medications led to increases in the number of patients with anemia. As the Khesar Gyalpo University of Medical Sciences of Bhutan does not have a medical school, it is necessary for Bhutanese students to graduate from such schools in other countries, and receive training in or outside Bhutan after obtaining a medical license, in order to become a doctor. Immediately before our dispatch, a nephrologist (Dr. Minjyu) had returned from Bangladesh to Bhutan, and we started collaborative work. Local dialysis nurses had been trained in Thailand for 3 months. Although they needed to update their knowledge and skills, they were very highly interested in new medical information. So, we held 2 seminars on dialysis treatment for them.

Regarding the dialysis modality, hemodialysis was performed in all cases. The total number of patients was approximately 90; for these, a 4-hour session was repeated 3 and 2 times on Mon/Wed/Friday and Tue/Thu/Saturday, respectively. Due to insufficient numbers of dialysis staff members and devices, the mean number of dialysis was limited to 1.5. Periodic blood testing revealed a high incidence of renal anemia associated with persistent elevations in the CRP level, in addition to an increased urea level. Skin color specific to chronic uremia, which had been reported 30 years ago in Japan, was observed. Hemodialysis services were available in this and 2 other facilities (in Mongar and Sarpang, each of which had 2 dialysis devices). However, during our stay, 20 patients were transferred from Mongar due to device failure. Even in JDWNRH, systems to appropriately manage chronic diseases had yet to be established, resulting in an extensive loss of important documents. For example, blood test results were simply handed over to patients without storing their copies. In contrast, in district hospitals and basic health units (BHU), community residents' detailed medical records were maintained. It was also clarified that the prevalence of lifestyle-related diseases was increasing with rapid modernization in Bhutan, and, when we exchanged information with local registered dietitians, they noted a relatively high salt intake among Bhutanese people.

Challenges and problems

As the numbers of dialysis staff members and devices were insufficient compared with that of dialysis patients, the extension of the dialysis unit with an increased number of beds was being considered. While support for such equipment and devices should also be provided, it may be necessary to nurture staff with maintenance skills, considering the presence of a large number of unrepaired medical devices. The reuse of dialyzers is not rare on a global basis, but even dialysis circuits were reused in Bhutan, possibly interfering with the prevention of infectious diseases. Furthermore, water distributed through indoor plumbing was hard water, requiring large-scale soft water generators and reverse osmosis equipment for dialysis water production. However, purified water was not appropriately stored, and it was used as sterilized water on wards, indicating the necessity of further improving water management systems. Similarly, although the rate of catheter-based dialysis was limited to 30%, which is a globally standard level, it may be desirable to newly install angiography equipment in consideration of the possible usefulness of intervention by vascular surgeons and percutaneous balloon dilatation to improve the prognosis of dialysis patients by improving vascular access.

Storing data related to patients' lifelong medical histories is crucial for the management of chronic renal diseases. In order to make renal transplantation feasible, it may be necessary to create environments that allow the accurate diagnosis of renal diseases, covering renal biopsy, as well as sufficient dialysis treatment and pathological diagnosis. In Bhutan, the establishment of Wi-Fi networks has predated the generalization of landline communication systems; therefore, mobile- and smartphones are widely used. In this respect, medical information infrastructures for it should be developed using its unique methods.

Future perspectives

As all medical resources are insufficient, dispatched teams cannot expect clear instructions from local staff. While previously dispatched team members were mainly engaged in the providing technical guidance for surgery and related care, it is necessary for us to make common proposals on our services, including cancer treatment, with teams specializing in internal medicine dispatched in the future when dealing with chronic diseases in this field. The development of medical information infrastructures to share specimen examination and diagnostic imaging results is likely to be particularly important. In line with this, we recommended the initiation and continuation of epidemiological studies based on the patient data collected by us during our stay. It should also be noted that Japanese companies are engaged in dialysis-related businesses in all countries, except Bhutan and the Kingdom of Nepal. At this point, our activities were limited, highlighting the benefit of collecting information in each medical department and exchanging information with previously dispatched team members prior to departure.

During our stay, dialysis nursing procedures were reviewed in JDWNRH. Considering the cultural background of Bhutan, this was a unique opportunity to improve their systems. So, we advised local staff to refer to the procedures implemented in our facility. As communication with them by e-mail has been maintained to the present, we will continue making proposals based on equal partnerships.

Impressions

I was occasionally confused when facing differences between my perspectives on medical services and the reality of such services in Bhutan, but Bhutanese patients and staff of good character frequently helped me. At the same time, I realized that we, Japanese, are really lucky to have such favorable medical environments compared with those in other countries. It is needless to say that this stay has provided us with a very important basis for medical practice. It has been a productive experience to observe of medical services in Bhutan.

As the adoption of doctor helicopters was under consideration, it seems to become possible to more promptly transfer patients in the future. If a medical school is organized in the University of Medical Sciences, doctor training will also become feasible, markedly improving Bhutan's medical environments. In terms of medical services, Bhutan is a young country. I could recognize that its national and medical systems were rapidly developing. It is interesting how it will change from now on. Although our activities in Bhutan were limited, I hope that such activities have contributed to its process of change as much as possible. Lastly, we would like to express our deep appreciation to all the people who provided advice on this dispatch, as well as doctors, clerical staff, and others of Kyoto University and JDWNRH for providing us with the opportunity to participate in international grassroots medical support.

Report of the activities of the fourth team

Term: September 16, 2014 – December 15, 2014

Clinical Fellow,
Department of Pediatrics
Tomoyoshi Matsui

Clinical Fellow,
Department of Pediatrics
Yuri Dowa

Content of activity

From the Neonatal Intensive Care Unit, 2 pediatricians, Dowa (September 16 to November 5, 2014) and Matsui (November 10 to December 15, 2014), were dispatched to JDWNRH to mainly provide pediatric services on the neonatal ward. The ward had been managed by Doctor Nishizawa of the Primate Research Institute of Kyoto University as a medical volunteer since 2011. The number of local pediatricians was 2, and they were in charge of ward and outpatients services, respectively. There were also 2 residents (doctors in training specializing in pediatrics after completing internship programs) and 1 rotating intern. Duties on the neonatal ward included: academic activities from 8:00 AM (grand rounds and case presentations); management of the NICU (acute conditions), HDCU (chronic or mild conditions), phototherapy/infection unit, and kangaroo-mother care (KMC) unit; ward rounds for newborns in normal conditions staying with their mothers; and outpatient treatment for newborns. Doctor Nishizawa alone had treated 60 to 100 in- and outpatients daily.

While implementing part of round-related duties, we supported both medical services and educational activities, such as creating written operational procedures and flowcharts, providing case consultations, supervising residents and interns, and giving lectures.

The neonatal ward consisted of 35 beds in total. In the NICU, there were 7 beds, to all of which an SpO2 monitor was attached. Incubators and respiratory systems were similar to those used in Japan, suggesting a relatively high quality of services, although incubators for inpatients were not regularly replaced due to their limited number. Most of premature newborns were aged approximately 30 weeks or older. Patients with diseases, such as surgical and neurosurgical diseases, sepsis, neonatal asphyxia, and severe jaundice, were admitted almost every day. The type of sepsis was generally early-onset, but the late-onset type also seemed to be prevalent. Suspected congenital heart diseases were also observed among inpatients; however, some of such patients died undiagnosed due to the unavailability of ultrasound devices on the ward. There were also premature newborns and patients with neonatal asphyxia or shock, transferred from rural areas. In some of such cases, patients were not admitted despite notification of transfer, as they died before arrival.

All patients were accompanied by their families almost on a 24-hour basis. The families were fully in charge of the administration of breast milk, medication, and diaper change. All nurses possessed a midwife licence, and they notified families of the doctor's instructions, assisted lactation, performed routing for infusion, and collected blood samples. The proportion of male nurses was high, and they also directly assisted lactation.

Basically, parents fed their children with fresh breast milk using spoons or orogastric tubes. It was impressive that all parents were able to feed their children without spilling milk from spoons, as it has been reported that nearly 30% of milk is spilt when lactating by this method.

Newborns in normal conditions were discharged within 12 hours after delivery; therefore, in many cases, lactation guidance had not been directly provided before discharge, and patients were re-admitted in the presence of neonatal jaundice or poor weight gain. Similarly to in Japan, a high incidence of neonatal jaundice associated with ethnic factors was noted. On the other hand, severe jaundice seemed to be frequently derived from blood group incompatibility or infectious diseases.

Challenges and problems

The number of doctors was insufficient, and they were occupied with giving instructions daily. In order to effectively carry out short-term dispatch projects like this under these circumstances, rather than simply assisting local medical practice, it is necessary to sufficiently discuss the content of activity with the host facility prior to dispatch. In line with this, annual dispatch plans should be developed and sufficiently examined with the host facility, while the dispatched team should appropriately prepare before departure. At a meeting on the initial day in Bhutan, Dr. Mimi as the Director of the Department of Pediatrics clarified their need for the supervision of pediatric cardiac ultrasonography by pediatric cardiologists to improve local technicians' diagnostic skills, suggesting that the dispatch of a neonatal care group did not accommodate their intention. To dispatch medical teams based on host facilities' desires, an accurate understanding of their needs and the development long-term dispatch plans may be indispensable.

Although Doctor Nishizawa had continuously been engaged in medical practice on the neonatal ward for a long period of time with a nurse from the JICA, it seemed to take further years to generalize the basics of nursing, represented by the maintenance of cleanliness, differentiation between cleanliness and uncleanliness, and observation of vital signs, among Bhutanese people. Similarly to the late Kyoji Nishioka, an agricultural engineer of the JICA who improved agricultural productivity in Bhutan based on his positivist policies, we also observed that Bhutanese adopt new methods if they consider such methods useful. Therefore, in order to contribute to the improved quality of medical services in Bhutan within a span of 10 year, it may be appropriate to provide support that helps Bhutanese people recognize the usefulness of proposals and guidance by Kyoto University Hospital to benefit them and improve the quality of their work and lives, rather than forcing them to adopt our methods.

Future perspectives

As previously mentioned, active contact with local staff should start as soon as dispatch is determined to previously clarify key issues, such as the availability of medical devices and examination/treatment materials, as well as needs and feasible approaches in actual settings. It should be noted that, due to markedly insufficient numbers of doctors and nurses in all medical departments, dispatched members of Kyoto University Hospital, similarly to volunteers from other NGOs, may be simply regarded as helpful labor force participants. Although such a situation is possibly unavoidable even when dispatched with clear objectives, it is necessary for the members to sufficiently prepare for the providing support, such as technical guidance and lectures, in consideration of their needs. Regarding medical technical support and education, the Bangkok Hospital and UMSB singed an MoU in September 2014 to train Bhutanese staff in Bangkok at the former's expense. However, it may not necessarily appropriate for us to provide similar approaches, as the Director of Kyoto University Hospital mentioned at a meeting before our departure that it is difficult for the hospital to accept Bhutanese staff at present. From a doctor viewpoint, different focuses for support than those of other facilities, such as organizing academic events in consideration of the absence of any medical or nursing associations in Bhutan, are likely to be more useful for Kyoto University Hospital.

