



Surgical Training Program Kirurgisk opptreningsprogram

April 2017

Annual Activity Report
2016

 **NTNU**
Norwegian University of
Science and Technology



Summary

In 2016, our level of activity was back to the one we had before the Ebola outbreak. The trainees participated or performed more than 6,500 surgical procedures, while the graduates performed more than 2,200 operations. Most operations conducted by the graduates were emergencies performed at district hospitals and over 85% have been done independently. We have organised 13 training modules, with a broad range of trainers.

In 2016, we performed a thorough analysis of outcomes of all operations performed both during training and after. We found that the postoperative mortality of independently performed caesarean sections carried out by trainees was 0.7 % and 0.4 % when performed by the graduates, the SACHOs. Compared to previously known outcomes after surgery in Sierra Leone and West Africa, those results are very encouraging. The only previous study which has documented postoperative mortality after caesarean sections in Sierra Leone (1.2 %, Chu 2015) recorded poorer outcomes. The results are also better than what was found in a recent systematic review (1.4 % Uribe-Leitz 2016) that assessed 19 publications from West Africa.

Further, postoperative mortality of indirectly supervised laparotomies conducted by trainees (4.3 %) and SACHOs (8.0 %) was also found to be lower within the surgical training programme than earlier documented mortality in Sierra Leone (10.4 %, McConkey 2002) or from a multi-country low-human development index environment (8.6 %, GlobalSurg 2016). These outcomes suggest that surgical task sharing, as introduced with the presented training scheme, to this point appears to be a safe strategy for expansion of the surgical workforce in Sierra Leone.

The graduates are very productive and conduct on average 176 operations with indirect supervision per year. Most of those surgeries were performed in governmental district hospitals. If this continues, and our ambition of producing 60 graduates by 2020, the group will increase the surgical volume in governmental hospitals with 110 %. These numbers bear testimony that the Surgical Training Programme is fulfilling its main objectives. We want to congratulate the Ministry of Health and Sanitation and our partners with these achievements, as the program seems to meet its intention to safely increase access to surgical care at the district level in Sierra Leone.

However, there are also still considerable challenges ahead. Our main concern is the lack of financial remuneration for the graduates, which is a threat to the sustainability of the whole group. Another concern is the lack of legal protection and formal regulation of medical activity performed by the Community Health Officer cadre. CapaCare will continue to advocate for those issues, but we will need assistance from external partners for this to be fulfilled.

CapaCare was in 2016 engaged in developing the surgical health care system in Sierra Leone. Together with partners from the World Health Organisation and the Kings Sierra Leone Health Partnership, we co-organised the first national surgical forum for surgery in May. The forum gathered close to 100 key actors involved in health systems strengthening activities. We believe this activity is important and only by joining forces with a broad alliance of local and international partners, surgical services can be strengthened in Sierra Leone.

Thanks to all partners, supporters, trainers, students and graduates that have contributed to increase access to surgery at the district level in Sierra Leone.

Trondheim, Norway,
April, 2017



Håkon Angell Bolkan
Chairman CapaCare

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Graduate Augusta Palmer, St. John of God, Lunsar

About CapaCare

CapaCare is a **member-based** non-governmental organization registered with the Norwegian Central Coordinating Register for Legal Entities, "Brønnøysundsregistret", organization number 992100125 with headquarters in Trondheim, Norway. The Annual General Meeting functions as CapaCare's highest authority.

CapaCare's purpose is to train medical professionals in areas where there is a shortage of such personnel. The International Board is responsible for the association's operations and management of finances between Annual General Meetings. The board hires consultancies for finance management. All positions on the Board are voluntary and there are no paid honorariums for board work. The board was strengthened with several new board members in 2016.

Since 2015, a local organization, **CapaCare Sierra Leone** have been registered at the ministry of Finance and Economic Development under reg. no. INGO/164/2015. In 2016, the Inaugural Annual Meeting was held, hereby officially launching the local organization.

The purpose of CapaCare Sierra Leone is to oversee CapaCare's Surgical Training Program (STP) in Sierra Leone, operated in collaboration with the Ministry of Health and Sanitation. The organisation also works to, locally raise funds and recruit health professionals in Sierra Leone to accomplish this purpose. The organisation actively **promotes increased access to emergency surgical and obstetric care** in Sierra Leone by strengthening national human resources for those services.

CapaCare Sierra Leone is overseen by a board which consist of board members from CapaCare Norway, a representative of the STP student association and two external board members, a minimum of one representing the Ministry of Health and Sanitation. The international STP coordinator act as a secretary of CapaCare Sierra Leone board and coordinate and is the main responsible the implementation of CapaCare's work in Sierra Leone.

