Partnerships for sustainable health care systems – the International Medical Program approach

Editors:
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Region Östergötland

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Contents

1

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2

Foreword Region Östergötland

Alexander Höglund and Krister Björkegren

The International Medical Program (IMP) is unique in Region Östergötland by its contribution to better health care both locally and globally. The programme generates opportunities for individuals to gain new experience, develop as professionals, and at the same time, support the health care system in low- and middle-income countries. An international knowledge-sharing environment for health care contributes to an increased standard of global health and Region Östergötland is proud to be a part of that.

Great value is added when Swedish health care professionals establish contact with other health care systems and cultures. It allows them to contribute with their knowledge and treat diseases that are uncommon in Sweden, often under conditions that can differ significantly from their usual working conditions.

Another advantage is the gain in recruitment as a result of the stimulating and educational experience for employees. Curious and knowledgeable employees find great satisfaction in the exchanges and the experiences they receive. Cooperation with our partner countries is not primarily about aid. It is a mutual exchange that generates added value for all parties.

3

Introduction

Peter Berggren and Ruhija Hodza-Beganovic

The purpose of this anthology is to present some examples from existing and finished projects and activities that have been carried out within the framework of the International Medical Program (IMP). The programme started in 1995, and has undergone several changes and stages of development since then. These changes have been financial, organizational, and related to the objectives of the projects. However, our overall aim has not changed over the years: to provide safe and professional care for the patients in the locations where we have been working.

Many organizations and nations run aid programmes to make the world a better and safer place. At the IMP, the purpose from the start has been to support the development of local health care capabilities. This has focused mainly on the development and retention of clinical skills. In the last couple of years, this has transformed from individual skill development into support for local organizations to be self-sufficient in implementing continuous staff learning and provision of care. The projects have been structured as partnerships where the mutual benefit of the partners has been emphasized.

Intended audience for this book

There are several groups of intended readers. First, we would like the personnel who have been involved in IMP projects to see and understand the multitude of different projects and the number of people that have been reached and affected by the programme, in terms of patients whose lives have been changed, clinicians who have acquired skills, and clinics that can provide health care and cures for difficult and complex medical cases. Our Swedish participants have

attained special experience through participating in developing health care. The IMP model is a unique concept in how it is organized to deliver support to partner organizations. All personnel involved can be proud of their contributions and achievements.

Second, for the representatives from partner organizations, past and present, and the people affected by the projects, our intention is to present a comprehensive description, yet only a subset of the projects realized, of the partnerships and the impact the projects have made.

Third, it is important to us at IMP to describe the contribution made by Region Östergötland and the benefits our personnel and patients receive from the resources and time invested in these types of projects and partnerships. We are convinced that this kind of partnership programme offers a unique possibility for Region Östergötland, allowing the different departments at the hospitals and health care clinics in Östergötland to attract and hold onto personnel as an organization that offers a unique opportunity and rare form of competence development.

Then, the public – the taxpayers – to whom we are accountable to explain the benefits of this kind of programme.

In addition, researchers and future partnership stakeholders are also potential readers. The descriptions and narratives in this book might generate new ideas, new lessons for possible projects, or for those who want to make a change in their own way of working. This book also offers suggestions for research questions and empirical platforms.

And of course, you who are reading this book right now!

Structure of this book

The book contains several chapters describing different projects from the perspective of one or more of the persons involved. These range from clinical development to partnership views on the collaborations. It has not been possible to write a chapter for all the projects we have undertaken in the 25 years since IMP was established, but we have tried to include a broad selection and strived to include different stakeholders so that everyone's voice is heard.

The authors who were asked and have chosen to participate represent different geographical areas, different clinical specialities, different challenges and opportunities, and provide different perspectives. Medical doctors, nurses, medical engineers, politicians, partners and more have contributed.

The chapters are organized into several different areas: background to the

International Medical Program, and our view on the international projects, describing the IMP organization, its development and progress. The next chapters cover the geographic areas where we are active: first Bosnia and Herzegovina, then Kosovo, Kenya, and Ethiopia. The order is temporal. The first projects started in Sarajevo, Lukavica, Goražde, and Banja Luka. IMP then expanded to Pristina in Kosovo followed by Eldoret in Kenya, and lately Addis Ababa, Gondar and Bahir Dar in Ethiopia.

Brief background to the public Swedish health system and how it works

Region Östergötland is a politically governed organization, meaning that the region is governed by politicians elected by the residents of Östergötland in general elections every four years. Under the political leadership, there is also a Head Office with public officials, who are overseen by the Regional Chief Executive. IMP, as a department, reports directly to the Regional Chief Executive. The role and responsibility of the Regional Chief Executive in every region in Sweden are equivalent to those of a Chief Executive Officer in Charge.

In addition, IMP has an Advisory Board where representatives of Region Östergötland Head Office are briefed about the activities of IMP, and provide advice on legal, economic, and other issues regarding ongoing projects. In addition, new partnerships and involvement of new clinics in IMP projects are discussed.

Region Östergötland, as other regions in Sweden, is responsible for providing health care including dental care to the citizens, public transportation, regional development including community building, competence supply, entrepreneurship, tourism industry, culture, and public health.

Östergötland County covers 9,979 km^2 and has a population of about 460,000 citizens (SCB, 2019). There are three hospitals situated in the county; the University Hospital in Linköping is the biggest hospital.

The public health system in Sweden is financed through taxes. Health care is provided to all citizens. A small patient fee is payed, covering administrative costs when having an examination. If a patient has to use the health care system frequently, there is a maximum amount that one has to pay. Dental health and medical care are free until the age of 20 years.

IMP today

Today IMP is a department at Region Östergötland. IMP has two mandates. The first mandate is to coordinate and develop the process of reimbursement from the Swedish Migration Agency (Migrationsverket) for costs related to long-lasting care provided to refugees by the Region Östergötland health care system (Varaktig Vård). The second mandate is to plan, organize, and coordinate international partnership projects that contribute to a sustainable development of local public health care services in Sweden and in the partner countries.

There are six staff members employed at IMP. Some are mainly or partly involved in Varaktig Vård, the activities connected to the first mandate of IMP (described by Andersson et al. in chapter 5). The remaining staff members work in managing the international projects, the second mandate (described by Hodza-Beganovic and Berggren in chapter 6).

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4

From the Swedish Medevac Programme to the International Medical Program

Åke Björn and Peter Berggren

Background

The war in Bosnia and Herzegovina (BiH) started in April 1992 and lasted until late 1995. This war is well documented (Cutts, 1999; Glenny, 1996). The city of Sarajevo was besieged between April 5, 1992 and February 29, 1996, for 1,425 days (cf. Fleming, 2012). There were fighting between combatants and grenade attacks, ethnic cleansing, constant sniper activities in Sarajevo, as well as geographic and academic isolation, leaving a heavy toll on the civilian population in terms of injuries, frustration, and trauma. Many persons with competencies related to health care fled or were killed. It was estimated that more than 50% of medical doctors and nurses disappeared from the pre-war well-functioning health care system. The civilian population of all ethnic groups in the country were heavily affected and traumatized not only by the war itself but also the severe lack of availability of adequate and specialized health care. New ethnic, political and geographic borders as a result of the armed conflict disrupted the pre-war well-functioning referral system in former Yugoslavia (Zećo, chapter 7).

As an effect of the grenade attack directed towards the market place in Sarajevo in August 1995, the UN High Commissioner for Refugees requested support from UN member states to evacuate patients from BiH for adequate treatment not available in the country. The Swedish parliament, in addition to 31 other countries, adhered to the call, prompting the Swedish Medical

Evacuation Programme in BiH (Medevac) under the financial leadership of the Swedish Migration Agency (Migrationsverket). The Swedish Medevac (LiÖ 2005-136) was soon organized as a collaboration between the Swedish Migration Agency, the International Organization for Migration (IOM), Region Östergötland[1], and Linköping University Hospital. The process of referral was organized such that IOM in BiH identified and proposed to the Swedish Migration Agency patients with severe or life-threatening but treatable conditions that could not be handled in BiH. Linköping University Hospital assessed the possibility for adequate treatment and estimated treatment cost based on the available information about the patient. Once the patient was found to fulfil the criteria of a curable condition, the decision on evacuation was made by the Swedish Migration Agency after recommendation from Linköping University Hospital. Evacuated patients were treated and received care in Sweden until they were able to return home without medical risk.

In most cases, one or more doctors or nurses from BiH were offered the opportunity to accompany the patient with the goal of providing hands-on training, hence minimizing the need for evacuations for the same type of medical condition in the future. The presence of the local medical staff shortened the estimated duration of the patient's stay in Sweden. Communication with the doctor in charge allowed the Swedish doctor to release the patient earlier, confident that follow-up and rehabilitation would be professionally secured. The first patients evacuated through this specific programme arrived in Linköping in December 1995.

Within the IOM Medevac programme, the country where the patient received treatment accommodated all costs related to the patient. In Sweden, this was financed by the Swedish Migration Agency until 2003. The cost associated with evacuating one patient to Sweden, providing treatment, post-treatment care, and returning the patient home would permit a team of Swedish doctors and nurses to go to BiH and provide care to patients for several days. This would allow adequate treatment for more than one patient for the same amount of money, and the training aspect could be broadened and made more efficient. After approval from the Swedish Government, the first Swedish team visited Goražde, Lukavica, and the University Clinical Centre in Sarajevo in April 1997 (Bergström, 2008). Some patients still had to be evacuated because their medical conditions were too complicated to be treated in BiH (Malmström, 2000). This combination of medical evacuation and medical teams became the foundation of the Swedish Medical Programme (SMP).

[1] Named Landstinget i Östergötland (LiÖ) until 2015, but mentioned here as Region Östergötland.

Conflicts on the Balkan peninsula continued and Kosovo was dragged into the armed conflict in early 1998, lasting until mid-1999 (Agani, chapter 10). With the SMP present in the region, a natural development was to expand operations to include Kosovo in 2000, which was requested in the autumn of 1999 by IOM/Kosovo. A first exploratory Swedish team from the Swedish Migration Agency and Linköping University Hospital visited Kosovo in January 2000, resulting in the decision to evacuate 20 identified patients to Sweden and initiation of visiting specialized medical teams.

In November 2000, the Swedish Government decided to reallocate 5 million SEK from the Swedish International Development Cooperation Agency (SIDA) budget for humanitarian assistance to the West Bank and Gaza. After an exploratory mission by the Swedish Migration Agency and Linköping University Hospital in December 2000, it was decided together with SIDA to support two types of teams: ophthalmology teams and specially trained trauma surgery teams. This was carried out in periods of 2 weeks until 2003. No evacuations were performed from the West Bank and Gaza.

Linköping University has had a cooperation with Moi University in Eldoret, Kenya, since 1990, consisting of student exchanges. In the beginning of 2012, the International Medical Program (IMP) and Region Östergötland received a request on possibilities of extending this cooperation to medical specialist teams. After an exploratory visit to Moi University and Moi Teaching and Referral Hospital (MTRH) in June, a team from Linköping held the first international workshop in orthopaedic surgery at MTRH in November 2012. Since then, cooperation has been extended to include mother and child care, patient safety, and physiotherapy (Mining, chapter 13; Hedestig, chapter 14; and Andersson, chapter 15).

IMP received a request in 2013 from individuals working in Stockholm concerning the possibilities of assisting the establishment of paediatric cardiac surgery at Black Lion University Hospital, Addis Ababa, Ethiopia. An ongoing collaboration is focusing on establishing percutaneous treatment of rheumatic mitral valve diseases. There is also an ongoing cooperation with Black Lion Hospital in vascular surgery in cooperation with Region Kalmar and Region Jönköping (Eriksson, chapter 16; Alselius, chapter 17).

In cooperation with Västervik Hospital, Linköping University Hospital has contacts with Gondar University Hospital. This has developed into cooperation in several disciplines, including anaesthesiology, general surgery, and neurosurgery (Idh, chapter 18).

Numerous visits to Bahir Dar have resulted in the signing of a Memorandum of Understanding with Bahir Dar University in January 2020. The Tibebe Ghion Specialized Hospital Bahir Dar University, Ethiopia, is a newly built hospital and was officially inaugurated in November 2018 by Dr. Abiy Ahmed, Prime Minister of Ethiopia, Nobel peace prize winner 2019. The first project will focus on the delivery ward and maternity care.

Over the years, several reports and articles have been published (cf. Björn and Eriksson, 1993; Razavi et al., 2011; Lundström et al., 2006; Björn and Hodza-Beganovic, 2009; Johansson Capusan et al., 2010; Malmström, 2000).

The Swedish Medical Programme (SMP)

Between 1995 and 2007, Swedish health care professionals made 334 visits to BiH, more than 2,500 patients were treated by the Swedish teams in BiH, 124 health care professionals from BiH visited Sweden for specialized training, and 122 patients were evacuated to Sweden for treatment (Bergström, 2008).

In Kosovo between 2000 and 2007, Swedish health care professionals made 147 visits to Kosovo and 40 health care professionals from Kosovo visited Sweden for specialized training. A total of 86 patients were evacuated for treatment in Sweden, 1,139 patients were attended to in Kosovo, resulting in 215 surgical procedures by the Swedish teams (Bergström, 2008).

From the beginning, Medevac and SMP were under the Medical Centre for Refugees, Region Östergötland. SMP changed its name to the IMP in 2004 and became an independent unit under the County Council of Östergötland, which changed its name to Region Östergötland; RÖ, in 2015.

The approach to send Swedish medical teams in parallel with the Medevac programme offered several benefits in addition to providing care to more patients for the same amount of money. For example:

- The medical personnel from BiH and Kosovo were trained in modern clinical techniques that were not available in the country after the war, hence the teams supported the local health organization in rebuilding local medical capacity.
- Swedish personnel gained experience in patients with injuries, wounds, and severe medical conditions that were rare within the Swedish health system. Being infrequent, it was difficult to provide the necessary skills and experience in treating such injuries in a larger Swedish practitioner community.
- With increasing awareness within the leadership of Region Östergötland of the mutual benefit of such international cooperation, it was decided to

continue the international cooperation in 2009 despite a decision by SIDA to close the programme. The IMP was consolidated within Region Östergötland.

Since 2010, all international cooperation has focused on exchange of teams. No patient evacuations have been carried out in recent last years.

The number of employees in the IMP team administering the organization has gradually increased. From the start until 2004, one person was running the programme with the assistance of one or two part-time nurses. Between 2004 and 2006, a few nurses and administrative staff participated part time in running the programme. In 2006, an administrator and registered nurse was recruited to the programme. By 2009, the IMP organization was involved in both the funding and the implementation of the international projects. A second full-time nurse was employed from 2012. A third administrator was employed in 2014 together with a medical doctor involved in international projects. The IMP team expanded with a research coordinator and another medical doctor in 2016. Since 2009, two main tracks have emerged within IMP, Varaktig Vård (handling reimbursement of county compensation to refugee health care from the Swedish Migration Agency; see Andersson et al. chapter 5) and the international projects (see Hodza-Beganovic and Berggren chapter 6). A management shift at IMP occurred in 2016. IMP has an Advisory Board represented by the executive management of Region Östergotland since 2015. The Board provides advice on financial, legal and strategic concerns and follow-up of activities.

Funding

The way that the programme has been financed has had an impact on the way the projects are executed together with the needs in the collaborating countries; for example, with a focus on evacuation, capacity building, and competence development.

From 1995 until 2003, the programme was funded through the Swedish Migration Agency based on yearly government decisions. During this time, the focus was on medical evacuation and provision of life-saving treatment to as many patients as possible. The needs of the referred patients were the central consideration. The poor medical services in the post-conflict countries were not yet ready to assess the domestic medical needs (Zećo, chapter 7; Agani, chapter 10).

From 2004 to 2006, the Swedish Government decided to fund the pro-

gramme within the foreign aid budget through the governmental office. SIDA funded the programme from 2007 to 2008. From 2004 to 2008, the focus was on training and capacity building in the receiving countries and organizations.

Between 1995 and 2008, when the financing of the programme was assessed by the Swedish Government for each budget year, the programme prepared to close down every year, until the government budget for the coming year was decided in December. During these years, projects that required more than 1 year could not be approved.

Table 1. IMP funding between 1995 until today.

	1995–2003	2004–2006	2007–2008	2009–
Funding agency	Swedish Migration Agency	Government Office of Sweden	SIDA	Region Östergötland

The amount of funding has varied over the years. Figure 2 shows the level of funding from the Swedish Government. Funding from SIDA (5 million SEK) for medical teams to Gaza and the West Bank 2000-2003 and for the pediatric cardiac surgery team to Sarajevo 2011-2015 (3.5 million SEK) is not included.

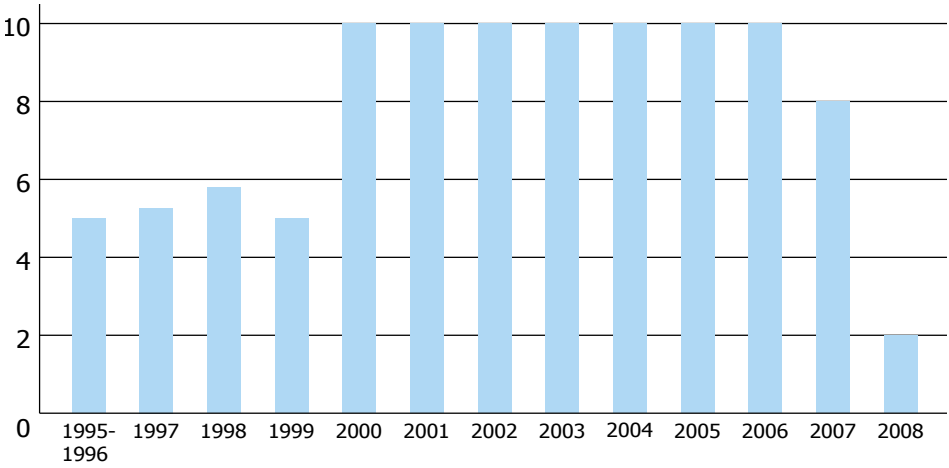

Figure 1. Funding from the Swedish Government between 1995 and 2008 in million SEK.

From 2009, Region Östergötland decided to cover the funding of the programme. The financial technical solution was to allow IMP to use a certain percentage of what is reimbursed for Varaktig Vård for its administration costs and the international cooperation (Andersson et al. chapter 5). With the creation of Varaktig Vård, financial expansion allowed for larger and longer international projects directed towards new areas and partnerships. This in-

fluenced and made long-term projects possible towards achieving sustainable health development. The motivation for SIDA to finance part of the project aiming to establish pediatric cardiac surgery in Sarajevo between 2012 and 2015, was that the project enhanced the need for closer cooperation on a regional basis between Serbia, Kosovo, and BiH.

Partnerships

Since the start the partnerships and collaborations have formed an important basis for the possibility to send medical teams to different places. Table 2 shows the partners and when the partnerships became active.

Table 2. Partners and years for partnership.

Country	Partner organization	Years
BiH	Ministry of Health (MoH/FBiH/RS) IOM Swedish Migration Agency	1995–
Kosovo	IOM MoH Swedish Migration Agency	2000–
Kenya	Moi Teaching and Referral Hospital (MTRH) Moi University	2012–
Ethiopia	Black Lion University Hospital	2013–
Ethiopia	Haukeland Sykehuset, Bergen	2016–
Ethiopia	Gondar University Hospital	2019–
Ethiopia	Bahir Dar University	2020–

The partnerships have been based on transparency and commitment towards public health structures in the respective countries. Partnership agreements have been formed on an institutional level or with ministries of health. Frequent changes in management, leadership, and political management occur. Shifts in management have occurred every 3–6 months in some cases. When this happens, it can affect the foundation for the partnerships. For IMP, it has been important to build trust and confidence in our collaborations in order to institutionalize the partnerships to secure continued communications and sustainability.

Ethical considerations are important in handling partnerships where the benefits and investements differ between partners. This is evident in health care for refugees (Jarkman Björn & Björn, 2004). Due to the complexity in

various countries' health care systems one has to carefully balance various arguments when making decisions as ethically appropriate as possible, with a constant preparedness to reconsider the planning. "An ethical approach means living with the agony of deciding, rather than making a quick decision" (Øvretveit, 1996).

Some partnerships have ended due to political, administrative, or other problems. Other initiatives did not yet result in partnerships: Nepal, Romania, Liberia and Somalia. However, most planned projects are finished successfully after fulfilling expectations, and some projects are still ongoing after more than a decade, and new projects are constantly under discussion.

Abbreviations

BiH	Bosnia and Herzegovina, consisting of FBiH and RS
FBiH	Federation of Bosnia and Herzegovina within BiH
IMP	International Medical Program at Linköping University Hospital
IOM	International Organization for Migration
MoH	Ministry of Health
MTRH	Moi Teaching and Referral Hospital in Eldoret, Kenya
RS	Republica Srpska, the Serb Republic within BiH
Sida	Swedish International Development and Cooperation Agency
SMP	Swedish Medical Programme in BiH and Kosovo
UN	United Nations

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5

Varaktig Vård

Peter Andersson, Åke Björn and Peter Berggren

Background

Swedish regions are responsible for providing health care free of charge to all citizens and persons with a permanent residence permit in the country, including refugees. In 1990, the Swedish parliament decided that the Swedish municipalities and regions should be reimbursed for providing this service to refugees with chronic conditions or disabilities when allocated to the administration in question. This was declared in governmental regulations (Swedish Code of Statutes, Regulation 1990:927 §34; Regulation 2010:1122 §33). The compensation for health care costs has to be applied for at the Swedish Migration Agency after thorough documentation of the costs. The International Medical Program (IMP) started applying for this compensation on behalf of Region Östergötland in 2005.

Organization

The Varaktig Vård unit was established within IMP to administer reimbursement of costs from the Swedish Migration Agency to the Region Östergötland. Currently, the unit has two full-time and one part-time coordinators of which two have a background as registered nurses. There is also one part-time physician involved for issuing and checking certificates on the medical diagnoses and for counselling regarding uncertainties on health care costs. The physician, together with the Region's lawyers, appeals to court when controversies between the Region and the Migration Agency arise on reimbursement of costs.

Criteria and process

The regions are entitled to reimbursement from the Swedish Migration Agency for their costs for providing health care for refugees with diseases or disabilities that are expected to last for more than 3 years and were present at the time a permanent residence permit was obtained. These persons/refugees have to be identified by the regions, their diagnoses have to be documented by a physician certifying their existence and their costs in the health care system have to be thoroughly calculated before an application can be sent to the Swedish Migration Agency. Reimbursement has to be applied for within 3 years after the date the refugee obtained a permanent residence permit and the costs applied for have to exceed 60,000 SEK for a 12-month period. Application for reimbursements is sent annually to the Swedish Migration Agency, provided the disease or disability is persisting, until the individual has resettled in another region or abroad, has become a Swedish citizen or has died.

In the Region Östergötland, eligible patients are identified by the different departments providing treatment for disorders and rehabilitation for disabilities at the three hospitals as well as by public and private primary health care centres. Furthermore, patients are identified on a system-level based on their social security number in the digitalized medical record system. Calculation of costs is a strenuous and time-consuming task performed by the staff at IMP/Varaktig Vård. Every cost associated with the diagnosis in question (i.e. from surgeries, medications and devices for monitoring diabetes to costs for disposables, as well as interpreters needed during appointments with health care professionals) has to be included in the application. The costs are then scrutinized and checked by appointed staff at the departments involved against the diagnoses reported in the physicians' certificates. Through years of experience, this system for calculation of costs has evolved to be very refined and exact. Only rarely are there disputes with the Migration Agency regarding incorrect allocation of costs.

Results

The reimbursements from the Swedish Migration Agency, received monthly, have been increasing steadily since the Varaktig Vård unit was established. Altogether, reimbursement for 651 patients has been received between 2005 and 2019. The yearly number of patients remaining in the system after adjusting for constant entries and exits has, except for the last year, increased

continuously; there were 230 by the end of 2019 (Figure 1).

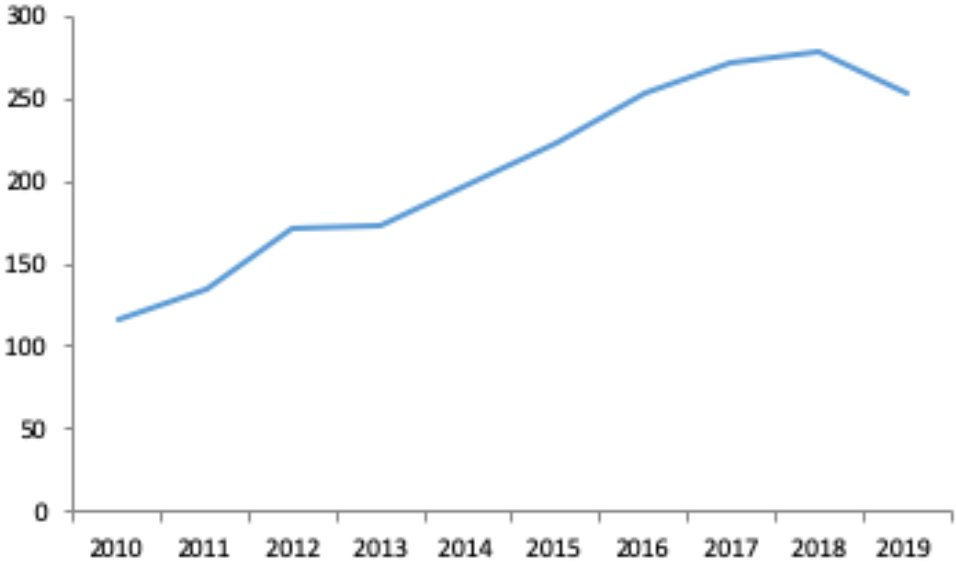
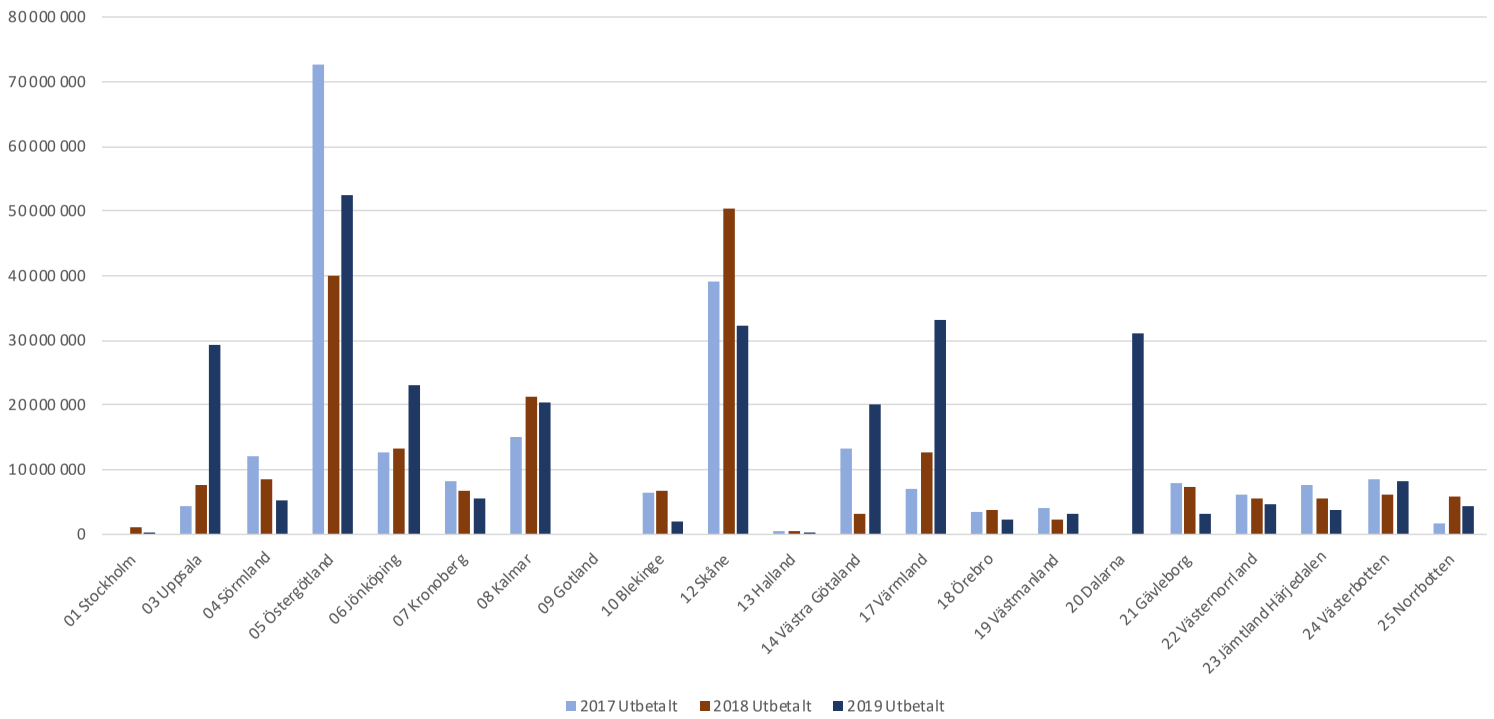


Figure 1. Yearly accumulation of patients eligible for application of reimbursement from the Swedish Migration Agency.

Since 2011, the yearly average reimbursement has been close to 40 million SEK, which is the highest reimbursement level among Swedish regions, both numerically and per refugee in the county (Fig. 2).

Figure 2. Comparison of reimbursement from the Swedish Migration Agency between regions.



A well-established system for identifying eligible patients and assessing the costs effectively explains the high reimbursement levels. Other regions are approaching these levels, at least partly, as a result of consultations at Varaktig Vård for advice and counselling. The increasing payments from the Swedish Migration Agency in recent years are the result of continuously improving efficiency in the application process. During 2019 patients came from several different countries (see Table 1).

Table 1. Origin of patients for whom reimbursement was applied for 2019.

Country	Number of patients
Syria	111
Somalia	30
Afghanistan	19
Iraq	16
Eritrea	11
Stateless	5
Democratic Republic of Congo	4
Iran	4
Ethiopia	3
Russia	3
Other	24
Total	230

Refugees with chronic non-communicable conditions such as neoplasms, diabetes with renal and ocular complications, and ischaemic heart disease, requiring continued health care have entered Sweden, rendering high treatment costs for the regions.

By far the biggest part of reimbursed costs is returned to the departments and primary health care centres responsible for the patients' treatment. However, a certain percentage finances the international projects initiated and operated by the IMP described elsewhere in this anthology as part of the efforts of Region Östergötland to build capacity both domestically and internationally. This arrangement is unique among Swedish regions, financially connecting the two activities; the international programmes were originally directed towards refugee-generating areas in predominantly low-income countries. There is a financial guarantee from Region Östergötland for a further period of 2 years to avoid ending the projects abruptly if funding from Varaktig Vård for some reason is not sufficient for the ongoing international projects.

6

The International Projects

Ruhija Hodza-Beganovic and Peter Berggren

The international projects are characterized by personnel exchange, competence improvement and development, experiential learning, a win-win for all the partners, sustainable development, long-term contribution effects, teamwork (both interregional and international), and evidence-based health care and improvement. To some extent, these characteristics can be seen as criteria for selecting and initiating a project. Several of these characteristics are closely related to human resources management and organizational development (Carbery and Cross, 2015). The new public management paradigm (McLaughlin et al., 2002) has led to a constant pursuit for improvement, very much evident in public tax-funded organizations. In public health care organizations, this can be seen in the quest for more slimmed down administration, use of the work force, time management, and viewing patients as customers paying for a service. This control perspective has many drawbacks but is a reality forced upon the organizations who need to adjust the competences of the work force in order to be an interesting employer as well as being a competitive actor on the market.

Personnel exchange improves understanding of others' situation, context, and possibilities. This also builds trust between partners and team members, a prerequisite for openness and honest communication. Differences between hospitals were in some cases tremendous, but sometimes pure exposure to different social and cultural working environments creates better understanding of ones' own context.

Competence improvement and development is one driving factor for the partners involved: to increase the abilities of your own employees. The prin-

ciples we have used in different location are adult learning, continuous education, workshops, and seminars. Each of them has problem-based learning (PBL) at its core; PBL is widely applied in academic education at Linköping University.

