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Message from the President**Emergency Surgery and Trauma: back on stage.**

Finally, after 2 years of webinars, Zoom meetings, and teleconferences, the ESTES community had the possibility to get back together during the annual ECTES meeting, which was successfully organized by Prof. Christine Gaarder and her team in Oslo.

The forced virtual conferences due to the COVID-19 pandemic surprisingly led to an increase in the number of our members, proving the need of education and quality improvement for our critically ill patients; therefore, although a very challenging setting, the ESTES board, under the leadership of our 2021–2022 President Prof. Inger Schipper, strongly supported the idea of offering our members a live ECTES 2022 meeting, taking financial risks for the Society.

In some way, the 2022 Annual Congress, which had been organized for the very first time in a Scandinavian country, provided something special with an input of *fresh blood* through speakers and new projects, and I personally think our surgical community reached a new peak of enthusiasm and passion.

Looking at the numbers of the postcongress survey, I realized that about 37% of the delegates were female. I was not surprised. And, I simply realized that this was the perfect moment to start to speak up and support the Gender Equity Project that was successfully planned and well attended in Oslo.

Thanks to Tina and her team and the support of Oslo University Hospital Ullevål, many pre- and postcongress courses could be organized—covering all possible topics for our surgical community such as the Emergency Surgery Course, the Medical Response to Major Incidents, the Polytrauma Course, ATLS, Definitive Surgery Trauma Care, the Stop the Bleed Course, and finally, the Modular Ultrasound ESTES Course, which will celebrate its 10th anniversary in 2023.

The challenges for the European Society for Trauma and Emergency Surgery still continue because the era of the “omnipotent general surgeon” probably ended 30 years ago and nowadays we live in a new era distinguished by hyperspecialization that has led to “organ-specific surgery”—something that seems to be so charming for the new generation of surgeons, so... how shall we attract residents to be committed in order to strive for optimal care of the population of critically ill surgical patients?

Since the results of a survey by our first ESTES President Professor Selman Uranues were published in 2008, which concluded that there was no unified system of acute care surgery in Europe, little has changed in most European countries at the political and administrative levels, but many surgeons have been battling within their respective institutions to restructure their own surgical services in order to optimize medical care to the community (1).

Taking calls, in most hospitals, is still a contractual obligation, and the result is that there is no impetus to develop adequate standards of care for both emergency general surgery and skeletal trauma surgery.

As many of our members and delegates might remember, during a lecture on Acute Care Surgery in a previous ESTES Congress, Professor Andrew B. Peitzman from Pittsburgh stated that “a good acute care surgeon should be a busy general surgeon”. Here, for example, we are facing a challenge: how shall we provide a correct education on minimally invasive surgical skills in the acute abdominal setting? Nowadays it is not acceptable for a surgeon taking calls to not know how to deal with laparoscopy, but an adequate volume of elective procedures is needed in order to improve skills. Briefly, we need to find the ideal balance between scheduled and unscheduled surgery and, in the meanwhile, we should create pathways and bundle care either in emergency general surgery or in visceral and skeletal trauma care.

At the present time, in Europe, we are facing at least two main challenges:

One is represented by the poor outcome after an abdominal emergency. In 2017, Tan et al. showed that a crude 30-day mortality for patients was significantly higher in England when compared with New York State (13.6% vs. 6.9%, $p < 0.001$); the second is represented by the decrease of exposure to trauma, mainly due to the reduction of road traffic injuries (2).

Regarding the outcome of emergency general surgery, ESTES might play a pivotal role and also contribute to the incoming generation of surgeons (Y-ESTES: Young ESTES) who, hopefully, will be deeply involved by the Executive Board not only through a desirable efficient communication on social media, but also through the development of specific pathways and swift practical workshops designed to *grab and bite* different technical aspects regarding everyday topics in the trauma and nontrauma setting.