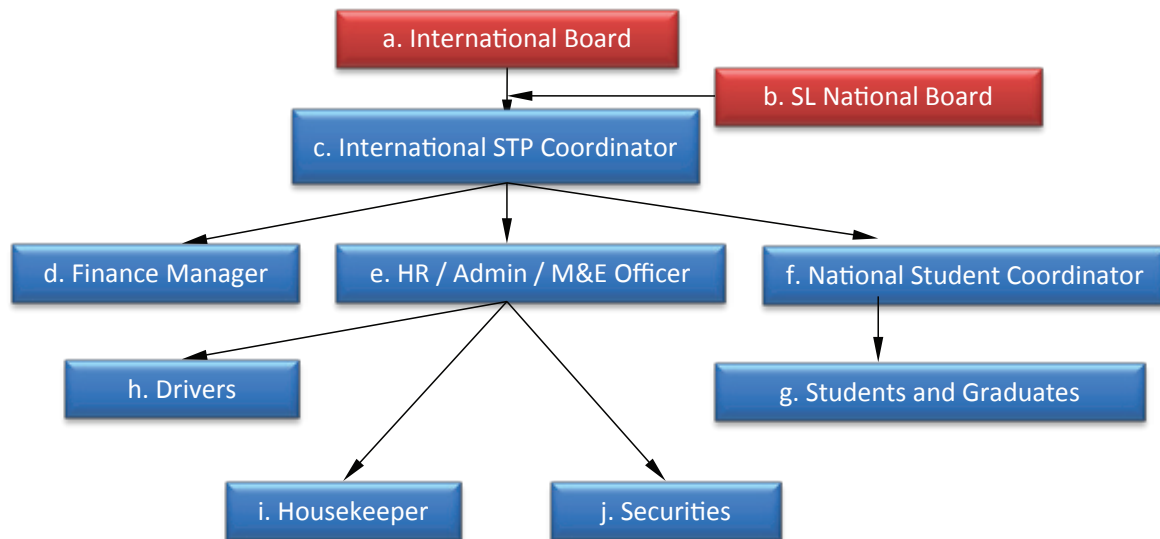


Graduate Seibatu Sia Kemoh supervised by International coordinator Martelien Grootjans at Masanga Hospital.

Organization

For 2016, the following organogram depicts the organisation in Sierra Leone (Figure 1). Management capacity remained stable, with **change on the position of international coordinator** in March. Bart Waalewijn ended his contract and was replaced by Daniel van Leerdam as international coordinator.

Based on the expansion of the program, as well as the aim of training 60 Surgical Assistant Community Health Workers (SACHOs) and Medical Doctors with the partnership of United Nation People Fund (UNFPA), it is highly necessary to strengthen the efficient leadership from the local management in Sierra Leone.



a. Håkon A. Bolkan (chair)
 b. Oversees CapaCare Sierra Leone
 c. Daniel van Leerdam, Martelien Grootjans
 d. Mohammed John Turay
 e. Francis S. Vandy

f. Samuel M. Sankoh
 g. Trainees/housemanship/graduates
 h. Osman Conthe, Alpha Kargbo
 i. Rugiatu Koroma
 j. Usifu Kamara, Idrissa Bangura

Figure 1. CapaCare organogram 2016



Graduate Ibrahim M. Sesay, during caesarean section in Kenema Governmental Hospital

Surgical Training Program

Background

Sierra Leone is a republic in West Africa, bordering Guinea, Liberia and the Atlantic Ocean. It is categorized by the World Bank as a **low-income country**. The country, with roughly seven million inhabitants (census 2016), has been severely affected by Civil War (1991-2001), and more recently by the **Ebola outbreak** (2014-2016). This has affected the whole population, and the effect is evident also in the health sector. Sierra Leone has an estimated maternal mortality ratio of 1360 deaths per 100 000 births – the world's fifth highest¹, which is in part due to lack of adequate surgical services.

Sierra Leone was the country **most affected** by the devastating West African Ebola outbreak. More than 14 100 infections and close to 4 000 deaths were the direct effects of the epidemic². As devastating as these effects were, there were also **indirect effects** in the form of unemployment, economic stagnation and collapse of the health care system. Health care workers were particularly vulnerable to contracting Ebola. **Close to 7 % of the country's doctors, nurses, and midwives died of Ebola**³, which was 100 times higher than for the general population⁴. The ultimate consequence of the Ebola epidemic is that even fewer severely sick Sierra Leoneans received the necessary medical treatment with a subsequent **rise in mortality rates**. CapaCare conducted important **research on Ebola's impact** on the health care system in 2014/5. Our findings documented a 70% decline in hospital admissions during the Ebola epidemic in Sierra Leone⁵.

Surgery in Sierra Leone

The **need for surgical care in Sierra Leone is pressing**. Prior to the Ebola outbreak roughly 1 in 4 people in Sierra Leone were in need of some form of surgical treatment, with a similar number of deaths requiring, but not receiving surgical care⁶.

More than **90%** of the estimated surgical need in Sierra Leone was **unmet before the Ebola outbreak**. Only 24 152 surgical procedures were identified in the country in 2012, corresponding to a national rate of 400 surgeries per 100 000 inhabitants⁷. This contrasts to high income countries with rates of 11 000 major surgeries/100 000 inhabitants annually⁸.

Hospitals in Sierra Leone experience a **glaring lack of qualified surgical providers**, with only a handful of specialists. In 2012, there was a total of 164 full time equivalent positions of national and international health care providers (all categories included: surgeons, obstetricians, ophthalmic specialist, ENT specialist, non-specialist medical doctors, nurses, associated clinical staff) providing surgery across all sectors⁹. Only **a quarter of this total surgical workforce** and just one-tenth of the specialists **worked in the rural areas** where more than 60% of the population resides. The overall density of surgical providers was eight times higher in urban areas than in rural areas.

Scarcity of human resources is considered a main reason against expansion of surgical care. There is an **obvious need for innovative strategies** to address this largely unfulfilled need for surgery in Sierra Leone, particularly the extensive shortages of qualified surgical providers outside the main urban areas.