Experiential learning is an academic theoretical framework well suited for describing collaborative partnership. It is portrayed by building and exchanging experiences, where team learning is a way of validating personal experiences and suppositions in a collective context. The dual dynamics of action and reflection is emphasized (Kolb and Kolb, 2009). The International Medical Program (IMP) projects build on the principles of experiential learning and practice. The participants of the projects are adult professionals with extensive knowledge and vast experience in their respective fields and their own practices. The experience and knowledge gained from being exposed to the work practices of other health care organizations and under different working conditions transforms the individuals, teams, and in the end their respective organizations.

Win-win for all the partners is about how all partners benefit from partnership. However, this also concerns the synergy effects of a project, many effects that can be difficult to pinpoint early on in a project. Jones et al. (2013) has clustered some synergy effects found in partnerships where the United Kingdom has worked with organizations in low and middle income countries (LMICs): clinical skills; management skills; communication and teamwork; patient experience and dignity; policy; academic skills; and personal satisfaction and interest.

Sustainable development is about supporting development that will carry itself at the end of the project. Motivation for collaborating research projects is where we seek to find interest among our project participants.

Long-term contributing effects means that the partnership is expected to last until the project goals have been achieved. Since changing an organization takes time, this needs to be taken into consideration before accepting such a partnership.

Teamwork (both interregional and international) is one of the central pillars of the partnership. Teamwork and collaboration between people from different professional backgrounds is gradually becoming the focus in the projects. Teamwork implies that there are several individuals involved, that knowledge and experiences can be shared and carried over time, even if individuals are replaced. Interregional teamwork promotes expanded understanding of lo-

cal ideas, whereas international teamwork supports cultural exchange, more distant experiences, and alternative leadership styles. As the purpose of the projects has remained the same over time, to create sustainable health care organizations in the countries, we are working with and contributing to creating sustainable health care services for the patients partly through teamwork.

The reason for taking further steps in teamwork and interprofessional collaboration is the increasing costs of the health care services, which present a burden even for developed countries. The increasing costs of health care are even bigger challenges for LMICs. By introducing new knowledge and skills, we support the development of the organizational structures to increase the quality of patient safety practices.

Since 2015, information and knowledge on teamwork and collaboration between professionals has been shared in, and among, the projects. The knowledge is transferred into professional groups with different educational backgrounds, aiming to prepare them for the change in a practice towards interprofessional teamwork. This can sometimes be a challenge in organizations where hierarchical structures are the norm.

The idea is that by providing information on interprofessional teamwork, better understanding will occur at all levels of the organization and as a consequence, the planned changes in the system will be more easily accepted and implemented. The methods we use for transferring knowledge include lectures, workshops, discussion or focus groups, as well as participatory observation and leading by example. The approach and knowledge transfer are different from the clinical hands-on skills training. The change in individuals' awareness and practices contributes to an organizational change in the long run (Jones et al. 2013).

Evidence-based health care and improvement is a fundamental part of modern health care. Applying validated knowledge and contributing to new knowledge are both important and create a sound work culture where old ways of working and assumptions can be questioned and tested.

Region Östergötland considers the projects important because they influence clinical and organizational development, research and research competence development, support leadership and teamwork, and promote health care capacity building. Many of the criteria and outcomes of the projects align with Agenda 2030 and the sustainable development goals (United Nations, n.d.). As a nation, Sweden has ratified the Agenda 2030 treaty to reach sustainable development goals. Hence, through the IMP, Region Östergötland is

assisting in reaching these goals.

There are some prerequisites that need to be in place before engaging in projects to increase the likelihood of success:

- There needs to be interest from the Swedish personnel and their counterparts in taking part in the project. Without this basic requirement, there can be no project.
- The synergy effects need to be identified. This includes assessing the needs and possibilities of both partners.
- All the partners should be aware that this is a long-term commitment, and the pace of progress might sometimes move slowly.
- The personnel should feel safe and secure; the projects are not undertaken in contexts where the Ministry for Foreign Affairs discourages travel for safety reasons.
- Funding of equipment is kept to a minimum due to the risk for corruption. As the partnerships are mainly focused on exchange of personnel and development of competence, the risk for bribes is minimized. All Swedish personnel comply with Swedish law and the local laws.

The IMP project process

Over the years, dozens of projects have been implemented. These projects are proposed, selected, planned, managed, and evaluated.

Step 1: propose a project

Projects can be proposed in several ways: by a potential partnership health organization, by an employee at Region Östergötland (RÖ), or by an organization that has heard of IMP. The first step after the initial contact is to present a letter of interest to IMP. This document should include the purpose of the suggested project, partnership organization, the point of contact who is interested in the project, Region Östergötland point of contact, the scope and extent, expected outcomes, benefits for Region Östergötland and the partnership organization. This information provides a basis for a decision on whether to continue to the next step. The Advisory Board is involved during the initial part of the process.

Step 2: assess the proposed project

If the proposed project is approved for moving forward, a more thorough assessment is carried out. This includes meeting with the local organization

and investigating the organization's leadership, staff employed, understanding the area of interest for the health institution and expectations, needs, risks, and time frame for the suggested project. The assessment visit to the intended partnership organization results in a report, which is used for deciding on continuing with or stopping the suggested project.

In dialogue with the intended project manager from Region Östergötland, a project plan is designed. The project plan is developed in cooperation with the leadership of the clinic and the staff intended to be a part of the collaboration. Acceptance from the leadership of the Region Östergötland clinic is important, because it signals that the organization sees the added value in committing to the project. The commitment results in planning schedules with reduced workforce from time to time due to participation in the project. On the other hand, employees will gain unique experiences that the clinic will benefit from.

In this phase, it is important to take into consideration all factors such as costs, human and technical capacities of the clinic in Region Östergötland and benefits. With regard to human capacities, it is important to consider both the staff engaged in the project but also the staff that will remain and respond to the daily clinical work at the home clinic. We are obliged to consider the services at the RÖ while some personnel are deployed in another country. During this phase, the aim is to plan for a multiprofessional team capable to cover the entire chain of treatment while engaged with the partnering organization.

The project plan should be designed together with appointed representative(s) from the partnership organization, preferably someone who is responsible for the project and someone who will be involved with the project, and can provide understanding of local needs and possibilities. The project plan is submitted to IMP for a ruling on feasibility and the amount of financial support.

Collaborative agreement must exist between the partners involved as a prerequisite for pursuing the partnership. This agreement is signed by the regional director of Region Östergötland and by the higher leadership of the partnership organization. The agreement can be seen as an overarching understanding under which project agreements can be signed by the local leadership. If the decision is made to pursue the project, a project agreement between the partners is drawn up and signed.

Step 3: carrying out a project

The projects aim to create sustainable health capacity in the partnership organizations. During the initial phase of starting a project, the project participants (the team members) are introduced to IMP, its policy, history, responsibilities, regulations and roles. The intention is to provide this information both verbally and in written form. The information is not only specific to the particular project but includes general rules such as employment, insurance, travel information for the Region Östergötland personnel.

Each accepted project will require, in addition to the project plan, a signed project agreement between the clinics involved. The project agreement should include a structure for communication, obligations, shared goals and interests, means of interaction, planned time commitment, and responsibilities. The project agreement should also include details of the project managers from each organization. They are responsible for project planning, reporting, communication, and responsible for organizing the teams' visits.

After a phase of getting to know each other, the project staff enter into most dynamic part of the project when a lot of planning, communication and change occurs on both sides. With time, the initial challenging situations are overcome and become clear.

IMP routinely and regularly monitors the activities of the project according to the project plan. Discussion and dialogue are related to the effectiveness and achievements of project activities, as well as concerns that the project managers might have in achieving the project goals. Experience from numerous projects and collaborations has shown that the project has to be reviewed regularly and adjusted to the local partner's needs. However, changes to the project should be tailored in such way that fidelity for both organizations is assessed and agreed upon. IMP receives reports after visits and compiled versions of annual reports. These reports present the purpose and goals of a visit, and to what extent the goals have been accomplished; they are a way of documenting project progress and are intended to contribute to building knowledge and sharing of information. The reports are available on the web page and shared with the public interested in knowing more about IMP.

One future contribution that IMP is trying to make is to identify indicators that signal the effects and progress of the projects regarding the development of collaborative health care projects. IMP aims to add evidence practice, both in terms of applying evidence practice and in terms of contributing to scientific knowledge. One of the main tasks for IMP is to change the traditional way

of classifying projects as humanitarian aid projects. International collaboration in academic and clinical practice creates possibilities for professionals' development on both sides. This vision and strategy on how high-level institutions should collaborate is supported in a Swedish Government Report on Internationalization (SOU, 2018:78).

A main task for IMP is to arrange and manage trips for the project teams. This might seem to be an easy task. However, the logistics of handling visas, planning and coordinating guest visits and Swedish team trips, risk assessments, insurance coverage, Swedish foreign and UN travel policy, monitoring teams and providing reach back support in case of emergency is a full-time job. This is part of the administrative support that IMP provides in addition to funding the projects. Sometimes this involves special preparation such as verification of travel security, contacts with embassies, visa issuance, arrangement of secure and acceptable accommodation and other factors that are specific to a country.

Most projects run for several years. However, the progress of the projects is reported regularly and continuation is considered annually. That the projects run for several years has several benefits. It takes time to build trust and cultural understanding among team members from the organizations involved. If there is a forced hold on the project, for example, political turbulence or manning problems in the teams, this is not a big problem because the projects can be put on hold for a while and then continued. The important thing is that a sustainable organization is established. The long-term commitment that IMP engages in makes IMP more trustworthy as a partner. We will not leave after 3 or 6 months due to budget cuts, and our partners know this.

Step 4: evaluating progress and added value

As well as annual evaluation of project progress to correct or accept deviations from the plan, it is important to assess the added value for the organizations engaging in these types of projects. Apart from adherence to budgets and project goals, there are other benefits. Jones et al. (2013) mention several aspects: clinical skills; management skills; communication and teamwork; patient experience and dignity; policy; academic skills; and personal satisfaction and interest.

It is important to document the history of the project to be able to learn from what has been successful and to avoid unnecessary difficulties. Unless documented, relying on memory is full of flaws. Proper documentation is a step

towards a sound basis for implementing lessons learned in an organization.

The reports describing ongoing and actual projects have become a mandatory part of each project. Planned activities, challenges, achievements, project descriptions, lessons learned, and recommendations are an integral part of the reports and helpful for planning forthcoming projects.

It can be difficult to assess several aspects of IMP projects. This is due to the long-term composition of the projects as well as the fact that some dimensions of health care are challenging to evaluate quantitatively. For example, how can the effect of development of interprofessional culture on work satisfaction contribute to retention of the workforce? These kinds of relations might be multidimensional and non-linear with all the complications of validity and reliability associated with behavioural science. Qualitative evaluations of the projects provide increased understanding, but building a decent database from cases for generalization takes time.

Educational efforts and projects raise questions on value among the beneficiaries and even among the participants. Expectations from interventional projects and implementing them raise a lot of hopes. Changes are not always evident in the form of goods but can be measured mainly by the knowledge received or behavioural changes. Continuation in these situations might be challenged because the motivation is not as high as it was at the beginning.

Factors contributing to successful projects

One reason that IMP has been successful in this field for such a long time is simply that our projects are dynamic. We are continuously evaluating if the objectives are being fulfilled according to the plan and thereafter formulate plans for developing and implementing new objectives and knowledge. Once the knowledge has been applied, the local teams strive for further improvements with the same knowledge or to identify other problems for improvements. This participatory, flexible, and experience-based approach is important for the development and improvement of health care and for the well-being of the health organizations in LMICs.

Team members are often personally interested in participating in the projects for personal growth, experiencing a different culture, experiencing a resource-scarce environment, developing personal skills, getting away from the everyday buzz, or being part of something bigger. No matter the personal agendas, the individuals' contributions cannot be overestimated. The value of supporting development in an LMIC health care setting helps provide

necessary treatment and therefore the possibility for a better quality of life. The experiences these individuals bring back home and apply in their everyday work changes professional and social aspects in the home clinics, improving performance and professional collaboration from different working backgrounds.

Knowledge dissemination

Information sharing and knowledge transfer among personnel is an important aspect of experiential learning. IMP tries to promote this through different activities and directed at different target groups, both intra-organizationally, within the teams, clinics, and throughout Region Östergötland, as well as inter-organizationally through the collaborations with different partner organizations. We host workshops, give lectures, provide network opportunities, present at conferences, encourage students to do their bachelors' and masters' thesis at IMP, and publish reports and papers. We are also active on social media where the projects are presented during the missions or when there are project visitors coming to the Region Östergötland clinics.

Our intention is to share the knowledge and evidence from the collaborations. This has become more frequent in the last 7 years since the interest in participating in the projects has increased. Employees of Region Östergötland and other regions are interested in being part of the projects and contributing to the development of advances in other countries in building sustainable health care services.

Our efforts are oriented towards adding evidence and information related to our collaborative work, as well as the contribution and the benefits we make. The reputation and perception of Region Östergötland's work on globally implemented health care projects in the countries that we are active in is similar to the contribution made by the United States, United Kingdom, and Canada. By publishing evidence and evaluations of the contribution of this work, we intend to place IMP and Region Östergötland on the map of global health care contributors.

The international projects today

In 2019, IMP has supported nine projects. Currently, we are active in Bosnia and Herzegovina, Kosovo, Kenya, and Ethiopia. In addition, there are proposed projects in Greece, Iraq, Namibia, Rwanda, and Somalia.

Bosnia and Herzegovina

The first IMP collaboration with Bosnia and Herzegovina dates from 1995. The country's services were destroyed and the need was tremendous. Dozens of projects were successfully implemented in Sarajevo, Banja Luka, Tuzla, Prijedor and other towns. At the moment, a collaboration with the University Clinical Centre of Sarajevo is focussing on urodynamic and paediatric surgery. Partnerships with Bosnia and Herzegovina include:

- International Organization for Migration (IOM): http://www.iom.int
- University Clinical Centre of Sarajevo: http://www.kcus.ba
- University Clinical Centre of Republika Srpska: https://www.kc-bl.com/En/

Kosovo

In Kosovo, the partnership with the University Clinical Center of Kosovo in Pristina dates back to January 2000. Due to the critical security situation after the crises in post-war Kosovo, the project activities were implemented with the support of IOM, as in Bosnia and Herzegovina. There have been dozens of projects in Kosovo in the past two decades. Current activities include the fields of hand and reconstructive surgery, urodynamics and paediatric surgery, and treatment guidelines for the ambulance service (undertaken in both Pristina and Prizren). Partnerships with Kosovo include:

- University Clinical Centre of Kosovo: https://shskuk.rks-gov.net/
- International Organization for Migration (IOM): http://www.iom.int

Kenya

IMP collaborates with the Moi Teaching and Referral Hospital (MTRH) in Eldoret in western Kenya. The projects in Kenya are on patient safety and the mother-baby project (with a focus in two fields: neonatal intensive care and the delivery ward). A yearly orthopaedic conference since 2012 aiming to motivate the regional collaboration has also been supported by IMP. All projects in Kenya are implemented in Eldoret with MTRH and in collaboration with Moi University and Linköping University, Sweden. The IMP-MTRH collaboration was established in 2012, whereas Linköping University and Moi University have had a successful collaboration since 1989 (Ahlberg et al., 1999; Ericson, 2019; Bergstedt, 2019). The close cooperation between Linköping University and IMP is discussed in Iacobaeus (2019). In addition, and with support from IMP, several academic degrees have been awarded since 2013

(one PhD in physiotherapy, five master's degree in physiotherapy, and two ongoing PhD-students). Partnerships with Kenya include:

- Moi Teaching and Referral Hospital, Eldoret: http://www.mtrh.go.ke/
- Moi University, Eldoret: https://www.mu.ac.ke/index.php/en/
- Linköping University, Linköping: https://liu.se/

Ethiopia

There are three different partnerships in Ethiopia. IMP entered a collaborative agreement with Black Lion Hospital in Addis Ababa in 2013. It consists of two projects: a heart catheterization project and a vascular surgery project. To achieve better results in some of the projects in Addis Ababa, we are periodically engaging professionals from other regions in Sweden (Region Jönköping, Region Kalmar, Region Stockholm, and Region Skåne). The cardiosurgery project has collaborated with a similar project, a partnership between Black Lion and Haukeland sykehus, Bergen. This led to a memorandum of understanding between Haukeland sykehus, Bergen and IMP in 2015 for collaboration in Addis Ababa. We have recruited a cardiosurgery team from Sarajevo to support the cardiosurgery project at Black Lion, a direct consequence and outcome of a similar training project in the post-war years in Bosnia and Herzegovina.

The second partnership started in 2017 between IMP and Gondar University Hospital. There are two projects running: one in general surgery and one anaesthesiology project. Both these projects involve professionals from Region Jönköping and Region Kalmar.

The third partnership in Ethiopia was initiated in 2017 with Tibebe Ghion Specialized Hospital in Bahir Dar. The initiative was towards strengthening the mother and child care services by targeting the support to administration, teamwork practices and organizational support. Partnerships with Ethiopia include:

- Black Lion Hospital, Addis Ababa University, Addis Ababa, or Tikur Anbessa Specialized Hospital: http://www.aau.edu.et/chs/tikur-anbessa-specialized-hospital/background-of-tikur-anbessa-hospital/
- Ministry of Health Ethiopia: http://www.moh.gov.et/ejcc/en
- University Hospital Gondar, The College of Medicine and Health Sciences, Gondar: http://www.uog.edu.et/academic-units/college-of-medicine/
- Bahir Dar University, College of Medicine and Health Sciences, Tibebe Ghion Hospital, Bahir Dar: https://bdu.edu.et/cmhs/
- Haukeland University Hospital, Department of International Collaboration, Bergen, Norway: http://www.helse-bergen.no/internasjonalt-samarbeid

Benefits

From our standpoint, we see the benefits and importance of these collaborations. Even though structured documentation of the projects only started in the last couple of years, we know that the projects have had a major impact in the countries where we have been active. We are well aware of accounts of how both teams and individual doctors and nurses have changed the lives of many patients. We are also aware of how the training of one doctor enables health care for many patients whose suffering is lessened or patients who can manage their own lives after being helped through the projects. We are also aware of how participating in the projects has changed the perspectives and skill level of the Swedish personnel. This is in addition to trying to make the world a better place where more people have access to health care with skilled professionals.

We have received feedback over the years from the discussions with project participants and representatives from partner organizations. The benefits are seen on both sides of the partnerships. Many of the projects have resulted in unexpected side effects and new projects have unfolded.

An obvious benefit for both partnering organizations is the development of social and cultural awareness among the participating team members. They are introduced to, are engaged in, and contribute to development of the project. The project team members show interest in working in different cultures, the new work environment, and of being exposed to new societal conditions.

Parallel collaboration with other international organizations based in the same location was quite common. In some situations, the collaboration between partners was well established. In our case, it was with the Haukeland Hospital in Bergen, Norway, where the project objectives were almost the same, so that linking together was beneficial for the Black Lion Hospital in Addis Ababa. However, in some cases, parallel collaborations had different objectives and the difficulties were evident on both sides.

For almost three decades, Region Östergötland has been involved in collaboration projects with countries affected by crises or post-war contexts. Region Östergötland has supported these countries by contributing to (re-)building human and technical capacities within health care services. At the same time, Region Östergötland maintains and sustains the competencies of its own staff by exposing them to treating patients whose diagnoses and advanced stages of illness are not often seen Sweden. The participants in the projects are not

volunteers or humanitarian aid personnel; they are still employed by Region Östergötland who is funding competence development in an unusual way. This competence development can include sustained clinical skills, leadership, management of patients in contexts with scarce resources, exposure to unusual diagnoses, and extreme patient workload among other examples.

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7

The Swedish Medical Programme in Bosnia and Herzegovina (1995-2020)

Mirsada Zećo

Project background: rationale and impetus

The backdrop and unfortunate catalyst of this story was the breakup of Yugoslavia and the subsequent violent conflict that took place in Bosnia and Herzegovina (BiH). The conflict had devastating consequences, many of which pervade to this day.

The primary driver behind the programme at its conception was the large number of individuals living in BiH who could not access the medical and surgical treatment they desperately needed. The reasons behind this were multiple. Most obviously, with the conflict, medical resources were redirected to conflict-related emergencies, the disrepair, damage, and destruction of health care facilities, infrastructure and equipment, and the departure or death of many health care professionals.

Yet understanding the impact on the availability of health care in BiH after the breakup of Yugoslavia requires us to look beyond the violence; the structure of the health care system that existed before the conflict must be considered. Before the breakup, Yugoslavia's health care system was regionalized. Paediatric cardiac surgery, for example, was available in Belgrade, Zagreb, and Ljubljana, but not in Sarajevo. Thus, with the breakup of former Yugoslavia, people in need of paediatric cardiac care in BiH were left with no treatment options in their newly formed country. Even in an alternate reality without

any conflict, with the breakup of Yugoslavia, some treatments performed in centres outside BiH would not have been available to citizens of BiH.

The specific trigger for the Swedish Medical Programme (SMP) was a particularly devastating mortar attack on a crowded Sarajevo marketplace in August 1995. A request was issued by the United Nations High Commissioner for Refugees to United Nations (UN) member states for assistance with the treatment of the injured, and the Swedish Government responded positively to this request. Thus began medical evacuations to Sweden, as well as the broader programme that is the focus of this chapter. As discussed in more detail later, over time, and after the signing of The General Framework Agreement for Peace (known as the Dayton Peace Agreement) on 14 December, 1995 ending the conflict and bringing peace, the activities of the programme broadened from medical evacuation and the focus shifted towards capacity building.

Collaborating organizations and funders

When the Swedish Government decided to respond to the UN request to rescue injured persons from BiH, the International Medical Program at the University Hospital of Linköping (IMP) was nominated as the leading organization to manage the programme and evacuation. To implement its activities in BiH in 1997, the Swedish Migration Board (SMB) signed agreements with the International Organization for Migration (IOM) and with the IMP. A number of local ministries and organizations had a crucial role in the success of the Swedish Medical Programme: the Ministry of Health of Federation (MoHF), the Ministry for Health and Social Welfare of the Republika Srpska (MoH RS), and the University Clinical Centres in Sarajevo, Banja Luka and Tuzla.

In 2009, Region Östergötland approved long-term self-sustainable financing by IMP.

In October 2011, the Swedish International Development Agency (SIDA) co-funded the establishment of a sustainable regional solution for the treatment of children with heart malformations.

In February 2015, the IMP at University Hospital in Linköping decided to extend the programme and to continue cooperation to complete activities that have been pledged and/or are already being implemented, but not yet finished.

Funding of activities in BiH are seen in Table 1.

Table 1. The SMP has been funded through the years from multiple sources.

Source	Channel		Period
Swedish Government	Swedish Migration Board	50% International Medical Program, 50% International Organization for Migration	1995–2003
	Government office to the International Medical Program	International Medical Program to International Organization for Migration	2004–2006
	Swedish International Development Agency to the International Medical Program	International Medical Program to International Organization for Migration	2007–2008
International Medical Program	Directly	International Medical Program to International Organization for Migration	2009–

Shifting focus: from emergency response to capacity building

As with any effective programme, the SMP evolved over time and in line with changing circumstances and realities. At its inception, the SMP was a response to an urgent and humanitarian need for war-affected populations to receive medical treatment that was not available to them. Over time, elements have been added to the programme with the aim of reducing dependency on international support by focusing on longer-term development and building capacity in BiH.

The peace and relative stability in the country that came with the peace agreement, signed in Dayton, created conditions for the programme to refocus its efforts to create local treatment options, while simultaneously reducing the need for medical evacuation. That said, medical evacuations not only continued in tandem with capacity-building activities but, as described in more detail later, were in fact inextricably interwoven with them.

With the overarching goal of reducing the morbidity and mortality of individuals in need of medical treatment, while continuing to address the short-term needs of vulnerable populations, the programmes prevailing objectives were

1. To find medical treatment options for individuals for whom appropriate services were not available locally;
2. To build local capacity and establish functional local services in priority fields, and thereby reduce the need to seek medical treatment abroad;
3. To strengthen regional cooperation between medical institutions and professionals in ex-Yugoslav countries.

Getting it done

Achieving such objectives in a complex environment is challenging, to say the least. Here, we look at the specific activities that took place to make progress towards these objectives.

As previously explained, the programme arranged for the evacuation of patients for whom appropriate medical services were not available locally (see Figure 1). This might, for example, have been due to a lack of diagnostic possibilities, lack of complex postoperative intensive care, or a lack of highly specialized equipment. Initially, evacuations were mainly from BiH to Sweden. Later, a few medical evacuations were also made from BiH to Serbia and from Kosovo to BiH.

A crucial feature was the accompaniment of evacuees by local medical professionals, which meant that the latter received specific medical training through participation in preoperative investigations and by assisting during surgery and postoperative care; on return to BiH, they took responsibility for medical follow-up. With this additional element, medical evacuations became two pronged: they provided emergency assistance for the patients and on-the-job learning and training for the accompanying medical professionals. This contributed to the re-establishment of services in the country by building skills and experience.

Figure 1. The evacuation of an 11-day-old child to Sweden on June 8, 2001, showing transportation of patient, mother and medical escort to the airport (University Clinical Centre of Sarajevo, Paediatric Clinic) (Photographer Ruhija Hodza-Beganovic).

The selection of persons to be evacuated was always a careful exercise and ensured that in each case, the evacuee had a serious or life-threatening condition, that treatment in Sweden was very likely to be curative, that treatment was not yet available in BiH, and that treatment would enable accompanying doctors to upgrade their professional knowledge and skills.

From April 1997, and based on an analysis of the most frequently occurring diagnoses among patients for whom medical treatment in Sweden was requested, specific Swedish Medical Teams (SMTs) were established to target the specialized areas in most need of urgent assistance. The SMTs formed were able to provide training as well as life-saving medical care and travelled to BiH to perform complex operations together with local colleagues; they offered on-the-job training combined with lectures, seminars, and workshops. Further to a focus on the most frequent diagnoses of evacuees, the SMTs also supported their local counterparts by taking into account the existing resources, conditions, and knowledge available in their home country and fields of specialization. One cannot, for example, provide skills for micro-neurosurgery in the absence of sufficient postoperative intensive care. The first SMTs who visited BiH were specialized in reconstructive surgery, ophthalmology, and ear, nose and throat (ENT) cases. Over time, the composition and focus of the SMTs changed as progress was made in specific medical areas and new areas came into focus.

Throughout, the IOM acted as the coordinating and implementing agency, and made all the necessary preparations for effective SMT visits to previous and newly identified health care facilities. The SMT members were identified in Sweden by the Director of IMP in cooperation with collaborating clinics at Linköping University Hospital, Lund University Hospital, Sahlgrenska University Hospital in Gothenburg, Karolinska and Huddinge University Hospital in Stockholm, and forwarded to the IOM, who presented them to the national health authorities at the selected collaborating clinics at the University Clinical Centres in BiH. The SMTs were generally present in BiH for one working week two to four times a year. The exact timelines of visits were agreed at the beginning of each year of the programme between the SMT members and the heads of the collaborating clinics in BiH. Patients with curable conditions were invited for medical examinations and interventions during the visits of the SMT.

Similarly, based on an analysis of the needs and scope to apply new skills, local medical professionals travelled to Sweden to take part in specific training

to build their skills. Further, and with long-term costs in mind, as well as to avoid certain challenges related to language barriers, regional exchange visits were organized to strengthen the capacities of medical professionals through exposure and experience as well as to provide avenues for the exchange of information between international and local health service providers.

Finally, essential medical equipment and supplies were donated to the clinics with which the SMTs were collaborating. All donations were closely linked to the activities undertaken by the teams and enabled the clinics to continue performing procedures after training by the teams.

In summary, various complementary opportunities were used to build the capacity of BiH's health systems to respond to the needs of the population and to reduce dependency on the need for international support.

Sustainable development contributions

The SMP has had, and continues to have, numerous positive short- and long-term impacts. The most obvious place to begin reviewing these impacts is with the individuals who received medical treatment and their families. As a direct result of the SMP, SMT evaluated more than 4000 patients, and over 1000 patients received medical treatment in BiH, and 126 patients were evacuated and treated in Sweden. These interventions had a profound effect on the quality and length of their lives, and on their families.

The increased capacity of medical professionals in BiH contributes to the sustainability of the programme's impacts. For example, in 1996, many patients were listed as in need of eye surgery abroad. Over the course of the SMP, modern techniques were gradually introduced for cataract, strabismus, and vitreoretinal surgery in Sarajevo and Banja Luka. Now, professionals in BiH can treat the most ophthalmology patients in these areas, and fruitful professional cooperation in this area has been established between professionals in Banja Luka and Sarajevo. Similar results have been achieved in ENT surgery, orthopaedic surgery (scoliosis spinal surgery and arthroscopic knee surgery), vascular surgery, interventional radiology, paediatric surgery, paediatric urology and paediatric cardiac surgery.

The testimony of Mr. Rustempašić is particularly illustrative:

> Cooperation with the Swedish team of doctors represented a revolutionary catalyst for the development of the vascular surgery team in Sarajevo in the true sense of the word. Though knowledge in vascular surgery in BiH existed at the individual level, it was entirely underdeveloped at the team level and was based on principles from the past century. The training by distinguished Swedish experts encouraged us to learn about trends in vascular surgery and the prospect of adopting these trends and skills which we were unable to learn in BiH at the time. Cooperation was based on acquiring practical knowledge in our operating theatres with Swedish surgeons at our side showing us the rules and methods of applying contemporary surgical techniques. We also had the opportunity to learn first-hand about the functioning of modern vascular surgery departments in Swedish hospitals during our visits there. The transfer of knowledge to as many surgeons as possible was of crucial importance as it set the foundations for the Vascular Surgery Clinic to start functioning as an institution based on teamwork.
>
> Nedžad Rustempašić PhD, Assistant Professor,
> Head of the Department of Vascular Surgery,
> Clinic for Cardiovascular Surgery,
> University Clinical Centre Sarajevo

SMT training and skills sharing led to evident improvements in dealing with complicated congenital heart malformations. For example, the Head Nurse of the Clinic for Cardiac Surgery was invited to visit the University Hospital Clinics for Paediatric Surgery in both Lund and Belgrade. During these visits, the Head Nurse had the opportunity to spend time in intensive care units, observing postoperative care of cardiac surgery patients and learning about new methods, work organization, stock distribution, how to use different medical materials in treating patients, maintaining lists of patients for operative procedures, as well as planning and designing operation programmes. Another example is seen in Figure 2 where personnel from ENT Clinic Banja Luka visited ENT Clinic Linköping for training.

Figure 2. Dr. Magnus Niklasson (ENT Clinic Linkoping), Dr. Zorica Novaković (ENT Clinic Banja Luka) and Weislav Maciej Tytor (ENT Clinic Linkoping). Training on tracheal-laryngeal reconstructive surgery at the University Hospital in Linkoping, Sweden, May 2006 (Photographer Mirsada Zećo).

Beyond skills and capacities, exchanges also had an exceptionally welcome and positive influence on the status of nurses in clinics in BiH. As they gained more status, they became better respected as integral team members with important responsibilities.

> We were able to adopt a practice used at prominent clinics whereby nurses are considered team members: they prepare the patient, manage the examination, and bring important details to the doctor's attention during the examination. This practice is not commonplace in our region and other nurses and doctors consider it somewhat unusual. Team members sometimes do not even believe that a nurse is an important member or that her maximum engagement is required. However, with this greater role for nurses comes greater responsibility.
>
> Nadira Hidić, nurse
> Dr. Azra Karamustafić
> Paediatric Surgery Clinic at UCCS

Looking beyond the medical professionals, the clinical centres within which they work have also been dramatically improved through the activities of SMP.