Impressions

As mentioned in the books regarding Bhutan I (Dowa) read before departure, Bhutanese people were proud of their nationality. While being markedly conservative, they seemed to adopt new methods, and improve their systems on a step-by-step basis. As there are many similarities between Bhutanese and Japanese people, such as similar countenances and the same religion (Mahayana Buddhism), I had a friendly feeling toward them. As I had previously heard that they are educated in English, I initially supposed all of them to comprehend English, but a large number of Bhutanese people, particularly females, did not, presumably due to difficulty in receiving school education. Although my fluent speech was limited to the Kansai dialect, I could support medical practice in Bhutan to some extent, thanks to local staff's high level of understanding. Lastly, we would like to express our gratitude to local staff, Doctor Nishizawa, Sister Emi (JICA), and Japanese residents in Bhutan, as well as staff of Kyoto University Hospital who agreeably sent us off.

Report of the Activities in Bhutan the fourth and fifth teams

Term: September 30, 2014 - December 15, 2014, January 7, 2014 - March 13, 2015

Nurse, Nursing Department

Yoko Nishi

Content of activity

For 6 months, I performed support activities on the surgery ward of JDWNR Hospital, which was situated in Thimphu, the capital of Bhutan. We provided training exercises in nursing care for the ward staff and nursing trainees. In particular, from the viewpoint of neurosurgical nursing care, which is my expertise, I provided education in daily life support and perioperative patient management. At the hospital, surgery is performed 3 times a week, for up to 20 patients a day, and ward staff are very busy on operation days. We taught the ward staff the importance of providing postoperative care (e.g., checking patients' general status and bedsores, as well as managing drains) no matter how busy they are, and instructed them to make nursing records about anything they noted during their work. In addition, we worked towards improving the 5S activities that had been handed over from the first team. By adopting necessary approaches, particularly by managing the infusion lines and intravenous routes of postoperative and severely-ill patients, and by keeping medical supplies tidy and in order, we improved the environment of their hospital rooms. In addition, every morning, we performed in-hospital rounds with ward staff and nursing students, and informed each other of what we had noted about the patients' environment. In Bhutan, instead of nurses, families of patients usually stay close to them 24 hours a day in order to provide nursing care. Therefore, I often had opportunities to provide these families with care-related guidance, which covered from daily life support (e.g., eating, hygiene, and excretion) to medical procedures, such as suction, bedsore care, and nutritional management. As many patients having difficulty with their daily lives were discharged and went home, their families often asked me clarifying questions. Thus, I had the impression that these families were very serious about caring for their patients. On a daily basis, we encouraged the ward staff to be aware of the importance of individually provided nursing care. We also discussed the need for personal care with these staff members, and instructed them to always note the process in which an evaluation is conducted after providing such care. In addition, with the aim of advancing their expertise, we gave ward staff technical guidance on bedside care, and held study meetings according to their field. Furthermore, considering that postoperative patients are at risk of rapid changes in their conditions, we held seminars aimed at educating all ward staff members to become able to appropriately respond to emergency cases. Through these seminars, they learned about BLS and ACLS, as well as how to monitor these patients' ECG, consciousness levels, and neurologic findings. I hope that, by promoting the above-mentioned activities, the quality of medical care in Bhutan will improve.

Challenges and problems

Although JDWNR Hospital is the largest medical center in Bhutan, the hospital's wards are not divided according to the medical fields. Therefore, the surgery ward is used by all postoperative patients and those for whom surgery is indicated, regardless of the department to which they belong (General Surgery, Trauma Surgery [emergency], Neurosurgery, Gastrointestinal Surgery, Respiratory Surgery, or Pediatric Surgery). Because each department covers more than one medical field, nurses are required to have a wide range of expertise. However, because such professionals did not previously exist at the hospital, I perceived the necessity of educating ward staff, mainly senior-level nurses, in order to provide highly-professional nursing care. In addition, there is a need to establish education systems enabling experienced nurses to pass on their knowledge and skills to less experienced nurses. Furthermore, the surgery ward did not have some of the minimally required medical supplies (e.g., soap or gloves), which frequently hindered nursing care and other medical duties. This was also a major medical issue.

Future perspectives

In Bhutan, there are many chances of having to provide nursing care and treatment using limited medical supplies. Dispatched members always must consider what they can do using the available supplies, as well as the best way to provide nursing care, and should provide education for local staff. They may experience difficulty using unfamiliar care approaches and supplies. On a daily basis, many patients are admitted to or discharged from the hospital, or undergo examination or surgery. Some patients are discharged after achieving recovery, while others are at the end of life. As with the case with Japanese healthcare workers, Bhutanese nurses listened to patients' worries, and laughed with patients at their bedside. In spite of the differences in the culture and lifestyle, it is important to be aware that Bhutanese patients and their families have desires in the same way as Japanese patients and their families do, and to continue our dispatch project based on the principles of nursing care.

Impressions

Originally, I did not even know where Bhutan was situated. The only thing I knew about the country was that citizens are happy. Because of the differences in the culture, language, and lifestyle, I felt very anxious about living in Bhutan, let alone working there as a nurse. Initially, I was shocked at the differences in lifestyle as well as in the level of medical care, and so it took a certain amount of time for me to become accustomed to the local nursing practices. However, the ward staff and patients treated me very warmly and kindly. I was able to manage life and work in this unfamiliar environment, due to local people who were always friendly to me, professors who worked with me, and staff of the Nursing Department who often gave me advice. I am very grateful for my opportunities to spend a meaningful time in Bhutan.

Report of the activities of the fifth team

Term: December 15, 2014 – March 14, 2015

Assistant Professor,
Department of Orthopaedic Surgery

Bungo Otsuki

Content of activity

I arrived in Bhutan on December 15, and started to work in the Department of Orthopedic Surgery of JDWNRH from the next day. Orthopedic surgery was being mainly performed for trauma treatment. As 3 out of the 4 orthopedic surgeons based in Bhutan belonged to JDWNRH, I had the impression that services were being provided very systematically. As the 3 surgeons treated more than 1,000 surgical patients annually, an exclusive ward had been organized within the department, in which surgery was performed on Mon/Thu/Saturday, outpatient consultation was provided on the remaining days of the week, and emergency services were provided whenever necessary. On outpatient consultation days, a morning ward round was made with orthotists and physical/occupational therapists to discuss patients' conditions. They seemed to have made arrangements for me to deal with a large number of spinal diseases; for example, I was also scheduled to perform spinal surgery out of surgery days. During my 2-month stay, I performed approximately 40 lumbar decompressions and herniotomies, 2 lumbar fixations for spondylolisthesis, and 2 surgeries for thoracic spine injury, while supervising 1 surgery for cervical dislocation, and satisfactory outcomes were obtained in almost all cases in the absence of infection. On the other hand, in 1 case, the level of lumbar vertebra was not accurately identified due to C-arm failure, resulting in the development of complications specific to Bhutan. I also participated in approximately 60 surgeries for trauma treatment. Regarding outpatient services, the limited availability of medications was noted. Criteria for CT and MRI use seemed to be markedly stricter than those in Japan; from a different viewpoint, they may be excessively used in Japan compared with other countries. I was mainly in charge of outpatients with spinal diseases, in half of whom low back or related pain was present, similarly to Japanese patients. There was no difficulty in communicating with patients, in general, if they were able to speak English. If they were Dzongkha, Shashop, Nepali, or Hindi speakers, I needed an intern or technician as an interpreter. While occasionally facing culture shock when treating Bhutanese patients who stated that they had suffered from pain ever since "7 years ago" (Japanese patients may express this as "a couple of days ago"), I enjoyed my daily practice there.
I also had the opportunity to make a presentation at an annual meeting of the only medical association in Bhutan as a valuable experience.

Challenges and problems

The level of clinical services was not low, equivalent to the level of mid-scale hospitals in Japan. The youngest local doctor was interested in spinal treatment, showing an active attitude toward learning about it, and this further motivated me. The most important problem was a shortage of high-quality, appropriate implants due to a limited budget. Intramedullary nails and plates were frequently bent, forcing local doctors to repeat procedures. Similarly, regarding spinal implants, although pedicle screws were available, their quantity was limited, making it necessary to minimize its use. The unavailability of set screw drivers was a critical problem, suggesting the necessity of charging medical costs, rather than providing all citizens with free medical services, for the further development of medical systems in Bhutan.
As another problem, volunteer doctors were also regularly dispatched from other countries to Bhutan to support all medical departments. In other words, Bhutanese staff were accustomed to receiving such doctors as guests or, to an extent, mere labor force participants. Doctors (and nurses) dispatched from Kyoto University Hospital are no exception. Despite the intention of all dispatched members (including me) to improve the level of medical technology in Bhutan, local staff engaged in limited practice due to insufficient equipment do not necessarily desire such improvement as a matter of fact. New medical technology requires new equipment and devices, indicating the necessity of facility support, in addition to doctor dispatch, to ensure the effectiveness of this program.

Future perspectives

I present my opinion on the premise that the dispatch program aims to support the development of medical technology and preparation for founding medical schools in Bhutan. First, it may be generally useless to dispatch doctors of medical departments that are not organized in host facilities. Even if they are organized, doctors should be dispatched only after sufficiently clarifying host families' intentions. While budgets should also be considered, it may not have much significance in dispatching doctors (volunteer doctors are also regularly dispatched from other countries) without facility support, as medical services develop with the progress of medical technology. Furthermore, on comparing support from Kyoto University Hospital and the JICA, there are marked differences in approaches from the assignment of local coordinators to risk management. As the medical office's burden of dispatching doctors engaged in specialized fields is markedly heavy, it may be more appropriate to put doctor dispatch projects into the JICA's hands if the current situation remains unchanged.

Impressions

Despite an unfamiliar work environment, I began to enjoy my daily work in a month, being attracted by warm-hearted Bhutanese people and the grandeur of nature. Although I have presented critical perspectives on dispatch programs, I personally appreciate being provided with the opportunity to obtain new experiences in Bhutan, while feeling sorry for having increased Kyoto University Hospital staff's burden. If the purpose of such programs is to obtain medical experiences in developing countries, I am all for them. Thank you.

Report of the activities of the fifth team

Term: December 26, 2014 – March 7, 2015

Senior Lecturer,
Department of
Cardiovascular Medicine
Tetsuo Shioi

Assistant Professor,
Department of
Cardiovascular Medicine
Masao Imai

Assistant Professor,
Department of
Cardiovascular Medicine
Junichi Tazaki

Content of activity

The provision of cardiology services in Bhutan was limited to JDWNRH with a single cardiologist (Doctor Yeshey Penjore), whose main duty was treating ward and outpatients. The types of heart disease were markedly different from those in Japan; for example, ischemic heart diseases were not yet so prevalent. Even in the capital Thimphu, the monthly number of acute myocardial infarctions was 1 or lower. It was explained that patients with acute myocardial infarction was initially treated with fibrinolytic therapy only, and, after approximately 1 week when the condition had stabilized, they were transferred to India for coronary angiography. Those requiring pacemaker insertion were also transferred to India due to difficulty in domestically performing it. In such cases, it was necessary for medical staff to visit India for follow-up.