¹ Central Intelligence Agency. *The World Factbook – Sierra Leone, 2016*.

² World Health Organization, *Ebola Situation Report - March 2016*

³ Evans et al., *The Lancet Global Health, 2015*

⁴ Kilmarx et al., *Morb Mortal Weekly Rep, 2014*

⁵ Bolkan et al., *PLoS Currents, 2014*

⁶ Groen et al., *Lancet, 2012*

⁷ Bolkan et al., *Surgery, 2015*

⁸ Weiser et al., *Lancet, 2008*

⁹ Bolkan et al. *World Journal of Surgery, 2016*.

Aim

The aim of the Surgical Training Program is to **increase the level of surgically-skilled health staff at district hospitals** in Sierra Leone. The goal of the program is **to train a total 60** Medical Doctors or Surgical Assistant Community Health Officers (SACHOs) by 2021, each for three years. We will provide the graduates of the Surgical Training Program **with knowledge and skills** to address the most common **surgical and obstetrical emergencies** that without treatment would lead to disability or death.

Training locations

Masanga Hospital is the home of the Surgical Training Program and its where the local management of CapaCare is based. All of the students commence their training in Masanga with a **theoretical and practical course in basis surgical skills**. After two weeks, they are introduced to the wards, out-patient-department and operation theatre. Half of the new students continue in Masanga hospital for seven months, while the other half are also partly located at Serabu Catholic Hospital in Bo district and in Lion Hearth Medical Centre in Yele.

After seven months, the students are introduced to the CapaCare partner hospitals, for three rotations of five to six months each. In this period, they will receive **further practical training** and gain experience in management of obstetric and surgical emergencies.

After successful completion of the rotations, the students are to take the final oral and written examinations at the end of year two, conducted by the MoHS in collaboration with CapaCare. Upon graduation, the students enter a one-year housemanship stage (six months Obstetrics and six months Surgery) in the two largest governmental hospitals in Freetown.

Fifteen of the surgically most active hospitals in Sierra Leone with experienced surgeons, obstetricians and/or surgically inclined Medical Officers are **partners in the training program** (Figure 2). These partner hospitals are selected on the basis of their surgical capacity, coverage of supervision, and the availability of surgical tutors. The hospitals and their national and international staff have provided their premises to the program, ensuring that each candidate is exposed to the most highly-skilled tutors presently available in the country.

Overview partner hospitals:

■ Basic Training:

- 1) Masanga Hospital
- 2) Serabu Catholic Hospital
- 3) Lion Hearth Medical Centre, Yele

● Clinical Rotations

- 4) Makeni Government. Hospital
- 5) Port Loko Government, Hospital
- 6) Bo Government Hospital
- 7) Kenema Government Hospital
- 8) Magburaka Government Hospital
- 9) Magbenteh, Makeni
- 10) Aberdeen Woman's Clinic, Freetown
- 11) St. John of God Hospital, Lunsar
- 12) Kamakwie Wesleyan Hospital
- 13) Holy Spirit Hospital, Makeni

▲ Housemanships (Government)