Continuing with the area of cardiac surgery, SMP saw the need for establish-

ment of sustainable paediatric cardiac surgery at the Cardiac Surgery Clinic of University Clinical Centre of Sarajevo (UCCS) for the treatment of children with heart malformations. An agreement on support for the establishment of a sustainable regional solution for diagnostics and treatment of children with heart malformations in BiH was signed for the period from March 2011 to February 2015 by the IMP, IOM and the UCCS. According to the reports from the Paediatric Clinic and the Clinic for Cardiac Surgery, the SMT visits were very effective and the paediatric cardiac surgery team in UCCS has gone a long way to reducing the need for medical evacuation and international medical support. In 2010, when this particular component of the SMP began, it was expected that within 5 years the Sarajevo team would be able to operate on 70% of all children born with a heart malformation in BiH. This goal was met and surpassed, and at the end of the programme in February 2015, the local team was capable of providing surgical treatment in 90% of cases with an identified need for surgical treatment.

Visits to BiH, a post-conflict country, although challenging, were also beneficial for SMT members. The treatment of a large number of complex cases rarely seen in Sweden, as well as exchange of experience with local medical professionals, greatly contributed to improving the competence and skills of Swedish medical professionals in the County of Östergötland as well as health professionals from Västra Götaland, Skåne and Stockholm County who were also involved in the SMP.

Beyond individuals and beyond the centres and clinics in which they work, the SMP made great strides in fostering regional cooperation and exchange of experience. Regional cooperation and treatment is not only less expensive than evacuations to Sweden but also builds on the historical and geographical connections among clinics in the countries of former Yugoslavia and opens the way for an increased number of patients to receive medical and surgical treatment. Beyond this, the collaboration also enabled doctors to have further practical training, serving to enhance their skills.

In 2000, the SMP was extended to Kosovo. This has allowed patients from Kosovo to obtain treatment in the region as well as promoted collaboration between health professionals in BiH and Kosovo.

The first IMP initiative relating to regional cooperation occurred in May 2001. Representatives of the Swedish Migration Agency, IMP, IOM, and the Directors of the University Clinical Centre and the Gynaecologic Clinic in Pristina visited BiH with the aim of establishing contact and facilitating fu-

ture cooperation with the University Clinical Centre in Sarajevo as well as among their respective Ministries of Health.

Specific medical fields emphasized for regional cooperation initiated through the programme included radiotherapy and chemotherapy for women from Kosovo after surgery and for surgical treatment of patients with spinal malformations. In later years, children from Kosovo were evacuated for treatment that required paediatric cardiac surgery at the UCCS Clinic during the visits of Swedish paediatric cardiac surgery team.

Cooperation with the Children's Hospital in Belgrade started in 2006 and was re-established in May 2013, when two children with complex congenital heart malformations were evacuated to the Children's Hospital under the auspices of the SMP. This provided an excellent opportunity for Bosnian and Serbian doctors to meet under professional circumstances, to exchange knowledge and experience, and to build professional trust before the Serbian doctors' visit to Sarajevo, which was arranged in September 2013. During the visit to Sarajevo, the heads of the Sarajevo and Belgrade clinics established the first steps in regional cooperation for treatment of children with congenital heart malformations. The head of the Cardio Surgery Clinic in Sarajevo emphasized the importance of such cooperation for furthering regional cooperation. Collaboration with Belgrade also opened the possibility of sending intensive care nurses from Sarajevo for education on postoperative intensive care in Belgrade.

Collaboration of this sort had several advantages. For example, language could be a limiting factor, restricting health care professionals from BiH from attending training in Sweden. Further, the hospital conditions in Belgrade are similar to those in BiH. Thus, examples from Belgrade could at times be more practical, with knowledge more readily applied in BiH. The testimony of Mr. Jasmin Hamalukić illustrates this:

The exchange of experience at the Paediatric Cardiac Surgery Department was quite fruitful. I believe there is much to be learned from our colleagues in Belgrade which could be applied at the UCCS. In the Belgrade hospital, I saw a very good arterial pressure transfer system, and also blood drawing syringes for ABS that are much more practical and safer than those we use, so I took samples of each to take to the UCCS Cardiac Surgery Clinic.

Mr Jasmin Hamalukić, a nurse
Catheterization Laboratory,
Cardiac Surgery Clinic
University Clinical Centre Sarajevo

Figure 3. Paediatric cardiac surgery team at Children's Hospital in Belgrade. Dr. Milan Vučičević (anaesthesiologist), Dr. Sanko Pandur (paediatric cardiac surgeon from Sarajevo), Dr. Slobodan Ilić (paediatric cardiac surgeon and head of the Paediatric Cardiac Surgery Department), Mirsada Zećo (IOM SMP coordinator in BiH), and Irena Vuličević (paediatric cardiologist). During this last visit to Belgrade, they received a letter of thanks for collaboration from IOM (Photographer Ruhija Hodza-Beganovic).

A much-appreciated spin-off effect of the programme has been the professional bridges created between various Swedish university hospitals and hospitals in Sarajevo, Banja Luka, Tuzla, and Belgrade, leading to valuable contacts for further professional discussions concerning diagnosis and treatment of various patients (see Figure 3).

Going even further and beyond the region with the aim of demonstrating the extent of progress made, two cardiac surgeons from Sarajevo were invited to join a delegation of health professionals from Sweden visiting Addis Ababa

in 2014. The objective was to discuss possible cooperation with the Tikur Anbessa Specialized Hospital with the aim of increasing the capacity of local health staff and to share the Sarajevo experience of establishing a paediatric cardiac surgery system in BiH. Three Ethiopian doctors were later invited to Sarajevo for a month to be trained at the UCCS Cardiac Surgery Clinic. Following this, a joint Swedish-Bosnian working mission visited Addis Ababa to work on the development of cardiac surgery there.

Finally, although moderate in nature, the SMP has certainly had a positive effect on post-war reconciliation efforts. Working in both entities in BiH, as well as in Kosovo and Belgrade, the SMP has gradually contributed to building links through initiating and facilitating medical institutional and professional cooperation across boundaries. The achievements that SMP has contributed are seen in Table 2.

Table 2. Summary of quantitative achievements of the programme from 1996 to 2018.

Achievement	Number
BiH patients evacuated to Sweden	126
BiH patients evacuated to Belgrade	4
Kosovar patients evacuated and treated in BiH	38
Swedish medical professionals who visited BiH on one or more occasion	106
Swedish Medical Teams visits to BiH	221
BiH patients treated in-country	>1000
BiH medical professionals who attended training sessions in Sweden	175
BiH health professionals who attended training sessions in Belgrade	36
BiH health professionals who attended training sessions in Austria, Denmark, Ethiopia, Germany and USA	33

Overcoming challenges

As with any complex, multi-partnered programme in a difficult setting, challenges were inevitable, but not insurmountable.

Arguably, one of the main challenges was the lack of secure and long-term funding. Initially, year-to-year funding constrained the potential scope of the programme because selected activities needed to be completed in a sustainable and effective manner within that short timeframe. This meant that even if a particular intervention was deemed as the most valuable with greater longer-term benefits, it could not be selected if the time needed to complete it was beyond the current funding period. For example, supporting the estab-

lishment of paediatric cardiac surgery in the country, with year-to-year funding is not recommended because it takes time to build the necessary competencies, from doctors' skills to clinical centre management practices. Instead, interventions that were less complex, although not necessarily optimum for the context, were prioritized.

Further, organizing and coordinating such a programme in BiH is particularly challenging. Understanding why this is the case requires some basic understanding of the fragmented nature of the country and the resulting complex levels of organization in the health system. The Dayton Peace Agreement gave responsibility for organizing, financing, and delivering health care to two state entities and Brčko District; there is no state-level Ministry of Health (although there is a health section within the state-level Ministry of Civil Affairs). The health care system in Republika Srpska is centralized, with the planning, regulation, and management functions held by the Ministry of Health and Social Protection with a single Health Insurance Fund. In the Federation of BiH (FBiH), the health care system is decentralized to ten cantonal levels. The FBiH Constitution gives the Federation and the cantons split jurisdiction of the health sector. The FBiH Ministry of Health coordinates the activities of the cantons and is the main bearer of the FBiH level laws, strategies, and policies that are further implemented on the cantonal level through cantonal laws and bylaws. Each entity and Brčko District is separately responsible for administering and financing its own health system. Navigating and cooperating with such a system requires both patience and understanding.

On a more local level, yet still presenting a challenge, the university clinics in both Sarajevo and Banja Luka are both large and complex institutions, and the functions of specific departments can suddenly change as a result of changes in personnel and equipment. Thus, the ability to plan ahead was negatively affected and called for constant follow-up to ensure that upcoming visits from SMTs could go ahead as planned or, if needed, be adjusted to be as effective as possible. For example, a visit of SMP to Banja Luka had to be cancelled because of the delayed arrival of equipment for performing vitreoretinal surgery, and in Sarajevo at the Paediatric Surgery Clinic because the cystometry machine was broken with no means of repairing it.

The general poor level of staffing led to further challenges. Extra staff hours needed to care for patients were not always available; training abroad could not always be feasible for want of backup staff in BiH; a shortage of staff in postoperative care limited interventions. On occasion, the pursuit of cer-

tain areas of medical intervention had to be postponed until later in the programme once capacities had been built. For example, the postoperative care needed after neurosurgery is very specialized, and neurosurgery should not be performed in its absence.

A further impediment was that, despite prior management-level agreements, the necessary disposable supplies and implanting material for diagnoses and treatment were often not obtained in time by the BiH medical institutions. This meant that the SMTs often had to bring materials from Sweden so that planned activities could go ahead. Further, the non-existence of a system for the regular maintenance of medical equipment and lack of funding for the purchasing of spare parts meant equipment was sometimes out of order.

Finally, some of the trainees included in the training in Sweden and in-country did not make an active effort to share what they had learned with their colleagues. When this occurred, the multiplier effects of the capacity-building elements of the programme could be reduced.

Key lessons learnt

As with all complex and long-term programmes, there are lessons to be learnt for more effective programme planning in future interventions.

The need to provide training in postoperative care from the beginning of capacity-building efforts

In retrospect, the SMP recognizes that the lack of focus on capacity building on postoperative care from the outset of the programme sometimes undermined the outcomes of preoperative care and surgical training. In one case, the surgery was successful, but the patient subsequently died because of the lack of effective postoperative care. This resulted in a reallocation of Ministry of Health budget for the establishment of an intensive care unit at the Neurosurgery Clinic at UCCS. Thus, there needs to be a holistic approach to capacity building from the beginning of training, including all three stages of the procedures: preoperative, surgery and postoperative care.

Ensuring a multiplier effect after training abroad and in-country

Some medical staff included in the training in Sweden and in-country did not always share their newly acquired knowledge and skills with their colleagues, thus limiting the potential multiplier effect of this investment. Possible solutions for future similar interventions include

- Setting up a solid agreement between the SMP, management of the clinical centres, collaborating clinics and medical staff as a prerequisite for being enrolled in a training programme. The agreement should specify (a) the knowledge and skills to be shared, and (b) the number of peer-sharing sessions for on-the-job training, (c) the number of peer professionals to engage in the training, and (d) the period over which these sessions should take place.
- Setting up a monitoring system to ensure that the agreement is being implemented, and that peer-sharing training sessions are taking place in a timely manner.
- Systematic evaluation of the results from the point of view of the professionals who have participated in second-generation training.

Lack of management and planning among both management and professional staff and staff in collaborating clinics

A third lesson to be learnt is the need to ensure smooth procedures from preoperative surgery to postoperative care and other non-surgical interventions through the timely and sufficient procurement of disposable supplies and implanting material for diagnoses and treatment, the maintenance of equipment, as well as sufficient staff and backup staff in case of unavoidable absences.

This calls for the provision of interdisciplinary management and planning skills for both managers and health professionals who serve as team leaders.

Finally...

Overall the SMP model has proved to be extremely effective. All the planned objectives have been achieved over the course of the programme, including

- The successful medical evacuation to Sweden of 126 patients for whom treatment was not available in BiH
- The capacity building of over 200 BiH health professionals
- The establishment of functional local services in priority fields, thereby reducing the need to seek medical treatment abroad, with more than 1000 patients treated locally over the course of the programme
- Strengthened regional cooperation among medical institutions and professionals in former Yugoslav countries

The success of the SMP model led to the establishment of a similar programme in Kosovo.

The programme has not only lengthened the lives of countless patients but

has also improved the quality of their lives and those of their families. The multidimensional character of the capacity-building elements has resulted in increased knowledge and skills of both doctors and nurses, and this in turn has led to increased confidence and motivation among medical professionals. The programme has helped to improve the status of nurses, and team work among doctors and nurses' confidence has been strengthened. Finally, the networks established among medical institutions and professionals between two entities and in the region provides a rich source for potential collaboration in the future.

8

Swedish Medical Teams in Ear-Nose and Throat Surgery in Bosnia and Herzegovina 1998–2007

Henrik Harder

Aim

The aim of this cooperation between Linköping and Bosnia and Herzegovina was to treat patients with severe ear, nose and throat (ENT) diseases locally, instead of expensive evacuations to facilities abroad. Another aim was to provide capacity building and surgical equipment so that operations could be performed locally after the project ended. To promote the reestablishment of professional contacts between the various parts of Bosnia and Herzegovina was also an aim of the project.

History

This account is written more than 10 years after the last mission and after interviewing various members of our teams. During the last decade, personal contacts with our Bosnian colleagues were in 2010 when Dr Sanja Spirić from Banja Luka gave an interesting and thought provoking lecture at the world conference on cochlear implants in Stockholm and in 2011 when I met Dr Jasminka Alagić in Croatia. More recently, in September 2018 I attended the 16th European Balkan Congress on Hearing Implants in Banja Luka as an invited speaker. Also participating in this congress were two of the first deaf-

born children, now adults, to receive a cochlear implant in Banja Luka 15 years earlier. They demonstrated the benefits of cochlear implants in a convincing manner by a welcoming lecture in several languages, and a violin solo performance respectively.

In late 1997, a patient was evacuated from Sarajevo to Linköping because of respiratory difficulties. The patient was accompanied by Dr Adnan Kapidžić, head and neck surgeon from Sarajevo. He spent his time in Linköping observing surgical activities at the ENT clinic and based on his observations, he asked for our help to re-establish reconstructive ear surgery at the University Clinical Centre of Sarajevo (see Figure 1). The proposal was brought forward to Dr Åke Björn, head of the International Medical Program at Linköping University Hospital. He responded by creating two new Swedish Medical Teams in ENT surgery. Cooperation between medical teams from Linköping and Bosnia and Herzegovina had started one year previously with ophthalmology and plastic and reconstructive surgery.

Figure 1. The ENT clinic in Sarajevo, built in 1895 with an extension from the 1960s. It was hit by a grenade during the war. Our waste from one operation is more than the bin can swallow (Photographer Henrik Harder).

At the start of the programme in April 1998, it was evident that many items necessary for high-level ear surgery were missing in Sarajevo and that many procedures had been "simplified" during the war. Our nurse, Gunilla Bergfeldt, had a challenging task to get the instruments in a serviceable condition

before each working day. After a first visit, it was obvious to us that there was a demand for our services and that a continuation was called for. In September 1998, a second mission was carried out and after 1 week in Sarajevo, we continued to Banja Luka. The hospital there was half built when the war broke out, but fortunately the ENT ward and the operating theatre were in the new building. There was only one operating theatre however, and when we were active, no other surgery was possible. The attitude of the local doctors was at first hesitant. After these first two missions, we returned twice yearly for the duration of the project. The attitude between our team and the local doctors improved immediately after it was obvious that we returned and that we offered services as promised. Some patients had conditions that could not be treated in Bosnia and Herzegovina and for such patients, we had a possibility within the programme to evacuate them to Linköping for surgery. At each such occasion, one or two doctors from either Sarajevo or Banja Luka accompanied the patient. A few times, we managed to arrange that one patient from Sarajevo and another one from Banja Luka were to be treated simultaneously in Linköping. That meant that intercollegial contacts between Banja Luka in the Republika Srpska (RS) and Sarajevo in the Federation of Bosnia and Herzegovina (FBiH) were re-established. In addition to patient care, we also presented numerous lectures on various subjects and took part in local conferences.

When the Bosnian doctors escorted patients to Linköping, they came in contact with our cochlear implant programme. It was clear from the start that we could not finance a cochlear implant programme, but we had valuable contacts with the producers and we had the necessary equipment and knowledge. We also knew that cochlear implantation is not a pure surgical procedure but had to involve audiologist at various levels and experts in pedagogics and speech and language therapy. Contacts were made with schools for the deaf in Sarajevo and Banja Luka, and paediatric cochlear implant programmes were initiated in both cities. The Banja Luka programme had broad enthusiastic support from many people in and around the clinic and was a great success.

Early in the programme, attempts were made to include neurosurgery in the programme, especially skull-base surgery, which is a collaboration between neurosurgery and ENT surgery. However, it soon became clear that this was not possible because of a lack of adequate neurointensive resources during the first years after the war. Several patients with severe cases of neurofibromatosis were evacuated to Linköping where successful surgery was performed.

The programme was terminated in 2007. A stable situation had been achieved in Banja Luka with stapes surgery, cochlear implants and bone-anchored hearing aids on the programme.

The tumour surgery part of the programme started about 1 year later than the ear surgery programme. Initially, attention was directed towards patients who had developed tracheal stenosis after war-time treatment. Several patients were treated successfully so that tracheostomies could be closed. After the war, many new laryngeal cancers were detected and treated in both Sarajevo and Banja Luka. One innovation that was introduced was the use of the Provox speech valve in patients without vocal cords after laryngectomies. When the laser equipment in Linköping was replaced with newer equipment, the older equipment was donated to this project by the hospital management in Linköping. It was transported to Banja Luka by two Swedish surgeons by car. That led to intensive contacts with the customs department in Croatia and RS, but finally the equipment was delivered. This illustrates the inventiveness necessary to get donated equipment delivered. Other examples were the use of air freight with the Swedish Air Force's Hercules planes that supported the Swedish United Nations forces. Now and then, heavy donated items could be brought to Bosnia and Herzegovina through that route. Towards the end of the project, more time was spent in Banja Luka where new diagnostic methods such as micro-laryngoscopies and laser surgery were introduced. There was an exchange of doctors for reciprocal training in both Linköping and Banja Luka. Unfortunately, this part of the project was ended prematurely because of staffing difficulties in Linköping.

Over 10 years, two ear surgeons, three tumour surgeons, one surgical nurse and three anaesthesiologists from Sweden were involved in the project. The ear surgery team made 12 missions to Banja Luka and 13 to Sarajevo, and the tumour surgeons made 13 missions to Banja Luka and 11 to Sarajevo.

Partners in collaboration

In the 1960s, ENT care in Yugoslavia, including Bosnia and Herzegovina, was of a good standard. A Swedish study group reported from a journey in the country around 1970 and was impressed after visits in Sarajevo and other places. Thus, this was a country that had experienced access to high-level surgery but was deprived of this after the war. That was a prerequisite for this project directed towards super-specialized surgery.

In Sarajevo, the specialist in ear surgery had left the clinic during the war,

and the situation in Banja Luka was similar. After the Bosnian war, the country was divided into two main entities, the Federation of Bosnia and Herzegovina (FBiH) containing predominantly Croatian and Bosniak ethnic groups and Republika Srpska (RS), with a predominantly Serb population. It was obvious from the start that our project had to take this into consideration and develop contacts on both sides. In Sarajevo, contact was made with the University Clinical Centre Sarajevo. It had been hit several times during the siege. One grenade went through the roof of the ENT clinic and caused severe damage. The clinic was located in a very old building throughout this project. The equipment at the clinic was acquired pre-war and was badly worn. However, there was a serviceable microscope with a video camera and a monitor in the library. The staff consisted of a number of senior doctors and a few younger ones. The operating room nurses were experienced but trained at fast soft tissue surgery. The services in anaesthesia were much reduced in time, so it was not possible to perform time-consuming operations. Most of the microsurgical instruments had been lost or were worn out during the war years (Figure 2).

Figure 2. The Sarajevo operating room. There were several lightbulbs working in the big lamp. The female doctor behind the operating author is Dr Jasminka Alagić. We were connected to a monitor in the library, allowing other doctors in the clinic to follow the surgical procedure (Photographer Bjorn Viklund).

Consequently, reconstructive ear surgery was a largely unknown field to most of the doctors at the clinic. The clinic had also been without scientific and educational contacts for the duration of the war.

We came to the conclusion that any surgery should be performed according to our norms in order to secure results. That meant that we had to bring and donate

all microsurgical instruments and all single-use products for all operations.

Antibiotics could sometimes be found locally but not reliably. We also brought a Swedish anaesthesiologist for all operations because there were not enough local anaesthesiologists to allow them to spend the necessary time on our operations. A Swedish nurse ensured that we could use the same surgical principles that we had relied upon at home. Gradually, nurses were trained in assisting in microsurgery. To improve the situation at the Sarajevo clinic, we left items there to be used in the future. To have these items preserved in a serviceable condition when we returned a couple of months later was at times a challenge. To achieve a reasonable standard of hygiene, our nurse, Gunilla, went to the market and bought numerous plastic bowls so that instruments could be cleaned according to our routines. Cochlear implantations did not continue in Sarajevo, most probably due to failure to establish a functioning local team with close professional cooperation between audiologist, surgeon, and the school for the deaf, in combination with inadequate long-term financing and administrative support. In Banja Luka the new group of children made it necessary to improve the acoustic environment in the school and to introduce "sounding" activities for the children (see Figure 3). The pedagogic principles of the school were otherwise very well adapted for children with cochlear implants.

Figure 3. Pre-school children with cochlear implants playing noisy games at the school for the deaf in Banja Luka (Photographer Henrik Harder).

In Banja Luka, the staff were generally young and the hierarchy was not strict. The standard of equipment was the same as in Sarajevo but to some extent, it was even more worn out initially. The operating microscope was next to impossible to adjust in position, and the operating table had a very limited range of positions. Instrument care was soon brought up to standard, and the local nurses gradually became competent in assisting in microsurgery. The interest in our activities was great. It was immediately evident that there was no money for cochlear implants available in RS. Each cochlear implant cost about €20,000. However, the enthusiastic team in the clinic found ways to overcome this problem. Money was raised through fund-raising activities such as programmes and adverts on TV and road-side signs with the slogan "pobijedimo tisinu" (defeat silence). People were asked to call a certain number thereby donating a small sum to the deaf children with each call. There were also dinners for wealthy people and representatives of the foreign forces in the country. After a short while, several candidates received implants with great success, which was publicized widely. The candidates had been selected carefully and received excellent training at the school for the deaf. After less than a year, the young users could perform a small sketch on stage, further emphasizing the potential benefits of the procedure. During visits to Linköping, escorting doctors from Banja Luka had good opportunities to follow the work of the paediatric cochlea implant team. Useful contacts with the technical audiological department at the Linköping ENT clinic were established, which in turn led to contacts with the Swedish maker of sound absorbents, Ecophon. This company kindly provided material for acoustic treatment of classrooms and the dining hall at the school for the deaf. This material was fitted by a voluntary workforce under the supervision of one of the audiological engineers from Linköping.

Children and adults with conductive hearing loss not suitable for reconstructive surgery can often be helped with a bone-anchored hearing aid (BAHA). Special bone implants and special drilling equipment are needed to achieve this. A course in surgery for BAHA was arranged in Banja Luka with participation of doctors from Sarajevo and Banja Luka. The necessary equipment was intended to be shared between Sarajevo and Banja Luka. However, this turned out to be difficult to achieve.

Otosclerosis is a disease leading to gradual fixation of the innermost bone in the ear, the stapes. It is very suitable for surgery with a high rate of improvement. The surgery is demanding because even a small misguided move-

ment can result in a hearing loss. In Banja Luka, systematic teaching of the microsurgical technique for stapedotomy was promoted over several years, and this ended with one of the doctors there, Dr. Sanja Spirić, performing the procedure herself. It was also possible to develop the necessary skills for cochlear implant surgery through progressive training of the various steps in the operation. Dr. Dmitar Travar acquired this skill quickly.

During the missions in Bosnia and Herzegovina, the members of the Swedish team were employed through the International Organization for Migration (IOM). Through the IOM, we had a clear legal status; we were provided with insurance and we had access to a locally staffed organization that provided transport and housing. Through the years, we shared many experiences with the local staff and several of them became our friends.

What was achieved?

In Sarajevo and Banja Luka, the most obvious result was that a substantial number of patients were operated on with modern techniques and with expected results. In Banja Luka, sixty-seven patients had ear surgery in Banja Luka and about forty in Sarajevo. Ten patients were evacuated to Linköping for advanced ear surgery. By performing the surgery locally, the cost per patient was much lower than if the same operations had been performed on evacuated patients.

In Sarajevo, we had difficulties engaging young doctors to participate in operations and outpatient clinics. One reason could be that the staff consisted of some very experienced senior doctors and nurses with a solid experience of war-time surgery. Sarajevo had been under siege for almost 3 years. Now they were eager to develop their own skills and consequently, the need for younger doctors were a secondary priority. The general scarcity of resources also made it difficult to find time for auscultation. Our attempt to introduce skull-base surgery at the beginning of our programme illustrates the difficulties. It was possible to perform the surgery, but when it came to the postoperative care, severe complications emerged as a result of lack of experience among the nursing staff and the lack of certain equipment.

We gave several courses and lectures on various subjects within the ENT sphere. Obstructive sleep apnoea syndrome was introduced. The diagnosis of acoustic tumours was outlined and of course the various aspects of acute and chronic otitis media were repeatedly presented.

The leading surgeons in Banja Luka were rather fresh as specialists, and

they had not been exposed to war-time surgery to the same extent as those in Sarajevo. The spirit at the clinic was one of entrepreneurship, which was evident when it came to the cochlear implant programme. All categories of staff were involved in the fund-raising activities. Someone knew someone who was in the public relations business; another knew someone at a TV company, and so on. Everyone participated in public events. The net effect was that there was a general feeling of participation.

Also in the field of specialized surgery, gradual training went on for several years regarding otosclerosis surgery. The first stapes operation ever in Banja Luka was performed during one of our missions, and the first operation performed by one of the local surgeons took place 2 years later. One doctor had a special interest in the vertiginous attacks of Meniere disease, and the use of gentamycin to relieve these attacks was introduced. In Banja Luka, the first national conference on ENT was held in 2004. Representatives from all parts of Bosnia took part thanks to our project providing transport and accommodation for participants from the FBiH.

Clinical importance

The treatment of cholesteatomas remains the most demanding procedure in ear surgery. Our programme has demonstrated that cholesteatoma surgery can be combined with preserving hearing if done in time and without haste. This principle has been brought forward in both Sarajevo and Banja Luka. The importance of early paediatric cochlear implantation is truly fundamental. This operation can result in a genuinely deaf child developing normal speech and be able to achieve normal school results and then enter life as a fully productive citizen. In some children, the deafness is combined with other functional deficits and then the new hearing ability means that the consequences of the deficits are minimized.

Another very important side of this project is the reestablishment of international contacts giving a perspective of the local situation and creating new ambitions for the future.

What we learnt

The first and most serious insight is how fragile our situation as a developed society is. Pre-war Yugoslavia was a nation with a well-educated population with dreams very similar to the rest of Europe. The pupils were taught at

school that there were different ethnic groups but of equal value. And then suddenly this mentality is eradicated and with it goes the well-developed society. Second, you soon realize that you cannot blame the war on one side of the conflict. Both sides are victims.

On a more specific level, you can conclude that a project such as this is dependent on a certain level of pre-conflict development. The surgery is demanding and you must follow established principles gained from long-term experience at home. In less developed societies, other more fundamental aspects must be attended to first before highly specialized surgery can be considered.

For the future, we at Region Östergötland should be aware that other situations might appear when our expertise will be useful. When a mission is planned, one must ascertain that the participating staff have the necessary level of competence to know where the limit of flexibility lies. The Region Östergötland should be prepared to let the necessary employees go for limited periods. The patients who were evacuated and received treatments at our hospital had really serious conditions and increased our experience. Another aspect is that surgeons of intermediate experience will have an excellent opportunity to be exposed to difficult operations with a more experienced mentor at hand. Some conditions are more frequent in countries such as Bosnia and Herzegovina; for example, advanced laryngeal cancers necessitating advanced surgery. Experience in this kind of surgery can be gained in exchange for a doctor from the receiving country being invited to Linköping to get practice in advanced diagnostics, for example.

What were the benefits for Bosnia and Herzegovina?

The greatest benefit was probably the insight that there were other Europeans who cared about the Bosnian people and were willing to help. The patients who were relieved of their defects were naturally grateful but there were also given hope that there were other aspects than war and conflicts ahead. The new treatment principles that were introduced, such as cochlear implants and bone conduction hearing aids, changed the lives of the recipients but also led to the introduction of new screening programmes for deafness and reforms in the schools for the deaf as the next step to preparing the ordinary schools to welcome these pupils. The doctors who escorted for evacuated patients experienced more developed medical care and could bring visions for the future on what to aim for and maybe what to avoid. They also made friendships in another country, which in some instances have lasted over the years.

Personal reflections

When exporting a surgical method and a policy developed over many years in a well-developed medical system, several problems are encountered. The first is to realize what the very essence of the surgery is and to maintain that. For instance, a high frequency of postoperative infections or hearing losses would have damaged the credibility of the project. You need a high level of experience to be able to cut corners when resources are sparse. Our anaesthesiologists showed this in a remarkable way by using older well-tried methods when the surveillance monitors were not as developed as at home. We also soon found out that it can be very hard to change old habits and that there are no-go areas for a foreigner. The readiness to accept new surgical principles in Banja Luka was probably dependent on the fact that there were no old dogmas to tear down first. We could start afresh.

Due to the number of missions in various parts of Bosnia and Herzegovina, we had good opportunities to see various parts of the country, which is dramatically beautiful in places. We also learnt how difficulties were endured and sometimes overcome by the inventiveness of the citizens.

Take home message

There is a short step between being a multi-ethnic, highly developed society and a severely divided poor country. Performing highly sophisticated surgery can only be justified if people can understand when you present different options. A good level of education in the population forms the basis. If you have an enthusiastic clinic working towards a common goal, miracles can be achieved.

9

The Radiology Project in Bosnia and Herzegovina

Vesna Đurović Sarajlić and Hans Klingenstierna

Background

The golden age of radiology in Sarajevo and Bosnia and Herzegovina was from 1974 to 1989. In that time, Bosnia and Herzegovina was one of the six republics of former Yugoslavia. Changes in the constitution of Yugoslavia in 1974 allowed each of the republics greater independence in planning, organizing and spending more resources in the development of its own capacities in different fields.

These constitutional changes and additional funds reflected on development of radiology in Bosnia and Herzegovina and in Sarajevo. A new modern building for the radiology department was built within the University Clinical Center, followed by procurement of the latest modern radiologic machines; and most importantly, the number of professional radiology staff at the Institute of Radiology in Sarajevo, the referral radiologic centre of Bosnia and Herzegovina, was increased and strengthened.

Although not among the most developed republics of former Yugoslavia, the first computed tomography scanner for the brain and later for the body, as well as the first magnetic resonance imaging machine were installed at the Institute of Radiology in Sarajevo. Interventional radiology was one of the priorities at that time, and since the Winter Olympic Games in Sarajevo in 1984, annual courses on interventional radiology and newer imaging modalities were held in Sarajevo until the start of the war.

Nonvascular procedures such as percutaneous biopsies and drainage procedure, sclerosation of cysts, nephrostomies, percutaneous biliary drainage,

as well as vascular procedures such as percutaneous angioplasties of peripheral, renal and coronary arteries, were performed regularly at that time in the Institute of Radiology in Sarajevo.

In January 1992, the Institute of Radiology employed 63 radiologists, 4 residents of diagnostic radiology, 4 anaesthesiologists, 4 internal medicine specialists, 3 pulmonary disease specialists and 1 clinical pathologist; 111 radiology technicians and 55 nurses were also employed. During the war (1992–1995), the institute and its employees suffered huge damage, with devastating and far-reaching consequences. The equipment and the building were heavily damaged, and the number of radiology staff was reduced to half. In December 1997, 25 radiologists, 9 residents of diagnostic radiology, 40 radiology technicians and 12 nurses were employed at the Institute of Radiology,

In the post-war period, the radiologists of Bosnia and Herzegovina strived to make progress and to step up to the level of their European colleagues. Spectacular changes were required, particularly with regard to technological progress. That path was not an easy one; there were many difficulties and obstacles, but they did it with self-confidence and great enthusiasm. With the effort of the local staff, support from the state institutions and international institutions and organizations, the Institute of Radiology relatively quickly renewed its strength and started a new era in its development.