Feasible cardiac examinations were limited to electrocardiography, echocardiography, and chest radiography. Swan-Ganz catheters were not used even in the intensive care unit. Furthermore, as X-ray fluoroscopy devices for portable C-arms were unavailable, examinations or treatments requiring catheterization were not feasible at that time. Although there were exercise electrocardiographs and Holter monitors, all of them were in need of repair.

On the other hand, there were 2 cardiac sonography devices of relatively high quality, and they were being used by 2 technologists. Service hours in the hospital and sonography unit were from 9 to 15, and it was difficult for local staff to meet all examinations requests; this had prolonged the waiting time to 1 to 2 months since some time ago. Doctors were not present in the cardiac sonography unit at all times, and there were no systems to supervise and evaluate reports submitted by technologists. So, we were mainly in charge of echocardiography for adult patients in the echography unit during our stay. While performing 7 to 8 echocardiographies and preparing reports, we supervised technologists daily. In the sonography unit, we provided guidance on on-site evaluation and reporting methods. We advised technologists to refer to echo reports used in Kyoto University Hospital for appropriate entry, but they seemed to need enhanced awareness and further time to improve their reporting styles.

The majority of heart diseases dealt with in the sonography unit were rheumatic. Patients who had undergone valve replacement due to valvulopathy around the age of 20 were frequently observed. As cardiac surgery was not performed in JDWNRH, those requiring it were transferred to India at the government's expense. The type of valves used was bioprosthetic despite the large number of young patients. Some patients visited the hospital several years after valve replacement in the presence of prosthetic valve stenosis. One of the factors associated with such frequent use of bioprosthetic valves for cardiac surgery in India was the feasibility of warfarin control in Bhutan limited to 3 hospitals, including JDWNRH.

Among pediatric patients, congenital heart diseases were markedly prevalent. Such patients visited the sonography unit for examination almost every day. Whenever they visited, we supervised technologists, while answering their questions regarding the shunt ratio, evaluation method, and disease. Due to the absence of domestic doctors specializing in pediatric cardiology, diagnosis was provided by technologists, based on which general pediatricians examined patients' conditions, and determined the appropriateness of surgery. This indicates a high level of need for doctors specializing in pediatric cardiology in Bhutan.

In short, considering the markedly high incidences of rheumatic and congenital heart diseases, the establishment of a center specializing in heart diseases with a department of cardiovascular surgery and catheterization unit is likely to be sufficiently cost-effective.

Challenges and problems

While differences in customs between Bhutan and Japan should also be considered, the major problem we noted was the absence of medical records within the hospital, forcing patients to independently manage their medical information using notebooks. The purpose of each request for examination was also unclear, as cardiac sonography order sheets were not used. Furthermore, previous examination results were frequently unavailable, highlighting the necessity of supporting the establishment of methods to systematically store medical records and examination results within the hospital as a future goal of this dispatch program.

Although some of the cardiac sonography devices were similar to those used in Kyoto University Hospital, they were in need of repair. We also heard that half of the respiratory systems in the intensive care unit were in need of repair. Despite the availability of high-level medical devices supported by other countries, systems to maintain and repair them in the event of failure had yet to be established. This may be another problem.

In Bhutan, high lipid and salt intakes have resulted in increased numbers of patients with hypertension, chronic renal diseases, and diabetes. In addition, in the capital Thimphu with rapid modernization, increased automobile use has led to a decreased exercise level, suggesting an increased risk of heart diseases involved in arteriosclerosis. However, due to the absence of cauterization units within the country, reperfusion therapy for such diseases has remained unfeasible, leading to the necessity of transferring patients to India, taking several hours. The establishment of cauterization units may be a solution to this. The initiation of approaches to prevent heart diseases, such as reducing the salt and lipid intakes, may also be an important challenge. Furthermore, the presence of ward patients with cerebral infarction due to atrial fibrillation involved in rheumatic heart disease indicates the necessity of sufficient anticoagulant therapy. In line with this, it may be necessary to disseminate anticoagulant therapy monitoring systems in Bhutan.

At the same time, considering that there were only 2 domestic cardiologists, Doctors Yeshey Penjore and Mahasi Gurung, it may be necessary to further elevate manpower by providing support that comprehensively covers Bhutan's medical education systems, with a view to improving the quality of these cardiology services.

Future perspectives

While there were facility and equipment shortages, some medical staff members were highly motivated, suggesting that Kyoto University Hospital's active commitments will further improve the status of medical services in Bhutan. Personally, I could refresh myself by enjoying abundant nature and visiting magnificent temples on holidays. Despite confusing factors, such as insufficient cleanliness in the hospital and different dietary habits, being dispatched is a very valuable experience, and it provides the opportunity to develop objective perspectives on Japan.

On the other hand, for medical team members dispatched without their families, sufficient health management is crucial to continuously perform activities in an environment that markedly differs from Japan. In the current situation, this dispatch program is supported by the volunteering spirit of dispatched members and their families. If one of the main purposes of medical exchange with Bhutan is to promote interpersonal communication between the 2 countries, the program should be more "dispatched member-centered", and be organized with improved systems to support the mental and physical health of such members and their families before, during, and after being dispatched.

Impressions

Visiting the Kingdom of Bhutan for the first time, I found it very attractive. With rapid modernization, streets were full of vehicles, and everyone had a smartphone around in cities. In contrast, in adjacent, vast rural areas, people were kind and pious Buddhists. I also met a large number of people devoted to activities to improve the domestic situation. I would be glad if we contributed to such improvement to some extent during our stay. In the future, it may be desirable for Kyoto University Hospital to not only dispatch doctors, but also provide bidirectional approaches, such as inviting Bhutanese staff for long-term training within the facility. It may also be important to support their systems, including those for information management, in addition to medical technology, and establish methods to continuously provide such support.

Kyoto University Hospital
Department of Primary Care and Emergency Medicine
Report of the activities of the sixth team
Term: September 16, 2015 – December 1, 2015

Clinical Fellow,
Department of Primary Care
and Emergency Medicine
Tomoharu Mori

Assistant Professor,
Department of Primary Care
and Emergency Medicine
Manabu Shimoto

Senior Lecturer,
Department of Primary Care
and Emergency Medicine
Shigeru Ohtsuru

Content of activity

Inspired by activity reports from previously dispatched teams, we had been waiting for a long time for being dispatched to Bhutan. From the Department of the Primary Care and Emergency Medicine, 3 members, Tomoharu Mori (September 7 to October 7), Manabu Shimoto (October 5 to November 6), and Shigeru Ohtsuru (October 27 to December 1) were dispatched as the sixth team to support emergency medical services in JDWNRH, the largest hospital of the Kingdom of Bhutan.
The Department of Emergency of JDWNRH had been organized approximately 5 years ago, with 1 neurosurgeon as the director, 2 physicians specializing in emergency medicine, 5 medical officers, and 2 interns. When we arrived, 1 international volunteer (emergency physician) was supporting their practice by turns.
Patients visiting the emergency outpatient division initially underwent assessment by triage nurses on a 24-hour duty to determine the severity. Based on the results of such assessment, they were admitted to units for mild, moderate, or severe conditions to receive basic medical consultation and examination services.
In the emergency outpatient division, patients with diverse chief complaints were observed throughout the day. To deal with from patients with common diseases, such as CPA, systemic burns, drowning, sepsis, and shock, to those with puncture wounds, bruises, fractures, and dislocations related to archery and large darts as national sports, respiratory diseases such as pulmonary tuberculosis, bronchial asthma, and COPD, and digestive diseases such as hepatic cirrhosis and peptic ulcers, in addition to pregnancy females, parturients, newborns, and pediatric emergency patients, outpatient beds were rarely vacant.
In such settings, extensive knowledge, skills, and experience related to diverse types of disease are required, similarly to the case of ER in the United States. Nurses in the emergency outpatient division were qualified to perform the triage process, as well as intravenous line puncture, wound care, and suture, and this system enabled doctors to allocate more time to treatment for patients in severe conditions.
Regarding training for emergency physicians, training systems had yet to be established, unlike the Departments of Internal Medicine, Surgery, Ophthalmology, Pediatrics, and Obstetrics/Gynecology, in which related programs had already been developed, and such a situation was associated with chronic doctor shortages and limited service hours (9:00-15:00 or 13:00-19:00). Education for interns immediately after graduation tended to depend on volunteers, and local staff seemed to be expecting us to offer the latest findings on the contents of such education. Twice (Wednesday and Friday) a week, 30- to 60-minute post-graduation education seminars for doctors in training were held in the afternoon, during which we also gave lectures on various topics. Such topics included: Advanced Cardiac Life Support (ACLS), bone marrow needles, Advanced Burn Life Support (ABLS), and Japan Advanced Trauma Evaluation and Care (JATEC). On some occasions, we provided guidance on echography necessary for emergency care at patients' bedsides with their cooperation.

Challenges and problems

Basically, families attended patients at their bedsides, rather than staying in the waiting room, and they usually provided cooperation with transfer to a stretcher and transport to the examination room. However, even with such cooperation, the length of the waiting time for emergency outpatients was generally 6 hours or longer. In some cases, it exceeded 18 hours. When CT examination was required, in addition to other time-consuming procedures such as blood testing, radiography, and ultrasonography, patients had to wait for a markedly long time, possibly increasing not only the risk of poor safety management, but also their and their families' physical and mental burdens. Furthermore, as it takes several days by car from eastern areas of Bhutan to the capital Thimphu where JDWNRH is located, some patients arrived at the hospital in advanced pathological conditions, as the time had passed since the onset. Under these circumstances, it is expected that the use of helicopters for patient transfer, which started from November, will improve the lifesaving rate, particularly for patients in severe conditions from rural areas.

Future perspectives

In JDWNRH, we entertained a strong impression that those dispatched from other countries, including us, are still needed to educate not only doctors, but also nurses and other hospital staff working there, using their skills and expertise to share "something important".
During our stay, we had the opportunity to hold a seminar on BLS for 15 faculty staff members, thanks to kind arrangements by Doctor Chencho Dorjee as the Dean of the Faculty of Nursing. However, while donated training dolls and AED and other devices were qualitatively and quantitatively satisfactory, most of them were in mint condition. There were also a large number of supplies that had been stored unused.
Seminar participants were very eager in learning. The light and joy in the eyes of those who had rarely participated in such training when pushing the button of an AED for simulation were particularly impressive. After the seminar, they stated that the training was very enjoyable, and they indeed appreciated detailed guidance provided by individual instructors. The experience of holding such an event through collaboration among nursing staff and medical students of Kyoto University Hospital, doctors from the United States, and others as a team was also very productive for us.
At the same time, this indicates the necessity of supporting them by sharing something important with them through "invisible approaches", rather than "visible approaches".

Impressions

When we were dispatched to Bhutan, a climatic change from the rainy to dry season was taking place there, with various festival events. To participate in Tshechu, the largest festival in Thimphu, people came from throughout the country, and, wearing colorful national costumes, males and females of all ages enjoyed folk dances and songs for 3 days. JDWNRH was also out of service during this period, and the majority of staff took time off from work. Seeing a number of monks in the city, we observed that Tibetan Buddhism has taken root firmly in people's daily lives.
We had the opportunity to talk about benevolence with young monks at Phajoding Monastery. They expressed medical professionals as "practicing benevolence at all times from immediately after waking up in the morning", as patients visiting hospitals rely on them, and they make their best efforts to benefit such patients. This is the practice of benevolence, and all deeds leading to it are good, according to the monks, who welcomed us from a remote country, stating "all deeds lead to such benevolence from immediately after waking up in the morning", with their faces beaming with smiles.