- 14) PCMH, Freetown
- 15) Connaught Hospital, Freetown

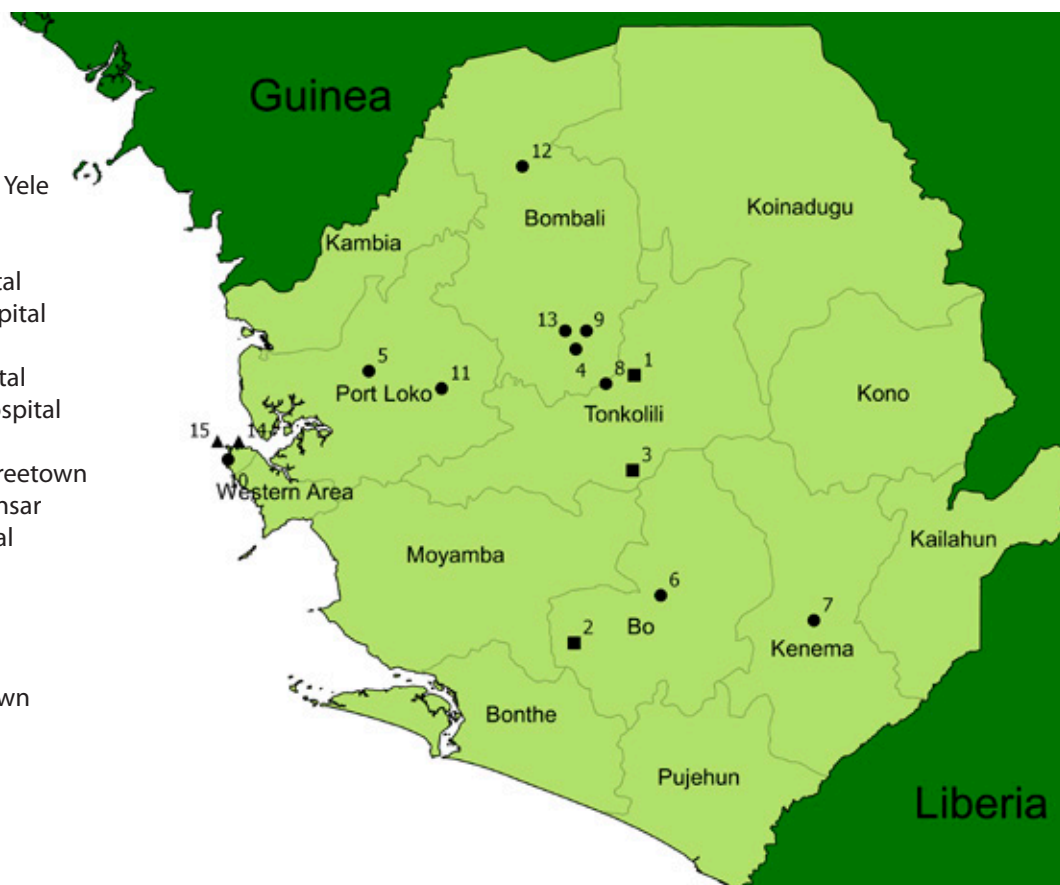


Figure 2. Locations of training institutions in 2016

Output - Students and Graduates

At the beginning of 2016, there were 23 students and interns (housemanship) in the program, while ten had graduated (Figure 3). Twelve new students were selected and started in April (5) and October (7). During the year, **three students graduated** while two students dropped out of the program. At the end of the year, there were 22 students in the program and eight in housemanship (Table 1).

Of the thirteen graduates, twelve SACHOs are posted to governmental or private non-profit hospitals. One medical doctor continues surgical postgraduate training in Ghana.

	January 2016	December 2016
Basic training	18	22
Housemanship	5	8
Graduates (SACHO/MD)	9/1	12/1
Total	32	42

Table 1. Number of Students in basic training, housemanship and graduates

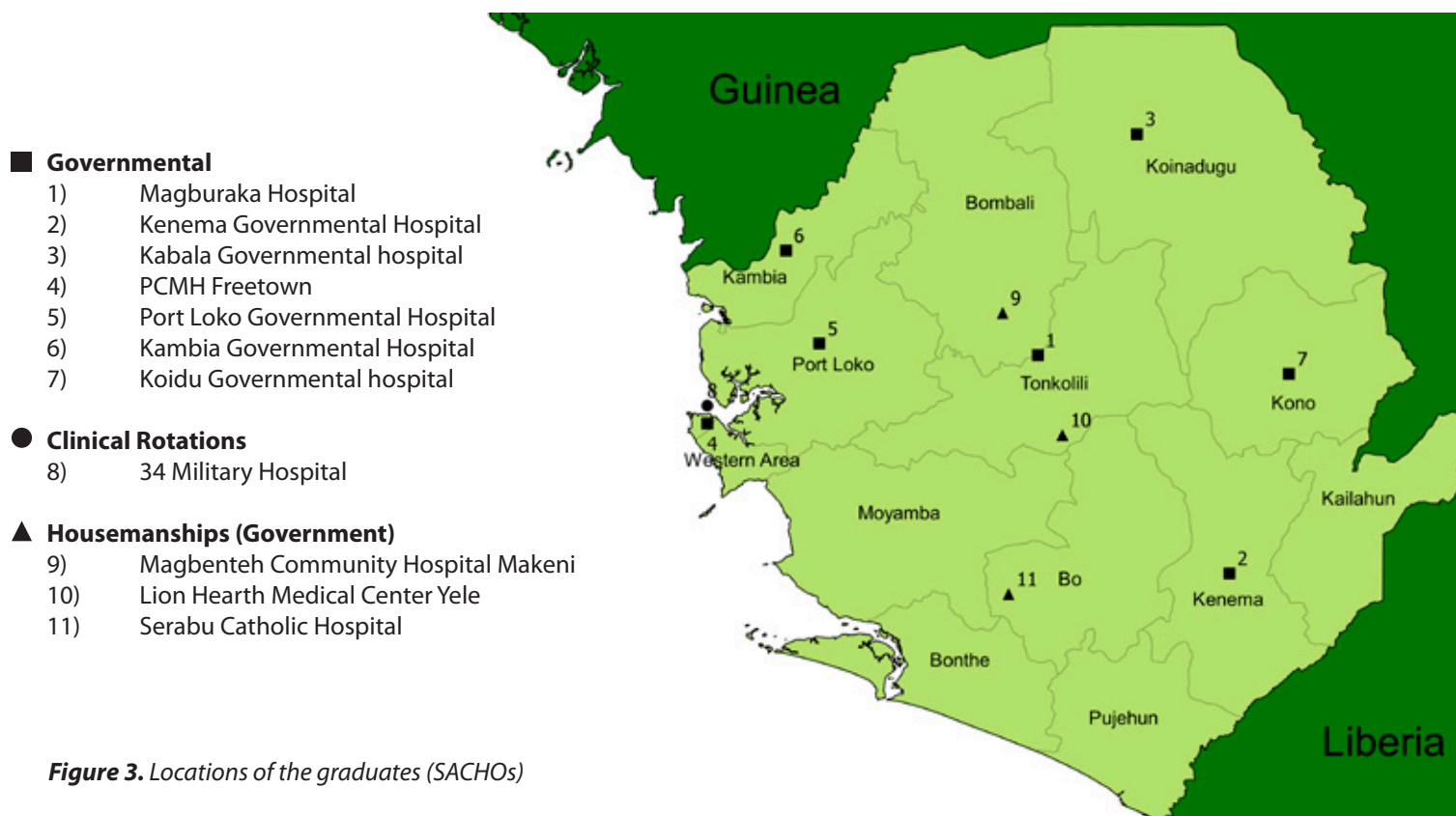


Figure 3. Locations of the graduates (SACHOs)

Output - Surgical activity

Since the start of the program in 2011, the students and graduates combined have participated in and performed more than **31,000 surgeries** (Figure 4). The total **number operations for 2016 alone was 8,748**, the highest since the start of the program in 2011. Students within the initial two years of training performed 5,329, those in housemanship 1,188, while the graduates performed 2,231. The quarterly reported number of performed or attended surgeries was in 2016 above the levels of activity before the Ebola crisis.