Coming to the trauma issue, we should be aware that ESTES is quite a unique society combining and representing two different areas: general/visceral surgery and skeletal/orthopedic surgery. Yes, our common denominator is trauma, but thanks to the reduction of traffic-related injuries and deaths, exposure to trauma is more and more limited, nevertheless... it will never be zero! Again, this is associated with a longstanding challenge for our Society since in many European countries injured patients are managed by emergency and general surgeons, while in other countries, they are managed by skeletal trauma surgeons, but... how fortunate is it to have a Society where its delegates might choose to discuss intra-abdominal sepsis, bowel obstruction, and open abdomen strategy and at the same time learn about pelvic trauma or spinal injuries!

During an informal chat with Tina Gaarder, with a coffee cup in our hands at ECTES 2022 (that's why Zoom meetings will never fully replace face-to-face meetings), I realized that probably, the present generation of surgeons is going to be the last one that might take the chance to build a mature, interconnected trauma system ranging from prehospital services, in-hospital surgeons, anesthesiologists, intensivists, nurses and rehabilitation services; again, it is time to take action and be more connected at a more global level with other national and international societies keeping the young generation in the loop.

So, be prepared to finalized your abstracts and come with your medical students and committed residents to the next European Congress for Trauma and Emergency Surgery in Ljubljana. Plenty of education will be served in beautiful Slovenia!

With a coffee cup, or even better, with a glass of beer in our hands we will have the chance to improve our skills, decision-making, and leadership.

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Report of ESTES Congress Grant Winner Lars Brouwers



The Exit Strategy

ECTES 2022

I am training to be a trauma surgeon. The aim of our supervisors is to train residents in the best possible way. It also means that a supervisor is preparing the next generation to eventually replace him or her. Healthcare is a continuous process where professionals step in and out and teach each other technical and soft skills. Therefore, “the exit strategy” is an important factor in healthcare worldwide. Not only on an individual level, but also on a national or political level.

I am specifically writing “worldwide” because surgical training and medical care in low and middle income countries (LMICs) is changing nowadays. In the past, surgeons and other specialists were supposed to go to LMICs to perform as many as surgical procedures in a short amount of time to “ensure” good surgical care for local people. However, after a few weeks, they flew back to their own countries, leaving their treated patients without follow-up of function, quality of life, and the possibility to address complications. This type of charity care is changing rapidly.

Don’t get me wrong. I do think highly educated European surgeons can contribute to surgical care in LMICs. However, the exit strategy in LMICs is important as well. How can we cooperate with local health workers, train local surgeons, and expand their knowledge? How can we ensure good surgical care without the involvement of western trained surgeons?

Fifty-four percent of the deaths that occur in LMICs each year are from conditions that could be addressed by organized prehospital and facility-based emergency care.¹ The World Health Organization (WHO) reports that more than 5 million people die each year as a result of injuries. This accounts for 9% of the world’s deaths, nearly 1.7 times the number of fatalities that result from HIV/AIDS, tuberculosis, and malaria combined.² To ensure proper surgical care the Lancet Commission on Global Surgery estimated a need of 20 surgeons, anesthesiologists, and obstetricians (SAO) per 100,000 population for LMICs.³ However, only 1–10:100,000 SAO are available. Therefore, it is more important than ever to train local healthcare workers and introduce universal elements in (trauma) surgical training and (trauma) team training.

Fortunately, the European Society of Trauma & Emergency Surgery gave global surgery a big stage at ECTES 2022 in Oslo, Norway. There were several sessions and top lectures, ranging from Elmin Steyn Executive Head Surgical Sciences Stellenbosch University and Chief Specialist, Department of Surgery, Tygerberg Hospital, Cape Town, South Africa to Håkon Bolkan, Abdominal Surgeon St. Olavs Hospital, Trondheim University, Norway and founding chairman of the CapaCare program in Sierra Leone.