Kyoto University Hospital
Clinical Radiology Service Unit
Report of the activities of the sixth team
Term: October 12, 2015 – 20 November, 2015

Associate Professor,
Clinical Radiology Service Unit
Toshiya Shibata

Assistant Professor,
Clinical Radiology Service Unit
Akihiro Furuta

Assistant Professor,
Clinical Radiology Service Unit
Rinpei Imamine

Content of activity

The main purpose of dispatching members of the Department of Diagnostic Radiology was to perform echographically-guided biopsy and treatment. During our stay, while only radiologists specializing in diagnostic imaging were working in JDWNRH, instruments for treatment, such as biopsy or puncture needles and drainage catheters, were available, allowing the implementation of related procedures. After arrival, we initially made arrangements to ensure the availability of an X-ray fluoroscopy unit, echography devices, and monitors, as well as appropriate emergency management. The quality of images obtained using old X-ray fluoroscopy devices with very narrow visual fields was poor, but echography devices were relatively new-type, with sufficient durability. Although we were forced to perform unfamiliar freehand procedures, fortunately, we could obtain cooperation from a technologist showing much enthusiasm for practice. The procedures we performed include: biopsies for conditions, such as hepatic mass, percutaneous transhepatic biliary drainage, drainage for hepatic or subphrenic abscess, percutaneous nephrostomy, and pleural effusion drainage. As we were also in charge of the management of drainage catheters, we frequently visited patients to confirm their conditions. We could complete these procedures without complications; however, concerns over puncture-related bleeding remained, as an endovascular therapy unit or instruments for hemostasis were unavailable within the hospital. During our stay, we received a large number of requests for echographically-guided procedures. As drainage for hepatic or renal cysts unexpectedly identified by imaging and contraindicated procedures were included in such requests, the provision of explanations regarding the unnecessary treatment and contraindications to doctors in charge and patients was also part of our duties.

Being frequently consulted about reading for CT and MRI by local radiologists, we made efforts to discuss imaging findings to the maximum extent possible whenever echographically-guided procedures were not scheduled. The experience of dealing with a variety of infectious diseases that are rarely observed in Japan, such as parasites, and discussing such cases with local staff was very productive for us.

Ultrasonography was frequently used for screening by specialized technologists. We also occasionally provided consultation for them, and performed echography together, in addition to supervising and discussing with them.

Challenges and problems

There were 3 problems: insufficient reading environments, procedural instruments, and manpower development. Regarding reading environments, it was necessary to create reading reports only using Word, rather than an exclusive template, consequently requiring considerable time to complete each report. In addition, as related data were not appropriately classified, it was difficult to find past images. As a solution, the use of appropriate applications, such as FileMaker, may be effective to shorten the time needed for entry and classify cases. This may also enable staff to allocate more time to diagnostic imaging education for young members, possibly promoting the achievement of a domestic radiologist license in the future.

Secondly, regarding procedural instrument shortages, the unavailability of probe attachments to assist in the direction of puncture was an associated factor. Puncture was also performed by surgeons and emergency physicians; they seemed to perform it blindly after confirming targets and determining directions under ultrasound guidance. Considering the necessity of confirming the position of blood vessels in real time at the time of needle insertion to avoid complications, the use of probe attachments is likely to contribute to safer puncture.

Lastly, regarding manpower development, the absence of domestic radiologists or doctors specializing in other fields, qualified to appropriately perform relatively low-invasive and -cost echographically-guided procedures, highlights the necessity of nurturing these professionals (in the last days of our stay, one of the radiologists who observed our procedures showed interest in this area).

Future perspectives

Similarly to our case, those who stay in Bhutan for the first time may need some time to become accustomed to Bhutanese staff's working hours and styles. As life rhythms there are slower than in Japan, a sense of insufficiency may grow. On the other hand, living in such rhythms has significance, as it enhances our awareness.

Local radiologists and technologists were very friendly. Doctors of other departments frequently visited us to consult about imaging. They will certainly show cooperative attitudes toward any dispatched team members in need of advice.

As only a single device for each CT and MRI were domestically available, both of which belonged to JDWNRH, imaging was performed after carefully examining the necessity of these techniques. Observing this, we realized the importance of conducting examination with clear purposes, rather than screening patients just routinely.

As future perspectives, we hope that safe echographically-guided procedures will be disseminated in Bhutan. Such procedures are likely to be sufficiently cost-effective even in countries without sufficient medical supplies, as they are feasible in any settings if ultrasonography devices and minimum necessary instruments are available.

Impressions

We could become familiar with new environments, and start our jobs earlier than expected, thanks to the efforts made by a large number of previously dispatched doctors and nurses. In the Department of Radiology, it was frequently necessary to manage requests from other departments, but we were able to smoothly accomplish our tasks with cooperation from simultaneously dispatched doctors of the Department of the Primary Care and Emergency Medicine and nurses. We thank them Bhutanese radiologists greatly helped us in both work and personal life. We deeply appreciate their considerations for our comfort throughout our stay. We will be grateful if our practice contributed to Bhutan's medical services to some extent.

Although radiology departments are rarely involved with international medical support, we realized the importance of such support through the experience of being dispatched to Bhutan. We would like to express our deep gratitude to those involved of Kyoto University and JDWNRH for offering such an opportunity to us.

Report of the activities of the sixth and seventh teams

Term: September 16 – 23, 2015 – February 19, 2016 – March 11, 2016

Senior Lecturer,
Department of
Respiratory Medicine
Shigeo Muro

Clinical Fellow,
Department of
Respiratory Medicine
Tadao Nagasaki

Clinical Fellow,
Department of
Respiratory Medicine
Shinsaku Tokuda

Content of activity

From our department, 3 members were individually dispatched in September 2015 and from February to March 2016. As there was no partner (local pulmonologist) in the beginning of September, the first member started his activities in Bhutan with examining appropriate methods to contribute to local pulmonological services, while consulting Doctor Yeshey Penjor, a cardiologist, and Doctor Tashi Wangdi, the Director of the Department of Internal Medicine. It regarded the following activities as his main tasks: inspecting each section of the hospital to clarify the current status of pulmonological services and related affairs; and extracting future challenges. In line with this, he examined statistics based on the ICD-10 Classification in 2014, and confirmed that respiratory diseases accounted for approximately 25% of all disorders treated in departments specializing in internal medicine (possibly including pediatrics), indicating a high level of need for the management of such diseases. Until that time, respiratory diseases had been treated by general physicians due to insufficient manpower in the field of internal medicine, and this suggested the necessity of enhancing awareness of respiratory diseases among all physicians, including residents and young doctors. Fortunately, as Doctor Gaki was newly assigned as a full-time pulmonologist in February 2016 when the second member was dispatched from our department (when this report was written), it was expected that he would be a core parson in the future. The detailed contents of the first member's activity on wards included: observing ICU/ward rounds and providing related consultation; and inspecting related procedures, such as endoscopy, respiratory function examination, and diagnostic imaging, to clarify the current status. Impressive cases he observed immediately after being dispatched in September are represented by: a case of COPD deterioration requiring inpatient treatment; a macrotumor that occupied the almost entire left lung; and a female in her thirties with idiopathic hypoxemia (PAH?). He also inspected the ER on some occasions; he realized the necessity of respiratory disease management particularly on September 18, when he observed 3 patients with COPD deterioration, in addition to a young male with miliary tuberculosis involving pneumothorax, within that day. Similarly, the second member dispatched in February provided consultation for 8 inpatients with COPD (5 of whom were female, indicating a high prevalence of the disease among Bhutanese females), as well as 1 with COPD involving asthma, 1 with pleural empyema, 1 with pneumonia, 1 with suspected tuberculosis, 2 with pulmonary embolism, and 3 with pulmonary hypertension in only 2 days. Furthermore, the opportunity to give a 45-minute lecture (on COPD and asthma) at an adjacent nursing school was offered (see Photo).

Challenges and problems

While it is expected that the presence of the newly assigned full-time pulmonologist will contribute to future improvements, we noted the following challenges/problems during our stay in Bhutan:

- Bronchoscopy was not sufficiently performed. In addition, biopsy forceps for upper endoscopy were repeatedly used after being soaked in a pink disinfection solution. Endoscopes were manually washed. In the Department of Otolaryngology, there seemed to be only a single laryngoscope for all outpatients.
- The Physiological Function Examination Room also seemed to be out of service. Considering the number of potential patients with chronic air diseases, such as asthma, COPD, and bronchiectasis, education for local doctors and technologists to appropriately use spirometers may be of marked significance. We made arrangements to train local staff using portable spirometers brought from Japan in February 2016.
- Although there was an NPPV system in the ER, ICU doctors stated that they had never seen it, indicating the necessity of also improving internal information management systems.
- In one of the 2 cases in which we provided consultation, the Department of Radiology entered "ILD" (interstitial lung disease) in the comment box. When we visited the department with residents to confirm the relevant images, a doctor of the Department of Diagnostic Radiology said that he was glad to hold a discussion with us. Considering the characteristics of this medical department, it may be necessary to further promote collaboration with radiological diagnosticians. Otherwise, minor points we noted include: there was no Schaukasten in the room for case studies; and it was necessary to access the CT Room located downstairs to read CT images, although they were planning to adopt PACS with a monitor in each section in the future (according to a doctor of the CT Room).
- Intradermal antibiotic testing was being conducted.
- A patient diagnosed with pneumonia on admission was treated with ciprofloxacin therapy. There were also some cases of suspected pulmonary tuberculosis.
- While conducting a bacterial culture test on admission, the results were not confirmed in many cases.
- Elastic stockings were not available within the hospital despite the presence of multiple patients with pulmonary embolism.
- Acid-fast bacillus culture was not performed in many cases of acid-fast bacillus smear ordering.
- On the tuberculosis ward, although patients were accompanied by their families, similarly to those on general wards, windows were left open. When we explained the necessity of maintaining them closed, ward staff understood, and began to do so. Some staff members wore a surgical mask upon an N95. The latter was also used by patients. Therefore, we planned to make a presentation for local doctors using YouTube or other methods to explain the feasibility of preventing droplet expansion only with surgical masks.

Future perspectives

Although tendencies were different from those in Japan, as represented by the high incidences of tuberculosis and COPD among young individuals and females, respectively, the presence of a large number of patients with respiratory diseases highlights the necessity of continuing to interact with Bhutan. At the same time, as medical resources were limited, it may also be necessary to nurture doctors specializing in pulmonology, or provide general physicians with education to enhance their awareness of pulmonological services or training. The feasibility of improving the availability of examination devices should also be confirmed. In any case, it may be important to provide support in consideration of the actual situation of each host facility. As the number of pulmonologists is also insufficient in Japan, long-term strategies to harness limited manpower to the fullest may be needed to continuously interact with Bhutan, and obtain favorable outcomes for both parties. Now that a full-time pulmonologist is present, it may be possible to further enhance the effect of such interactions by closely contacting him as a core person.