The Swedish Medical Programme radiology project

The Swedish Medical Programme, the inaugural project undertaken by the International Organization for Migration (IOM), the International Medical Program at Linköping University Hospital (IMP), and the Swedish Migration Board, was recognized as one of the most successful programmes ever implemented in Bosnia and Herzegovina. A variety of medical projects were undertaken within the clinics throughout the country, including the University Clinical Center Sarajevo and the Institute of Radiology.

The Coordinator and Head of the Swedish Medical Programme in Bosnia and Herzegovina was Dr Åke Björn, Director of IMP. In February 1999, the Swedish medical delegation visited the Institute of Radiology in Sarajevo for the first time and promised support for the development of paediatric radiology. Dr Åke Björn (IMP), Mr Ruben Ahlvin (the Swedish Migration Board – Refugee Quota and Administration Division), and Dr Andreas Landsnes (IOM) were in this delegation. The head of the Institute of Radiology at that time was Professor Dr Faruk Dalagija.

The initial project

The paediatric radiology project was implemented over 3 years, from 1999 to 2001, in cooperation with doctors from the University Clinic in Linköping. Two doctors from the Institute of Radiology were involved in the project: Dr Amela Mornjaković (Franca) and Dr Sandra Zubović (Vegar). During this programme, Bosnian doctors also visited the University Hospital in Linköping as part of their training, with a return visit of Swedish doctors to the Institute of Radiology when the first balloon dilatation of the oesophagus was performed on a child. The Swedish doctors who participated in this project were Dr Åke Björn, Mr Rubin Alvin, Dr Margareta Resjö, Dr Peder Drott, Dr Bengt Norén, and technician Lena Karlsson.

The second project

The next project, on a much larger scale, was reestablishment of interventional radiology at the Institute of Radiology, University Clinical Center Sarajevo. Professor Dr Faruk Dalagija, head of the Institute of Radiology, was aware that without interventional radiology there was no modern and up-to-date radiology department. Reestablishment of interventional radiology, one of the fastest growing and most attractive branches of radiology, was not an easy task. Although once well developed in our institution, after the war not much of it was left. There were two major obstacles at the time: the first one was human resources, because the doctors who were trained in interventional radiology had retired or left the institute during the war. The second problem was of a financial nature; it was an expensive project for a post-war country, with the limited sources of local health funds. In a country where human resources and hospital care were cheap, it was also very difficult to persuade the local government and decision makers that interventional radiology with its minimally invasive procedures was actually cost-effective and worth investing in. The only interventional radiologist still active at that time was Professor Dr Lidija Lincender, an exceptional abdominal radiologist and expert in nonvascular interventions.

However, these facts did not discourage the head of the Institute of Radiology, Professor Faruk Dalagija, who had received a proposition from Dr Jasmin Grebo, a Bosnian doctor with a Swedish address, to go through with the project. Dr Grebo worked from time to time with a Swedish interventional radiologist and good colleague, Dr Hans Klingenstierna, who asked if there

was anything he could do to be of help in Sarajevo. After that, things just moved ahead.

The project to develop interventional radiology got full support from the IOM and the IMP. Dr Hans Klingenstierna, an experienced interventional radiologist from Gothenburg, Sweden, was appointed for this challenging task. The project officially started with the first visit of Dr Hans Klingenstierna to the Institute of Radiology, University Clinical Center Sarajevo, in September 2003.

The period that followed from 2003 to 2006 was one of the most prosperous and fruitful periods in the post-war history of the Institute of Radiology in Sarajevo. The institute was equipped with an old angiographic PolyStar Siemens C-arm machine; there was no material for interventional endovascular procedures. The remaining doctors were experienced only in diagnostic angiographies, and they did not know what to expect or how to start with this new technique. But they started from the beginning. Dr Klingenstierna introduced the whole team of senior radiologists, as well as young residents, to the fundamental principles of interventional radiology. Lectures were held for 4–5 hours every day for the first 3 days. Step by step, he set the foundation for what was going to become a department for vascular and interventional radiology. Although peripheral endovascular interventions were primarily planned for this visit, all other kind of vascular and nonvascular treatment options regarding patients were discussed with doctors from gastroenterology, oncology, abdominal surgery and urology. One of the most important things that was learned during these discussions/consultations was to always put the patient in the centre. The first visit of Dr Hans Klingenstierna draw great attention among the colleagues at the University Clinical Center, and it was a great success. Attention was actually focused on interventional radiology and its huge possibilities, as well as the advantages over open surgery, in different fields not only vascular. During these 5 years, the Swedish doctor visited twice a year. Every visit was better prepared than the previous one, with more patients to be looked after and more topics to be discussed. The work was organized from the early morning hours until late in the evening, with actual work in the angio suite combined with lectures and discussions. It was a period of a great enthusiasm and a great learning curve for all involved: the radiologists, angiologists, vascular surgeons, gastroenterologists and oncologists. The local conditions were not optimal; material in the form of guidewires, catheters, stents and balloons needed for procedures were mainly donated and brought

along with Dr Klingenstierna. Despite these problems, a lot of progress was made due to the fantastic energy and willingness of all participants.

At the beginning, vascular surgeons were slightly reluctant to cooperate in the project to develop endovascular interventional radiology, because they perceived it to be competitive with their own field of work. One of the things learnt during the implementation of this project was the necessity for team work. A good vascular team composed of an angiologist, interventional radiologist and vascular surgeon makes greater progress in the treatment of vascular diseases, as in every other field of medicine. A lot of years passed before team work was truly accepted among the vascular specialists at the University Clinical Center Sarajevo, but today there is a weekly meeting, run by interventional radiologist, where patients are presented and a common decision made for each patient. The same principle is applied for other vascular and nonvascular interventions at regular biweekly meetings with gastroenterologists, oncologists and abdominal surgeons.

Dr Klingenstierna's visits brought together vascular surgeons, angiologists and interventional radiologists for the first time to discuss each patient and to find the best treatment option. This close cooperation with the vascular surgeons and Dr Klingenstierna initiated another project supported by the IMP and the IOM, dedicated specifically to vascular surgery. It brought a team of vascular surgeons from Sweden to Sarajevo. The duration of this project was approximately 3 years. It was another positive example of good cooperation and joint work of professionals from the two countries benefiting the patients.

The radiologists who were involved and trained during the IOM/Swedish medical project on interventional radiology were Dr Zulejha Merhemić (neuroradiologist), Dr Besima Hadžihasanović and Dr Jasmina Arslanagić (musculoskeletal radiologists), Dr Sabina Prevljak and Dr Amela Kuskunović (urogenital radiologists), residents Edib Muftić and Alen Humačkić (Mostar General Hospital), Bujar Gjikolli (Pristina, Kosovo), Vesna Đurović Sarajlić, Sanela Vesnić, Edin Herceglija, Suada Hasanović, Edin Avdagić, Deniz Bulja, Aladin Carovać, radiologic technician Irena Karić, nurses Jasmina Turulja and Nela Kvočo.

Exchange of staff

In 2004, two residents Dr Bujar Gjikolli and Dr Vesna Đurović Sarajlić, spent 2 weeks at the vascular interventional department of Salhgrenska University Hospital in Gothenburg. The visit was part of the project organized by Dr Hans Klingenstierna and supported by the Swedish medical programme. For

the first time, the two young doctors saw and got the idea how a well-organized department of interventional radiology should look, which they then passed on to their colleagues back home.

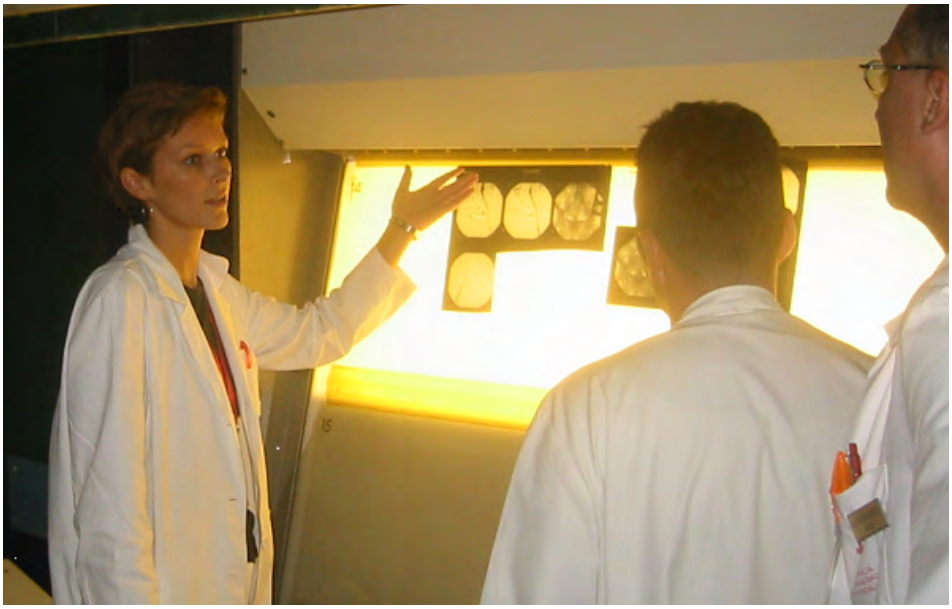

Figure 1. Interventional radiologist, Dr. Vesna Đurović Sarajlić and the Swedish Vascular Surgery Team visit to Sarajevo in September 2006 – presentation of the cases for surgery (Photographer Jasmina Turulja).

Outcome

It took a long time to make the necessary changes to re-establish interventional radiology at the Institute for Radiology in Sarajevo, but eventually it happened. The Swedish medical programme had a crucial role in that process. Dr Hans Klingenstierna, with his friendly, professional and altruistic approach, made an irreplaceable and tremendous contribution to the success of the project. He laid the foundation, taught us the basic and most important essentials of interventional radiology, on which we built up all further knowledge. To show our appreciation of his work, the Association of Radiologists in Bosnia and Herzegovina made him an honorary member in 2007.

In January 2007, a new department was officially established at the Institute for Radiology: the Department for Vascular and Interventional Radiology. Two new spacious angio suites were built and equipped with modern angiographic C-arm machines (Siemens Artis Zee and GE Innova). The regular procurement of the products for peripheral vascular and nonvascular interventions started in 2010. The IMPAX system was set up at the Institute of

Radiology in 2012. There are currently two interventional radiologists employed at the Clinic for Radiology, UCCS. Neuro interventions are under the competence of the Department for Neuroradiology .

Lessons learned and interest in the project

- The participants have learned the basic principles of interventional radiology.
- They have learned that the Seldinger technique is the foundation of almost all interventional procedures, vascular and nonvascular, and how to build/improve their skills from simple to more complicated ones.
- No force in interventional radiology; treat the patient not the image. (The worst enemy of good is better!)
- Plan the procedure from the beginning to the end; do not start it if there is no way to solve potential complications. It also means and underlines the necessity of good collaboration with other colleagues and clinicians.
- Team work is essential for a well-functioning interventional department.
- The project has created huge interest among clinicians of other specialties, not only radiologists, and has been well recognized in the University Clinical Center Sarajevo.

The addressee country has gained the following from the project:

- Opportunity to work and learn in an international environment, to meet and exchange experience with the people/professionals from a different social and cultural background, which is always inspirational and motivational.
- Trained personnel to start endovascular procedures on their own.
- Donation of material (stents, wires, and balloons) for peripheral endovascular procedures at the start, but also at the end of the project, to provide below the knee endovascular interventions.

The long-term benefits include

- The Department for Vascular and Interventional Radiology as a separate unit in the Clinic for Radiology.
- The department is well recognized at the University Clinical Center Sarajevo, and the interventional radiologists cooperate well with other clinicians (angiologists, vascular and abdominal surgeons, orthopaedic surgeons, gastroenterologists, oncologists) on a daily basis and through the weekly meetings.

Comments from a Swedish perspective

From my own perspective (Klingenstierna), it has been a most rewarding time working in Sarajevo over these years. Coming from a country with long-term peace, it is hard to understand what it means to be at war and that every day could be your last because of snipers or artillery fire. So on a purely human level, I am most grateful to have met all these respected colleagues and other people and to have had the privilege of sharing their life and perspective for a short time.

The daily work differed considerably from that in a Swedish hospital. In Sweden, the working environment includes, for example, the newest X-ray machines and equipment regarding materials. The Swedish setting is also spoiled with all possible back-up in the form of anaesthesiologists to sedate the patients and relieve pain, and surgeons to support when complications occur. In Sarajevo, almost all of these things were lacking for obvious reasons, which made work very different. One had to make thorough decisions about each case to avoid any possible damage to the patient and still be able to do good. The different obstacles made me (Klingenstierna), I hope, very humble and it has fundamentally changed my views on my work as a doctor.

Conclusions

The project has been a success in a lot of ways as mentioned earlier. Based on my experience, there is one thing to keep in mind regarding working in this part of the world. Here, the system is much more hierarchical than, for example, in Sweden. This meant that we could be potential rivals in taking over the care of the patient, with a substantial loss of prestige to the one losing out and possible consequences in questioning your position at the hospital. One of the most important things in gaining trust was to start from zero and show that we were merely there to collaborate with other specialties and support them in treating their patients. Therefore, we made contact in a very humble way and told them that we were there to help if they needed/wanted us to do so. This way we made friends for the future. The staff of the radiology department were very enthusiastic and willing to work round the clock if needed, which was important to show that we were serious in our approach to start interventional radiology in the hospital. This broke down a lot of walls between radiology and other departments and paved the road to success.

10

Valuable Collaborative Partnership

Ferid Agani

Introduction

The health care system in Kosovo has been part of the former well-established integrated Yugoslavian health care system that was functioning well based on the public health insurance scheme available to all citizens of the country. Up to the end of 1989, Kosovo citizens enjoyed qualitative health care services in the country and abroad. Unfortunately, these positive trends in the health care field as well as the overall economic and societal life in Kosovo has been disrupted and suffered severe degradation under the apartheid administration imposed by the Milosević regime in Belgrade from 1990 to 1999. Military conflict in 1998–1999 against Serbian occupational forces led by the Kosovo Liberation Army ended with a NATO air bombing campaign in the spring of 1999 and brought freedom to Kosovo. In the first post-war years, all public services and health care services in particular were extremely affected and could not respond to the needs of a severely traumatized population. Significant relief came from massive international emergency health care assistance, but as the years passed, severe gaps at different levels of the health care system became obvious. Patients lacked basic health care services, not to mention more complex services, as a result of a complete stop in continual professional development of Kosovar doctors over 20 years, as well as a total lack of the modern equipment necessary for high level medicine.

Comprehensive efforts by the Kosovo government under international administration to improve the situation were not sufficient due to severe bud-

get constraints, and emergency supplies were quickly used up. The pre-war health insurance system was unilaterally, suddenly, and in a very inhumane way, abolished by the Serbian government, leaving Kosovo citizens without their human right to health care, although they were regular contributors to the public health insurance fund up to the last days of March 1999. The situation was difficult and not promising. In this context, the Swedish health care programme for Kosovo, the International Medical Program (IMP), was one of the most prominent international health care relief programmes due to its multi-sectorial, inter-disciplinary design and long-term implementation framework. The results achieved from September 2000 up to the first days of my mandate as Minister of Health in the Kosovo Government in February 2011 were impressive.

- 170 medical teams with 299 individual medical doctors, nurses and biomedical engineers from Sweden made 288 visits to Kosovo;
- 60 Kosovar medical teams with 119 individual doctors were trained abroad, of which 93 went to Sweden;
- Medical evacuation assistance to Sweden for 111 patients who, as a direct consequence of the war, were in need of lifesaving treatment;
- Capacity building for medical professionals in Kosovo with more than 1895 patient examinations and 563 operations as part of continuous on the job training and exchange of experience in Kosovo, combined with seminars, workshops and lectures in the fields of reconstructive surgery and infectious diseases;
- Specific medical training in Sweden, including preoperative investigations and discussions, observation of surgical interventions and postoperative care;
- Complex surgical interventions performed by Swedish medical teams together with Kosovar surgeons after screening and evaluation of patients;
- Surgical treatment of children with cardiologic diseases in University Clinical Centre Sarajevo; treatment with radiotherapy and chemotherapy for women from Kosovo, and spinal surgery interventions in University Clinical Centre Tuzla, during a mission of the Swedish medical teams in Bosnia and Herzegovina;
- The donation of a mobile X-ray machine to the Vascular Surgery Department at the University Clinical Centre of Kosovo in the capital of Pristina (UCCK);
- Numerous techniques improved for optimal use of available equipment and care.

With these results, IMP was among the most encouraging international support projects for Kosovo. It came from Sweden, a country that in early 1990s opened its doors to thousands of Kosovar Albanians who were leaving country under severe oppression, and a country that two decades later was among the first to recognize the independence of Kosovo. With great respect for Swedish medicine and thankful for the decade of continuous support in developing Public Health Services in Kosovo as a Minister of Health, in March 2011 I met with the coordinator of the Swedish International Medical Program in Kosovo, Dr. Ruhija Hodza-Beganovic, and International Organization for Migration (IOM) representatives, under which umbrella the IMP was performing. We jointly agreed that after more than a decade of implementation, focusing on training, continuous education of public health care professionals in well-targeted specialities, and treatment of patients with more complex pathology abroad, IMP has made a vast contribution to health care services in Kosovo, in particular in the only tertiary health care institution in the country, UCCK. My official support for continuation of this programme was given without any doubts.

Conceptual framework of reform

The situation in the Kosovo health care system in 2011 was such that many analysts were declaring that it was almost non-existent. The United Nations Mission in Kosovo (UNMIK), trying to find quick solutions for the enormous and complex needs of the population in the first post-war years, established a simple and severely underfunded health care system with a strong political influence from the central level, totally ignoring the health care system that existed in the country up to 1999 based on the public health insurance scheme. In this situation, it was obvious that the existing health care system, although supported with massive emergency relief programmes from many countries, was not sufficient to give hope to Kosovo citizens for qualitative and sustainable health care services in the near future. Profound health sector reform was necessary, supported by the World Health Organization, the World Bank, the International Monetary Fund, and other international partners.

After a year of public debates with all relevant stakeholders, a basic conceptual framework for Kosovo health sector reform was designed. The main objective was to ensure better quality of health care for all Kosovar citizens. The plan was to achieve this objective in two phases:

I. Structural and functional reorganization of the MoH and health care service delivery in general; and,
II. Reform of health financing based on a mixed financing model with the public Health Insurance Fund as its mainstay.

The first phase of the reform, structural and functional reorganization of the overall health care service delivery system and the MoH itself, represented a challenging and complex process that was expected to include:

1. Internal reorganization of the MoH, including establishment of the Health Financing Agency as a predecessor of the Health Insurance Fund;
2. Establishment of Professional Medical Chambers that will by law enhance public responsibility of Kosovo health care professionals and enable them to regulate and manage their professional resources and other capacities;
3. Establishment of the University Hospital Clinical Service of Kosovo (UHCSK) by law as a unique health care institution that integrates secondary and tertiary levels of health care services in the UCCK with seven regional hospitals, functionally organized as a line model of service delivery that closely collaborates with family medicine centres at the primary health care level.

The second phase of the reform was expected to start with adoption of the Health Insurance Law with the main objective of optimal and sustainable health care financing.

Although first and second phases of the reform, internal reorganization of the MoH, including establishment by law of the Health Financing Agency as a predecessor of the Health Insurance Fund, and establishment of the Professional Medical Chambers, were political objectives which had a solid level of support within the MoH as well as the professional and international partner community, a third objective, establishment of the UHCSK as the main reform mechanism in the health care service delivery sector was not sufficiently elaborated and understood.

The objective was that UHCSK would represent a unique and integrated health care entity established by Health Law, constituted by all public, secondary and tertiary health care institutions, with organization, functions, and authorizations defined by a regulation approved by the Kosovo government. The basic organizational principles of UHCSK were set out as follows:

I. UHCSK should be directed by an Executive Board appointed and functioning in accordance with the law.
II. UHCSK should have as constitutive institutions: UCCK with 32 clinical

departments as the only tertiary health care institution in the country; seven regional public hospitals; as well as tertiary health care institutions in the field of blood transfusion, endoscopy, occupational health, sport medicine, and public health.

III. UHCSK should be functionally organized based on the matrix of national professional service lines for each of 25 clinical fields, ensuring:
   - Continuum of care with the patient at the centre of service delivery;
   - Higher motivation of health care providers for successful service delivery;
   - Higher accountability and transparency of health care providers;
   - More effective and efficient use of existing human and technical resources;
   - More effective and efficient use of available funds for medicinal products;
   - Fulfilment of the World Health Organization 2020 policy for integrated health care services;
   - By-pass of existing fragmentation within the secondary and tertiary level health care services as well the gap between them and the primary health care services;
   - Better integration of clinical services and academic research functions of the tertiary care health care providers;
   - Establishment of an evidence-based system of performance indicators.

As an example, the first national professional line service to be established, with financial support from the World Bank for Kosovo health sector reform, was a mother and child professional service that would integrate university departments of gynaecology and obstetrics and neonatology at the UCCK with gynaecology and obstetrics and neonatology departments in seven regional hospitals, as well as maternity wards in 11 main Family Medicine Centres in the largest municipalities.

The concept of a national line service as a professional framework for functioning of UHCSK was elaborated to a certain level of detail, but there was a clear lack of evidence-based management solutions for integrated health care service delivery in the international context.

Visit

As a Minister of Health coming from a clinical and academic field, engaged in the Kosovo public health care system as a medical doctor from 1984, I had reasonable expertise to create a political vision for optimal organizational op-

tions that would make the success of this necessary reform possible; but what I quickly recognized was the fact that a complex project such as health sector reform in a post-war country requires much more information and thorough understanding of such processes in countries where high-quality health care for their citizens is available. In particular, in the context of Kosovo health sector reform, the conceptual framework required a lot of unique organizational solutions.

Therefore, under the umbrella of IMP and IOM, in coordination with Region Östergötland, a study visit to Sweden by a delegation from the MoH of Kosovo and the management of UCCK was organized in October 2012. The aim of the study visit was to get an introduction to the public health care system in the County of Östergötland and share experiences of the reform process taking place in Kosovo. Several meetings and round table discussions were organized to present mutual challenges and achievements. During the visit to Sweden, I had the honour to meet with the Minister of Health and the Minister of Foreign Aid of Sweden (see Figure 1). At these meetings, firm support from the Kingdom of Sweden for Republic of Kosovo was once more reconfirmed in all relevant fields.

Figure 1. Meeting with Minister of Health and Social Affairs of Sweden Göran Hägglund, in Stockholm in October 2012 (Photographer Ruhija Hodza-Beganovic).

During my visit to Sweden, my trust in the idea of national professional line services as a functional organizational principle for UHCSK was strengthened. In the organizational model of Östergötland County, we saw how it is possible to integrate an optimal range of secondary and tertiary services with primary health care services within one territorial unit by placing the patient at the centre of interest and supporting him or her through different levels of the health care system with all available resources within an optimal time framework in a most effective and efficient manner.

At the time of the visit to Sweden, the health care sector reform in Kosovo was in progress. The discussions and advice received from the politicians and managers in Sweden that we met were appreciated and exceeded our expectations. This was a period of time when the health law, health insurance law and other legislation were in the final stages of drafting and design, so the experiences and lessons learned during this visit had a direct impact on the final conceptual framework of the Kosovo health sector reform as well as the legislative acts deriving from it. Thus, the study visit to Sweden came at the best possible moment; it was a right visit at the right moment. The information obtained during this visit was a valuable contribution to the final design of our health sector reform that came into being during 2013 and 2014 with adoption of the Health Law in April 2013, Law on Medical Chambers in June 2013, and for the first time in the history of the Republic of Kosovo, Health Insurance Law in April 2014.

Adoption of these legislative acts by the Kosovo Assembly marked a historical day of transition from the post-war, heavily centralized and insufficient health care system established under emergency post-war conditions towards a contemporary modern health care system with a clear purchaser-provider split based on high transparency and accountability of the health care providers and their contractors.

The legal framework for substantial health sector reform was there. What was needed was more efficient and effective implementation, which we saw in Sweden to be feasible and possible.

On a personal note

This chapter is written by a person who, throughout his life as a medical professional, has been dedicated to the well-being of his patients, regardless of their race, ethnicity, religion or any kind of other affiliations or differences, as well as an academic and a politician for all citizens and broader society.

Since my early professional years, it was my destiny to share my life with dedication and commitment to patients and the community, through continual professional improvement and scientific advancement, simultaneously with the struggle for freedom and independence of my country jointly with all my compatriots and people of good will. During the decades of this parallel life, I was an active participant in and witness to an epic endeavour against harsh state oppression on a peaceful nation. But this has never generated feelings of hatred and revenge against a peaceful Serbian population with which we have previously lived in peace for decades and who unwillingly became a victim of irrational policies and brutal acts of their homeland government. From June 1984, when I become a medical doctor, I had a dream to be in the best service of my patients, regardless of any differences between them, during my lifetime. This ambition has never changed, although it has been severely challenged and brought to a point to struggle for a personal life. Thank God, the war ended with the help of our friends and allies all over the world. Among many other competing priorities, our dream for modern medicine is becoming a reality. After decades of professional and scientific stagnation, doors for advancement and development were open. The feeling was like entering an oasis in the middle of desert or getting out of the darkness into the sunshine.

In this context, the collaborative partnership established between Swedish and Kosovo health care professionals through the IMP represented a remarkable mutual experience. It has made it possible for many Kosovar health care professionals to overcome decades of social isolation and professional and scientific stagnation. The most important factor in this process of international collaboration is the friendship relationships established with colleagues from Sweden. Two decades of friendships have made it possible for us to fully regain our professional self-confidence and self-esteem, as well as to reaffirm in ourselves European values as members of one of the oldest nations in the world, feeling as an equal partner in the joint endeavour with Swedish colleagues for better medicine. Simultaneously, patients as beneficiaries of this collaborative partnership, are being rightfully rewarded after their historic patience and struggle to maintain their trust in their doctors for decades. They were in the joint hands of Kosovar and Swedish doctors, nurses and other medical professionals, treated respectfully based on the highest medical and ethical standards, regardless of any differences between them, and fulfilling my dream as a young doctor.

Thank you!

From the perspective of the Minister of Health, IMP has made it possible for me to experience one of the most modern health care systems in the world at a very sensitive period of the health sector reform when its conceptual framework was at the final stages of elaboration. Before this visit, I had pretty much clarified in my mind the idea that the very scarce human and infrastructural resources in the health sector in Kosovo needed to be used in the most efficient and effective manner through optimal integration and simultaneous decentralization of health care services. The basic idea that I had was that services within the same medical discipline needed to be integrated at all three levels of health care as a national professional line service organized and monitored by relevant departments in the UCCK, capable and autonomous in providing an optimal range of defined services. My visit to the County of Östergötland gave me the opportunity to see in practice the qualities and disadvantages of this approach. Thus, it contributed substantially to the final design of the reform conceptual framework as well as the final legal solutions in the Health Law that was adopted in the Kosovo Assembly in December 2012.

This visit has contributed greatly to the successful start of the health sector reform in Kosovo. Internal reorganization of the MoH was finalized in 2014, including establishment of the Health Financing Agency as a predecessor of the Health Insurance Fund. UHCSK has been established by law as a separate budget organization through a budget law for 2015 and is managed based on the model of Region Östergötland with shared responsibilities between the MoH as a political authority and the UHCSK Board with managerial competencies for secondary and tertiary health care services. Professional Medical Chambers of medical doctors, pharmacists, dentists, and nurses have been established and are functional. Continual professional development programmes and relicensing of health care professionals have restarted. Specific fields of plastic and reconstructive surgery within the IMP are advancing.

Lessons learned

The ongoing collaborative partnership between Swedish and Kosovar health care professionals established through the IMP is a perfect example of how a humanitarian relief health care assistance programme should be established and implemented. It started with building of mutual trust and human relationships between health care professionals in two countries through joint

identification of the most pressing needs within the specific field and context, both on the side of the patients and the medical services, and proceeded with support for the highest decision-making political and professional instances in Kosovo to design the necessary reform projects.

This collaborative partnership has also strengthened diplomatic relationships between the two countries by emphasizing the genuine interests of citizens in need of health care services, strengthening them with values of humanity and highest ethical standards. Friendship relationships and professional cooperation between Kosovar and Swedish health care professionals has been laid down, similar to the constructive collaboration among politicians of both countries from a long-term perspective. The IMP should continue and its values need to be reaffirmed. Successful implementation of the Kosovo health sector reform is a reaffirmation of the success of Swedish health care system in the international context. Collaborative partnerships that start on the basis of sincere human and professional interests may produce only long-lasting, multi-level values, and long-term impact.

11

Paediatric Surgery/Urology, Urodynamics, Urotherapy and Treatment of Bladder and Bowel Dysfunction in Children and Young Adults

Gunilla Glad Mattsson and Sven Mattsson

Introduction

The project started in Kosovo in 2004 when Dr. Åke Björn, founder of the International Medicine Program (IMP) at Linköping University Hospital involved paediatric surgeon Dr. Peder Drott with the main aim to improve the care for children with vesicoureteral reflux (VUR) by introducing a new way of treatment, Deflux. However, Dr. Drott noticed that the initial results were not as satisfactory as expected and were not achieving the same outcome as in Sweden despite performing the same surgical interventions and procedures. One probable cause was that the children did not undergo the same diagnostic and medical evaluation before the surgery. Improvements in preoperative evaluation and diagnosis were needed, as well as better postoperative follow-up routines. In September 2012, the urodynamic project was started with introduction of improved clinical assessments and urodynamic evaluations as well as urotherapy. With more accurate diagnoses, the number of children needing Deflux soon declined and for some children, after adequate handling and treatment of their bladder and/or bowel dysfunction behind their VUR, surgery was even cancelled. The principles for evaluation and treatment of bladder and bowel dysfunction for children with VUR soon became applicable, even for children with neurogenic bladder and bowel dysfunction, but

also otherwise healthy children with bladder problems, who are now the majority who need urodynamic evaluation and urotherapy treatments.

The first morning ever

Sitting in the car with the International Organization for Migration signs and looking at a completely foreign town. Feeling a little uptight when going to experience something new and unknown, but also because it is expected that we will contribute to improve paediatric care in a small country suffering from the aftermath of a ruthless war. The car stops in front of the paediatric clinic with a large crowd, consisting of mostly women and children, waiting to see a doctor. Congestion is great and we can hardly get into the clinic. Inside, it is full of waiting parents and children, which makes it difficult to see and understand how things work. Once up on the blocks, we found many children with different diagnoses close together in the same room. Children were cared for by a parent, mostly mothers. With scarce hygienic possibilities, all the conversations with the parents about the child's condition and potential therapies were made in the same room, without any opportunity for privacy. We went on to the paediatric surgery department in a different building with the same first impression of parents and children waiting along the walls of a long corridor. Our exciting and rewarding journey had started, giving us the opportunity to learn more, make a lot of new friends, giving a feeling of doing something meaningful but mixed with resignation and sadness.