One of the topics they brought up was the difference between bringing drugs to LMICs (e.g., for HIV and tuberculosis) and trauma-related healthcare: “Bringing drugs to LMICs is far more easy when compared with trauma-related care, in which you have to introduce a new system and then withdraw western educated specialists”. It is not only important to control trauma, but also to prevent trauma. Therefore, it is important to recognize trauma as a disease.⁴ In her presentation, Prof. Steyn showed the benefits of trauma team training and improvement in trauma resuscitation knowledge in Norwegian hospitals. It helped trauma teams maintain competence and demonstrated benefit to outcomes. However current studies on training in LMICs did not clearly demonstrated sustainability, cost-effectiveness, or improved outcome.⁵ A well-functioning team requires multidisciplinary simulation sessions and a training that is focused on developing nontechnical skills for resuscitation.⁶ A recommendation on standardized training in LMICs for improved trauma care was made.

The CapaCare program in Sierra Leone was explained by Dr. Bolkan, chairman of the surgical training program. In 2008, only 10 surgeons were working in public hospitals of Sierra Leone to serve a population of 5.7 million people. The WHO stated already in 2008 that specific healthcare tasks should be moved from highly qualified health workers to health workers with shorter training and fewer qualifications in order to make more efficient use of the available human resources for health. In cooperation with Ministry of Health and Sanitation in Sierra Leone, the NGO CapaCare is currently training medical doctors (MD) and associate clinicians to perform basic surgery such as laparotomies, caesarean sections, appendectomies, hernia surgery, and basic trauma care. This two-year postgraduate program contributes to the unmet need for accessible and affordable surgical care within a short timeframe. Students are being trained and supervised by Dutch tropical medicine doctors^{7,8} and local resident surgeons. Furthermore, series of training modules are instructed by visiting national and international trainers. Can this introduction of associate clinicians be seen as a pragmatic solution to the shortage of surgeons, or is it an ethical meltdown? Research shows us that a caesarean section performed by an associate clinician in Sierra Leone is as safe as a procedure performed by a medical doctor.⁹ The research group of Dr. Bolkan also performed a randomized controlled trial in which they investigated the outcomes after elective inguinal hernia repair performed by associate clinicians vs. medical doctors. They found noninferior recurrence rates at one year after anterior mesh repair for associate clinicians when compared with medical doctors.¹⁰ These are important examples which show the importance of the exit strategy and modern healthcare work in LMICs.

Ladies and gentlemen, the exit strategy is an important factor in surgical trauma training worldwide. Global surgery and the role of senior western educated surgeons is rapidly changing. Standardized (trauma) surgical training will improve outcomes in LMICs.

3D printing in LMICs

Not only surgical access is limited in LMICs. Prosthetic care is scarce as well. According to the WHO, only 5–15% of people in lower-income countries have access to prostheses. This is largely due to low availability of materials and high costs of prostheses. The rapid development of 3D-printing techniques means that 3D printing has become easily accessible. 3D printing can offer functional patient-specific prosthetic components at relatively low costs, reducing or bypassing the current manufacturing and postprocessing steps. This makes use of 3D printing for manufacturing prostheses attractive for implementation in LMICs. In 2018, we set up a medical 3D lab in Masanga Hospital, Sierra Leone. We design and perform follow-up of 3D-printed prostheses for people in need.¹¹⁻¹⁷ We have scientifically proven that 3D techniques make the production process of prostheses more consistent and faster. Our main goal is to have medical 3D labs run independently by local people. Already, local physiotherapists and healthcare workers are involved. They are including patients, performing 3D scans of the limbs, performing follow-up, and measuring function and quality of life of patients using our standardized questionnaires. The only process in which only Dutch students are involved is the digital designing process. This makes it necessary to further simplify this part of the workflow. Newly developed software using artificial intelligence is the next step to automate the prosthetic workflow. It is expected that the prosthetic fit will become less dependent on the prosthetist's skills. Furthermore, local people can be trained in a short period. We cooperate with the National Rehabilitation Programme/Centre, Ministry of Health and Sanitation, Freetown, Sierra Leone to make the workflow more sustainable. Recently, we organized a 2-week course for all physiotherapy students in Sierra Leone performed by Dutch physiotherapists and prosthetists to ensure standardized rehabilitation and follow-up of patients. The next steps are letting patients pay a small amount for their prosthesis and include a local software engineer. Since the start of this project, we have been working on an “exit strategy”. We will continue to include local coworkers and exclude Dutch coworkers step by step. We hope that we can give the full project to local healthcare professionals in the upcoming years and expand this workflow to other LMICs.