Impressions

Since some time ago, it has been difficult for our department to dispatch its members for a long period of time due to internal affairs. Therefore, the members have been individually dispatched for a short term, leading to the necessity of determining the contents of their activities upon deliberations with local staff after arrival. Under these circumstances, dispatched members frequently need to make requests, for example, those for observation, on the same day, and this may increase local staff's burdens. However, during our stay, local staff agreeably made arrangements to accommodate our needs, while actively following our advice, and this helped us very much. If we express their characteristics based on our experience, they were flexible, but, from a critical viewpoint, hindsight. They managed situations as soon as they recognized the necessity of such management (in other words, it is likely that they will never address them if they do not recognize the necessity at once). If we continue to interact with them from long-term perspectives, their pulmonological service systems will further improve. Considering the possible prevalence of respiratory diseases, such as respiratory infection and COPD in housewives due to biomass fuel exhaustion, we hope that productive interactions with Bhutan will continue.

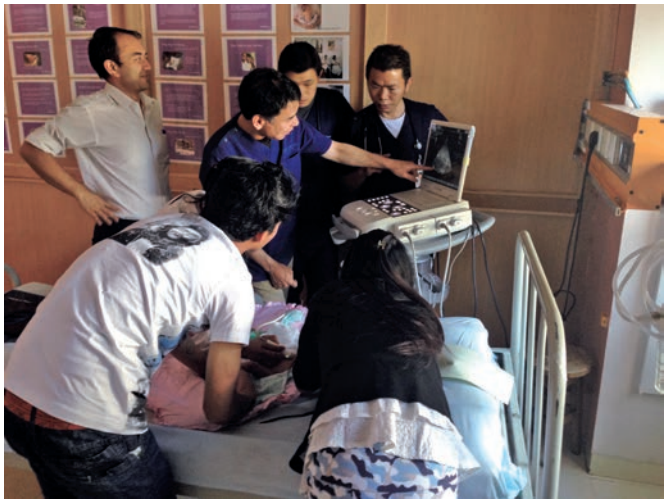
Shizuoka Children's Hospital
Department of Neonatology
Report of the activities of the sixth team
Term: October 5 – 17, 2015

Head, Department of Neonatology
Shizuoka Children's Hospital

Yasuhiko Tanaka

Content of activity

Although the period was limited to 2 weeks from October 5 2015, I performed activities to support pediatric cardiology and neonatal medicine in JDWNRH.
Up to that time, neonatal medicine in Bhutan had been supported by Doctor Yoriko Nishizawa from Japan. Doctor Nishizawa was originally dispatched from the Primate Research Institute of Kyoto University as a volunteer in 2011. When I arrived, she was fully engaged in her activities as the person responsible for the Neonatal Department of JDWNRH.
The neonatal division was managed by a very limited number of staff; Doctor Nishizawa and 2 residents. They were in charge of more than 50 patients in 5 units: NICU (acute/severe conditions), HDCU (mild conditions), phototherapy unit, kangaroo-mother care (KMC) unit, and unit for newborns in normal conditions. In 2013, the number of inpatients admitted to the NICU was 450, and that to the phototherapy and KMC units was 1,600 in total, in addition to 36 very-low-birth-weight inpatients weighing less than 1,500 g. I was surprised to hear such a markedly higher number of NICU patients in Bhutan compared with Japan.
My activities included: (1) making rounds in the NICU and HDCU, (2) providing ultrasonography guidance in the NICU, (3) treating pediatric ward and PICU patients and pediatric outpatients with congenital heart diseases, and (4) giving lectures. Among these, I gave importance to the promotion of ultrasonography use in the NICU. In Japan, all doctors in charge of the neonatal ward independently perform heart, head, and abdominal ultrasonographies to clarify the presence/absence of congenital heart disease and evaluate hemodynamics for premature infants, in addition to tissue bloodstream measurement and intraventricular hemorrhage diagnosis. This tendency is globally unique, and regarded as a factor contributing to the lowest newborn mortality rate in Japan compared with other countries. Expensive echography devices are not necessary. It is sufficient only with 2-dimensional and Doppler systems. As a portable echography device was available, I conducted examination for NICU and HDCU patients using it. While supervising residents, I examined all inpatients admitted to the NICU daily. In the second week, I could see the residents independently perform echography when I visited the ward before making a round. Although it was not feasible to provide technical guidance for accurate diagnosis within the 2-week period, I had the impression that their level of medical practice for newborns will improve if they begin to use ultrasonography as a daily diagnostic instrument, similarly to stethoscopes. While implementing my duties in the NICU, I also received a large number of requests from the pediatric ward and outpatient division for examining patients with heart diseases. As cardiac surgery was not domestically feasible, such patients were transferred to India; to my surprise, pulmonary hypertension as a complication was markedly prevalent among both pre- and postoperative patients, regardless of the age or severity of anatomical abnormalities. This may be associated with Bhutanese patients' tendency to chronically be in a hypoxic condition due to the high altitude of the capital Thimphu, at 2,300 m.



Challenges and problems

Insufficient doctors and medical resources was a major problem. The number of pediatricians based in Bhutan limited to 8, including Doctor Nishizawa who was the only neonatal medicine specialist available, revealing her heavy burden. Monitors were also insufficient, making it difficult to monitor the heart rate and SpO2 level outside the NICU or HDCU; this led to sudden changes in the condition or death in the latter. In-hospital infection was also prevalent, particularly among premature infants admitted to the NICU. Furthermore, detected bacteria showed a high level of drug-resistance, making some cases refractory to treatment. In the NICU, although guidelines on the use of antimicrobial agents had been established, ICT-based approaches to further promote hand disinfection and environmental arrangements seemed to be useful.
Pediatric patients with heart diseases were referred to Indian hospital for surgery. However, half of such patients were regarded as inappropriate for surgery, and returned untreated, indicating the necessity of training for the appropriate diagnosis and management of congenital heart diseases.
Another point I noted was occasionally insufficient collaboration among internal departments. In perinatal medicine, collaboration between the Department of Obstetrics and neonatal ward is particularly important; however, in the hospital, it seemed to be frequently necessary to attend delivery using the cesarean method without sufficient information from the Department of Obstetrics. It may also be effective to promote cooperation between the Departments of Pediatrics and Pediatric Surgery and between the Departments of Pediatrics and neonatal ward, in order to comprehensively improve their level, as I emphasized during my last lecture.

Future perspectives

Bhutanese doctors' level of medical practice was generally high, and they showed active attitudes toward standardized practice based on appropriate guidelines and literature. On the other hand, also receiving a large number of volunteer doctors from the United States and Europe, their demands for us seemed to be high. As feasible medical practice is limited due to insufficient human and physical resources in Bhutan at present, it may be desirable to provide support for medical practice that is feasible and sustainable for a long period of time by clarifying the actual situation and classifying problems.
Dispatched team members usually discuss the content of support with host facilities before departure. However, actual settings may be markedly different from those expected. This frequently happens when working abroad, including in Bhutan. So, it is important to adopt flexible perspectives on each country, rather than attaching to common senses in Japan.
To those dispatched to Bhutan to support neonatal medicine in the Department of Pediatrics, the presence of Doctor Nishizawa may be of great advantage when discussing before and performing activities after being dispatched.
Please also take this opportunity to enjoy the beautiful nature, majestic temples, and nostalgic town landscapes of Bhutan, as well as delicious Bhutanese cuisine.

Impressions

I would like to express my sincere gratitude to those involved of Kyoto University Hospital, Shizuoka Children's Hospital, and JDWNRH for providing me with such a valuable opportunity. When based on economic indices, Bhutan is among the poorest countries. However, Bhutanese people I met were religious, respected nature and gods, and gave importance to family and community bonds. They were also proud of their nationality. These characteristics seemed to explain why Bhutan is called the "country of happiness". Hospital staff were highly motivated, and showed enthusiasm for improving the quality of domestic medical services. My contribution to Bhutan during a short period of 2 weeks was very limited; I rather learned a lot from it.

Report of the activities of the sixth team

Term: September 16, 2015 – December 1, 2015

Nurse, Nursing Department

Ai Matsuyama

Content of activity

I worked as a nurse on the surgery ward for 3 months. Our duties included welfare support for postoperative patients (mainly the monitoring of their general status, drain management, and hygiene maintenance), and the provision of knowledge and skills regarding actions to be taken when their physical condition rapidly changes. The coming and going of patients due to surgery and admission/discharge frequently occurred on the ward, and so we were always aware of the significance of safety management. We repeatedly taught ward staff and nursing students the importance of predicting and avoiding potential risks, nurturing a safe environment for patients, and considering what to do to achieve these purposes. In Bhutan, physical care for patients is provided mainly by their families. To prevent indwelling needle- or tube-related accidents and infectious diseases, we provided such families with guidance laminates showing the methods for appropriate patient management.

In addition, instead of leaving patient care entirely up to families, we routinely assessed whether or not the needs of patients were being met, and provided these families with necessary explanations. When we performed hygiene maintenance with nursing students, they realized from experience that, such maintenance not only keeps patients' sanitary conditions, but also provides opportunities to monitor their general skin condition and communicate with their families. I was glad about this.

Although study meetings on BLS were conducted by the fifth team, such meetings were also held by the sixth team in cooperation with emergency physicians with the aim of advancing staff members' expertise. Furthermore, in a practical setting, we learned about necessary actions to be taken on the surgery ward. In addition to organizing the materials on the emergency carts, we equipped these carts with supplies needed at the time of intubation, as well as with laminates showing how to fix intubation tubes, in order to facilitate prompt responses in emergency cases.

As the 5S activities have become a common practice since the intervention by the first team, I often noted ward staff spontaneously keeping supplies tidy and ordered when they had spare time.

As an out-of-hospital activity, we attended Bhutan's first ever international medical conference, during which time we were able to deepen our knowledge regarding the country's medical practice, related issues, and traditional medicine. During the conference, we perceived participants' seriousness and enthusiasm, as they actively asked questions and exchanged opinions.

Challenges and problems

At the hospital, surgery is performed 3 days a week, nearly 20 times a day. Many patients undergoing surgery are admitted the day before surgery, and will be discharged the day after surgery if their clinical course is normal. Nurses spend much time doing paperwork for admitted/discharged patients, and transcribing data from the specified manual for drugs and injections. Hence, there is a need to promote efficiency and rationalization in their duties in order to improve the quality of nursing practice.

In addition, the surgery ward lacks in biological information monitors; for example, the ward has only one ECG monitor and one SpO2 monitor. As malfunction of these devices frequently occurred due to the absence of regular checking, ward staff perceived that values shown by the devices were not fully reliable. On the other hand, they tended to rely on biological information monitors instead of supervising patients through basic physical assessment. Although it is important to procure necessary medical equipment and improve its quality, postoperative acute-phase management may be conducted more safely by improving practical skills for physical assessment with 5 senses (e.g., visual examination and auscultation). Some staff members had such skills, but they generally did not share their knowledge or skills with other healthcare providers. Thus, there was a critical need to produce leaders from ward staff, and facilitate education for current nurses as a common practice.