A usual day at the clinic

It is 8 o'clock in the morning. It is spring, with warm and sunny weather and we have just arrived at the hospital, passed the guard at the main door, passed a long corridor with all the former professors of the different surgical clinics at the University Hospital looking at us from their framed pictures. Passing the next guard at the entrance of the Paediatric Surgical Clinic, we are faced with a new corridor crowded with parents and children of all ages, waiting for consultations, seeing a doctor or being prepared for surgery. After shaking hands with all colleagues, we take our place at a huge table for the morning conference, presenting the plans for the day, the patients to be seen, the patients to discuss for surgery, reports from patients seen the day before or earlier. Records and X-ray films are floating all over the table, brought in plastic bags by the doctors. Turkish coffee is served for the guests. This

morning, the urotherapist in the Swedish team has prepared a short lecture, a PowerPoint presentation, about "Voiding school", translated into Albanian by the head doctor (Dr. Sadik Llullaku), followed by many comments and questions. When finished, it is time for consultations in a large room, with one bed functioning as an examination bunk. The same room is also equipped with a cystometry device, uroflowmeter, ultrasound equipment, a desk and a book shelf for papers and documents and functions as a dressing room. All records and notes, some written in Albanian, others in English, Turkish, and Serbian/Serbian-Croatian (sometimes in Cyrillic letters), laboratory data and X-ray films are brought by the parents. One child after another is presented together with their translated medical history, followed by physical examination, while the next patient is waiting in the same room. Consultations on totally unselected diagnoses are going on, with many people around and several nurses and doctors, other parents and their children, with mobiles and stationary telephones, are running. People are coming and going in and out of the room all the time. The presenting doctor is often interrupted by colleagues, mobile calls or even another parent just popping in. During the sessions, one child suddenly has to void; all the people in the room have to leave immediately, due to our strong proposal to let the child void in privacy for a proper investigation. During the consultations, cystometry may be going on behind as well. The consultations are ended by giving information to the parents and ordinations and prescriptions written down on a piece of paper. Some kind of rewards we have brought are given to the child, usually a small toy, and at the end most often you will get a huge hug from the child. At 3 o'clock, most colleagues have left, many of them hurrying to their private clinics, leaving just the doctor on call at the hospital. The day at the hospital often ends by seeing patients we have met in the morning wanting decisions about treatment after a day's investigations. Sometimes when arriving at the hotel from the hospital, patients are waiting for us in the lobby as well. The rest of the day is left for reflections, a summary of all the patients you have seen, preparing for the next day, or maybe a lecture or short presentation related to a patient you just have met.

Aim of the project

- To create a multidisciplinary team working with surgery and urodynamics for investigation and treatment of bladder and bowel disorders in children related to evidence-based theoretical knowledge, practical and hygienic handling;
- To raise awareness of how the outcome of medical efforts are affected by the management of privacy and attention;
- To convey the importance of patient priority, planning, evaluation, follow-up and documentation.

A short visit to Pristina, Kosovo, was made in 2012 to make an inventory of how children with VUR were handled, from diagnosis to treatment and follow-up.

- Who is responsible for diagnosis, therapy and follow-up?
- What are the resources, with regard to knowledge, know-how and equipment?
- Is there any need for improvements, in what areas, and what can be offered?
- How to go on, to provide support?

An inventory was also made during the first visit on how children with bladder disorders were handled in general, because the main reason for the development of VUR in children is urinary bladder (and bowel) dysfunction, as part of bladder and bowel dysfunction syndrome, which should be treated before any surgery is performed. To improve the care of VUR, there was a need for urodynamic thinking and knowledge. At the University Hospital in Linköping in Sweden, a team was created consisting of a paediatric surgeon (Dr. Peder Drott) a paediatric neurologist (Dr. Sven Mattsson) with special interest in urodynamics and a urotherapist (Dr. Gunilla Glad Mattsson) specialized in urodynamics, with the addition in 2015 of a urologist (Dr. Anders Spångberg) specialized in adult urodynamics and cystometry. The first visit to Kosovo by the Swedish team to the Department of Paediatric Surgery in Pristina led by Professor Nexhmi Hyseni was in October 2013, with week-long visits twice a year the following years.

The same concept was used for visits to Bosnia and Herzegovina to the Department of Paediatric Surgery in Sarajevo starting in April 2014, later led by Dr. Zlatan Zvizdić. A visit to the Department of Paediatric Surgery in Podgorica, Montenegro, for 1 week also took place, resulting in further cooperation in

workshops about teamwork in Budva and Sarajevo.
Some children need surgery but many do not, making teamwork essential for the proper care of children with bladder and bowel dysfunction. The need for and the advantages of teamwork were introduced and people were headhunted to join the team: in Pristina, six nurses (two from the Department of Adult Urology (Trendeline Pllana, Arsim Menxhiqi), four from the Paediatric Surgery Department (Myrvete Tërmkolli, Safete Shala, Burbuqe Salihu, Antigone Idrizi) and four doctors (Valbone Stavileci, paediatric nephrologist; Destan Kryeziu, urologist in adult urology; and paediatric surgeons, Sadik Llullaku, Gani Çeku). In Sarajevo, a local team for urodynamics was created, including three paediatric (Kenan Karavdić, Azra Halimić, Nadžida Džiho) and two nurses (Nadira Hidić, Ema Ahatović)

Lectures were given every morning on different specific topics in urodynamics and urotherapy but also general lectures about hygiene, patient care, teamwork, registration and documentation. In addition, the nurses in the team attended lectures/workshops specifically on urotherapy, led by the Swedish urotherapist. After the morning lectures, the rest of the day was dedicated to consultations, clinical examinations and investigations, how to evaluate the results of urodynamic tests and for documentation.

The visits to Kosovo and Bosnia and Herzegovina were followed by study visits/courses for the local teams, one week at a time in Sweden:

- From Pristina on three occasions and from Sarajevo on two occasions to the Department of Paediatric Neuro-Urology, PNUT, HRH Crown Princess Victoria's Children's Hospital, University Hospital, Linköping, Sweden;
- During one of the visits to Linköping, the Pristina team also visited the HRH Queen Silvia's Hospital for Sick Children in Gothenburg to the special unit for urodynamics and also a visit to the Department of Urology at Sahlgrenska Hospital in Gothenburg;
- Two surgeons from Sarajevo visited the Paediatric Surgical Clinic at HRH Queen Silvia's Hospital, Gothenburg.

At every visit/consultation to Pristina and Sarajevo, there was a close follow-up of the patients who were seen at our last visits. Between the visits to the Balkans, there were consultations on patients' symptoms and diagnoses via e-mail, as well as consultations for a second opinion to the X-ray department at the University Hospital in Linköping.

Performance, education, and application

The main reason for VUR in children is urinary bladder (and bowel) dysfunction, which should be treated before any surgery is performed, and after proper handling, that often makes surgery for VUR unnecessary. In some cases, you can solve the problem simply by treating an underlying constipation. With proper investigations, and urodynamic thinking and knowledge, the care of children with VUR can be improved. Today, there are a number of evidence-based non-invasive investigative and treatment possibilities to offer these children, and the treatment of choice for most children with a bladder dysfunction is urotherapy.

Urodynamics is a perfect option for teamwork, including paediatric surgeons, paediatric nephrologists, nurses, urologists, working together clinically and urodynamically. The people included in the team varied because of the local prerequisites. Teamwork requires ongoing updates and practice; however, the two teams in Kosovo and Sarajevo have clearly contributed to improved care and follow-up for the patients and their parents (Figure 1 and Figure 2).

Figure 1. The Kosovo team visiting Gothenburg February 2017. From the left: Safete Shala, Myrvete Tërmkolli, Arsim Menxhiqi, Trendelina Pllana, Destan Kryeziu, Sadik Llullaku, Gani Çeku, Valbona Stavileci , Gunilla Glad Mattsson, Antigone Idrizi, Burbuqe Salihu, and Ibrahim Vrajolli (Photographer Sven Mattsson).

Figure 2. Some of the team in Sarajevo, November 2016 (from left): Nadžida Džiho, Peder Drott, Nadira Hidić, Gunilla Glad Mattsson, Sven Mattsson, Zlatan Zvizdić, Alena Firdus, Sadeta Begić-Kapetanović, Azra Karamustafić, and Mirzada Zećo (Photographer Ruhija Hodza-Beganovic).

It has been a challenge to convince both parents and staff that a thorough history and non-invasive observations and physical examinations are prerequisites for a correct diagnosis. The clinical and theoretical education on bladder and bowel function and dysfunction, the clinical use of micturition charts and bowel diaries, and the use of 4-hour micturition charts using donated "wet indicators" have greatly improved the diagnostic work. Further improvements were reached with donations of equipment for uroflowmetry and estimation of residual urine using an ultrasound technique (BladderScan) and information on how to perform and evaluate a cystometry examination (Figure 3). From the start of the project, the urologist in Pristina, Dr. Destan Kryeziu, showed much interest in urodynamics and immediately started to perform cystometry and pressure/flow studies under the supervision and tutorials by urologist Dr. Anders Spångberg. Dr. Kryeziu has now taught two nurses in the team to perform cystometries by themselves. With adequate preoperative investigations and by treating bladder dysfunction preoperatively by urotherapy, the prerequisites for successful surgery have been created.

From the very beginning, seminars and lectures were organized at the paediatric surgical clinics in Kosovo and Bosnia and Herzegovina but also in other parts of the hospitals with representatives from other clinics, political leadership and hospitals from other parts of the different countries. Demonstration of the equipment and practical training created great interest but also

Figure 3. Ema Ahatović and Nadžida Džiho from Sarajevo, the urodynamic team in a training situation when visiting PNUT, the unit for Paediatric Neuro-Urology and Bowel problems, in February 2018 at the Crown Princess Victoria's Children's Hospital, University Hospital, University Hospital, Linköping, Sweden (Photographer Sven Mattsson).

demonstrated the need for medical supplies for cystometry and pressure/flow studies, such as tubes, specific catheters, pressure transducers, that had to be acquired as donations. Workshops were held with local radiologists and nuclear medicine staff as well, both theoretically but mainly case related. Consistent themes have focused on attitudes, attention, involving the children, integrity and hygienic aspects.

The surgical cooperation between the Balkans and IMP has appeared in local newspapers (Figure 4) and television programmes, and the urodynamic project has been presented by the Pristina team members at conferences

Opuštena priča sa Eldinom Čamdžićem

Zbog Mirze Delibašića nosim broj 12

Saradnja Kliničkog centra Sarajevo sa ljekarima iz Švedske

Petnaest zahvata na dječijoj hirurgiji

- Endoskopska metoda tretiranja uroloških pacijenata je trend svuda u svijetu, kaže dr. Hadžimuratović
- Sarajevski ljekari spremni su za samostalne zahvate, ističe dr. Drott

Figure 4. Article about the joint work in paediatric surgery between Sweden and Bosnia that appeared in the Oslobodjenje newspaper, Sarajevo, in 2014. On the left, the former head of the Paediatric Surgical Clinic, Dr. Hadžimuratović, and Dr. Drott.

in Kosovo and in the other Balkan countries and in other foreign countries as well. At the start, most consultations were with children suffering from urinary tract infections and VUR. However, over the years, more and more children with bladder and bowel disorders, incontinence, enuresis nocturna (bedwetting) and children with neurological diseases, mainly myelomeningocele, were seen. Many patients were referred for consultation to "the Swedish team" from other parts of the country and the referred patient often brought his/her local doctor to the consultation.

In Kosovo, a training programme specifically for nurses with problem-based teaching was developed. This resulted in the nurses starting "voiding school" with their patients, and their cases were documented and presented at seminars at the clinic as well as a presentation of urotherapy in a national TV programme and on YouTube. Over time, electrical stimulation was introduced as a treatment for therapy-resistant incontinence in children with normal neurology (AGAS, anogenital afferent stimulation). The treatment was handled by the nurses (instructions, implementation and follow-up), and there was great happiness when the first treated boy was free from leakage.

Specific training in urodynamics for both doctors and nurses was introduced at an early stage. Over time, multi-professional urodynamic teams were established with a urodynamic unit linked to the team, both in Pristina and Sarajevo. Technical and practical skills were developed that led to the need for more advanced investigative and treatment options around which the training courses in Sweden were organized. A challenge has been to get an understanding of the differences in the technical performances and understanding what to do and why. Another option to consider is that the symptoms and investigative results are age related and understanding that the functions of the bladder and bowel are connected, meaning that dysfunction in one of the systems affects the other. One important message has been to first look at the patient and then confirm any suspicions with targeted surveys, not the other way around, which often results in unnecessary investigations.

Targeted surveys involve demands for knowledge but also mean reduced suffering for patients and are cost saving for both the patient and the health care system. Frugal follow-up and feedback, scarce medical records and the lack of documentation made it difficult to gain a perspective on the patient's problem. This crucial point has been discussed and some attempts have been made to document for individual use. It is implied, however, that a general programme for medical records is planned for. Sometimes the treatment we

offer seems to be too "simple" for the staff and parents and their children. Parents expect to solve the child's problem either with pharmacological treatment or surgery and so, often, establishment of care as well.

The challenges

A paediatrician from Kosovo said: "It was a challenge to teach patients, that the three days voiding observation chart is very important.....and convince our colleagues-doctors too."

We agree that it is a challenge to convince people that there is almost never a quick fix treatment. However, non-invasive ways to change the body behaviour and physical functions have been shown to lead to evidence-based improvement, but they take time and need the patients' compliance and cooperation and the patience of the staff.

Comments from the local teams

One of the nurses from Sarajevo:

> We are learning how to communicate with patients, to distinguish the important from the unimportant during treatment, how to highlight shortcomings. I am overjoyed that we now have a urodynamics machine. All this has impacts on our future work. You and we are the proof that hard work, dedication and commitment are always worthwhile and that better and further progress can always be achieved, even in our country.

A paediatric surgeon from Sarajevo:

> An important detail that perhaps needs to be mentioned is that we were able to adopt the practice used at prominent clinics whereby nurses are considered team members. They prepare the patient, manage the examination and bring important details to the doctor's attention during the examination. This practice is not commonplace in our region and other nurses and doctors consider it somewhat unusual. Team members sometimes do not even believe that a nurse is an important member or that her maximum engagement is required. However, with this greater role for nurses comes greater responsibility.

The team nurses from Kosovo:

> From 2012 to 2017, we have gained a lot of knowledge about how children should be treated and how to use the equipment for treatment. Everything from how the patient is investigated and treated to what "approach" one has to the patient.

Comments about the future

A paediatrician from Pristina:

> We have a lot more to learn and improve further, especially for patients resistant to treatment. Hopefully soon we will have our paediatric cystometry equipment and bio-feedback equipment, and a better working space for patients' privacy; while now for uroflow, we have to move out and wait.

A paediatric surgeon from Sarajevo:

> We have all come to the conclusion, among many other things, that the patient always comes first and that the teamwork is most important and nothing can change the right questions and physical examination. We think that, thanks to the team from Sweden, we have accepted the basics for urodynamics, treated many patients together and later by ourselves, leaning on what we have learned so far and helped them to solve or lessen their problems, but there is a lot of room for the continuation of the cooperation ... we think it is necessary to continue our work together ... to evaluate and treat the most difficult cases, to work more on voiding school and to start work on bio-feedback, to develop our work more and make our own protocols with the help of this experienced and excellent team.

A paediatric surgeon from Kosovo:

> We need more knowledge – less surgery.

One step forward and a half step backwards

Basic knowledge has improved, but the different hospitals are not quite ready yet for the most complicated cases. Further medical training is needed in the future along with a better overview of how work is organized, how the logistics from referral to hospital discharge should look, how many and which children should come to the hospital and who are going to see them. Some patients are planned for but most often, they just show up in an unselected group of very sick children and children with less serious problems. Some have heard about the Swedish team, some have been referred by the local doctor, some come from private clinics and some just pop in from the street. It is not excluded that priority is about offering money to someone in the care chain to get an advantage in the queue.

In the future, it is important to adjust the care to the children's needs and that means preparing the children about what is going on and talking directly to the children. This will save a lot of suffering and anxiety but also will lead to more reliable investigations. For the future, we hope to get more paediatricians interested in joining the teams.

More education and training are needed to adapt to the evidence-based view we prefer and to understand how and why we handle the children and their investigations and treatments as we do. A real challenge is that the path from theory to practice is affected by cultural/political, local and organizational differences and problems, as well as a lack of resources.

Reflections

Our contributions may mean a lot to the individual but seems very small in relation to the overall needs. Not being able to help everyone is frustrating. Not being able to communicate directly with the children and their parents is an obstacle and a great risk for misunderstandings. When introducing new technologies and treatments, there is a risk that needs are created but without guarantees for continuance and maintenance when the project is ended. We introduced clean intermittent catheterization for children with severe bladder dysfunction with risk for renal failure, mostly a lifelong therapy, but the lack of catheters forces us to bring catheters from Sweden. Obtaining catheters from the social services is limited, and the catheters are too expensive for most parents to buy.

Lessons learnt

- A win-win situation
- To look at the patient, more hands on, back to basics
- The undesirable effects of no care or late care
- To meet many patients with rare diagnoses and syndromes that are very rare in Sweden

Acknowledgements

We would like to thank the leaders and other staff in each country for the invitation, giving us the opportunity to exchange knowledge and experiences and to share our specialist knowledge gathered over the years. Our work in Kosovo and Sarajevo has enriched us with satisfaction and new friends and given us a sense of meaning with a long professional life.

Fact box

Deflux is an endoscopic treatment of VUR. A gel of dextranomer and hyaluronic acid is injected submucosally in the urinary bladder in close proximity to the ureteral orifice. The injection of Deflux creates increased tissue bulk, providing coaptation of the distal ureter during filling and contraction of the bladder, stopping the backflow of urine from the bladder up into the ureter and further on to the kidney.

PNUT: the unit for Paediatric Neuro-Urology and Bowel problems at the HRH Crown Princess Victoria's Hospital for Sick Children, Linköping, Sweden

Vesicoureteral reflux (VUR) refers to a condition in which urine flows from the bladder, back up the ureter, and back into the kidneys. Can be congenital or acquired. Often leads to urinary tract infections and risk for renal failure.

12

Prehospital Project - Kosovo and Sweden 2014–2018

Henrik Carlsson

Background

Prehospital care is rarely included in international and global health programmes. The World Health Organization states that injuries have caused more deaths than HIV, tuberculosis and malaria combined. Even so, the development of prehospital care and emergency medical services (EMS) has rarely been supported by foreign aid or support (Sasser et al., 2005). With this background, it should also be mentioned that most trauma-related deaths occur in middle- and low-income countries, primarily due to road-traffic accidents (Hyder, 2013). There is an issue with the statistics, because early deaths in the prehospital setting are not often included or analysed in the statistics on deaths. So, there are probably a significant amount of unregistered preventable deaths around the world that could have been prevented with a basic prehospital care system. It has also been proved that low-cost interventions in the form of education of prehospital personnel, together with interventions for shorter dispatching times, can lower prehospital mortality (Arreola-Risa et al., 2000). It is commonly known that the time between injury and primary interventions and definitive care is critical in trauma patients (PHTLS, 2016).

Prehospital care is a fairly new area of health care and several areas of improvement have emerged around the world. However new the area might be, prehospital care has been neglected in development projects around the world, and even in the United States, voices have been raised that the impact of developing an effective prehospital care system has been underestimated (Sakran et al., 2012; Hyder, 2013; Lancet, 2016).

One of the challenges in a bilateral prehospital project is the variety of prehospital systems. Even in the European Union (EU), where it has been declared that equal care should be given to the population, no standards or mutual guidelines have been stated. This makes comparison of various systems difficult because there are so many variables that influence the outcome of the care, and there is a lack of comprehensive comparative studies between different systems.

When assessing different prehospital care systems, it has historically been popular to categorize the systems as physician-based systems or paramedic-based systems (Wilp, 2016). Then various comparisons of the benefits and disadvantages of these systems have been made. These discussions have usually been made by people who advocate for one or other system. This discussion is somewhat pointless because no significant benefits of either system related to outcome or cost-effectiveness have been shown. It can be assumed that it is more interesting to map out what kind of care is actually being given to the patients rather than what kind of academic education the caregiver has undergone.

Overall aim for the prehospital project

To strengthen the capacity of the prehospital organizations in Kosovo (Pristina, Prizren) and Sweden (Region Östergötland).

Differences between the prehospital systems in Sweden and Kosovo

Health care is of course affected by the obvious difference that Sweden is a richer country with one of the world's most stable economies and Kosovo became independent in 2008 with both economic and political challenges. In addition, the organizations have developed in different ways.

- Sweden has a paramedic-/nurse-based prehospital system; Kosovo has a physician-based system.
- Sweden has two nurses/emergency medical technicians (EMTs) per ambulance. The ambulances in Kosovo are manned by three persons (one driver, one nurse/EMT and one physician; in minor cases, just the nurse and driver).
- Sweden has a national emergency number (112). Kosovo also has a national emergency number (112) but without integrated call diversion so the common way to call for an ambulance is 194.
- Sweden has regional centralized dispatching centres. Kosovo has local dispatching centres that are integrated and normally located within the pre-

hospital organization.

- The prehospital personnel in Kosovo, in addition to having the responsibility to respond to emergencies and other prehospital care, are responsible for primary health care. In Sweden, the prehospital organization is independent and not integrated with any other kind of health care.

Participating actors in the prehospital project

KMC/IMP

The International Medical Program (IMP) is a department at the Centre for Teaching and Research in Disaster Medicine and Traumatology (KMC), a part of the Region Östergötland, Sweden. IMP is responsible for applying for government funding, which is invested in different parts of Region Östergötland; some of this funding is used to conduct international projects that are beneficial for all participants. These projects should also lead to some benefits for the inhabitants in Östergötland. One of KMCs fundamental areas is education and developing projects in prehospital care with emphasis on trauma care and medical command and control.

Prehospital organization in Pristina and Prizren

The prehospital organization in Pristina is integrated with a family health centre, where walk-in patients are seen 24/7. The ambulances are staffed by a physician, a nurse/EMT and a driver. The physician is commonly specialized in family medicine. The station is located just outside of the centre of Pristina with a satellite station on the other side of town. Prizren has one ambulance station which also admits walk-in patients. The number of walk-in patients is higher at night because other similar facilities are closed. The dispatch centres are located at the stations. The equipment is of varied quality in both cities; the defibrillator and ECG equipment is of high quality, but other more basic equipment, such as backboards, cervical collars and dressings, are of lower standard.

Prehospital organization in the Region Östergötland

The prehospital care in Östergötland is provided by private contractors. However, these companies are controlled and regulated by Region Östergötland. Premedic is responsible for the eastern part of Östergötland and Falck the western area. The ambulances in Östergötland, and in the rest of Sweden, are staffed by at least one nurse (commonly with specialization) and an additional nurse or EMT. Physicians are rarely active in the prehospital setting. Howev-

er, the care that is provided by the ambulance crew is regulated and decided by treatment guidelines issued by a responsible physician.

How it started

IMP has been present in Kosovo since 2000 and has undertaken various projects in the health care system. Local personnel brought attention to the fact that prehospital care had some areas that had potential for improvement if a collaboration with IMP could be set up. An analysis of the situation in the prehospital organization was done by representatives from IMP/KMC and Kosovo. The outcome of this analysis was that perception of the response to emergencies was poor. This analysis was based only on perceptions of the prehospital care because no hard data or statistics were available from the Kosovo organizations. Because of the importance of proper response to emergencies, it was decided that the first step to improve the prehospital care was to develop the dispatching of ambulances. The other sub-projects in the prehospital project were initiated after requests from the participating organizations in Kosovo. These projects were developed with the management from Kosovo together with representatives from IMP/KMC.

Project: Technical dispatch support in Kosovo

Why?

In prehospital care, time is essential. When it comes to trauma and various medical conditions, it has been proved that time is one of the most critical variables for a positive outcome for the patient (PHTLS, 2016). The perception of the dispatching process in Kosovo was not very positive in the initial analysis. Before the project, dispatches were made by one dispatcher without any technical support. There were four analogue phones connected to the emergency number 194. When a call was received, the dispatcher made the decision to dispatch an ambulance after interviewing the caller. The dispatcher had no technical support when doing this, just an old unstable radio (with EU standards). Private cell-phones were often used for dispatching an ambulance when they were out in the field. However, because Kosovo did not have an independent country number, phone calls were quite expensive (Kosovo has acquired an independent country number since then). Thus, it was quite an intricate process to dispatch an ambulance. The dispatcher did not have any kind of visualization of the positioning of ambulances, so they

had to call each ambulance and ask them for their position. If the ambulance team was in house, no communicative aid was present to alert the teams. The process of dispatching an ambulance had an average time of about 8 minutes compared with 30–60 seconds in Östergötland. (The data used to calculate the average times have yet not been published, therefore no statistics are presented here in detail.)

Aim

To create effective and quicker system for dispatch of ambulances.

Goals

- Develop a cost-effective digital support system with a simple IT infrastructure;
- Implement the support system;
- Educate EMS personnel to maintain and troubleshoot the system;
- Evaluate the effect of the implementation.

How it was done

Development

The digital support system was developed together with the company that also provides the digital support system for the prehospital organization in Östergötland. Before the development, the existing IT infrastructure was mapped. To support IMP/KMC, an external consultant familiar with prehospital communication systems was assigned to the project. This was essential to provide the personnel with primarily health care knowledge with adequate technical knowledge. The system that was developed was similar to the system used in Östergötland, but the module for dispatching there is an independent integrated system that requires a heavy and powerful IT network. Therefore, a dispatching module that could run solely on a PC was developed for Kosovo.

The system consists of a dispatcher, who sends out the ambulance that is available and closest to the location of the case. The dispatcher's screen provides an overview of the position and status of the ambulances. In the ambulance, there is a 10-inch tablet which provides information about the case for the prehospital care personnel and suggests a suitable direction. These tablets send the current status of the ambulance to the dispatcher and/or the emergency department (ED). In the ED, there is a screen that shows the

incoming ambulances so that the receiving teams can prepare to provide as effective care as possible.

Implementation

In the agreement with the company that developed the system, the system was installed. This was quite challenging to say the least. The differences between a Swedish and Kosovar IT organization became more obvious as the work progressed. However, thanks to the local IT support, the installation was completed. The equipment was installed by a local company and was controlled and approved by the company that owned the software and the external consultant.

Education of EMS personnel

The local organization identified staff who could be relevant in the role as educators of other personnel and who could be the first line for maintenance/troubleshooting. Education was provided in two steps: first, general education of about 16 staff members and then (since the first education did not feel adequate enough), separate education for five selected dispatchers.

In addition to the technical aspects of the dispatch system, the training included questions on medical categorization, prioritization and other aspects of dispatching. The training also involved a brief introduction of how to troubleshoot the hardware in the vehicle.

Evaluation of the system

The system has not yet been used to any great extent. The intention is to publish an evaluation of the implementation. To make meaningful, a researcher was assigned to the project. Interviews and observations were carried out prior to implementation of the new system. This led to a hierarchical task analysis and measurement of different time intervals in the Kosovo prehospital organization. However, these data have not been published so they are not presented in this text. The intention is to get an academic evaluation of how the system affected the everyday routines of the dispatchers, prehospital personnel and ED staff.

Results

The initial launch of the system was fairly successful. The personnel were, as far as communicated, motivated and eager to use the system to develop the prehospital process. However, after a while, the system was no longer used. Troubleshooting was much more of an issue than anticipated. To date,

the system is used only spontaneously; whether it will be fully implemented remains to be seen. Unfortunately, the dispatching process is still in need of development.

Lessons learnt

- Make sure the local personnel are motivated.
- Identify and point out local personnel who can take responsibility for the project.
- Presence is crucial.
- Be restrictive with advanced technical solutions.
- Invest in knowledge and increasing the competence of the local personnel but make sure the knowledge is disseminate to several staff members.
- If the project group needs technical support, make sure this kind of competence is available to the group.

Project:
Exchange between prehospital personnel in Sweden and Kosovo

Why?

Prehospital care is, as stated earlier, often developed independently, often without or with little impressions of other organizations (Wilp, 2016) .This is partly because of the lack of international standards and usually few national regulations. Because the organizations have developed independently, it can be difficult to see one's own organization could be changed. Change in itself is not always desirable, but impressions can lead to valuable reflections of why some things are organized in a different way.

It was communicated to IMP that the amount of prehospital managed trauma in Kosovo was very high (once again only a perception because reliable data and statistics for Kosovo are not available). The amount of prehospital managed severe trauma in Sweden is not very high. However, Swedish prehospital care is well organized and has relatively clear objectives. This combination of a high amount of trauma in a less well-organized organization versus a less trauma in a more organized organization led to the start of an exchange programme of prehospital personnel.

Aim

To increase the capacity and competence of prehospital personnel in Östergötland, Sweden and Pristina and Prizren, Kosovo.

Aim specific to Kosovo personnel

To participate in a cohesive system of prehospital care from incoming calls to the dispatcher to handover of the patient to the ED. To observe structured prehospital care and management of trauma patients according to international trauma concepts. Identify possible areas of development in own organization.

Aim specific to Swedish personnel

To participate in prehospital care under different conditions. To increase the capability to care for patients in a setting with less resources. To increase the capability to care for trauma patients with scarce resources. To participate in prehospital care with a high number of trauma patients.

How it was done?

Personnel from Region Östergötland applied to take part in the project and personnel from Kosovo were appointed internally in their organization after discussions with relevant local managers.

A pilot exchange was initiated in April 2016. Three Swedish paramedics/nurses participated in the prehospital care in Prizren and Pristina for 10 days. The evaluation was positive. Due to managerial changes, the next visit was postponed until later the same year. The visits lasted for 10–14 days. Alternation between visiting organizations was identified as a positive aspect quite early in the project; this meant that after a visit to one country, a team from that host country travelled quite soon afterwards to the other country. KMC/IMP initiated and facilitated the project. The everyday issues were taken care of by the hosting organization.

In Kosovo, the group of visitors spent 2–4 days in Prizren and the remaining time in Pristina. This distribution was decided after the pilot visit. In the pilot visit, the time was spent 50/50 between the cities, however the participants felt that the higher frequency of cases in Pristina should be given a little bit more time.

In Sweden, the project was divided between the cities of Norrköping (Premedic) and Linköping (Falck). The time spent in these cities was divided 50/50.

The project was of course dependent on translators. It was not always possible to fit another person in the vehicle, therefore the translators remained at the station. This way of working meant that it was sometimes challenging to communicate during missions. However it was possible to sort out remaining questions afterwards. The participants were given areas to focus on specif-

ically before the visits. These areas was related to the aim of the project. Quite early in the project, the participants took more and more responsibility. Many personal contacts was made and impressions were presented to the participants' own organizations.

Results

Fourteen people from Kosovo visited the Swedish organization and 11 Swedish personnel visited Kosovo.

Lessons learnt

- An application process for participation is positive to get committed participants.
- More than one translator per visit is desirable.
- More bilateral projects between countries in prehospital care are desirable.
- Hosting another organization can be a catalyst for development.

Project: Implementing in-house education for the prehospital organizations in Prizren and Pristina, Kosovo

Why?

According to the World Health Organization, trauma results in a significant number of deaths worldwide. Injury and trauma occurs across all age groups, and it is one of the most contributing factors to years of life lost. In addition to the suffering it causes, trauma also has a significant socio-economic impact on countries (Haagsma et al., 2016).

Qualitative prehospital care is essential to reducing mortality and complications after injury. The prehospital organization is only one element of a highly qualitative trauma chain. Prehospital care of high quality is, as all other care, often dependent on good and adequate equipment. However, the competence of the personnel is probably the most important ingredient to reduce mortality.

Tutorial learning can be difficult in prehospital care, because there is no certainty what kind of patients that will require care during the day, and the characteristics of the care are based on rapid decisions. Therefore, a lot of the competence building in prehospital care is based on courses and education. The fees for some of the most well-known education programmes, such as PHTLS and ATLS, are quite high. Even if the long-term aim for the organizations in Kosovo should be to take part in those programmes, a solution for

the existing organizations is required. Two areas that have a big impact on prehospital mortality are cardiac arrest and severe trauma (Davis et al., 2014). Therefore, it was decided to include a project with an aim of making the organization capable of educating themselves in some areas in the spectrum of prehospital care. It is likely that more qualitative and effective prehospital care of patients suffering cardiac arrest and severe trauma would decrease the mortality or at least increase the possibility of doing so (Arreola-Risa et al., 2000). Therefore, two different training programmes were implemented in the organizations.

Aim

To increase the capacity and quality when caring for severely injured patients in the prehospital setting.

Goals

To implement in-house education programmes on cardiopulmonary resuscitation (CPR) and on practical management of trauma.