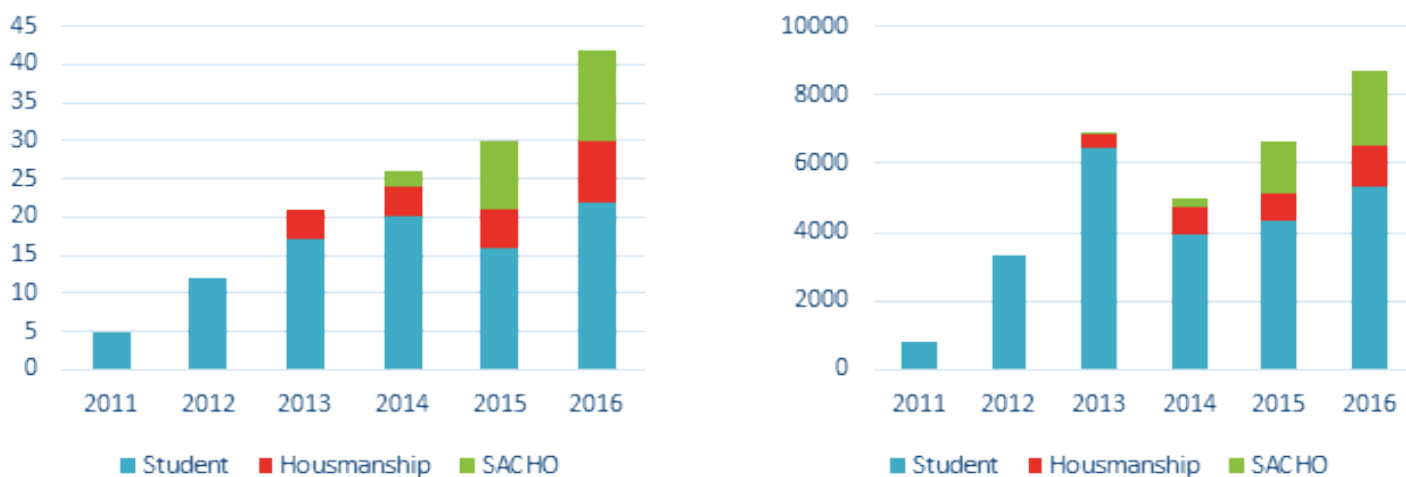


Figure 4. Accumulated number of students, interns and graduates (left) in the program and annual volume of surgical activity (right) since the start of the programme in 2011.



Graduate Alieu F. Mansary and student Lamin Bassie, Serabu Hospital

Role and Procedures

The most common procedure for both the students and the graduates in 2016, was **caesarean section**, followed by inguinal hernia repair. The students participate in most procedures either as assistant or as surgeon supervised while the graduates performed over **85% of their surgeries fully independent**.

Students (incl. housemanship)				Graduates		
No	Procedure	n	%	Procedure	n	%
1	Caesarean section	2,364	36.9	Caesarean section	769	34.5
2	Inguinal hernia repair	1,241	19.1	Inguinal hernia repair	479	21.5
3	Dilatation & curettage	293	4.5	Appendectomy	96	4.3
4	Laparotomy	253	3.9	Laparotomy	75	3.4
5	Appendectomy	226	3.5	Incision & drainage	65	2.9
6	Incision & drainage	163	2.5	Dilatation & curettage	62	2.8
7	Hydrocele	141	2.2	Hysterectomy	54	2.4
8	Hysterectomy	136	2.1	Hydrocele	46	2.1
9	Osteomyelitis debridement	100	1.5	Tubal ligation	45	2.0
10	Obstetrics others	97	1.5	Op. for strangulated hernia	41	1.8
Total		6,496	100.0	Total	2,227	100.0

Table 2. Top 10 procedures for students and graduates in 2016.

Students (incl. housemanship)				Graduates		
No	Procedure	n	%	Procedure	n	%
1	Assisting	2,205	33.9	Surgeon independent	1,484	66.7
2	Surgeon independent	2,134	32.8	Assisting	426	19.1
3	Surgeon supervised	1,580	24.3	Surgeon supervised	225	10.1
4	Observing	595	9.1	Observing	91	4.1
Total		6,514	100.0	Total	2,226	100.0

Table 3. Role during operation for students and graduates in 2016.



STP conference, Masanga Hospital, May 2016

Tutors

The core element of the STP is training. This training is performed by surgeons, gynaecologists, radiologists, anaesthesiologists, and nurses. In 2016, they came from Norway, the Netherlands and the United Kingdom. All international tutors are engaged on a voluntary basis, CapaCare provide support only in form of transportation, accommodation, visa and vaccines.