Future perspectives

During my dispatch period, the radiologists and emergency physicians from the same team sometimes provided medical care for patients on the surgery ward. These physicians taught me about expected complications and the detailed procedures for treatment, and such knowledge was very useful for nursing practice. If using handwriting medical records or delivering patient information orally, it would be difficult to keep track of patients' treatment courses and medical conditions. I hope that physicians and nurses will be dispatched together to the surgery ward so that they will be able to effectively perform a series of procedures from treatment, to patient management, and then to nursing care in a cooperative manner.

Of all our activities in Bhutan, the most challenging task was to consider how and in which order the identified issues should be tackled in consideration of the country's culture, medical practice, and healthcare systems. Initially in the dispatch period, we aimed to nurture a favorable relationship with ward staff, nursing students, patients, and their families, and understand our daily duties with the help of these staff members. Thus, it was not until we became familiar with these duties that we began to educate ward staff and nursing students. These staff members are generally warm-hearted and easygoing, and it may be better to approach them in a manner so that they will be able to note and tackle medical issues by themselves.

Impressions

In Bhutan, we met many local people with different cultures and habits, realized that they greatly value ethnicity (pride and history), and visited various local places, such as grand temples situated on a steep mountain surface. All these experiences were fresh and impressive for us. We also felt these people's kindness and thoughtfulness frequently. For example, a patrolling hospital guard provided translation for me and patients when we had difficulty communicating with each other, and local children showed me the way when I became lost outside the hospital. Such kindness and thoughtfulness gave me valuable opportunities to reflect on my humanity and views of nursing practice.

I am grateful that we were able to complete our 3-momth project due to support from many people involved in the dispatch project. I am also grateful to other members of my team, patients, and their families. Thank you very much.

Report of the activities of the sixth team

Term: September 16, 2015 – December 1, 2015

Nurse, Nursing Department

Ikumi Ueda

Content of activity

I worked on the pediatric ward of JDW Hospital for 3 months. In addition to this ward, the hospital has a neonatal ward, NICU, and PICU adjacent to the obstetric ward. On the pediatric ward, many patients had infectious diseases (respiratory and gastrointestinal), low birth weight, malnutrition associated with developmental retardation, fever convulsion, burns, or injuries. In general, Bhutanese patients with hernia or relatively mild diseases undergo surgery in Bhutan, and those with severe diseases, including heart disease, undergo surgery outside the country. In JDW Hospital, nurses are responsible for the admission procedure and other daily routines (e.g., measurement of body temperature, medication, blood collection, and injury treatment); however, personal concerns, which are within the scope of nurses' duties in Japan, are taken care of by families in Bhutan. I often saw Bhutanese families devotedly looking after their children in the hospital.

Initially in the dispatch period, we aimed to understand the current state of the pediatric ward with the help of ward nurses. In addition, as a part of the 5S activities, we made efforts to improve the environment of patients' bedrooms and care rooms. Because we often noted that medical supplies were lacking when they were needed, we organized the repositories for these supplies, and made labels showing their designated position. Furthermore, we created a form facilitating the prevention of supplies from being out of stock at the care rooms.

Concerning needles, we often had difficulty collecting blood from pediatric patients and securing their intravenous route. Previously, needles used for a single patient were collectively stored in a tray, which imposed a high risk of needlestick accidents on nurses. The number of needle boxes was not sufficient, and they were too large and breakable to be portable. Against this background, we created simple mobile needle boxes using cups located on the pediatric ward.

In addition, we prepared brochures used to educate patients' families. In Bhutan, consulting a hospital is not as common as it is in Japan, maybe because the number of hospitals is limited, and maybe because patients do not know on what basis they need to go to a hospital. The above-mentioned brochures cover pediatric patients' common symptoms (e.g., a fever and rashes) and childraising-related information (e.g., bathing, suction, and immunization). We helped nurses to provide patients' families with appropriate guidance using these brochures.

Challenges and problems

In Bhutan, a shortage of both hospitals and medical staff (e.g., physicians and nurses) exists. Similarly, hospitals lack of drugs, medical equipment, and linen needed to nurture a favorable care environment. It has not been many years since the education of nurses began in Bhutan, and I perceived that the country was still in the process of developing methods to educate these healthcare workers. In addition, although nursing students were provided with many opportunities for clinical training, I felt that they had difficulty receiving education from nurses. The major reasons for this were because nurses were too busy with their work to educate these students, and because they did not know appropriate education approaches due to their limited teaching experience, as well as to the fact that providing such education was not a common practice in Bhutan. By establishing systems facilitating the fostering of college professors, and by developing education systems for nurses, it may become possible to provide high-quality nursing care in the future. In addition, I thought that the quality of medical care provided at JDW Hospital may improve if information sharing is promoted not only among nurses, but also between nurses and other professionals as well as workers from other wards/departments. Furthermore, as Bhutan heavily depends on the import of medical supplies from other countries, it requires large amounts of money and time to procure them; therefore, the hospital often lacks such supplies. Because the presence or absence of medical supplies significantly influences medical care, it is important to consistently obtain these supplies, and appropriately manage their stock.

Future perspectives

I thought that it was difficult to understand and practice the medical care of Bhutan soon after arriving there. It may be important to first understand local people and the country's cultures, such as customs, religions, and lifestyle. In general, Bhutanese people are very kind and religious, and greatly value their bonds with families. In addition, they have the cultural perception that families should be prioritized over work. Furthermore, the medical techniques and equipment of Bhutan have rapidly advanced. The country is aiming to improve the quality of medical care while actively receiving various types of support from other countries.

During the 3-month dispatch period, I re-recognized that, in Japan, medical care is advanced in various ways and careful attention is being paid to patients, their families, and healthcare providers. When I stayed in Bhutan, the development of ideas in an unfamiliar medical environment was more challenging than I had expected.

I thought that the roles of dispatched members are to understand the current state of Bhutan's nursing and medical care with the help of local staff, and to consider how medical care ought to be in the country based on its future prospects.

Impressions

I originally did not expect that I would be provided with an opportunity to practice medical care outside Japan. I was glad that I was able to work in Bhutan as a member of the dispatch teams mediating between Kyoto University Hospital and JDW Hospital. Although I did not know anything about Bhutan at first, during the 3-month dispatch project, I was able to spend a meaningful time due to support from many different people, such as staff members of both JDW Hospital and University of Medical Sciences of Bhutan, patients, and their families. In addition, before going to Bhutan, the nursing chief and other staff members of the pediatric ward encouraged me on the dispatch project, and staff members of the nursing and administrative affairs departments helped me in various ways. I am really grateful to these people.

During my stay in Bhutan, I had many different experiences, ranging from living a local life to working in an unfamiliar medical setting. Through these experiences, I was able to re-recognize the importance of interpersonal relationships and mutual cooperation. I hope that these relationships will continue to deepen between Kyoto University Hospital and Bhutan.

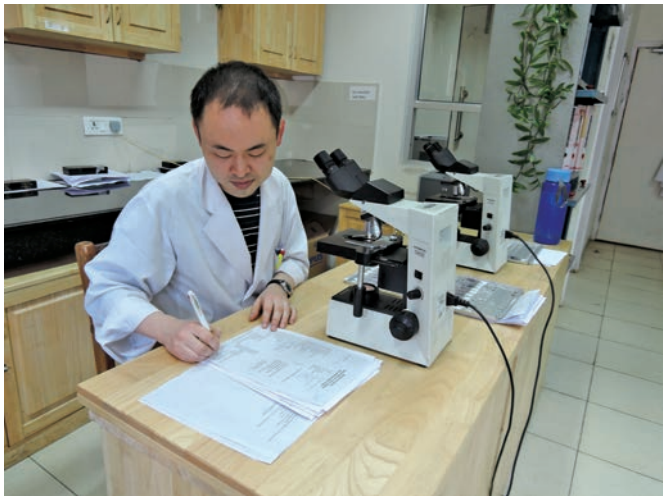
Kyoto University Hospital
Department of Diagnostic Pathology
Report of the activities of the seventh team
Term: January 8 – 29, 2016

Senior Lecturer,
Department of Diagnostic Pathology
Akihiko Yoshizawa

Clinical Laboratory Technician,
Department of Diagnostic Pathology
Masahiro Hirata

Content of activity

I worked at the JDWNRH Department of Pathology and Laboratory Medicine from January 8 to 28. This department had 3 pathologists. The Histology/Cytology Unit had 10 medical laboratory technologists, and 6 of them were also cytotechnologists. Some of these staff members belonged to the military.
In addition to duties similar to those performed by Japanese pathologists, local pathologists were required to perform fine-needle aspiration cytology (FNAC) [e.g., puncture of head/neck tumors and the mammary gland] at the specified place within the above-mentioned unit. They also provided direct consultations for patients and their families regarding pathology reports. No specific requests were made to us by these pathologists; however, with the aim of understanding the current state of the hospital, Yoshizawa excised surgical samples, prepared pathology reports regarding biopsy and surgical materials, assessed the quality of immunostaining, gave advice to local pathologists, and provided consultations for patients' families (hospital staff). Although pathology and cytodiagnosis reports were managed using a laboratory information system (LIS), it was not user-friendly, and these reported were generally managed using record books. As such books are not suitable for retrieving data or performing analyses, we proposed report management using MS Access databases on PCs in the laboratories. However, we were not able to create such databases because of a lack of time and other reasons.
Hirata was requested to cooperate in various activities, particularly helping local staff improve skills for histopathological sample preparation and immunohistochemical analysis (immunostaining) at the Histology Unit. In addition, this member proposed appropriate sample treatment, as well as special staining performed in a simple and convenient manner. At the hospital, immunostaining was previously performed by only 1 local technologist who had undergone just 1 week of training. While working on staining with this local staff member, Hirata advised them on the methods for condition settings, as well as on how to appropriately choose antibodies and detection systems. Our time working at the Cytology Unit was short, during which we mainly performed cytological and microscopic test (screening). In spite of slight differences in the methods of sample preparation and staining between Japan and Bhutan, we had no difficulty making diagnoses. Unlike our medical center in Japan, at the hospital in Bhutan, cytodiagnosis was mostly given to gynecological patients, and most of the non-gynecological samples were used to give needle aspiration cytodiagnosis for people with suspected tuberculosis. These findings were not familiar to us. Concerning the accuracy management of cytodiagnosis, the hospital maintained a quality similar to that of our medical center in Japan. Multiple local cytotechnologists performed double-screening for all patients requiring cytodiagnosis, including those with negative results in the first screening, which was noteworthy.



Challenges and problems

If the medical care of Bhutan continues to develop, the need for pathological diagnosis would grow, in which case the largest issue would be a shortage of pathologists. Of the 3 above-mentioned pathologists, 1 was a former physician who had already retired, and 1 was a soldier. Thus, the remaining chief pathologist had ultimate responsibility. Similarly, in the accuracy management of cytodiagnosis, the shortage of pathologists may preferentially need to be addressed.
There is also a need to procure necessary supplies and help local staff develop their medical skills. At the Histology/Cytology Unit, to which the majority of Bhutanese samples are transported despite unfavorable traffic conditions, we noted a disparity in the quality of samples particularly due to a difference in sample fixation conditions. In addition, although the hospital had basic medical equipment, it was difficult to obtain some reagents, devices, and books, which was another issue. Furthermore, as only the minimally required tests are ordered because of the pathologists' time restraints, they have limited opportunities to develop their skills for immunostaining and special staining. Moreover, we suggest room for improvement in the hospital's occupational safety and health, such as countermeasures against harmful substances (e.g., formalin and organic solvents) and the prevention of incised wounds.