How it was done

Two basic courses were developed by KMC. The exchange project was conducted before the training, and it was clear that the prehospital personnel in Kosovo, especially the physicians, were very competent in caring for patients with conditions related to family/primary medicine. However, the perception was that there was room for improvement in cases with severe injuries or illnesses. In discussions with the managers responsible, it was clear that the staff had very good theoretical knowledge but lacked training in the practical management of trauma patients and how to perform CPR according to the latest standards.

Two separate courses were developed based on the latest standards: one course in CPR and one in practical trauma management, called P-PTC (practical prehospital trauma course). There was an emphasis on creating independent course management. Therefore, introductory courses were held by staff from KMC in both CPR and P-PTC. Before this, the management of the organizations in Prizren and Pristina had identified staff members suitable of becoming instructors.

After the introductory courses, possible instructors were selected by the management together with KMC staff. These selected individuals then participated in an additional instructor's course. After the instructional courses, the

instructors conducted their first course. During this course, staff from KMC supported the instructors. One physician was designated as course coordinator for both courses.

Results

The first course was conducted in a professional way. The instructors were committed and well prepared. The participants in these courses were satisfied according to the evaluation afterwards. Since then, more courses have taken place, however no specific data have been presented.

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13

The Beginning of the Collaboration Moi University – Linköping University

Simeon Mining

How did it start

In 1988, officials from the Ministry of Health of the Kenya government visited Gothenburg, Sweden, seeking collaboration to assist the newly established second medical school in Kenya, Moi University, and Faculty of Health Sciences. The delegation was then referred to a newly established medical school practicing problem-based learning in Sweden, Linköping University, which had been established in 1986. It was then that the delegation met Inger Sandström, faculty advisor, and the management of Linköping University. At the meeting, Linköping agreed to visit Moi University Faculty of Health Sciences the following year (1989) before the first pioneer students were admitted in 1990.

In 1989, meetings took place between Moi University, Linköping Faculty of Health Sciences, Swedish Embassy, Kenya Ministry of Health and the Swedish International Development Agency (SIDA) in Nairobi and Eldoret, which resulted in the development of a memorandum of understanding of collaboration between Moi University and Linköping University to be funded by SIDA through the Ministry of Health Primary Health Project.

Why the collaboration?

In the late 1980s, few medical schools around the world delivered their courses using innovative pedagogical systems characterized by features such as,

but not limited to, student-centred learning, problem-based learning and interprofessional education in medicine. During this period, the World Health Organization recommended to Moi University to visit the recent innovative medical schools that had started using the system, such as McMaster University in Canada, Maastricht University in the Netherlands, Ben Gurion University in Israel and Linköping University in Sweden.

Why we chose Linköping University

SIDA was funding the Ministry of Health in Kenya on a project called Primary Health Care. Linköping University expressed positive interest to the Kenyan delegation led by the Director of Medical Services in the Ministry of Health to assist the newly established medical school. Therefore, the Moi–Linköping University collaboration (renewed in 2013, see Figure 1) was incorporated as a component of the project focusing on training of future health care professionals who are well versed in primary health care, including promotive and preventive medicine.

Figure 1. Memorandum of understanding between the two universities signed by vice-chancellors Helen Dannetun and Richard K. Mibey in Eldoret in February 2013 (Photographer Kerstin Hawkins).

Expansion of the collaboration with Region Östergötland

In 2000, at Jomo Kenyatta International Airport in Nairobi, Kenya Inger Sandström and Dr Simeon K. Mining heard a Swedish voice, "Can I buy you a beer?". It was Dr. Christer Anderson, a Swedish doctor from Linköping University Teaching Hospital who was going to Eldoret. From there, Christer joined the team of Linköping University staff who had visited Moi University to attend planning and coordination meetings between Moi University, SIDA and the Ministry of Health, Kenya. The collaboration prepared for 30 year anniversary (see Figure 4).

Since then Dr Christer Anderson has been visiting Moi University and Moi Teaching and Referral Hospital (MTRH) annually for 18 years to build capacity in orthopaedics and trauma. In 2001, Dr Lectary Lelei, head of orthopaedic surgery from Moi University, visited Linköping University on staff exchange and together with Dr Chister Andersson discussed how to start specialist training in orthopaedics and trauma at Moi University. In 2005, the two began developing the curriculum funded by SIDA, and it was approved by Moi University senate in 2007 and accredited by the Kenya Medical Practitioners and Dentists Board as a specialist training. In 2008, the first students were enrolled in the flagship orthopaedic masters 4 year programme in Kenya and they graduated in 2012. The programme has since attracted trainees from the region and Africa, graduating over 20 students and with 45 still ongoing training.

International Medical Program

Åke Björn, who was director for the International Medical Program (IMP) in Region Östergötland, was awarded Honorary Doctor of Medicine in 2011 and Professor Simeon K. Mining was awarded the same in 2012. Earlier in 1994, Professor Mining had been appointed coordinator at Moi University. The two met in 2012 and agreed to expand the IMP collaborative activities in Bosnia and Herzegovina to Kenya, Moi University and MTRH, Eldoret, hence the letter of intent and agreement in 2013 (see Figure 2).

Figure 2. Region Östergötland team and Moi University team after the signing of the memorandum of understanding in 2013 (Photographer Kerstin Hawkins).

In 2012, a memorandum of understanding was signed between IMP and the orthopaedics department of Moi University to support staff training in physiotherapy, with funding through the IMP (Figure 3).

Figure 3. Kenyan delegates in the closing ceremony of the World Convention for Physiotherapy in Singapore, 2015 (Photographer Nancy Wanyonyi).

The students who were beneficiaries of the physical therapy programme funded by the IMP collaboration include

1. Naomi Wanjiru, PhD (the first PhD in physical therapy in Kenya and also the first female)
2. Nancy Wanyonyi, PhD (ongoing)
3. Sharon Kiplagat, PhD (ongoing)
4. Catherine Mwikali, MSc
5. Christopher Koech, MSc
6. Fred Chesergon, MSc
7. Henry Muroki, MSc in physiology (ongoing)

Change contributors in the collaboration

Since its inception in 1989, the collaboration has grown to what it is currently as a result of various change drivers. In its early stages, the dominant change driver of the collaboration was the initiative of Linköping University and Region Östergötland, which impressed the management of Moi University and MTRH. The management of Moi University and MTRH were impressed by a programme run in the neonatal unit under the collaboration, which was highly successful in terms of its practicality and effectiveness. This led to the management of Moi University and MTRH allocating more resources to the collaborative activities and reinforcing personnel in the required areas through technical capacity building and training. A good example is the head of the neonatal unit, who was co-sponsored to undertake further training in South Africa to further her clinical skills and experience.

Staff and student exchanges have also played a big role in the exchange of cultures and strengthening of bonds between the people involved on a more personal level. Some of the staff from Linköping University and Region Östergötland have even been given Kenyan names such as Kipchirchir (born in a hurry) and Chepchumba, a feminine name meaning Caucasian. This has resulted in staff and students on both sides enjoying better relationships personally and professionally, and consequently a positive impact on the collaboration's activities.

Based on the aim of the collaboration to achieve better trained medical practitioners for both collaborators and improve health care delivery through problem-based learning and interprofessional education in medicine, the project is well on track from the examples documented above and others not mentioned here.

Figure 4. Moi University Eldoret Team during a visit to the Governors Castle in Linköping on 14 September 2018 (Photographer Linda Ström).

Clinical relevance

The collaboration has involved various clinical parts in its work to deliver its objectives, involving an emergency hospital specialist, emergency technician, paediatrician, neonatology nurse, midwife, researcher, obstetrician, orthopaedist, coordinator and a gynaecology–obstetric team. Through this clinical work, the collaboration has been able to improve the respective units on both sides through knowledge transfer and clinical experiences in both environments/contexts. In addition, Region Östergötland donated a further 158 hospital beds, 4 bay coats and 1 operating table to MTRH in 2016 and 2017.

A key clinical relevance of the collaboration has been the technical capacity provided through training and exchange of staff. The staff from Linköping have gained experience on how to apply their clinical skills in a resource-scarce environment without comprising quality and Moi University and MTRH staff have been trained on ideal practices and how to apply them in their own context with minimum resources and achieve better outcomes. The introduction of skills training and the use of models in learning has been instrumental and beneficial in assisting the Kenyan staff and students perfect their competence and practices safely in preparation for real-life clinical applications.

Lessons learnt from the collaboration

The collaboration had an influence on the interaction of staff and students in the various clinical departments with exchange of valuable lessons for both sides.

An important lesson learnt that is applicable globally to similar institutions, individuals and professionals in the medical field, is that it is possible to achieve better results in a resource-constrained environment using available resources. This was best demonstrated in the MTRH neonatal unit where hand sanitization was introduced after every procedure and is now a critical aspect in the unit. The neonatal unit installed easily available wall-mounted liquid dispensers in the neonatal ward and filled them with a liquid hand sanitizer. Personnel in the neonatal ward could easily sanitize their hands after every procedure, and this subsequently decreased mortality by more than half in the early stages and subsequently by 80%.

A second example from the collaboration was the adoption of kangaroo baby care, a method of nursing infants in a clinical context with a scarcity of baby incubators. In kangaroo baby care, the mother holds the baby close to her skin, providing the appropriate warmth an infant requires early after birth. This method has been adopted not only in MTRH but also other county hospitals and smaller health facilities in Kenya.

The third lesson learnt from the collaboration is leadership roles in health care, drawing from the lessons at the staff level, and using the example of the Swedish obstetrics nursing team who worked hand in hand with their Kenyan counterparts, teaching them about giving quality health care, treating the patient as their sister, supporting their colleagues and treating the students as their future colleagues. From this, we can see leadership developing from its smallest building block of colleague to colleague to patients and students as well. It is this kind of leadership that has fostered mutual respect, trust and love for one another, creating the spirit for collaboration and providing an important lesson for all, from the top management to the students.

One of the most exciting things about a collaboration is travelling to new places and making new friends; the most important aspects here are the exchange of culture and knowledge. The Swedish team, who we now consider as our brothers and sisters at Moi University and MTRH, brought with them a warm outlook towards us and a culture of openness, trust, innovation, hard work and dedication towards the greater good of serving others as best as one

can. With the interaction of staff and students from both sides, over the years the Swedish team and their Kenyan counterparts have become good friends and have shared a common vision as seen in the achievements of the collaboration since it began. This exchange of culture has meant that human-dependent factors critical to organizational success have taken shape positively and resulted in the success of the collaboration thus far.

Challenges faced

Despite the great progress made by the collaboration, there have been a few challenges that we have tried to address, which although minor have presented a hurdle in the progress of the collaboration.

The first challenge arises in synchronizing the availability and timing of the exchange staff and students both ways because of other heavy commitments in their respective hospital or university. External and unforeseen factors affecting the schedules of the university or hospital on both sides have posed a challenge in synchronizing the exchange despite thorough preparations being made. Mitigation of this may be possible in the future with joint effort on both sides or by other interested parties and would be most welcome.

Another challenge facing the collaboration is sustaining the proposed health care improvements at MTRH due to congestion, which is caused by the county hospitals in Kenya referring most of their patients to MTRH for treatment. This is a challenge that the MTRH and the Linköping teams have started to address by training the staff from the neighbouring referring hospitals on best practices.

A shortage of qualified specialist consultants to provide leadership and decision making in strategic departments/units is another challenge faced in the collaboration.

Successes attained

Overall, the collaboration is a success story; the achievements from the collaboration have greatly outweighed the challenges it has faced. The collaborations greatest success has been in building up solutions. The breakthrough in hand sanitization in the neonatal unit is a good example. This solution greatly reduced the morality rate, and there have been further developments in a patient-safety programme that is being run with the collaboration throughout the hospital. This can be attributed to the qualities that personnel on both side

have developed as a result of their interactions, training and development of protocols/standard operating procedures.

The success of the early undertakings at the neonatal unit greatly influenced the management at MTRH to allocate more resources and create a conducive environment for the initiatives of the collaboration to be upscaled and sustained. This is important because both sides of the collaboration are fully committed to offering unwavering support.

A success that sums up the collaboration's achievement is the mutual trust and respect for each other and the initiatives of the collaboration. This has stemmed from the people in the collaboration, their trust and respect for each other, the friendships made, values shared and most importantly their shared vision.

Take home lessons

For nearly three decades, the collaboration has been deep rooted into the hearts of the people involved; it has braved tough times and conquered its challenges giving us the opportunity to learn some lessons from it. The three most important lessons from the collaboration are

1. Shared vision. The key driving force of the collaboration's success is the shared vision that has evolved by implementation of new approaches from the basics such as hand sanitizers in the wards.
2. Inspired innovation. The collaboration has stimulated teams to be innovative and creative by questioning assumptions, reframing problems and approaches and trying out new solutions.
3. The human touch. The collaboration has fulfilled the team members' need for achievement and growth by establishing a supportive and conducive environment, hence the quote "Giving quality care, supporting my colleagues, treating the patient as my sister, and the student as my future colleague".

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14

Back to Basics in Eldoret, Kenya

Mona Hedestig

The mother-baby project from 2013 to 2020

Kenya struggles with high maternal and infant mortality. At the mother and baby units at Moi Teaching and Referral Hospital (MTRH), Eldoret, staff and management have high ambitions and are working to decrease these numbers. They have therefore welcomed collaboration with Östergötland, Sweden, a collaboration that is focusing on finding simple solutions with high impact and at a low cost - back to basics! It can be as easy as getting the right prerequisites for acting on a newborn baby's low temperature, finding and prioritizing the labouring women with complications or encouraging a no-blame culture in the health care setting. Engagement from the top management, unit management and from the staff members is essential for success. The work needs to be done at both a systemic and an individual level. The Swedish side of the collaboration gains valuable experience with natural birth and exposure to rare medical conditions and learns a lot about leadership and improvement work. Working side by side with mutual respect has been a key factor, and we can already see some positive results.

Providing and improving the care for expectant and labouring mothers and for their newborn babies is what motivates caregivers in their daily work at the obstetric and paediatric units in Östergötland, Sweden, and throughout the world. Patient safety is of paramount importance in their day-to day work. In 2013, the management of the units received an offer they could not resist – the opportunity to take part in something bigger that can make a change in developing countries. The International Medical Program (IMP) in Region Östergötland and Dr. Åke Björn approached managing director Ditte Persson

Lindell of the Centre for Paediatric and Obstetric Care (BKC) with a request. MTRH in Eldoret, Kenya, invited Region Östergötland to support their work in reducing maternal and neonatal mortality at MTRH. The obstetric and neonatal caregivers in Östergötland were delighted and saw it as an opportunity to not only contribute internationally but also acquire valuable experience abroad. A team was sent to Eldoret with the aim of supporting the hospital by sharing experiences and by working together to maximize competent and respectful care but not by providing equipment and financial support. The team members have respect and understanding for the many difficulties and the huge workload of the staff at MTRH, and they have built mutual trust, friendship and partnership. The Swedish team have made 1-2 working visits per year to Kenya and the Kenyan team have made visits to Sweden for observation and reflection (Figure 1).

Figure 1. Mothers caring for their children at MTRH hospital in Eldoret, Kenya (Photographer Per Odelberg Johnson).

How it started

After 20 years of collaboration between the medical programmes at the University of Linköping and Moi University in Eldoret, Kenya, plans to develop the partnership further began. Although the exchange was bearing fruit from an academic perspective, it became apparent that the impact on patient care resulting from the collaboration could be dramatically increased if staff working on the wards and departments also became involved. Certain areas of the hospital were suggested as pioneers. The Riley Mother and Baby Hospital in Eldoret and the BKC in Östergötland were asked to participate.

MTRH is the second largest referral hospital in Kenya. It is located in Eldoret, in the Rift Valley Province. The hospital has a capacity of 800 beds and serves the entire west of Kenya. It covers an area with approximately 24 million inhabitants. They have around 14 000 deliveries every year, 16 delivery beds in reproductive health (RH) and 60 beds at the newborn unit (NBU). In comparison with Östergötland's units in Linköping and Norr-köping with 5300 deliveries, 20 delivery beds and 26 neonatal beds (2018).

MTRH has ISO 9001:2015 certification for quality (Quality Management Systems – Requirements), which shows an intention and drive for quality improvements. In Östergötland, some units have the same certification.

An agreement was signed between Region Östergötland and MTRH through a Letter of Intent. Dr. Åke Björn, Chief Operating Officer of IMP, has many years of experience in building and implementing health care at different levels in war-affected and vulnerable countries. He led the project planning together with Professor Simeon Mining from Moi University. Assisting them was Christer Andersson, physician and orthopaedic specialist, who had extensive previous experience in exchange and partnerships within orthopaedics in Eldoret. In 2016, when Dr. Åke Björn retired, Dr. Ruhija Hodza-Beganovic was appointed Chief Operating Officer of IMP.

The collaboration has involved Swedish obstetric and neonatal teams visiting Kenya and Kenyan teams from MTRH visiting Linköping and Norrköping in Östergötland. The teams have included nurses, paediatric nurses, nurse assistants, midwifes, obstetricians, paediatricians and neonatologists from the two hospitals. The team leader for the Swedish BKC teams is Lotta Tydén, labour unit manager in Linköping, and leader for the Kenyan team is Dr. Julia Songok from MTRH.

Both BKC and MTRH management have contributed by granting leave

to experienced employees to form the teams. The cooperation is based on a long-term perspective, where continuity is important in order to build mutual trust between the units, from both the Swedish and the Kenyan perspectives.

The chosen concept for this exchange is based on a 1- to 2-week visit to MTRH every 6-8 months for the Swedish team and an annual 1- to 2-week-long visit to Östergötland for the Kenyan team. There is opportunity for implementation of plans and improvements in care between visits. At the end of every visit, a meeting is held to review and summarize events. Verbal and written reports are produced and plans for the future are made. Evaluation of the progress made is a joint responsibility of both teams on return visits. It is important that all teams are multi-professional in order to include all perspectives and to consolidate the whole chain of care.

Project goals

The main goal is to reduce the maternal and neonatal mortality rate at MTRH. This is an ambitious goal, and it is easy to measure in numbers. The issue is to identify what factors that have an effect on the decreased mortality rate and what role the mother-baby-project has had on that.

The World Health Organization has published standards for improving the quality of maternal and newborn care in health care facilities. The standards place people at the centre of the care by improving both the provision and patients' experience of health care.

- Safe. Delivering health care that minimizes risks and harm to service users, including avoiding preventable injuries and reducing medical errors;
- Effective. Providing services based on scientific knowledge and evidence-based guidelines;
- Timely. Reducing delays in providing and receiving health care;
- Efficient. Delivering health care in a manner that maximizes resource use and avoids waste;
- Equitable. Delivering health care that does not differ in quality according to personal characteristics such as gender, race, ethnicity, geographic location or socioeconomic status;
- People-centered. Providing care that takes into account the preferences and aspirations of individual service users and the culture of their community.

(Standards for improving the quality of maternal and newborn care in healthcare facilities. World Health Organization, 2016. Available at: https://www.who.int/maternal_child_adolescent/documents/improving-maternal-new-

born-care-quality/en/ accessed February 27, 2018).

When the MTRH annual results on maternal and neonatal mortality are presented, it is hard to know how big an impact this project has had on decreasing the numbers. Some factors that might have affected the mortality rate are political decisions on free maternity care, local organization, staffing, compliance with guidelines, major strikes, late referrals, etc. When the root causes of neonatal and maternal mortality are analysed, the work can get the right focus, and questions can be raised on what to do to change, improve and develop.

MTRH has taken many steps in the right direction to increase patient safety. If the teams together can continue to raise questions, analyse and find solutions, then the project will be more successful. The project has focused on taking small steps and to encourage leaders and staff to hold on to their achievements. It is important to see all the things that work well and create a good example, and to do more of the things that are being done well, such as infection control and involving family members in the care, etc. Employees at MTRH from from Reproductive Health (RH) and the New Born Unit (NBU) have been encouraged to provide safe care of high quality, characterized by positive attitudes to patients and their families, with good interaction in the team and a good working environment. This has been done in close cooperation with the management and team members from these units, and activities have been directed based on MTRH's suggestions. The project is for the long term and based on collaboration and mutual respect (Figure 2).

Key factors for success

The basis for a successful partnership is to build trust, respect and relationships between the leadership at MTRH, the mother-baby units and the teams from Östergötland. This is done on a long-term basis with continuity as a corner stone.

In this project, it is essential to work with the issues suggested by the units and start with an area recognized as in need of improvement. On that basis, different thoughts can be blended together, plans can be developed and implemented.

When the Swedish team first visited MTRH, they came as visitors, the next time as colleagues and after that as friends and co-workers. A mutual respect has grown, and among friends, you can talk about both progress and shortcomings, which is a platform for development.

Figure 2. The new generation is full of hope (Photographer Mona Hedestig).

Achievements

The main goal is to decrease maternal and neonatal mortality, and since 2013, those numbers have decreased. There are many different factors that can affect the mortality rate, and this project has probably contributed in some way. The different factors are not analysed in this chapter. However, we have seen a great interest in patient safety from the hospital management, the public relations PR unit, managers and staff members. Workshops on root cause analysis (RCA), 24-hour case reviews and journal clubs have been focusing on risks and errors at a systemic level to get away from a culture of blaming individuals. That is an important approach in patient safety work and leads to a positive change in attitudes and core values. The leaders have to take the

lead and then the staff members will follow eventually.

The teams have been working at all three levels: macro, meso and micro levels. In this context, the macro level represents the hospital management and administration, the meso level represents unit management and the micro level includes the co-workers who work directly with the patients. At the macro level, there have been meetings with the hospital and top university leaders. Issues such as staffing, education, hospital-acquired infections, need for equipment and medical expertise have been addressed. At the meso level, issues such as leadership, improvement strategies, plans for skill training, risk and adverse event management, teamwork and safety culture have been discussed with the unit managements. At the micro level, the Swedish team have spent time with the staff: doctors at different levels, nurses, patient attendants and housekeepers. The Swedish team has had an aim to see how things are organized and how they are being done. That led to a greater understanding of the challenges and possibilities for development and improvements.

Figure 3. A premature baby at the newborn unit, struggling for life and in need of support (Photographer Ellinor Wikner).

Questions such as "are we admitting the right patients?", "can the family be more involved in the patient's care?", "can we do task shifting for a better flow?", and "is this the best and safest way to treat this patient?" were discussed. Many issues need to be handled at all three levels, macro, meso and micro, but in different ways. The mix of professions, skills and experiences in the Swedish team has been of great importance to make this cooperation effective and fruitful (Figure 3).

The teams involved in the project are based on a mix of different professions. Each profession has its own skills, and the team can broaden its perspective if everybody's input is taken seriously. It is not always easy to establish teamwork in a strict hierarchic culture, and it is important to take steps to respect counterparts. What works well in the Swedish setting may not necessarily work in Eldoret. Every setting has to make an idea of its own and adjust it to the local conditions.

One of the first areas that the teams focused on was staffing. The units were short staffed, and a system of rotating the nurses between units made the nurses experienced to work in many areas of the hospital but at the cost of a lack of expertise in specific fields. Involuntary rotation to other units from NBU and RH has now decreased and has almost stopped. This should lead to better qualified staff at these units. The patient-staff-ratio has decreased positively, and the units are now better staffed. Fluctuation in the number of patients admitted over the years has also affected the units. Political decisions regarding patient fees have affected the number of admissions and at times the number of patients has been twice the number that the unit was built for. During 2017, there were two major strikes, first doctors and later nurses, for around 3 months each. Those strikes led to a decrease in admissions, and it took some time for the patients to find their way back to the hospital after the strike was over.

Both in Sweden and in Kenya, hospital-acquired infections are major issues. In meetings with the hospital administration at MTRH, the importance of access to hand sanitizers throughout the units and the routine of using them properly were on the agenda. The hospital administration took the issue seriously and ensured access to hand sanitizers. It is important to enable the staff to work according to existing evidence-based facts, and the Swedish team can contribute on that. The unit management has the responsibility to make sure that the staff know how to follow set routines. Dialogue between the Swedish team and the unit management has brought both issues forward.

There are many similarities in the settings in Östergötland and Kenya, and both settings have learned lessons on leadership. It takes a lot of listening for the Swedes to understand the strict hierarchic culture and how to navigate the system. The Swedish team has been gently guided in that by the Kenyan team leader and team members.

The interaction with the staff members at NBU and RH is an essential part of the Swedish team's approach in the project. Spending time together on the floor, discussing caregiving, treatment, complications and workflow, is of the essence. The dialogue in staff meetings and simulation training in different scenarios, with trainers from the units, have led to a greater understanding and a push for improvement. The Swedish team aims to give support during the visit and to empower the managers and staff members, to help them to carry on newly initiated changes or suggestions. At the end of every visit, way-forward meetings have taken place where observations have been discussed, positive changes pointed out, plans suggested and take-home input summarized. At the next visit, follow-up takes place to find out how things have progressed since the last visit and a new baseline is identified.

The interaction between NBU and RH as units has been a focus area. The importance of the care during the first hour of the baby´s life, "the golden hour", have been addressed in joint training for staff from the labour ward and the newborn unit. A Swedish multi professional team have trained leaders for this type of joint trainings and it has given the staff a better understanding of the work that is done at the other unit and has initiated a discussion on how to improve the flow between the units.

At the NBU, the number of admissions is high and that can lead, for example, to failed or inadequate follow-up on vital signs. To deal with that, the idea of involving the parents came up. Parents had not taken part in the care of their child besides breastfeeding at set times, and this was a new way of thinking when the idea was put forward. The parents were instructed on how to check their baby's temperature, how to chart it and to alert the staff when the temperature was too high or too low. When the staff saw how well this worked, they started to think of other situations when the parents could be more involved (Figure 4). This has empowered the parents and made the care of the children safer. When a change is suggested, it is easier to implement if it is a win-win change: better for the patient and better for the staff.

MTRH welcomes a lot of students from different schools and education levels. Sometimes, the units get overwhelmed by all the students at the same

Figure 4. Mothers are powerful and protect their babies. A statement that is equally true for animals and humans alike (Photographer Lotta Tydén).

time in their busy setting. It takes effort to create a climate at the units that helps the students to learn how the job is supposed to be done. The aim is for the students to become skilled, patient focused and professional. They also need to be humble about what they do not yet know and brave enough to ask questions. This project has stressed the role of the units in creating that atmosphere by simple practical tips, structure and awareness that "this student is my future colleague". There are good examples of nurses who really like to teach in the clinical setting and these good examples have been given due attention.

Simple solutions, back to basics, are what the project strives for. Instead of using incubators, the kangaroo care method, with skin-to-skin care, has been promoted for some preterm babies. The benefit for the babies, mothers and the staff has been discussed. In December 2017, a new kangaroo mother care unit (KMC) was opened at the hospital.

The organization of the labour unit has been discussed at different levels. The following are examples of the topics that have been aired: How can triaging become effective? Can a labour coordinator position help smooth the patient flow? Can the integrity of the patient be improved? Can the multi-professional team around the patient work closer together? The Swedish team can give input on such questions and reflect with the RH team, but the necessary steps need to be taken by the RH managers in close interaction with the

staff at all levels.

Presentations have been held by Swedish physicians in Eldoret and by Kenyan physicians in Östergötland. In Kenya, the presentations have been on, for example, "Avoiding the first caesarean section – results of structured organizational and cultural changes", "Prematurity in our two countries", "CPAP and caffeine", "Antibiotic stewardship, a way to prevent overuse" and "Back to basics". In Sweden, the presentations have been on, for example, "Pregnancy and childbirth in Kenya", "Obstetric fistulas" and "Malaria".

There is a wish to involve more research in the project. Peter Berggren at IMP started a study on teamwork and some Swedish students have done a study on patient safety (Blick, & Borg, 2018; Budgifvars, 2017; Berggren, 2017).

Challenges and factors for success

It is inspiring to see the spark and drive to improve and develop the care at MTRH, NBU and RH. There is often a short distance from decision to implementation if the right persons are on board. The Swedish team has had the benefit of being invited to all organizational levels and has been given the opportunity to speak up and be listened to. Sometimes the Swedish team have held back and encouraged the Kenyans to think things through one more time before starting. They have encouraged them to think plans through and to make the ideas their own for more sustainable effects.

One of the key factors in a successful project is to have engaged leaders and managers. The leaders need to take responsibility, make decisions, point out the direction and create the right conditions for improvements and changes in the units. When that is missing, the Swedish team's visit becomes somewhat wasted. At times, the direction has not been clear and the communication insufficient. At that point, the purpose of the team visits needs to be clarified and the management challenged to decide if they still need the cooperation and if they feel that the project is pitched correctly. The layout of the project is built on the activities that take place between the visits, and visits are meant to be supportive, energy boosting and mentoring. If the project has the wrong focus, it is essential that the Kenyan part addresses that.

One issue that the project has addressed is the difference in educational levels, especially in staffing the labour units in Sweden versus Kenya. In Sweden, the midwives at the labour unit must have a bachelor's degree in midwifery, and in Eldoret, the labour unit is manned mostly by nurses who have a nursing degree. Very few have a midwifery degree. The Kenyan labour nurses

get lots of experience in their busy setting and that compensates for some of the lack of education if they get good support from more experienced colleges. When the unit is busy and the number of nurses is low, it is a challenge to get that support.

When the cooperation started, it was not clear what other collaborations were already established at MTRH. At the labour ward, expats from other countries have been involved for many years. For example, they are involved in a new project on Maternal Fetal Medicine. The AMPATH centre is an academic medical partnership between Indiana University, USA, and MTRH. Students and residents from AMPATH consortium institutions are often found at the units learning from and teaching their Kenyan counterparts. The Swedish team needs to be perceptive as to how that affects the unit, have the ability to put effort into our project and find ways to cooperate and coexist.

In 2017, there were two long strikes at the governmental hospitals in Kenya, first physicians for 100 days and then later nurses for around 3 months. The strikes affected primarily the patients and had a number of effects that are not addressed here. One of the things we found was that almost a year was lost in the project, but on the other hand, the nurses were empowered during the physicians' strike and in established nurse/midwife-led units, they took charge of admissions and prioritization. There is, of course, nothing positive in having units without physicians, but it shows that the nurses can be a good asset in the team if the role and responsibility of the nurses is emphasized with changes within the hospital organization.

Sometimes it is a challenge to come with knowledge rather than funding and equipment. The layout of this project is unusual and the level of experience in the Swedish team is sometimes a bit confusing to the staff and leaders and to experts in other projects. When that happens, the team needs to understand that and clarify why they are there and what their objectives are.

It is a challenge for the Swedish team members to work and navigate in a strictly hierarchic organization. The team has had good support from the Kenyan team leader Dr. Songok, who has clarified how the culture, communication pattern and the code of conduct works in their setting. Her practical support has been of immense value. There is also a balancing act to present the observations the team has made, in a respectful way, without being too vague. Things concerning ward rounds, patient integrity and teamwork can be provocative and yet need to be addressed.

An agreement governing the cost of allocation for Kenyans visiting

Östergötland annually has been developed in cooperation between MTRH and IMP. This is supposed to strengthen the equality and partnership in the project. It also sends signals that the team members are sent to Östergötland on a mission serving their hospital, MTRH, and have to bring something back when they come home.

When talking to MTRH staff about the reasons for maternal and neonatal mortality, late referrals from rural facilities are often mentioned as an important factor. The Swedish team have visited some rural health facilities and seen different types of units at different quality levels. It would be of value to look at the chain of care from where it starts and follow the flow from the beginning to the end to see if there are actions that should be taken before the patients reach the referral hospital. The problem with that is that it involves other organizational levels, outside the MTRH hospital, with other structures and preconditions. That could be another project for the future.

Benefits for BKC, Östergötland, Sweden

The BKC department includes both paediatric and obstetric units and is operating in three cities and at three different hospitals within an area of 100 km. Sometimes it is a long distance between the units and between the hospitals, not only in kilometres but in culture and communication. This project has improved the cooperation within BKC itself, between Norrköping, Linköping, obstetrics and paediatrics, through the team members. A bigger understanding has developed and a new platform for dialogue has evolved.

The team members have gained a deeper understanding for other traditions and cultures. This is useful in the Swedish setting when taking care of foreigners and immigrants at the hospitals. It has also led to higher motivation in supporting the exchange students who are posted at the BKC units.