In 2016, 13 modules were conducted, compared to six modules in 2011, seven in 2012, 10 in 2013, six in 2014, and seven in 2015. In 2015, we started to engage local trainers also for theoretical modules. Sierra Leone's only qualified orthopaedic surgeon, Dr. Ibrahim Bundu has provided regular teaching sessions since 2015 which was continued in 2016. Additional local tutors were engaged in 2016, however training was not provided. The local tutors receive a honorarium for the training they provide.

Module	From	To	Tutor
Surgery & the abdomen	5-Jan	22-Jan	Lesley Hunt (S), Solveig Svengaard (OT)
Emergency obstetrics	24-Jan	12-Feb	Adam Forrest (G)
Trauma & orthopaedics	14-Mar	31-Mar	George Pape (T)
Basic Surgical Skills	4-Apr	22-Apr	Lesley Hunt (S), George Pape (T)
Pig course & resuscitation	18-Apr	22-Apr	Herman Lonnee (A), Thomas Lafrenz (A), Lesley Hunt (S)
Surgery & the abdomen	16-Jun	30-Jun	Yasha Johari (S)
B-Lynch procedure	20-Jun	26-Jun	Prof C. B-Lynch (G)
Basic life support	22-May	05-Jun	Atish Patel
Emergency obstetrics	15-Aug	31-Aug	Josien Westendorp (T/G), Risa Lonnee - Hoffmann (G)
Basic Surgical Skills	10-Oct	28-Oct	Lesley Hunt (S), Sigrun Holen (OT)
Pig course & resuscitation	31-Oct	4-Nov	Lesley Hunt (S), Herman Lonee (A)
Ultrasound training	31-Oct	11-Nov	Taymoor Asghar (R), Lisa McIntyre (R), Thomas Peachey (R)
Basic Obstetrics	13-Nov	18-Nov	Louise Norström (MW)

Anaesthesiologist (A), Orthopaedic surgeon (O), Gynaecologist (G), Midwife (MW), Anaesthesia nurse (AN), Scrub nurse (OT), Surgeon (S), Tropical Doctor (T), Radiologist (R)

Table 4: Rotations of tutors in 2016.

Apart from the trainers, there were also several support visits in 2016, mostly to offer **mentoring and monitoring of the local administration** and research related activities.

Purpose	From	To	Support staff & Research students
National Surgical Forum	4-May	11-May	Håkon Bolkan (B)*, Alex van Duinen (B)*
Technical support Ultrasound	10-Jun	19-Jun	Martin Svenning (T)
Production PR materials	01-Oct	14-Oct	Magnus Endal (B)
Finance and Project support	16-Aug	31-Dec	Annemarie van Duinen (C)*, Alex van Duinen (B)*
Master in Global Health	13-Feb	18-Mar	Lone Brink Rasmussen (UoC)
PhD project	16-Aug	31-Dec	Alex van Duinen (NTNU)*
Master in Global Health	28-Oct	2-Dec	Anne Husby (NTNU)*
Medical degree	7-Sept	17-Oct	Øyvind Christopher and Christopher Helgerud (NTNU)*
Medical degree	10-Oct	05-Nov	Gustaf Drevin (KI)*

**External funding, Board (B), CapaCare staff (C), Technical staff (T), University of Copenhagen (UoC), Norwegian University for Science and Technology (NTNU), Karolinska Institute (KI)*

Table 5: Rotations of support staff and research personnel in 2016.



Media and publications

Our main communication channels are through the website (www.capacare.org) and Facebook. Other mentions in media are through publications in Medical Journals, as well as magazines and newspapers. We have also presented the program and its preliminary results at **several international medical conferences** (see Publication List).

Website

The website (capacare.org) is available in both Norwegian and English. This makes the site accessible for users **all over the world**. It contains information about the STP program, our students and trainers, partner hospitals, and publications. The **STP students contribute regularly to blog posts**. Number of page views in 2016: 10 125 (total) by 3596 unique users (based on Google analytics). The numbers are more or less unchanged from 2015. The website is currently undergoing construction. The new and improved website will be launched in spring 2017. The updated design intends to make the site more mobile friendly and have integrated payment options for fundraising purposes.



Local coordinator, Samuel Matthew Sankoh, Masanga Hospital

Publications

Bold – CapaCare boardmembers or trainers

- Arranz, Javier; Lundeby, Karen Marie; Hassan, Shoaib; Fuentes, Luis Matías Zabala; Garcés, Pedro San José; Haaskjold, Yngvar Lunde; **Bolkan, Håkon Angell; Krogh, Kurt;** Jongopi, James; Mellesmo, Sindre; Jøsendal, Ola; Øpstad, Åsmund; Svensen, Erling; Kamara, Alfred Sandy; Roberts, David P.; Stamper, Paul D.; Austin, Paula; Moosa, Alfredo J.; Marke, Dennis; Berg, Åse; Blomberg, Bjørn; Riera, Melcior. (2016) Clinical features of suspected Ebola cases referred to the Moyamba ETC, Sierra Leone: Challenges in the later stages of the 2014 outbreak. BMC Infectious Diseases. vol. 16 (308).
- **Bolkan, Håkon Angell;** Haganger, Lars; von Screeb, J; Bash-Taqi, Donald A.; Kamara, T B; Salvesen, Øyvind; Wibe, Arne. (2016) The Surgical Workforce and Surgical Provider Productivity in Sierra Leone: A Countrywide Inventory. World Journal of Surgery. vol. 40 (6).
- Brolin, Kim; **van Duinen, Aalke Johan;** Nordenstedt, Helena; Hoijer, J; Molnes, Ragnhild; Frøseth, Torunn Wigum; Koroma, AP; Darj, Elisabeth; **Bolkan, Håkon Angell; Ekström, A.** (2016) The Impact of the West Africa Ebola Outbreak on Obstetric Health Care in Sierra Leone. PLoS ONE. vol. 11 (2).
- Haaskjold, Yngvar Lunde; **Bolkan, Håkon Angell, Krogh, Kurt,** Jongopi J, Lundeby KM, Mellesmo S, Garcés PS, Jøsendal O, Øpstad Å, Svensen E, Fuentes LM, Kamara AS, Riera M, Arranz J, Roberts DP, Stamper PD, Austin P, Moosa AJ, Marke D, Hassan S, Eide GE, Berg Å, Blomberg B. Clinical Features of and Risk Factors for Fatal Ebola Virus Disease, Moyamba District, Sierra Leone, December 2014-February 2015. Emerg Infect Dis. 2016 Sep 15;22(9).