Future perspectives

Our dispatch team may not have markedly contributed to the Histology/Cytology Unit. When I talked to the local chief pathologist about our team's performance, I found out that they desired the long-term dispatch of Japanese pathologists, or the introduction of other pathologists from Japan. This desire may be the most important consideration in our pathologist-dispatch project.
The Histology/Cytology Unit had highly-skilled staff and basic equipment, but it was difficult to obtain some supplies needed by the unit. In general, supplies used at such units are not expensive or difficult to utilize. The work performance of the Histology/Cytology Unit may markedly improve through procuring such supplies (e.g., knifes used for sampling). In addition, as it is expected that the number of samples will increase in Bhutan, there is a definite need to create databases accordingly. For this purpose, it may be necessary to provide both physical and human resource support.
Long-term dispatch project places a burden on our colleagues during our absence. Concerning technical education for technologists at the hospital, it may be reasonable to invite them, and conduct technical training at our hospital.

Impressions

In Bhutan, where I had the impression that citizens were commonly very gentle, things were not abundant, and the lack of social infrastructure and medical resources was significant; however, I felt that citizens' lives were nowhere near poverty, which could not simply be explained by free medical care and education. While reflecting on the situation of Japan, in which mental illness is prevalent partially due to a vast amount of unnecessary information (although financial poverty also exists), I constantly considered my duties in Bhutan, and was personally able to spend a meaningful time. Although not sure whether our dispatch team has contributed to Bhutan and local hospitals, I strongly felt the need to maintain our bonds in various senses. (Yoshizawa)
I was able to learn a lot from our dispatch project, in which local staff regarded accuracy management and medical safety as of major importance despite limited supplies and staff members. At Kyoto University Hospital, accuracy management and double-checking are not fully practicable due to inappropriate role-sharing and pathological diagnosis division staff assignment (double-screening is performed for 10-20% of the individuals requiring cytodiagnosis). For example, pathological department staff members are required to do things other than their own work, such as being on night/day shift. From the perspective of ensuring medical safety (prevention of sample mix-up and missed malignant cells), I re-recognized the need to review the operation systems of our hospital. (Hirata)

Kyoto University Hospital
Department of Otolaryngology
Report of the activities of the seventh team
Term: January 11, 2016 – March 19, 2016

Clinical Fellow,
Department of Otolaryngology
Head and Neck Surgery
Chiaki Suzuki

Assistant Professor,
Department of Otolaryngology
Head and Neck Surgery
Morimasa Kitamura

Assistant Professor,
Department of Otolaryngology
Head and Neck Surgery
Tatsunori Sakamoto

Content of activity

From the Department of Otolaryngology, 3 members were individually dispatched for approximately 1 month (January 12 to February 4, 2016: Suzuki; February 2 to 28: Kitamura; and February 24 to March 18: Sakamoto). Before starting to assist surgical and outpatient procedures, we confirmed the current status of otolaryngological services in Bhutan, such as the skills and knowledge of domestic otolaryngologists, availability of necessary instruments and supplies, and medical service systems.
At that time, there were 5 otolaryngologists based in Bhutan; 3 in JDWNRH, 1 in Military Hospital, and 1 who was absent to participate in training related to head and neck cancer treatment in India. In JDWNRH, the 3 doctors had performed approximately 850 surgeries annually. Surgery was performed on Wednesday and Friday, and the other days of the week were allocated to outpatient services. While general otolaryngological diseases were well-managed, local staff's technical skills to deal with more specialized fields were slightly insufficient, possibly due to the absence of domestic supervisors. Furthermore, Bhutan's dusty and dry climate was associated with the development of upper respiratory tract diseases, resulting in a high prevalence of otorhinological diseases. Thyroid diseases were also frequently observed, presumably due to a limited seafood intake. Considering such a situation, we aimed to improve local staff's technical skills by providing guidance mainly on otology, rhinology, and craniocervical head and neck surgery.
In surgery, otological, rhinological, and head and neck minor procedures accounted for the majority. As radiotherapy devices were unavailable, treatment for patients with head and neck cancer was not feasible, leading to the necessity of transferring most of them to hospitals in India; when the doctor in training in India returns, surgical treatment for such patients may become feasible. We also discussed differences in surgical techniques between Japan and Bhutan, with a view to improving systems to provide medical services in local environments. While endoscopic sinus surgeries are becoming standard treatment methods on a global basis, particularly in the field of rhinology, such procedures were still unfamiliar to local doctors. Thus, we gave lectures on methods and techniques for them to appropriately use endoscopy, with explanations of related anatomy.
A 3-month period was too short for us to provide sufficient guidance, making us realize the necessity of continuing to provide support.

Challenges and problems

Local doctors' expertise seemed not to be insufficient, as they had been trained abroad. They also appeared to be sufficiently motivated to educate interns. On the other hand, although they had mastered methods to deal with general otolaryngological diseases, they had not completed fellowship programs in more specialized fields (otology, rhinology, head and neck surgery, and laryngology). Therefore, they tended to use techniques in their own, immature ways. As they showed active attitudes toward the provision of medical services, such as asking doctors from other countries to cooperate with them to improve their technical skills and adopt new techniques, it may be possible to improve the situation by providing guidance in each field.
Local staff also had difficulty in appropriately using diagnostic imaging techniques, such as CT, and the preoperative confirmation process using anatomical images was frequently omitted. At this point, technical improvement is likely to be further promoted if we also provide approaches for local staff to develop appropriate attitudes and planning skills in the field of surgery, as well as diagnostic imaging.
Outpatient services were being provided without major problems, in general, but there was a serious shortage of instruments, and they were reused after simple sterilization. As the department of otolaryngology also treats a number of patients with a chief complaint of airway symptoms or tumors of the cervical lymph node in the presence of tuberculosis, it seemed to be desirable for local staff to disinfect instruments more appropriately, and avoid reusing them. This also highlights the necessity of not only personnel, but also equipment support for Bhutan.

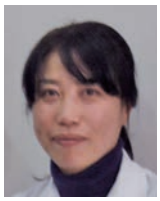
Future perspectives

In order to improve Bhutanese doctors' skills, it is necessary to understand the national trait of this country. Bhutanese people are very religious, give importance to the proprieties, and treat others with broad-mindedness; therefore, they sincerely listen to our opinions. However, considering differences in cultural and economic conditions between Bhutan and Japan, it may be inappropriate for us to force them to accept our opinions, and perform their activities in the same manner as we do. What we should do first may be to confirm their actual situation, and consider together appropriate methods to improve their medical service systems on a step-by-step basis. In this respect, continued support is necessary, and we have to develop a positive view of this country through active communication with Bhutanese people.
In Bhutan, nature remains intact, and trekking and sightseeing are recommended. Staying in Bhutan is a valuable experience in terms of not only the provision of support, but also personal life.

Impressions

We visited Bhutan with anxiety about our abilities to sufficiently support its medical service systems. Although we had physically and mentally hard times at the beginning, we could get through with warm-hearted support from local staff. All of them were very kind and friendly, and they seemed to be proud of being Bhutanese. We were also helped and gently treated by many people outside the hospital. Through these experiences, we became fond of the character of Bhutanese people.
Local staff were making efforts to provide treatment to the possible extent, while fully recognizing insufficient medical devices and drugs within the country compared with others. We assisted them, considered appropriate methods of treatment together, and realized that it is also necessary to support their equipment and devices, in addition to providing personnel support.
Lastly, we would like to express our deep appreciation to Kyoto University Hospital staff who agreeably sent us off, as well as Bhutanese doctors, technologists, nurses, and clerical staff who supported us to manage situations during our stay. Hopefully, support for Bhutan to improve its medical service systems will be continuously provided.

Kyoto University Hospital
Microbiology Laboratory, Department of Clinical Laboratory
Report of the activities of the seventh team
Term: January 8, 2016 – February 5, 2016



Clinical Laboratory Technician,
Department of Clinical Laboratory

Yoko Tanaka

Content of activity

I was engaged in clinical laboratory services in the Microbiology Laboratory, Department of Clinical Laboratory for 1 month. The local coordinator retired during the coordination of my duties, and I was dispatched before the appointment of his successor. So, I did not know whom I should contact to confirm the contents of my activities, but I went anyway to the Microbiology Laboratory. Local staff treated me gently, although they had possibly not been notified of my arrival in advance.
As I had never been dispatched to a laboratory department until that time, the current status of laboratory services in Bhutan was unclear. Therefore, I visited the BHU (Basic Health Unit) and Wangdicholing Hospital in the Bumthang area, in addition to JDWNRH as the largest medical institution in Bhutan and main base for my activities, to collect information.
During my stay, I mostly worked in the Microbiology Laboratory of JDWNRH. The Microbiology Laboratory consists of 4 sections: Serological Test, Parasitology Test, General Bacterial Examination, and Mycobacterial Examination. I was assigned to the Section of General Bacterial Examination. Similarly to those in Japan, my duties included: culture media preparation, Gram staining, cultivation, colony picking, and identification and susceptibility tests. However, unlike in the Department of Clinical Laboratory of Kyoto University Hospital, most procedures were manually performed. On the other hand, SOPs (Standard Operating Procedures) were well-established, and external accuracy management was performed based on the PPTC Quality Assessment Programme. WHONET had also been used to enter test results and print them out since 2015.
Specimens were transported from wards, and collected after the termination of outpatient services by ward staff. In some cases, they were directly returned by patients themselves or their families. As test results were not shared using online systems, it was necessary for ward staff to receive ward patients' results at appropriate times. In the case of outpatients, patients themselves or their families had to visit the Outpatient Reception or Department of Laboratory Medicine to receive their results.
In such an environment, I realized my dependence on equipment in Japan in which systems are frequently automated. As I was unaccustomed to manual procedures, local staff taught me various points while working together. Actually, there was much more for me to learn from their enthusiasm and sincere attitude toward their duties despite insufficient equipment and human resources than to teach them.

Challenges and problems

I noted insufficient specimen preservation and culture media storage periods, as well as inappropriate bacterial strain storage, fungi-, and anaerobic culture methods, presumably due to limited budgets and equipment. There were also occasional reagent shortages, indicating the necessity of storage management to ensure stable supply throughout the year. However, it seemed to be difficult to resolve this, as medical supplies are inevitably imported from other countries, and delivery times influence such supply.
Furthermore, in order to implement standard precautions on a facility-wide basis, it may be necessary to improve the layout of the laboratory, as some patients or their families unintentionly entered it when submitting their specimens or receiving test results. While limited budgets should also be considered, the implementation of feasible improvement plans may be necessary.