The 3D-printing project in Sierra Leone has been nominated by the WHO film festival for the Health Innovation Prize (<https://www.youtube.com/watch?v=IKdxwCE713c>).

About

Lars Brouwers (1988) is a senior surgical resident, with a specialisation in trauma surgery, and is teaching in the Elisabeth Tweesteden Hospital (ETZ) and the Radboud University Medical Centre (RUMC), the Netherlands. He received his PhD in 2021 for his research on Optimizing Patient Outcomes in Pelvic Fractures: Health-related Quality of Life & 3D Printing.¹⁸ The 3D printing-related research performed was honored with several grants and awards. Together with Mike Bemelman, trauma surgeon, and Jan Heyligers, vascular surgeon, the ETZ medical 3D lab was set up in 2016. This team supervises students from the Technical University of Twente and Technical University of Delft. In 2018, the ETZ 3D team was honored with the national ICT award for best ICT project in healthcare. Today, several employees and PhD students are working in the 3D lab to make 3D-printed anatomical models (trauma, vascular, perianal, maxillofacial subjects) for preoperative workup of surgeons, residents and patients. Molds and tools are designed for correction osteotomies or other complex surgical procedures, and the possibilities of using augmented reality, artificial intelligence and hologram-controlled surgery are being explored.¹⁹ He is a reviewer for European trauma journals, a member of the national research and innovation commission of the Dutch Society for Surgery (NVvH), and he assists other medical 3D labs. In 2018, he started a medical 3D lab at Masanga Hospital in Sierra Leone. He cooperates with the 3D lab of RUMC to develop patient-specific 3D printed prostheses. From 2020 onwards, he has been co-supervisor of the PhD project 3D-printed prostheses in Sierra Leone. (www.3Dsierraleone.com) and chairman of the foundation *3D printing in developing countries*.

PhD

The findings of the dissertation were that patients with pelvic fractures still experience a low health-related quality of life at the 2-year follow-up when compared with the Dutch population. Patients with simple pelvic fractures have generally good health-related quality of life outcomes 5–10 years after injury. Long-term follow-up of patients with complex fractures is needed because an increase in health-related quality of life is still seen in these patients. Prognostic factors for decreased health-related quality of life after pelvic trauma are the following: a low pre-injury health-related quality of life, high Injury Severity Score, and female gender.

The 3D-printed anatomical models are accurate when compared with human cadavers and are suitable for preoperative workup. The 3D-printed anatomical models can be used during preoperative workup for a better understanding of the pelvic anatomy. Furthermore, 3D virtual reality technology is still not practical for intraoperative use, and 3D virtual reality technology is inferior to 3D-printed models in classifying pelvic fractures.

For more information

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Announcements

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DSTC—Definitive Surgical Trauma Care

September 19–20, 2022

Graz, Austria

58. ÖGU & ÖGOuT Jahrestagung 2022

October 6–8, 2022

Salzburg, Austria

MUSEC Course

September 21, 2022

Graz, Austria

ECTES 2023

May 7–9, 2023

Ljubljana, Slovenia

DSTC—Definitive Surgical Trauma Care

September 22–23, 2022

Graz, Austria

11th Interdisciplinary Course Polytrauma Care

October 6–7, 2022

Zurich, Switzerland

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