The team has gained experience of medical conditions rarely seen in Swedish medical care, and knowledge of unusual diseases and conditions in pregnancy, labour, postpartum as well as in neonatal children.

The use of pain-reducing medications is very low in the delivery ward at MTRH, and most of the women have, as we would say, “natural births”. It is not always by their own choice but as a result of accessibility. When we want to learn more about natural birth, we can achieve this at MTRH. We have seen many strong powerful women in labour.

Kenya is one of the few countries that have been able to achieve the World Health Assembly target of increasing exclusive breastfeeding to 50% by 2025.

In 2003, only 13% of the mothers were breastfeeding exclusively. According to the National Demographic and Health Survey (2015), 61% of mothers of children aged less than 6 months were breastfeeding exclusively. This achievement is the result of a massive drive to promote breastfeeding, which starts immediately after giving birth. The government is active in this work and has improved the situation for women who want to breastfeed and work. We have a lot to learn in Sweden from that, because the breastfeeding rate has been decreasing from 72% in 2004 to 63% in 2017, despite having long maternity leave.

One of the team members claims that this experience is the best management course she has ever taken. It has given valuable experience of improvement work and leadership. The process of changing routines, culture and mindset looks a lot the same in our different settings. Patient safety is of great importance in both countries, and we face similar challenges. By sharing experiences we all learn and grow.

Lessons learned

- The importance of leaders and managers who have a sound basis and dedication for improvement work;
- The importance of working at all three levels (macro, meso, and micro) and to navigate in a system of a strict hierarchic organization with respect;
- The strength in this project is the long-term basis. It is initiated by the MTRH unit and then supported by the Swedish team, followed by actions at the MTRH unit and continues with follow-up after 6-8 months. The road to success is always under construction...

Glossary

AMPATH	Academic Model Providing Access to Healthcare
BKC	Barn- och kvinnocentrum, Centre for Paediatric and Obstetric Care, Östergötland. Sweden
IMP	International Medical Program at Linköping University Hospital, Sweden
MTRH	Moi Teaching and Referral Hospital, Eldoret, Kenya
NBU	Newborn unit, Eldoret, Kenya
RH	Reproductive health, where the labour unit is one of the units

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15

The Patient Safety Project: Moi Teaching and Referral Hospital, Eldoret, Kenya

Christer Andersson

Moi Teaching and Referral Hospital

Moi Teaching and Referral Hospital (MTRH) is located in Eldoret, Uasin Gishu County, about 310 km northwest of Nairobi. It is the second largest referral hospital in Kenya after Kenyatta University Hospital, Nairobi. MTRH serves a population of around 24 million people in the North Rift Valley, Western Kenya, Eastern Uganda, and Southern Sudan (Wikipedia). MTRH is a level six hospital with about 1000 beds for oncology, renal medicine, paediatric surgery, thoracic surgery, cardiology, kidney transplantation, spinal and neurosurgery, specialized orthopaedics and trauma, general surgery, paediatric and maternal services among other disciplines.

What is patient safety?

Patient safety as a discipline studies the prevention of adverse events ("errors") in health care causing harm to patients. An adverse event has been defined as an "unintended injury resulting in temporary or permanent disability or death associated with the health care management rather than the underlying disease" (Wilson et al., 2012).

An adverse event is rarely the result of an individual mistake. More commonly, there are unsolved problems within the health care system creating risks. Hospital care can be considered as a high-risk activity comparable with the aviation, nuclear and other industries. Scientific publications, mostly from

well-developed countries, show that as many as 1 in 10 patients are harmed while receiving hospital care. In Africa, the probability of being harmed in hospital is higher, and the risk of acquiring a health care-associated infection, for instance, is as much as 20 times higher.

A system approach to adverse events means changing from an individual to a systemic focus to get a more profound understanding of the underlying causes of patient harm. It also means a cultural change of the organization characterized by attitudes of blaming individuals ("scape goats") to acceptance that things might go wrong. At least we need to understand and learn from our mistakes and prevent harm from reoccurrence. It is important to have support from the leadership of the institution to accomplish this change.

Patient safety in Africa: background

In 2008, the World Health Organization (WHO), in discussion with African countries, United Kingdom, France and Switzerland, initiated a programme named African Partnerships for Patient Safety (APPS; https://www.who.int/patientsafety/implementation/apps/en/; visited 2020-02-16) as a pathway for developing safer patient care. Some goals for APPS were to be reached in 2015; for example, 46 African countries should be involved, each country should have established a national centre of excellence, the specific hospitals involved in the partnership programme should have created a team of highly trained individuals, established links with the government, university, primary care, patient groups and communities, and, finally, be able to present significant improvements.

As part of this collaborative approach, programme planning and implementation was to be aligned with the WHO Country Cooperation Strategy in individual African countries. Twelve action areas were identified by the WHO African Region to form the focus of all APPS activity and underpin the entire programme.

The initial focus of activity was within hospitals, i.e. hospitals in Africa partnering with hospitals in the United Kingdom and mainland Europe (Switzerland and France). However, hospitals were not the sole focus of the partnership programme. Primary health care-focused approaches were also essential to strengthen patient safety. Initially hospitals in Uganda, Ethiopia, Malawi, Mali and Senegal established partnership with European hospitals. Hospitals in Kenya did not take part in APPS.

There are established general activities or conditions for improvement in

patient care. A basic condition is that patients should be treated in clean surroundings with a minimal risk of infection. In this regard, hand hygiene is especially important with use of alcohol as disinfectant. The medical equipment used should be in good working order and used in the correct way. Medicines should be given on time and in the correct doses. Tests, investigations and treatments provided to patients should be appropriate for their condition, with procedures performed correctly and in a timely and effective way. Care should be delivered in a coordinated way by competent health care staff who work in an effective team. This includes communicating patients' needs effectively (Bates & Gawande, 2003).

WHO has described some global patient safety challenges (https://www.who.int/news-room/fact-sheets/detail/patient-safety; visited 2020-02-16). The first one, "Clean Care is Safer Care", is a flagship of WHO patient safety initiatives. It works to catalyse commitment and action to reduce the global burden of health care-associated infections. To date, over 120 countries have pledged support for the programme.

Another activity initiated by WHO was "Safe Surgery Saves Lives". The goal was to improve patient safety by ensuring adherence to proven standards of surgical care. The WHO Surgical Safety Checklist has improved compliance with standards and was demonstrated to decrease major complications from surgery in eight pilot hospitals where it was evaluated. The study showed that hospital mortality was reduced. Today, the checklist has been rolled out in countries throughout the world. It identifies three phases of an operation, each corresponding to a specific period in the normal flow of work. In each phase, the checklist helps teams confirm that the critical safety steps are completed before proceeding to the next stage.

Patient safety at MTRH

Already in 2014, the importance of patient safety had been acknowledged by the management of MTRH. Over a few weeks, more than 600 nurses at MTRH took part in a 1-day training course in basic patient safety. The training was based on recommendations made by WHO, presenting important areas for patient safety. Recently MTRH has stated that patient safety could be regarded as a scientific approach towards achieving quality health care by ensuring the safety of patients, health care providers and all institutional staff.

How did the project begin?

At a meeting in 2014 with the deputy chief nurse and the nurse managers at MTRH, it was suggested that a course in root cause analysis (RCA) should be organized at the hospital. The first course was held in March 2015 and about 30 staff attended, mostly nurses but also some administrators. The faculty for the course was Swedish, consisting of two chief medical officers and a chief nurse from the University Hospital, Linköping.

At the course, the RCA method was presented over 2 days and included group work. The RCA method involves systematic identification of adverse events, generation of the sequence of events leading to the adverse event, identifying failure events in that sequence, identifying root causes and, finally, coming up with recommendations. The recommendations are implemented in the area where the adverse event occurred and further replicated in other areas of the hospital to prevent further reoccurrence of the adverse event.

Interviews with the staff involved are important parts of the RCA method. However, the interview is not performed as an interrogation, as in a court. From the beginning, it is pointed out to the person being interviewed that the aim of the analysis is to get a full understanding of what went wrong and why. It is not of interest to ask who might have made a mistake. In this way, the systemic approach is stressed at an early stage.

The use of RCA began at the Department of Reproductive Health Unit at MTRH. Later the same year, it was applied in other departments of the hospital to investigate serious adverse events.

What happened next?

At the next visit of the Swedish team in September 2015, interest in patient safety had increased dramatically. For example, more than 40 RCAs had been performed at the Department of Reproductive Health. By then, many were enthusiastic about RCA, which almost seemed to have become a general concept for patient safety. At this time, the top management was on board, and they expressed a wish for further training in RCA involving other staff and the management. However, based on experience from Sweden, it was known that training everybody to perform RCA is a waste of time. Instead, training should be directed towards improving general understanding of patient safety and initiating the cultural change described above.

In March 2016, a half-day presentation of basic patient safety was organized

for the senior management, including the chief executive officer (CEO), deputy CEO, head of departments and other management personnel. In total, more than 50 people participated at this presentation. Afterwards, representatives for the management declared that patient safety was to be the way forward for MTRH.

The same week, three 1-day training sessions on basic patient safety were organized for other staff, each with about 30 participants, 90 people in total. At this time, the concept of patient safety was established at MTRH, and support from the top management stressed its importance for the future. In October 2016, two more training sessions in RCA were organized involving 60 people. During the same week, further 1-day training sessions in patient safety were organized.

The film project

Additional or supportive material on patient safety included films illustrating different aspects of patient safety. However, all of the film material had been produced either in North America or Europe. It was difficult to find any material from Africa. Because films in an African setting would likely improve the training and create greater interest, the idea of producing a film recorded in the African context was brought up.

This idea of a film project got support from an English production company (TVC) in London, UK. TVC had been involved in many similar productions in North America and Europe, some of which had been used during the training at MTRH. The film project started in November 2016, when 10–12 interviews, each about 45 minutes, were recorded with a selected group of people from MTRH and the neighbouring University in Kakamega. The film material also included recordings of the environment from different parts of Kenya to further demonstrate the African context. All the recorded material was sent to TVC, who produced five documentaries, each approximately 25 minutes long. The films focus on the importance of leadership for patient safety improvement.

The films were presented to the top management in March 2017 and everybody was given copies on CDs. The management expressed their support for the films and that they were proud of the result. Today the documentaries, titled "Before the beginning", can be seen on Vimeo, free of charge in eight African countries (Kenya, Tanzania, Uganda, Rwanda, Burundi, Zambia, Ethiopia, Zimbabwe). The aim is to have the documentaries widely viewed to

stimulate patient safety work in Africa. As yet, the films have not had many viewers on Vimeo and further efforts are required to promote them.

Organization and implementation at MTRH

The patient safety work at MTRH has been organized systematically to create a hospital team of experts on patient safety. For more than a year, a patient safety committee has an overall function for the hospital. The responsibilities for the members of the committee are:

1. Coordinate all patient safety activities at MTRH
2. Organize patient safety training and sensitization
3. Identify and analyse all adverse events
4. Ensure institutional compliance with relevant health guidelines and other regulatory requirements regarding patient safety
5. Maintain a log of adverse events
6. Follow up on the implementation of the recommendations
7. Ensure appropriate action is taken regarding the adverse events identified to mitigate the clinical and corporate effects
8. Provide oversight and advice to hospital management
9. Develop policies and guidelines
10. Ensure that best practice evidence based on information dealing with patient safety is available to all employees
11. Foster a multidisciplinary approach towards patient safety
12. Make quarterly reports to the hospital management
13. Hold monthly meetings to deliberate on issues pertaining to patient safety
14. Compile an annual report for the hospital management
15. Conduct research on evidence-based practices regarding patient safety
16. Any other duties assigned by hospital management

There are some examples of the practical work. The committee has described how adverse events are identified: (a) from 24-hour hospital report, incident reports, (b) near-miss occurrences, (c) preventable deaths and (d) customer complaints, among others. The committee have also exemplified specific adverse events, such as fluid overload, wrong blood transfusion, patient falls, wrong-site operations, medication errors, lack of communication, health

care-acquired infection and incorrect hand hygiene, missed diagnosis, wrong reporting of patient samples and fear of consequences after reporting any adverse events.

At the departmental level, there are so-called patient safety champions. They are individual staff who form a network closer to the care of the patients in the ward. The duties and responsibilities of a champion are to:

1. Be the lead person in identifying adverse events
2. Liaise with the patient safety committee
3. Be key members in the ad hoc patient safety team constituted by the patient safety committee
4. Follow up on recommendations to ensure optimal implementation
5. Facilitate sensitization sessions in liaison with the patient safety committee
6. Make quarterly reports to the patient safety committee regarding successes/challenges in patient safety implementation

Factors contributing to successful collaboration

- Continuity. Collaboration is based on relationships among individuals. To develop a successful relationship requires repeated contact to establish and strengthen respect, mutual understanding and, at the very best, friendship.
- Knowledge about the local setting. Without profound knowledge about the local circumstances, the project will not be feasible. To gain such knowledge, repeated, continuous or long-term contacts are necessary.
- Message must be easy to understand and appreciate. A message needs to be based on the correct analysis of the local situation. The message should clearly address a significant and well-recognized problem.
- Recruitment of local participants. Identifying individuals with a genuine interest in driving the project is of outmost importance.
- Support from top management. Without the support from the top management, the project is unlikely to be successful. This means that providing information about the project to the management has priority.
- Low investment cost with potential for high profit. A project that is not costly but may provide substantial gain creates interest, not least when financing is scarce. Patient safety work does not require a high investment. On the other hand, the economic gain is often difficult to calculate.

Comparisons with Region Östergötland

Patient safety is a relatively recent concept at MTRH, as well as in Kenya and even in Africa. In Sweden, systematic patient safety work has about two decades of experience. The first patient safety unit in Sweden was established in 2005 at the University Hospital in Linköping. RCA as a method was introduced a few years later and for a few years, members of the patient safety unit travelled throughout Sweden organizing training sessions. In the Region of Östergötland, 300–400 people have participated in a 2-day training course on RCA.

The patient safety project at MTRH has been an interesting experience, with dramatic development after the introduction of RCA 3 years ago. The method, and even more the idea of a systemic approach to adverse events, created great interest in patient safety among the staff as well as the top management. The commitment from the top management has been extraordinary and has contributed to a fast-developing organization with a patient safety committee and a network of champions throughout the hospital.

The management of MTRH has declared that the next step is to establish patient safety in the surrounding counties and nationwide. It is well understood that to improve collaboration with the surrounding hospitals, which refer many patients to MTRH, it is important to make patient care safer. It is a common experience that patients are so-called late referrals, meaning that the patients are arriving late at MTRH and in a worse condition than necessary.

The support from the top management has made it easy to implement the measures recommended by RCA. A remaining challenge is to follow up if the recommendations have had an effect on patient safety. Undoubtedly, the cultural change from an individual to a systemic approach to adverse events has begun at MTRH. This change has been demonstrated by an increasing interest among the staff for systematic investigation of serious adverse events.

Benefits for Region Östergötland

What can Region Östergötland learn from the patient safety project at MTRH? It is not easy to answer this question. The patient safety work at MTRH has been a short journey. As described above, patient safety work in Sweden has almost two decades of experience compared with 4 years at MTRH. It has been interesting to observe the commitment to patient safety among the top management of the hospital. This has led to the formation of a strategy for pa-

tient safety work at the hospital, but also initiation of an outreach programme to the district hospitals in surrounding counties. The fact that the RÖ team works in conditions with scarce resources and without systems in place emphasizes the creativity of the team to identify the risks and causes of adverse events.

Multicultural perspective and understanding that nowadays has to be taken in consideration worldwide in health care systems. In April 2018, representatives from some of the surrounding counties and from the Kenyan Ministry of Health were invited to participate in RCA training for 2 days. In this way, patient safety work is spreading to the region and throughout the country. Maybe the most interesting thing to learn for Region Östergötland is what has been accomplished at MTRH in a short period of time and what lies ahead for improved patient safety in the region and in the rest of Kenya?

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16

Biomedical Engineering

Anton Eriksson

A description of the project

The project in Addis Ababa, Ethiopia, that I am a part of has been running for a couple of years. The project started in 2013 and only a few years before I joined the team in cardiac surgery. In broad terms, the project is about teaching others how to treat adult patients with rheumatic heart disease using balloon valvulotomy. Rheumatic heart disease is damage in one or more heart valves that remains after several episodes of acute rheumatic fever. Although the actual treatment of patients is naturally part of the mission, the main focus has always been the skill transfer. What is often forgotten is that the focus is actually for skill transfer to flow in both directions. Our role in this mission is not only to teach but also to learn. From my experience, this is often forgotten along the way as the mission progresses. Swedish people (as part of a larger group of people with the same kind of personality characteristics and work morals) tend to become very goal oriented and want to work towards a clear objective, for example, treating as many patients as possible in two weeks. Although this is a noble goal, the skill transfer goal can be neglected because it is not as clear or measurable. This is what makes the project as a whole a bit difficult to describe accurately, because how do we measure and evaluate if you actually learned or taught anything useful?

Although the actual treatment being performed has always been balloon valvulotomy, the project has also been partly about performing the same treatment on children as well as open heart surgery on adult patients. Paediatric balloon valvulotomy is not performed at the University Hospital in Linköping, which means that these surgeries need to be done in cooperation with physicians from another hospital, which has been done on a few occa-

sions. The same can partly be said about open heart surgery; this is performed at our hospital, but difficulties with personnel have made it impossible to spare a complete team for surgery thus far. To help with the evolution of a department for open heart surgery at Black Lion University Hospital in Addis Ababa, we have tried various collaborations with different hospitals. The most recent and ongoing collaboration is with Haukeland University Hospital in Bergen, Norway.

The role of a biomedical engineer

For readers not familiar with my profession, a short description is included here. A biomedical engineer's first and foremost task is to make sure that all biomedical equipment at a hospital remains in a working condition for as long as it is intended to be used. This involves acute maintenance when something stops working during use on a patient or if it is discovered during the start-up phase when first connecting the equipment to a patient, but also preventative maintenance, which is performed according to a certain schedule, for example, after it has been used for 12 months, or after a set number of procedures. The profession also includes many other kinds of tasks, such as providing clinical personnel with clinical and technical education regarding biomedical equipment. However, the depth of this varies from country to country, hospital to hospital, and for different types of equipment. Another task is to assist in the procurement of biomedical equipment, but here the depth and breadth of the task can vary greatly. These are the most basic and important tasks among the many duties of a biomedical engineer.

So, where does my profession enter into the explanation and description of the project? All of the surgeries within the project require technology. There is a lot of equipment that might need acute maintenance, even during surgery (which of course is the worst-case scenario, yet is actually more common than one might think). My role in this project started because biomedical engineering and technical staff are mandatory in running and maintaining a modern hospital, and this kind of competence needs to be available on site at a moment's notice. It might come across as a bit dogmatic to just blatantly state that biomedical engineering is a must, and some people might say that it actually is not needed at all times, especially if the people stating this have worked for a long time with very stable equipment. Imagine for a moment, however, working with older equipment that other hospitals no longer needed or wanted. In such a situation, you can expect a lot of things to go wrong or

break down suddenly, and even if a break down is not immediate, it is bound to happen at some point. This led to my involvement in the project to ensure the equipment is in working order without relying too much on the local staff. Thus, my kind of competence was recruited into the project as a "just in case" safety feature.

The necessary personnel have always been available locally during my time with the mission, however with very limited resources. This led to my involvement even between the missions. For example, a broken piece of equipment might be able to work again, but maybe not without the right kind of spare parts. In a country like Ethiopia, spare parts can be very hard to get, and even if it is possible to get hold of parts, it might be impossible to secure the funding to buy them because securing funding for spare parts and maintaining equipment has not been given priority in the strategic planning of the ministry of health and its hospitals. With the resources and contacts available to a hospital in Sweden, however, the situation is usually very different and there are many more possibilities. During my time in the field with the mission, I try to fix whatever is possible, and if not possible, I try to identify what is needed to get broken equipment running again. Then, in between trips, I can try to get a hold of either the information or the spare parts.

The above description actually may seem like a rather simple job to do, but things can get complex. Many different problems can arise from case to case and from mission to mission. The relationship between supplier and buyer can sometimes be intricate. Deals may be necessary between sometimes just a few and sometimes many different individuals. Eventually, without being fully aware of it, you might try to fix a piece of equipment that would be better for the hospital to remain broken, even though its inability to function is sadly leading to fewer patients being treated. Some people might want to just scream out of frustration and try to convince me I am wrong. I used to think like this myself in the beginning, but a broken machine can sometimes be used as leverage to put pressure on a supplier, which in turn might lead to a better and more lucrative deal in the long run for both parties. Personally, I just want to fix anything that is broken, and trying to fix things while trying to navigate the rather complicated political, professional, or even unprofessional relations between the hospital and a supplier can be a lot more taxing than you might at first imagine.

Working abroad

Working in a country like Ethiopia is not always easy. There are some obvious differences between the cultures. Take, for example, how we Scandinavians look at time. Time for me is most often a linear thing, whereas, according to my own observations, Ethiopian people most often view time as a circular thing. A simple explanation is to imagine that you need to take the bus to work, and work starts at a certain time, which means there are often two different options to choose from. The first is the bus that arrives a bit early but leaves you time enough to get changed and maybe take a quick cup of coffee before starting work, and the other option is the one that arrives right before work starts, leaving you just enough time to get changed, but not more than that. Both of these options are a linear way of looking at time. The circular perspective means that you take the next bus depending on when you are ready to leave home, and when you arrive at work you can start working, and whatever you do not have time to finish today can be done tomorrow, and whatever you do not have time to finish this week can most likely be done next week instead. This is a very simplistic explanation, and it might at first sound like an arrogant way to behave towards other people, but that just means I have not explained it properly. It is just a different way of looking at time, and of course it leads to a need to work and operate in a slightly different way when applied to health care. When everyone is thinking and behaving in the same way, then both ways can work. I will not go into detail discussing whether both ways will be equally effective or not, but it is important to know about this big difference in time perspective, because initially it can lead to conflicts between, for example, a Swedish team and a local team. The Swedish team definitely wants to decide on a specific time to start work each day and will do whatever they can to be there on time, whereas the local team will arrive as soon as they can, when they are ready. The only way to handle this in my view is to communicate. Good communication will eventually lead to a better understanding of the different perspectives and hopefully, as it did in our case, lead to a kind of "in the middle" solution.

Four important things

When it comes to biomedical engineering in a developing country, the limited resources can make the actual work difficult. Repairing something usually requires a few things: tools, spare parts, theoretical knowledge and practical skill.

Tools are usually a very valuable resource, and they can be hard to get hold of; for example, a screw driver of good quality. The local biomedical engineering department might have only a few of these (if any) in working condition, and these might already be in use at the moment, and if not, then the tools are most likely locked in a safe place to make sure they do not suddenly disappear. Getting hold of someone with a key can sometimes be tricky, especially if you try to do this with a linear time perspective when the person trying to help you find this key bearer has a circular time perspective.

Spare parts, as I mentioned earlier, are impossible to get a hold of locally most of the time, which means the repairs might need to be put on hold. Some organizations and hospitals might have donated equipment together with spare parts, which is a huge bonus, but this is most often not the case. A lot of the equipment that can be found around the hospital has been donated from different countries, and although these may be of a higher quality, they will be hard to repair if the manufacturer does not have a local supplier with access to spare parts. Although not technically spare parts, some donated equipment requires expensive disposable materials such as chemicals and consumables, and these can make it very taxing for a receiving hospital to keep the equipment running, especially if the equipment requires consumables supplied by the original manufacturer.

Theoretical knowledge and practical skill often go hand in hand, at least over time, and a big difficulty in Ethiopia (at least when it comes to this mission), has been the fact that there is a big difference in the salaries between working in a government-run hospital and working in a private biomedical company or a privately run hospital. There is usually a difference between these two in Sweden as well, but the gap is a whole lot larger in Ethiopia, according to verbal information given to me during my time in Addis Ababa. This means that once enough skill and knowledge has been accumulated, personnel in a government hospital will most likely start looking for work in a private company. Of course, private businesses want to recruit personnel who are already competent, and because they are able to provide a good salary, they have the power of choice. Therefore, the most competent personnel will often leave a government hospital when the opportunity arises. This is another of the more complex parts about the mission.

Evolving the biomedical department

To help the biomedical engineering department to evolve, I have tried to

provide the key parts needed: tools, spare parts, theoretical knowledge and practical skill. Supplying tools is probably the easiest to do, but it has no real value without the others. Supplying spare parts can be done as long as there is enough funding, but the same problem regarding the tools applies to spare parts. It can also be tricky to help get a hold of spare parts for a broken down machine that is not for sale in European countries. Knowledge and skill can be taught, which I have tried to provide as much as possible, for example, through lectures and practical exercises in my particular areas of expertise.

One of the difficulties is the fact that most people (myself included) are not proficient in all of the different areas of expertise, which means that I can only teach what I know. Although this kind of project is often viewed as a noble endeavour, most people would not actually go themselves if given the opportunity (for various reasons), and thus it might be impossible to provide skill transfer in all of the different areas that are needed.

Another difficulty is the fact that teaching these things might eventually provide the local personnel with enough skills and knowledge to be able to find a better job. This can make the main focus of the project a bit paradoxical, but should not discourage the skill transfer process. Even if this particular part is taken out of the picture, personnel will still come and go. This is a larger problem that needs to be handled by the local hospital by providing enough reasons to make their personnel want to stay. Although skill transfer, in general, will make things better for the country as a whole in the long run, our particular project might take more time than we would like, because each time we return, at least a few people in the workforce have moved to a different hospital or company because they had acquired a specific skill set. Luckily, this only makes the main focus partly paradoxical because the other half of the main focus is to learn.

Learning, at the very least, is something that has been very successful in my experience. Before I joined this project, I had never worked in a developing country, and I have definitely grown as a person. My perspectives have become wider in more ways than just my perspective of time. It is hard to explain and describe this part, even though it might be one of the more important areas to try to describe. The best explanation I can provide is that I have changed in a lot of ways, and this will in turn have a return value for my employer, because whatever wisdom I might have accumulated so far, I will do my best to pass along.

The impact of the project

Whatever is provided through our project is supposed to provide something positive for the recipient country, which in this case is Ethiopia. When it comes to the type of illness being treated, the hospital could eventually become a national centre for this particular procedure if the project is as successful as it could be, but this is highly dependent on both parties. It will never be enough if only one side strives and endeavours towards this goal. This is not to suggest that one side has this goal and the other does not. I believe this kind of thinking exists on both sides already, but at the moment the project has its hands full in just getting the cardiology department to a working and self-sufficient level in performing these procedures.

The end goal does not have to stop at a national level, however. As the infrastructure in Ethiopia as well as its neighbouring countries improves, the possibilities to perform these procedures on patients from further afield might be possible, even for patients from a socioeconomic group that is unable to travel by air between the countries.

This project has been one of the main reasons that the Black Lion University Hospital now has their own catheterization laboratory. At the start of the project, the procedures were done at a private hospital in a collaboration between our project, Black Lion and the private institution, but after only a few trips, it was realized that Black Lion needed their own laboratory and a decision was made to start building it. During the last two trips to Addis Ababa, the team have been performing the procedures in this newly built catheterization laboratory, so the project has come a long way and has already contributed a lot.

Since this facility was completed, I have been able to teach the biomedical engineering staff at Black Lion to a greater extent. They were always the intended recipients of my skill transfer, but during our time at the private hospital, it was practically impossible to get the personnel from Black Lion to spend time at the private hospital to learn from me. The private hospital had their own biomedical engineering department, and for obvious reasons, they preferred if I spent my time teaching their own personnel, and they "informed" the personnel from Black Lion that they were only allowed to visit for short periods of time. If and when the cardiology department develops and gains more national significance, this could have a positive influence on the biomedical engineering department as well, because the requirement for avail-

able local competence will most likely increase, and this in turn will mean the hospital will need to allocate personnel to this specific area of expertise and provide them with specialized training.

Lessons learned

The first important lesson from the project is the difference in culture and the need for communication. This might seem obvious for some people, but it is nevertheless one of the most important things to keep in mind. Differences in culture sometimes means that doing something that is very common and considered respectful in Swedish culture can be received in a totally opposite way. This can sometimes lead to unnecessary problems. Of course, during the early stages of a project, a few faults probably need to be overlooked, but the team needs to at least spend some time to learn and understand the culture. The more interested a team is in the local culture, the faster they will reach a good level of communication.

The second lesson is to remain vigilant and not to give up. Even if the project sometimes feels like it is heading in a backwards direction between some of the missions, this does not mean that it is time to give up. Just try to start again and remember that setbacks can be what eventually leads to evolution.

The third lesson is to run the project in the correct way so that both parties are on equal footing. Even if a recipient country is in great need of whatever is provided through the project, the team cannot have the wrong kind of mindset if you want to reach a working level of cooperation. The way of thinking whereby we regard ourselves as heroes who provide developing countries with all the answers and solutions to all their problems is what has led other projects to fail, and in some cases even led to the destabilization of an entire country (Harper, 2012).

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17

Cardiac Surgery in Ethiopia: Nurses' Role in Preoperative and Postoperative Care

Rolf Alselius

Aim

The aim of this project is to develop sustainable and local heart surgery and care so that adequate diagnosis and treatment of patients with cardiac disease can take place in the Federal Democratic Republic of Ethiopia.

Background

Every year, an average of 17.9 million lives are claimed by cardiovascular disease (CVD), making it the leading cause of death worldwide (Wang, 2015). The World Health Organization predicts that 80% of these lives are from low and middle income countries (Murray, 2012). CVD can include rheumatic heart disease (RHD). There are 33.4 million predicted cases of RHD and 10.5 disability-adjusted life-years from CVD (Watkins, 2017).

After an episode of acute rheumatic fever, rheumatic mitral stenosis (MS) can form, thus leading to RHD. Patients with MS are usually young, around 15–40 years old. Treatment recommendations are included in the American College of Cardiology/American Heart Association guidelines (Nishimura, 2014). Patients with rheumatic MS due to RHD can be treated via percutaneous transseptal mitral commissurotomy (PTMC), open heart surgery with valve replacement or open commissurotomy. If MS is untreated, the patient can experience symptoms such as fatigue and dyspnea. But more serious

complications can arise, including pulmonary hypertension, heart failure, atrial fibrillation and stroke. PTMC was developed in the 1980s (Inoue et al., 1984). Today, the procedure is done with access through a femoral vein using a fluoroscopic and echocardiography as a guide to obtain ingress for transseptal access to expand a balloon in the mitral valve.

Before the start of this project, there was only one cardiac care centre with surgical capabilities in Ethiopia, which functioned solely with the support of visiting foreign medical teams. To put the situation into context, Sweden has one cardiac care centre for every one million people. Ethiopia, with a population of 100 million people, only has one cardiac centre for the entire country. Furthermore, RHD is more prevalent in Ethiopia than in Sweden. According to Yadeta (2016), 1.4% of Ethiopian school children have RHD.

Approximately 10,000 adults and paediatric patients are on a waiting lists for cardiac intervention or surgery in Ethiopia. Ethiopia does not have the capacity to support this number of patients and only a few patients can afford treatment through private care or abroad. Nevertheless, Ethiopia is striving to build the capacity and knowledge in order to provide the care for its citizens.

In countries such as Sweden, rheumatic fever is generally a minor problem with only a few patients requiring intervention and surgery every year; however, with the increasing number of migrants and refugees from countries where the prevalence of RHD is high, RHD will become a bigger health concern. By collaborating with the Ethiopian medical centre, Swedish medical attendees are more exposed to patients with RHD; the Ethiopian medical centre receives a year's worth of Swedish RHD patients in a matter of a week. Through this partnership, Sweden is building the capacity to make the treatment better and safer.

The International Medical Program (IMP) at Linköping University Hospital started its cooperation with Ethiopia in 2013. In the first few years, medical staff from Karolinska and Lund in Sweden, as well as staff from Sarajevo in Bosnia, worked alongside with the staff from Region Östergötland represented by IMP for both adult and paediatric heart surgery/interventions. In 2016, Haukeland University Hospital (HUH) in Norway partnered with IMP. In 2017, a Memorandum of Understanding between HUH and Black Lion Hospital, Ethiopia (BLH) and Region Östergötland was signed. The Memorandum of Understanding established heart surgery/intervention capacity in BLH.