Graduate Alieu F. Mansary and student Lamin Bassie, Serabu Hospital

Posters/scientific presentations/public talks

- Alex van Duinen, Bart Waalewijn, Ibrahim Bundu, Håkon Angell Bolkan. [The effects of Ebola on the number of operations in Sierra Leone]. **56th Annual Conference of the West African College of Surgeons. Yaounde, Cameroon**, February 2016 – Oral presentation
- Håkon A. Bolkan, Lars Hagander, Johan v. Schreeb, Donald Bash-Taqi, Thaim B. Kamara, Øyvind Salvesen, Arne Wibe. [The Surgical Workforce and Surgical Provider Productivity in Sierra Leone: A Countrywide Inventory]. **56th Annual Conference of the West African College of Surgeons. Yaounde, Cameroon**, February 2016 – Oral presentation
- Alex van Duinen, Brynjulf Ystgaard, Bart Waalewijn, Håkon A. Bolkan. [Implementing a surgical task-sharing training program - 5 years of experience from Sierra Leone]. **Norwegian Forum for Global Health Research, Bergen, Norway**, April 2016 – Oral presentation
- Håkon A. Bolkan [Surgical Task-Sharing; pros and cons]. **Norsk Helsenett for Utvikling/Fredskorpset – Annual conference, Oslo, Norway**, June 2016 – Oral presentation
- Solveig Ratchje Svenggaard [CapaCare, et kirurgisk opplæringsprogram] **Jabb, Kulturenheten i Trondheim, Norway** – February 2016 – muntlig presentasjon.
- Håkon A. Bolkan [Task-Sharing in Surgery]. **First national surgical forum. Freetown, Sierra Leone**, June 2016 – Oral presentation
- Håkon A. Bolkan [Global Surgery and the The Surgical Training Program in Sierra Leone], **Annual meeting of Sør-Trøndelag Medical association, Trondheim, Norway**, June 2016 – Oral presentation
- Håkon A. Bolkan [Global Surgery and CapaCare's Surgical Training Program in Sierra Leone], **"Fadderuka" Norwegian University of Science and technology, Trondheim, Norway** August 2016 – Oral presentation
- Håkon A. Bolkan [Surgery in Sierra Leone], **The Gotland course, University of Rute, Gotland**, August 2016 – Oral presentation
- Håkon A. Bolkan [Surgery in Sierra Leone], **Course in Global Surgery, University of Lund, Sweeden**, August 2016 – Oral presentation
- Håkon A. Bolkan, [CapaCare's kirurgiske opptreningsprogram], **Namdal Seniorforum, Namsos, Norway**, September 2016 – muntlig presentasjon
- Håkon A. Bolkan [Global Surgery and CapaCare's Surgical Training Program in Sierra Leone], **Lunch meeting with the Royal Princess Mette-Marit, Norwegian University of Science and technology, Trondheim, Norway**, October 2016 – Oral presentation
- Håkon A. Bolkan [Surgery in Sierra Leone], **Surgical week, Norwegian surgical association annual meeting, Oslo, Norway**, October 2016 – Oral presentation
- Magnus Endal, Sigrun Holen, [CapaCare's kirurgiske opptreningsprogram], **Sonemøte Lions Inderøy, Norway**, September 2016 – muntlig presentasjon
- Håkon A. Bolkan, Brynjulf Ystgaard, Peter Bo Jørgensen, [CapaCare's kirurgiske opptreningsprogram], **Aleris, Trondheim, Norway**, Mars 2016 – muntlig presentasjon
- Bart Waalewijn, Alex van Duinen, Håkon Angell Bolkan. [Learning Curve Characteristics of Caesarean Section by Associate Clinicians - Retrospective study from Sierra Leone], **De Nederlandse Vereniging voor Tropische Geneeskunde en Internationale Gezondheidszorg, Amsterdam, The Netherlands**, October 2016 – oral presentation



Graduate Mohamed D. Allieu, Bo Gov. Hospital



Graduate Mohammed Kamara, Kambia Gov. Hospital



Graduate Emmanuel Tommy, Kenema Gov. Hospital



Graduate Emmanuel Tommy, Kenema Gov. Hospital



October 2016 students, Masanga Hospital



Graduate Amara Conthe, Masanga Hospital

Potential expansion - Surgical midwife program and visit to Liberia

In March 2016, CapaCare was requested by the Ministry of Health and Sanitation (MoHS) **to start training midwives in advanced obstetrics**, in addition to the existing program to train CHOs and MDs. The proposal consisted of the introduction of the concept of task-sharing into the field of midwifery and provide training in **basic life-saving obstetric surgery**, including caesarean section.