Future perspectives

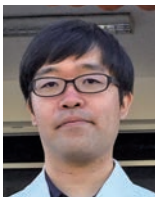
On the other hand, in 2015, the use of software WHONET started, facilitating the development of antibiograms with extensive data. In line with this, analysis to use such data in clinical environments was launched. However, as patient identification numbers are not used for patient management, it may be difficult to collect detailed data, such as those regarding a single specimen of a single patient. They were also considering electronic medical recording system use in the future; such systems may enable them to perform patient identification procedures more appropriately and perform higher-accuracy analysis.
In Wangdicholing Hospital located in the Bumthang area I visited, there were 3 medical technologists, including 1 Japan Overseas Cooperation Volunteer. Being shy, Bhutanese technologists did not ask me anything directly, but the Japanese volunteer told me that they were eager learners, and they wanted to discuss various issues with me. I also heard that a staff member in charge of Papanicolaou staining in the Department of Gynecology was very eager to meet the Japanese medical technologist dispatched from the Department of Diagnostic Pathology with me.
JDWNRH is the highest-level medical institution in Bhutan. In order to contribute to medical services in this country, it may be effective to support technologists working in prefectural hospitals, as a few are assigned to each of such hospitals.
It may also be necessary for Kyoto University Hospital to invite Bhutanese staff for training, and provide them with the opportunity to observe actual laboratory services in Japan.

Impressions

Bhutan is a country with abundant nature, located at the eastern end of the Himalayan mountain district and based on GNH (Gross National Happiness). I had been looking forward to visiting it ever since I initially heard of this dispatch plan. I became anxious when contact with the local coordinator was interrupted, but local staff treated me gently and kindly after receiving me warmly.
Even before departure, I had been supported by many people. For example, explanatory meetings and gatherings for communication with previously dispatched team members were held for me. I would also like to express my gratitude to my colleagues for sending me off agreeably despite their busy schedules. Although the period was limited, I could spend enjoyable and productive days. Thank you.

Report of the activities of the seventh team

Term: February 2 – 29, 2016



Graduate Fellow/Doctor
Department of Infection Control and Prevention

Yasuhiro Tsuchido

Content of activity

Representing the Department of Infection Control and Prevention, I performed activities for 1 month to comprehensively evaluate the current status of infection-related services in JDWNRH. In the absence of domestic doctors specializing in infectious diseases, a clinical microbiologist had belonged to the hospital, and participated in the infection control team (ICT) until the last year. When I was dispatched, he was absent to study abroad, and ICT activities were being performed by nurses and medical technologists in charge of bacteriological examination. Thus, during my stay, I mainly observed the duties of medical technologists in charge of bacteriological examination, and participated in ward services, such as rounds made by the Department of Internal Medicine, to clarify the statuses of their bacteriological examination and infectious disease treatment/infection control systems

According to the data collected by the WHO, lower respiratory tract infection was the third leading cause of death, at 6.5% (the first and second leading causes were ischemic heart and chronic obstructive pulmonary diseases, respectively, at 8.2 and 7.3%, respectively) in 2012 in Bhutan. In actual inpatient settings, the incidence of pneumonia was also markedly high. Similarly, based on the statistics published by the organization, tuberculosis had also been a problem in this country, as its incidence of per 100,000 persons was as high as 190. In line with this, there were increased concerns over multidrug-resistant tuberculosis that was observed among 2.2 and 35% of patients with new onset and recurrence, respectively. Multidrug-resistance was also a serious issue in the area of general bacteria, and the Ministry of Health had begun to adopt countermeasures against drug-resistant bacteria.

Regarding multidrug-resistant bacteria, accurate data were not yet sufficiently available, as appropriate examination or surveillance had not been conducted up until that time. Based on the antibiograms (antibiotic sensitivity test results) obtained during my stay, while the prevalence of MRSA remained at 20%, nearly half of *E. coli* and *Klebsiella* spp. were not susceptible to third-generation cephalosporins, suggesting high-level resistance to ESBL and other antibiotics. However, as ESBL- or carbapenem-resistance tests were not conducted in the microbiology laboratory, they were not recognized as drug-resistant bacteria. A similar situation was observed on wards with poor infection control. Furthermore, although carbapenem-resistant Enterobacteriaceae (CRE), multidrug-resistant *Pseudomonas aeruginosa*, and multidrug-resistant *Acinetobacter* spp. were detected in some cases, their prevalences were likely to have been underestimated, as sensitivity examination was not conducted for all antibiotics in all cases. In short, the prevalence of drug-resistant bacteria was higher than expected. In addition, in the area of tuberculosis, only smear-positive specimens were targeted for culture, and data related to smear or culture sensitivity were not appropriately shared, indicating the presence of various systematic problems.

Challenges and problems

In the Department of Internal Medicine, there were a large number of inpatients with community-acquired pneumonia, and common infectious diseases, such as urinary tract infection and cellulitis, were occasionally observed. Local staff's policy on antibiotic use for community-acquired infection was reasonable, but the examination of fever among inpatients was insufficient (only a single set of blood culture; blood collection was even not performed in some cases), and antibiotics were extensively administered, revealing non-compliance with the principle of identifying infected organs and microbial pathogens. The implementation of cleanliness procedures was also insufficient; for example, during central venous catheterization, only sterilized gloves were worn without gowns.

Regarding countermeasures against drug-resistant bacteria, as previously mentioned, such bacteria were frequently overlooked, as appropriate examination was not conducted in the microbiology laboratory. On the other hand, the purchasing of new examination devices was being considered to improve the situation. On wards, hand-washing equipment was limited, but alcohol solutions to disinfect the fingers were sufficiently stored (although staff's compliance with the hand hygiene process was insufficient). Drug-resistant bacteria-carriers were not appropriately isolated, and preventive measures against contact transmission were rarely implemented. The prevention of tuberculosis transmission through the air was also a major challenge. The tuberculosis ward was located at some distance from other wards on the premises; however, it was not managed under negative pressure. Windows and doors were left open, while patients used N95 masks, rather than surgical masks, indicating the absence of appropriate preventive measures. Medical device sterilization and disinfection were also insufficient. In addition, cotton was soaked in alcohol before use. In order to address such a large number of challenges, it may be necessary to initially establish appropriate systems for the identification and reporting of drug-resistant bacteria, as well as infection control and surveillance in medical services, with a view to comparing between before and after intervention.

Future perspectives

From the viewpoint of infectious disease treatment and infection control, dispatching doctors specializing in infectious diseases to provide education regarding infectious disease treatment, infection control doctors (ICD) and nurses (ICN) to provide education for infection control improvement, and medical technologists specializing in bacteriological examination to establish appropriate bacteriological examination systems (to manage both general and acid-fast bacteria) may have sufficient significance, and local staff's demand for this seemed to be high. In order to provide infection control education for local staff, it may also be appropriate to invite them to Kyoto University. With system improvement in multiple medical departments, it is likely that the importance of infectious disease treatment and infection control will further increase in the future.

While the provision of guidance for local staff by dispatched members as human resources is important, the review and improvement of infectious disease treatment and infection control systems from more extensive perspectives are also essential. As medical costs are fully covered as a national expenditure at present, cooperation with the Ministry of Health and Government is indispensable to ensure the availability of necessary drugs, in addition to the feasibility of examination/surveillance. During my stay, I had the opportunity to hold a brief discussion with the person of the Ministry of Health in charge of countermeasures against drug-resistant bacteria. From now on, continued discussions with not only JDWNRH, but also the Ministry of Health, to address major challenges such as: improving methods to examine general and acid-fast bacteria and systems to report the results of such examination, as well as surveillance systems; determining policies on the approval of antibiotics; and ensuring the availability of sufficient manpower for infection control and supplies, may be necessary.

Impressions

I found daily life and medical services in Bhutan unexpectedly advanced in some aspects, and amazingly simple in others. In short, a 1-month stay in this country was a very exciting experience for me. Although I initially doubted whether it is appropriate to help the "Nation of Happiness" for the advancement of its medical systems, the provision of support may have significance as long as JDWNRH staff and the person of the Ministry of Health in charge desire improved infection control.

This stay was also productive for me personally in terms of knowledge and skills, enhancing my motivation to participate in medical support activities again in Bhutan or other countries if given the opportunity. Lastly, I would like to express my sincere gratitude to those involved of Kyoto University and JDWNRH for giving me such a valuable opportunity, as well as doctors and other members of the Department of Infection Control and Prevention who agreeably sent me off.

Jigme Dorji Wangchuck National Referral Hospital

10. Our Exchanges

Dean of the Graduate School of Medicine and the Faculty of Medicine, Kyoto University
Prof., Department of Hepatobiliary Pancreatic Surgery and Transplantation
Shinji Uemoto

In the evening of October 28, 2013, I departed from Kansai Airport as the leader of the 1st team to the Kingdom of Bhutan, and then arrived at Paro Airport in a surprising valley. On the day of our arrival, the president of the University of Medical Sciences of Bhutan as well as other people from the university visited us and explained to us the schedule of our stay in Bhutan. I went to bed quite early at night, but I woke up surprised by the howling of dogs at midnight. I had heard that in this country of very religious Tibetan Buddhism, killing is forbidden and it has led to an increasing number of dogs, but the howling in big chorus at midnight was a surprise in Bhutan. On the next day, we signed an MOU at the royal hospital. The MOU between three parties, namely the Ministry of Health of Bhutan, the University of Medical Sciences of Bhutan, and Kyoto University Hospital, states promotion of mutual exchange involving medical care and medical research. The people of Bhutan spoke about the long history of friendship between Kyoto University and the Kingdom of Bhutan in disaster prevention and agriculture, and gave a message of gratitude concerning the eventual collaboration in the medical field thanks to the effort of Prof. Michiaki Mishima, the director of the Kyoto University Hospital then. I spoke about Kyoto University Hospital's plan to provide help in introducing clinical training system for medical school graduates in Bhutan as a starting point for helping the Kingdom of Bhutan train doctors in the country and develop medical service. At the same time, I stated out expectation for the Kyoto University Hospital's global progress based on the career development of the medical staff dispatched from Kyoto University Hospital through the experience of working internationally. In the afternoon, we learned about the traditional medicine taught at the University of Medical Sciences of Bhutan. (It is similar to the Sino-Japanese traditional medicine, but I believe that it is more advanced.) It is a profound study backed with a long history deeply related to the Tibetan Buddhism, and the students appeared to be very talented individuals who were specially chosen. At night we were invited to a welcome party around a bonfire on the university campus. We enjoyed the spicy Bhutanese dishes, strong Bhutanese original whisky, folk music, and folk dance.

The next day we were guided to clinics in mountainous region and Buddhist institutions, where we felt the feelings of gratitude held by the people of Bhutan. Even in a humble state, I felt that the care, including the minimum required medical care, provided for each citizen in this country, provides a sense of security which support happiness. I believe that we can learn many things from the Kingdom of Bhutan while continuing our support for educating medical staff in Bhutan.

From left in the first row: Dr. Pakila Drukpa (Registrar, Secretariat, University of Medical Sciences of Bhutan), Mr. Nima Wangdi (Secretary, Ministry of Health), Prof. Shinji Uemoto, Mr. Tandin Wangchuk (Minister, Ministry of Health), Dr. Kinzang P. Tshering (President, University of Medical Sciences of Bhutan)

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