IMP's project is now situated in BLH, also called Tikur Anbessa Special-

ized Hospital (TASH), in Addis Ababa, the capital city of Ethiopia. Before 2017, work was based out of a private hospital near BLH called Children's Cardiac Centre of Ethiopia. The work started there because the facilities in BLH were under construction. BLH is seen as the largest referral hospital in Addis Ababa and has around 800 beds. Once the new catheterization laboratory was renovated in 2017, IMP's work in BLH began (see Figure 1). The Norwegian team performed open heart surgery and inserted pacemakers and the Swedish team mostly executed PTMC.

Figure 1. Catheterization laboratory during PTMC (Photographer Rolf Alselius).

Working in Ethiopia

My first mission was in 2017 after receiving a request from the Norwegian team. They saw a need for nurses to work in the pre- and postoperative units alongside their team. The Swedish team consists of the PTMC crew and an intensive care nurse. However, they also needed someone with experience in postoperative care, more specifically after PTMC. I have worked as a reg-

istered nurse for 4 years with experience in cardiothoracic care. In addition, I have worked in an intermediate care unit that cared for patients after anaesthesia and surgery and patients who need extra monitoring and intensive treatment, including open heart surgery and percutaneous interventions.

The Ethiopian staff consists of 16 nurses who work in the postoperative wards. Most of the nurses have higher education so that they can work in intensive care. This group of nurses is led by the lead chief nurse, Konno. She has the role of gatekeeper, able to fix almost everything. Any problem with water, medicines, equipment or staff, she is the person you need to talk to! She is also the key-master, holding the keys to any locks for the changing rooms, operating theatre, power supply, storage rooms and the catheterization lab. Some of the medical staff had worked in a private catheterization lab before but for most it was a new experience. So, for the nurses working in the lab, there was much to learn.

During my first visit to Ethiopia, the Norwegian team and the intensive care unit (ICU) nurses worked together in the cardiac intensive care unit (CICU), where the patients recovered after open heart surgery. Most of them are intubated and have fluid infusions and drug infusions. The ICU was located in a small room, making it hard to move the patient around and to transfer the patient in and out of the ICU, especially when the beds were too big to get through the door. In addition, it was very hot and the air conditioning was not operational.

In the cardiothoracic department, there are facilities for pre- and postoperative care and a catherization lab for interventions, and on the same floor, you can also access the operating theatre where open heart surgeries take place. The CICU is close to the operating theatre.

I was located in the step-down unit and in the high-dependency ward (Figures 2 and 3). Staff for these units had to be assembled them from the available staff in the rest of the hospital. This is due to the imbalance between the number of surgeries and the number of nurses for postoperative care, as well as the high demand for nurses when the CICU is open. The problem with this is that most of the nurses did not have experience in postoperative care or cardiac patients, and therefore most things were new to them. They had problems with hygiene, inserting intravenous lines, using central intravenous lines and understanding how to monitor the patient. Thus far, the collaboration between the Swedish and Ethiopian nurses has involved a transfer of knowledge on a basic level.

Figure 2. An empty high-dependency ward (Photographer Rolf Alselius).

Figure 3. The step-down unit (Photographer Rolf Alselius).

The patients in the step-down unit are primarily patients from the catheterization lab but also include patients after open heart surgery who can now be managed at a lower level than the CICU. There were five beds in the step-down unit, each with monitoring screens. The monitoring screens show invasive and non-invasive blood pressure, saturation, temperature, respiratory

rate, heart rate, and heart rhythm. If the patient needs oxygen, oxygen tubes are available; however, there was not enough for everyone, so there was always a need for prioritization. In the high-dependency ward, there was only intermittent measuring of vitals; the nurses needed to go with equipment to every patient to measure their vitals. This ward is an open area with beds. There is only one room for isolating the patient, so if more than one patient had an infection, they had to share a room.

Our goal with pre- and postoperative care was to make it safe for patients and staff but still take finances into consideration. In introducing modern care, we have tried to make things standardized and simple to follow. A structured programme provides details of the patients undergoing surgery the next day. The programme contains a list of the different locations where surgery goes on, and the order in which the patients should arrive to the operating theatre. This plan makes it easier for all medical staff to know which patients need to be called into the ward. There are different preparations for different procedures.

The patients came from all parts of Ethiopia, both urban and rural, therefore some have travelled long distances for consultation. Most patients, but not all, spoke the official language, Amharic, making communication difficult not only for the Swedish team but also for the Ethiopian staff. It was often difficult to explain medical procedures to the patient. Luckily, most patients spoke Amharic, so the staff were able to communicate to an extent. Some patients were able to speak English, making it easier for the Swedish staff to communicate without a translator from the Ethiopian team. Even with an English-speaking translator, it was difficult, because it was difficult to know if the translated information was interpreted correctly or whether the information had been altered.

When I first met the patients during screening, the first thing that struck me was that they were very young but also very sick. Many had symptoms of MS, leading to a stroke, leaving the patients neurologically impaired. I asked the patients about their history, past treatment and informed them of what the medical facility can offer; it was clear that they were not very informed about their disease and how they should manage it. When looking through their medical charts, I saw that many had been prescribed medication to reduce symptoms and recurrence of rheumatic fever. Almost all patients were prescribed secondary prophylaxis against group A β-haemolytic Streptococci (GAS) with intramuscular injections of penicillin. The patients took the an-

tibiotics but only a few used their prescribed β-blockers and diuretic drugs. When I explained to the patients why they should use the β-blockers and diuretic drugs, they did not understand. So we explained in simple terms how diuretics treat symptoms of pulmonary congestion and how β-blockers reduce the heart rate, thereby prolonging the diastolic filling time and reducing the pressure in the left atrium. Some patients stopped using the drugs for financial reasons or because of negative side effects. Medical treatment should be used as prescribed; this would be good even by Swedish standards. In Sweden, we usually add a few more drugs, for example, statins. In addition to the recommended use of prescribed drugs, we also recommend a tailored diet and activity. However, problems arise for the Ethiopian patient when the patients cannot or will not take the prescribed medication. For whatever reason, they lack the ability to alter the medications for that specific patient.

Before intervention, almost half of the patients had atrial fibrillation or atrial flutter. All patients were screened with basic lab tests (blood count, electrolytes, creatinine) as well as for blood diseases. Patients with atrial fibrillation were prescribed warfarin as an anticoagulation drug but most patients had difficulty achieving an effective therapeutic range. The patients brought with them the results of recent lab measurement of the international normalized ratio (INR), which is used to evaluate coagulation. Because the patient can choose where their blood samples are evaluated, it is difficult to trust the accuracy of the answer. Unlike Sweden, they do not have a specialized unit that analyses the INR and prescribes the warfarin. When the patient is not in their therapeutic range, they have either an increased risk of bleeding or formation of a thrombus, which would create serious complications. If a thrombus exists in the heart, medical staff cannot conduct PTMC due to the increased risk of the thrombus breaking loose and travelling to another part of the body as an embolism. To minimize this risk, the staff can perform transoesophageal echocardiography before the intervention, if a clear view of the heart through echocardiography is not shown. For patients who cannot undergo an intervention, although they may be disappointed and disheartened, most of them continue to reach out for advice on what they can do to improve their situation. At this point, the staff can educate them and continue to pass on basic knowledge.

We worked on the communication between the operating theatre and the ward, ensuring that the staff were aware of when the next patient was available. There is no phone in the catheterization lab or the ward so all commu-

nication is made by mobile phone or face to face. There is usually a radiation technician in the control room of the catheterization lab, but they lack knowledge of the amount of time required for the intervention. We tried different ways to remedy this. First, one of the nurses from the ward went to the control room and checked out how much longer the staff needed to complete the procedure. Another option was for one of the catheterization lab nurses to call, but this was usually hard when they were in the sterile environment; they were not available until the end of the procedure. If coordination goes as planned, there will be enough staff available when the lab is ready to hand over a patient to the step-down unit, as long as the medical staff are not out eating or running other errands. The handover is the most critical period for the patients because they have just been through surgery/intervention and are being transported without monitoring. The handover should occur quickly so that the patient can be monitored again. In addition, the patient needs to be moved from one bed to another so the more hands there are the better.

When the lab is ready and the patient is prepared, it is time to bring the patient to the lab. Here, the patient walks to the lab instead of lying in bed. The walk is through open corridors with visitors, and as the surgical clothes are revealing, the patient needs to be covered in a blanket. Also, it is a good idea for the patient not to be exposed to the cold temperature of the lab, because there is a risk for hypothermia, especially with the lab ventilation set to a low temperature to minimize overheating of the equipment.

There are nurses in the catheterization lab, where the biomedical technician is located. The catheterization lab is a new medical field and so there are many new skills that need to be learned. For example, the staff need to learn how to protect against radiation and when and how to wear protective gear in the lab. The lab must be kept clean, and the patient and the puncture site must be clean and aseptic to prevent infections. Equipment and instruments must be prepared so that they are ready for the interventionist. To be successful in the catheterization lab, the nurse needs to have these skills, implement them and communicate them to the whole team in the lab: the echocardiographer, interventionist, radiology technician and anaesthesia personnel.

Most procedures in the lab are done with local anaesthesia. Most patients have a limited ability to communicate in English, making it hard for us to communicate with them directly. Interpreters are always needed to translate the details about the procedure. In addition, if the patient overreacts, it is even more difficult to calm the patient, and therefore sedating drugs need to

be used so that the procedure can proceed smoothly. The nurse also needs to be able to check the vitals and make suitable interventions as necessary. For example, if an intervention triggers an arrhythmia, the nurse may inject anti-arrhythmic drugs. Other complications during intervention procedures include haematoma, bleeding, infection, allergic reaction, blood clots, stroke, heart attack, air embolism or perforation of a blood vessel.

In my most recent visit to Ethiopia, I was glad to see several improvements in areas that we worked on as well as other areas. During this visit, only the Swedish IMP team was in Ethiopia, so it was a bit calmer and the staff to patient ratio was smaller. The facility was in better care with better hygiene and more experienced Ethiopian medical staff. The staff more frequently monitored the equipment, and let the patients be more autonomous so they have a say in what is being done. They were better at keeping the patients screened off so that their body was not exposed to others.

After our visit, the nurses in Ethiopia started a new education programme to build up capacity to handle cardiothoracic patients. The education will give the nurses who pass a master of science in cardiovascular nurse practitioner degree and expand their knowledge so they can take care of the cardiothoracic patients in the best way possible.

When I arrived back in Sweden, the thing that made me really happy was that Sweden has a really good patient care system. Of course, there are always things that can be improved. With their limited resources, Ethiopia's patient care system is impressive. They are flexible with the resources they have on hand. I hope to bring that flexibility towards solving problems with me; I know that it will make me a better nurse. The medical team has shared our experiences through presentations for our centre, department, colleagues and friends. We have become richer in life from the culture and medical experiences.

Lessons learned

- Be prepared for anything: ad omnia paratus. One needs to be prepared for anything to handle the work of an IMP mission in Ethiopia. Whether it is not having a driver to get you to the cardiac care centre or a water or electricity shortage in the building, one must be prepared to overcome any crisis. Have an open mindset. Adapt and overcome.
- Sustainment. The first impression of a rigid environment starts to reduce. The tasks that you have accomplished have been sustained and continue to build; one does not need to start from the bottom, but rather we build upon a strong foundation. The once stringent Ethiopian staff have opened their hearts, allowing us to build relationships that only further enhance our cooperability. The longer we stay in Ethiopia, the more the barriers are slowly reducing; the Ethiopian staff realize that we are here to stay and will continue to pursue a community in which we can all prosper. By working with them, we can get to know each other on a personal level so that we understand their perks and work habits. We have learned the ins and outs and now know the chain of command within the hospital that will allow us to accomplish our mission. This is the hardest task at hand, and we will have to continue to enhance our relations so that there will be no hidden agendas.
- Problem solving. All kinds of problems can arise, including broken equipment. To be successful, one must become MacGyver, fixing things with a Swiss army knife and duct tape to make things work. One may face unexpected challenges. For example, the ventilation system for the radiology equipment may be faulty, prohibiting the surgery from progressing. One will need to devise a method to monitor ventilation and prevent overheating, in order to best proceed and finish the operation without any impact. You can do it! You have the confidence that things will work out. Believe in yourself.

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18

Anaesthesiology Exchange Programme for Residents: Experiences from Ethiopia, May 2018

Jonna Idh

Introduction

The operating theatre at Black Lion Hospital, Addis Ababa, was filled with concentration when I entered. I walked up to the anaesthesiologist beside the woman undergoing surgery. I had heard about the case during the morning rounds at the Department of Surgery. The patient had an uncommon disease with an aneurysm in the arteria hepatica (the artery to the liver), and surgery in this area is associated with a high risk of uncontrolled bleeding. At least six surgeons crowded around the abdomen of the woman on the table. They looked focused, and some were a bit stressed. I heard the sound of the suction aid, meaning there was bleeding. I do not remember if we even said more than a quick hi to each other, the anaesthesiologist and I. She was busy checking the cross match for the four units of blood someone just had handed her. A quick look at the patient monitor confirmed the situation was an emergency. The heart rate was a 130 beats per minute, the arterial blood pressure was gone and the saturation curve was lost. She was bleeding to death. My Ethiopian colleague handed me one of the blood bags and I saw an infusion line disappearing under the drapes at the patient's feet. The anaesthesiologist had prepared for what was just happening and had an extra venous line on the foot. I headed down to the patient's

feet and detached the infusion bag hanging there. Positioned one at each end of the patient, we squeezed the blood bags with our hands to increase the infusion rate. The anesthesiologist asked if I could just keep track of things for a second while she ran to get some adrenalin. I noticed that my colleague had already fine-tuned the volatile anaesthetics to avoid lowering the blood pressure even more and was instead administering small doses of ketamine in the venous line on the patient's arm. I looked at the patient's conjunctiva under her lower eyelid and it was pale, very pale. My colleague returned, injected adrenalin into a normal saline infusion bag and connected it to a venous access on the side of the patient's neck. One of the surgeons looked up at us over the drape separating the operation area from the anaesthesia side. "How is she doing?" he asked. "Not well, no measurable blood pressure despite blood transfusion," my colleague answered. "Ok, we need to clamp the artery, it's not a good solution but it's the only way to proceed." It was a decision taken at the last minute for this patient. Slowly our attempts to transfuse won over the amount of blood lost and the arterial pressure wave returned. I had to go. It was past 5 o'clock in the afternoon and my colleagues from Linköping University Hospital, Dr Peter Andersson, Dr Bengt Arvidsson and Dr Mats Johansson, were waiting for me. I was not meant to join this surgery, I was just curious about how they were doing and suddenly I was involved in saving the patient's life. My new colleague gave me a thankful nod and a smile and we said goodbye.

This was my third day at Black Lion Hospital. I attended an exchange programme organized by the International Medical Program (IMP) at Linköping. The opportunity came as they often do, unexpectedly. I had left my home town of Västervik for 6 months of training in thoracic anaesthesia for anaesthesiology residents at the Department of Thoracic and Vascular Surgery in Linköping. I soon learned that the department was part of an exchange programme to Ethiopia involving heart and vascular surgery. I was thrilled. Since 2012, I had been working on the idea of an anaesthesia collaboration with colleagues in Ethiopia, but had not yet had the time and opportunity to manage it. This was just too good to be true.

Contributing to global health

My longing to engage in collaboration with colleagues in Ethiopia is a consequence of another opportunity that I faced more than 10 years previously when, as a medical student, I came in contact with the Department of Medical Microbiology at Linköping University and was given the chance to join a research

project at Gondar University Hospital, Ethiopia. The opportunity turned into a doctoral thesis entitled "The role of nitric oxide in host defence against tuberculosis" that I defended in 2012. Since then, I have thought a lot about how I can contribute to the health of people in settings like Ethiopia and how I should invest my time as a doctor?

Contributing to health development is complex. Even though Ethiopia is a low-income country, I have found the health professionals very skilled. Already as a medical student I learned that Ethiopian students at my level were theoretically better than me and my Swedish peers. It does not seem to be theoretical knowledge that we can contribute. Rather the other way around, I will learn a lot from my Ethiopian colleagues. What the Swedish partner can contribute are other values such as how to organize health systems, structural evaluation, how to implement and develop new treatments/diagnostics, training in critical thinking and of course, to some extent to share our resources. I think we make excellent teams investing our time in joint collaborations, research and exchange programmes such as the ones run by IMP.

Exchange during residency

The exchange visit to Black Lion Hospital with IMP was for only 1 week, which might seem much too short. Still, I learned quite a few things of value for my training in anaesthesia in Sweden; skills that are difficult to acquire in the Swedish setting. For example, I learned to anaesthetize patients with halothane, the most commonly used volatile anaesthetic in the world, but no longer used in Sweden. I anaesthetized more patients with ketamine than I have done during 3 years in Sweden. Ketamine is the most common intravenous anaesthetic drug worldwide, but is mostly used in critical situations in our routine. Using ketamine during critical situations without having the skills to use it under controlled situations is a risk, but after my stay at Black Lion, I now feel more comfortable and will handle such situations at home with better skills. I also anaesthetized a lady with mitral stenosis, a valvular heart disease caused by rheumatic fever. It is seldom seen in our setting, but an anaesthesiologist needs to know how to safely anaesthetize a patient with such a heart disease. Not least, I got to know Ethiopian anaesthesia colleagues that I will keep contact with in the future.

During my week at Black Lion Hospital, I shared my experience with a senior colleague, Dr Mats Johansson, senior consultant in thoracic anaesthesia from Linköping. We were exposed to anaesthesia in a setting with limited re-

sources and modest monitoring. Some things in the care of patients in the operating theatre or the intensive care unit, we found strange or even wrong at first glance. Having a senior colleague to give advice and support made the stay a great learning opportunity, and it was good to be able to discuss and try to understand the reasons behind the differences compared with our practices.

For example, we noticed that the use of opioids in the treatment of pain is restricted. It stressed me to see that the anaesthetists were so sparse in treating pain. It became an interesting discussion and as is so often the case, there is no straight answer. Ethiopian patients are prepared that surgery will hurt, whereas Swedish patients expect very little pain. We have access to naloxone, an antidote to opioid overdose, as well as intensive care in case the patient gets an overdose of opioids. In Ethiopia, the availability of drugs such as naloxone is unreliable, and our colleagues could end up ventilating the patient by hand until the drug has worn off, ie, for hours. The availability of opioids in our setting is seldom limited, but this is often the case in Ethiopia. The patient may have purchased a vial of the opioid available for his or her procedure and that is what they must get along with. Now most patients in Ethiopia are young and strong before their surgery and can tolerate a sympathetic upregulation due to limited pain relief during surgery, but for many Swedish patients with heavy comorbidities and older age, it would be devastating to expose them to the same situation.

In conclusion, you need to think twice before giving advice and stating that the way you do things is the right way. You need to take time to understand the reasons before interfering with treatment recommendations and guidelines.

I have learned a few things about the Ethiopian culture that are worth bringing home. After a few days in Ethiopia, I start to walk a bit slower. I take the time to say hi to everyone in the morning and ask how their families are doing. I adore the way of caring for family and relatives, and I now understand why the Ethiopian patient in a Swedish hospital has his or her room filled with relatives. In the Ethiopian culture, family members are expected to be by the patient's side 24 hours a day; anything else would be strange. This is a very specific insight that makes it easier to handle cultural differences when treating patients in Sweden who originate from countries with the same tradition as Ethiopia.

Benefits for the Ethiopian partner

The concept of travelling together with a senior consultant is good in many ways and especially in the exchange of knowledge. For my Ethiopian colleagues, it may be difficult to approach the senior doctor straight away, but it is easy to

start a conversation with a resident. It also means that the knowledge shared is from an experienced senior. My personal contributions may be to facilitate contacts with people in Sweden, perhaps for different events or training programmes. In the clinic, we can engage in procedures that are familiar to us but new in the Ethiopian setting. To enable Ethiopian colleagues to visit Sweden may have a great impact on their work in Ethiopia in the future. Experiencing differences may lead to changes in their practice back home but also appreciation of things that might be better worked out in the Ethiopian setting.

Anaesthesiology in Ethiopia

The World Health Organization has stated that safe surgery as a prioritized area for anaesthesiologists and anaesthetists. The anaesthesia specialty in Ethiopia is relatively new, and the number of colleagues in the country is small. The World Health Organization solved the problem of the lack of trained anaesthesia personnel with a new health profession group called anaesthetists. It is a 4-year training course after college that covers most areas in anaesthesia but without the medical doctor background. It has been a successful programme, making surgery much safer worldwide. The number of medical doctors becoming anaesthesiologists is increasing, but up to now even university hospitals were sometimes without one single anaesthesiologist. For this reason, anaesthesia is a growing area for collaborations, with support needed in the establishment of the anaesthesiologist's role. I hope that we in Sweden can contribute to this process.

Conclusion

It can be difficult to create exchange programmes that are not about pure research and not just aid, but the concept developed by IMP is such a programme. It is a long-lasting international health profession link that is beneficial for both parties with the initiative from people on the hospital floor. For those who have been engaged in joint projects, research or health professional links, it is obvious that we return home with experiences worth the effort of travelling, leaving family and taking time off work. For politicians, hospital board members and decision makers, the benefits may need to be stated in a more measurable or descriptive way; this is a challenge.

Measurable benefits include the experiences described above along with skills in handling new drugs, learning about rare diagnoses and using unfamil-

iar equipment. This makes you push yourself to better understand physiological phenomena, pharmacology and pathology. The cultural experiences are also valuable and increase your understanding of why patients, or colleagues for that matter, may react in a way that is unfamiliar to you.

As a resident in anaesthesia, I found the opportunity to travel to Ethiopia and, under supervision from a senior colleague, experience this different setting very valuable and something I would recommend to colleagues in my situation. It is a good time in one's career to undertake such an activity, and the outcomes and benefits are well worth the effort.

List of Contributors

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Peter Berggren is research coordinator for the International Medical Program (IMP) at Region Östergötland, Sweden. He holds a PhD in cognitive science from Linköping University. He is an adjunct lecturer in cognitive science at the Department of Computer and Information Science, Linköping University. Dr Berggren currently is the director of Emergo Train System Competence centre at the Centre for Teaching and Research in Disaster Medicine and Traumatology (KMC). Previously, he held a position as Senior Scientist at the Swedish Defence Research Agency (FOI).

Dr Berggren's research focus on two areas: i) applied human factors related to team cognition, collaboration, command and control, crisis response, decision making, simulation, and resilience, and ii) interprofessional collaboration and organizational learning.

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Åke Björn, MD, PhD h.c., is a Senior Physician specialized in Neurosurgery and in General Surgery. He worked 1980 and 1981 in a refugee camp in Angola with 25 000 refugees from Namibia, as well as in Mozambique with preventive mother and baby health care. He started working 1991 at the Medical Centre for Refugees at Linköping University Hospital during the Balkan wars. He initiated the Swedish Medical Evacuation programme from Bosnia and Herzegovina 1995 together with the Swedish Migration Agency, which was financed by the Swedish Government until 2008. This programme developed into an independent unit within Linköping University Hospital, the International Medical Program (IMP), for which Åke Björn was the director until 2016. Åke Björn was awarded "the International Doctor of the Year, 2007" by the International League of Humanists, and he was appointed Honorary Doctor (PhD honoris causa) at the Linköping University 2011 for his contribution in international and global medicine.

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Ruhija Hodza-Beganovic is head of the International Medical Program (IMP) at the University Clinic of Linköping, Sweden since 2016. Her interest is in international health and development that contribute to improved knowledge and skills of professionals engaged in collaborative projects. Her research interest is teaching and learning methods, matters addressed in Low- and middle-income countries (LMIC), and ways of achieving sustainable and long-term development among health professionals. Her current study is on individual's awareness, communication skills, teamwork practices and conceptualization of these in local and changing organizations. She worked for International Organization for Migration (IOM) mainly on issues related to migrant health and building of health organizations that could meet the challenges of increased migration. She is medical doctor specialised in urology and holds a master in experimental medicine.

Authors

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Prof. Dr. H.C. Ferid Agani, MD, PhD completed his undergraduate studies in medicine in 1984 where he was among the top five students of all time at the Faculty of Medicine, University of Pristina, Kosovo (UP). He continued with specialization in the field of neuropsychiatry at University Clinical Centre of Kosovo, completing this in 1991. In 2003, he received the title of Master of Medical Sciences (MA) from UP. Dr. Agani was engaged as an assistant professor at the Faculty of Medicine, as well as a lecturer in the Department of Psychology at UP, and adjunct Professor at Clemson University, South Carolina, USA. He served as director of Strategic Management from 2002 to 2004 at the Kosovo Ministry of Health (MoH). From 2004 until 2007, he served as Member of Parliament in the Republic of Kosovo. Dr. Agani received his PhD in the field of Medical Sciences from UP in 2009. Dr. Agani was a founder of the Justice Party in September 1999 and served as its vice-president until 2008, when he was elected President of the Justice Party, a position that he still holds. He was appointed Minister of Health of the Republic of Kosovo from 2011 to 2014 when he was elected as Minister of Environment and Spatial Planning.

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Christer Andersson MD PhD and former CMO University Hospital, Linköping. He was recruited to work at the first Patient Safety Unit in Sweden when it opened in 2005 at the University Hospital.

Since 2000 he is collaborating with Moi Teaching and Referral Hospital (MTRH), Eldoret, Kenya and has been instrumental in the development of a programme for specialist training of Orthopedic surgeons in Kenya. Through the International Medical Program (IMP), Region Östergötland, Christer Andersson has supported the training of teachers at the Department for Physical Therapy, Moi University, which includes the graduation of the first female PhD in Physical Therapy from Kenya at Western Cape University, Cape Town, South Africa (2018). In 2014 he initiated work to improve patient safety at MTRH. In collaboration with TVC, London, UK he has participated in the production of five documentaries focusing on the importance of leadership for improved patient safety (2017). These documentaries directed towards an African context are available for free in eight African countries. Today MTRH may be considered as leading in Kenya and was appointed by the Ministry of Health (2018) to develop a strategy for patient safety work in Kenyan hospitals. In 2019 the strategy was approved by the board of MTRH.

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Peter Andersson is a general surgeon at Vrinnevi Hospital, Norrköping, and an associate professor of surgery at the Medical Faculty, Linköping University, where he also has a position as a senior lecturer focusing on disaster medicine. He is a member of the staff at the International Medical Program. Peter Andersson has done several missions for Médecins Sans Frontièrs and the International Committee of the Red Cross in war-torn countries such as Somalia, South Sudan, and Yemen among others. His current research is about evaluating and finding ways to improve quality of surgical care in conflict zones. As a member of the staff at the International Medical Program he has since 2017 initiated and coordinated cooperation-projects on vascular and general surgery at the Ethiopian teaching hospitals in Addis Ababa and Gondar respectively.

Krister Björkegren

Krister Björkegren is the Regional Chief Executive, Region Östergötland since 2017, and there with the highest-ranking executive official for all of Region Östergötland's responsibilities, including healthcare, regional development, and public transportation. He also chairs the Research Council of South East Sweden and participates in the national work on E-health 2025 in Sweden.

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Gunilla Glad Mattsson is a senior researcher with a background as a licensed nurse, with an education in urotherapy and a completed postgraduate education. Her thesis focus on bladder dysfunction in children ("To void at will: lnvestigation and treatment of children with bladder dysfunction", 2002, Faculty of Health Sciences, Linköping University, Sweden). She has worked as a nurse, urotherapist at HRH Crown Princess Victorias Hospital for Sick Children, the University Hospital in Linköping, Sweden. For the last 10 years she worked at Linköping University as a senior lecturer, teaching and organizing courses, with academic missions as chairman or member of examination boards until retirement. Her research work has since continued, which until today includes 23 published articles. Besides that, having a mission as a urotherapist (20 - 10%) at a pediatric unit. She has also been, and still is, a member of the RBU's research foundation, the Swedish Enuresis Academy (SEA), a full member of the Ethics Committee until 2019, still active in the development of MMCUP (The National MMC follow-Up Program, Quality of Care Registry) as a coordinator for the Southeast region. Participated between 2012 and 2018 in one of IMP's (International Medical Program, Region Östergötland, Sweden) projects in the Balkans.

Henrik Harder

Henrik Harder is a senior ear-nose and throat (ENT) surgeon and an audiological physician. He has been connected to the ENT-clinic of the Linköping University hospital since 1974. Reconstructive microsurgery of the ear and skull-base surgery has been the main subjects of his clinical practice. Research has mostly been related to these two surgical areas. In 1983 the dissertation "On pre- and postoperative audiology in ear surgery" was defended as he gained his PhD. Further publications concerning skull-base tumors, stapes surgery, myringoplasty, cochlear implants and cholesteatoma surgery has followed. He has been supervisor for several researchers in these areas. Before retirement he was a long-term member of the Swedish Oto-Surgical Society, Chairman 1995 – 99. In the period 1995 – 2003 he was deputy head of the ENT-clinic in Linköping.

Mona Hedestig

Mona Hedestig is a nurse-midwife working as development leader in Region Östergötland, Sweden. She concentrates on patient safety and does different analysis; for example risk- and root cause analyses. She is teaching and supporting in different methods for increasing patient safety. Her special interest is children, youth and women's health. She has since 2014 been involved in IMP-projects in Kenya and Ethiopia.

Alexander Höglund

Alexander is an elected political representative since 2014 and politically responsible for international affairs in Region Östergötland. He is also Vice Chair of the Regional Executive Committee and member of the Regional Assembly. Furthermore Alexander is Chair of the Drafting Committee for employees and competence provision issues, group leader for the Liberal party in Region Östergötland and member of the Liberal Party Board on national level.

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Jonna Idh is an anaesthesiologist at the Department of Anaesthesia and Intensive Care, Västervik Hospital, Sweden. She received her PhD in medical microbiology at the Department of Medical Microbiology, Linköping University in 2012. The title of the thesis was "The role of nitric oxide in host defence against Mycobacterium tuberculosis". The research was both clinical and preclinical and mainly conducted at the Department of Microbiology at Gondar University Hospital, Ethiopia. Since 2018, Jonna, in collaboration with colleagues from Västervik Hospital, Linköping University Hospital and Gondar University Hospital have initiated a Health Profession Link in the field of anaesthesia and intensive care supported by the International Medical Program, Region Östergötland.

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Mirsada Zećo

Mirsada Zećo has been the Swedish Medical Programme Coordinator for the International Organization for Migration (IOM) in Bosnia and Herzegovina since August 1997. Her duties were to coordinate with IMP medical management in Sweden all programme activities, such as emergency medical evacuation, long term planning for health sector development, and capacity building through international medical teams.

In parallel with her work for the Swedish Medical Programme, Mirsada has also coordinated many other medical programmes such as: Norwegian Medical Teams, Cardio Surgery training programme, a Caritas Project, Primary Health Care Training programme, Swedish Psychosocial Support Program, and an Infectious Disease Program, a programme for the prevention and control of HIV/AIDS and sexually transmitted diseases in the Balkans, Migration Health Assessment Programme in Bosnia and Herzegovina, Capacity Building, Information and Awareness Raising Towards Promoting Orderly Migration in the Western Balkans.

Before joining IOM in August 1997 Mirsada worked for the American Refugee Committee 1996-1997, University Clinical Centre Sarajevo 1981-1992 (between 1992-1995 she did not work because of war and siege of Sarajevo) and the Sarajevo Public Transportation Organization Sarajevo 1972-1981.

In 1979 Ms Zećo earned a Bachelor in Computer Science at Belgrade University.

The International Medical Program (IMP) is a department at Region Östergötland. IMP has two mandates. The first mandate is to coordinate and develop the process of reimbursement from the Swedish Migration Agency (Migrationsverket) for costs related to care provided to refugees by the Region Östergötland health care system. The second mandate is to plan, organize, and coordinate international partnership projects that contribute to a sustainable development of local public health care services in the partner countries and in Sweden. This anthology presents how IMP work and provides examples from different partnership projects.

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