Based on this request, CapaCare contacted the facilitators in Mozambique and conducted a study tour in Liberia. In Mozambique, the training of midwives started a decade ago, where the first class of surgical midwives graduated in 2009. In Liberia, a similar training started in October 2013.

In September 2016 CapaCare was invited to visit the **surgical midwife-training program** in Liberia where the Ministry of Health has partnered with the NGO Maternal and Childhealth Advocacy International (MCAI), WHO Liberia and UNFPA Liberia. The first two midwives trained in advanced obstetric procedures have now completed their one-year of internship after two years of intensive apprenticeship and tutorial training. During their training, these first two midwives were involved in 473 caesarean sections, 32 manual removals of placentas, 31 vaginal breech deliveries, 21 vacuum deliveries, 12 repairs of ruptured uteri and also managed 80 cases of eclampsia or severe pre-eclampsia, 44 of major postpartum haemorrhage and 28 patients with shock. Preliminary results were published in the **Bulletin of the WHO in 2016** and these results were also discussed at the World Health Assembly in 2016 (Dolo et al, 2016). Currently the two senior midwives have been graduated and are licensed as “obstetric clinicians”. After this successful pilot, the program started 1 year ago with a second batch of 9 trainees. Upon graduation, the surgical midwives are placed in appropriate hospitals by the Ministry of Health of Liberia and their work continuously regulated by the Medical and Dental Council in Liberia. We were able to visit the training hospitals, trainers, graduates and current students.

Although evidence is limited, these experiences have showed us that training of midwives in advanced obstetrics can contribute to increase the capacity of skilled human resources who are able to offer safe emergency obstetric and surgical care. In the coming year, we hope to continue to develop this in cooperation with the Ministry of Health and Sanitation in Sierra Leone, UNFPA.



On the road to field visit to Liberia

Partners

CapaCare's **main financial partners** are the **United Nation People Fund (UNFPA)**, **Torun and Ole's Stiftelse, Norwegian Agency for Development Cooperation (NORAD)** and the **Lions Club**. Except Lions Club, all main sponsors will **continue to support CapaCare in 2017**. Norwegian University of Science and Technology (**NTNU**) and Trondheim University Hospital, **St. Olav** has contributed with funds for evaluation the initiative via **two PhD scholarships** and by allowing employees paid leave to take part in the training.

As an **Implementing Partner of UNFPA** CapaCare has been able to strengthen relations to the **Ministry of Health and Sanitation in 2016**. By developing CapaCare Sierra Leone as a legal entity, all major aspects of CapaCare's work has been strengthened and there is more local involvement also on the management side. Furthermore, annual and quarterly plans and budgets are submitted to the UNFPA, and all the **spending in Sierra Leone are revised** by an international accounting firm.

Masanga.dk, that runs Masanga Hospital continue to be the main partner in Sierra Leone together with the Sierra Leonean Ministry of Health and Sanitation (MOHS). The MOHS continues to **grant three-year paid study leave** for the Community Health Officers enrolled from the governmental sector. The Ministry also takes part in interviewing new candidates and as exam invigilators. Finally, it is the Ministry that oversees the internship - the last part of the training. To date, there has been **good cooperation** with the Ministry to ensure local ownership.

CapaCare has also received substantial support from **private donors**.



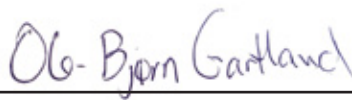
International coordinator Martelien Grootjans and graduate Seibatu Sia Kemoh, Masanga Hospital

CapaCare Board

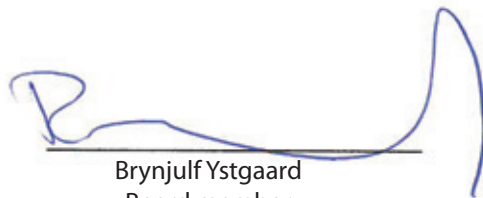
Trondheim, Norway
Masanga, Sierra Leone
April, 2017



Håkon Angell Bolkan
Chair



Ole-Bjørn Gartland
Treasurer



Brynjulf Ystgaard
Board member



Hermann Lonnee
Board member



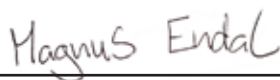
Peter Bo Jørgensen
Board member



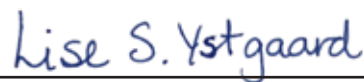
Alex Van Duinen
Board member



Kurt Østhus Krogh
Board member



Magnus Endal
Board member



Lise Ystgaard
Board member



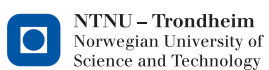
Solveig Svendgaard
Board member



Bart Waalewijn
Board Member

*Pictures are taken by Magnus Endal, CapaCare trainers and local team.
All patients have consented in the use of the photos.
Front picture: Graduate Alieu F. Mansary, Serabu Hospital.*

**We could not have done this without support from our collaborators,
thank you!**



And many individual private donors



www.capacare.org

Medical education and training to increase the number of skilled staff at district hospitals.

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