Safe, Tubeless Jet Ventilation
In Surgery Or ICU

ENT +/- Laser (and OMF)
Thoracic Surgery (and Ablation, Lithotripsy)
Pulmonology (Therapeutic and Diagnostic)
ICU (ARDS and Trauma)

HF jets → Excellent Oxygenation
NF Jets → Essential CO2 removal

The result is Laser-Safe, Monitored Ventilation through an endoscope, et-tube, LMA, cannula, catheter or needle for patients from 1 – 200Kg without time-limit

Contact CLS Surgical on:
info@cls-surgical.com
+44 (0)151 733 1900

Manufactured by Carl Reiner & exclusively distributed in the U.K by CLS Surgical
Foreword
Prof. Nirmal Kumar 7
Profiles (ENT UK Global Health Committee) 9
Essential Guide Of Ent Products 14

Journal of Global Health
ENT care: a challenge in the war torn Eastern Democratic Republic of the Congo 17
Open Access Publishing for otolaryngologists in Africa and developing countries 23
Five years in, a charitable ENT unit in Cambodia measures its success and looks to the future 31
Creating an ear surgery simulator for training in low-resource settings 37
ENT department at Queen Elizabeth Central Hospital in Malawi getting support from Hungarian ENT surgeons 43

Conference Report 47
As incoming President I am delighted to write a foreword for the 2nd edition of the global health journal of ENT UK.

ENT UK as a charity exists for the improvement of the quality of service our members provide for our patients. The Global Health Committee of ENT UK in its manifesto commits to helping develop high-quality, sustainable healthcare in the specialty across the world, with the hope that equity in healthcare can be achieved for all. The founding principles of the NHS giving free healthcare to all irrespective of their ability to pay is something that many countries in the world and the citizens thereof can only dream of.

I applaud the efforts of the committee and all our members who work around the world and this journal showcases some of the sterling work done by our members world-wide.

Faced with the sacredness of life and of the human person, and before the marvels of the universe, wonder is the only appropriate attitude.

(Letter of St John Paul II to the artists 1999).

Professor B Nirmal Kumar,
President, ENT UK
ENT UK Global Health Committee

Vijay Pothula – Chairman
I was appointed as a consultant ENT and Head and Neck Surgeon in 2001 and work at WWL and Manchester Foundation Trust sites. I have a keen interest in humanitarian work and have conceived, designed and started the Shravana project in Hyderabad, India in 2006. I have assumed the chairmanship of ENTUK Global Health in 2018. It is our endeavour, in collaboration with British Society of Audiology, British Charities, Professionals and Industry, would like to help countries where people have no recourse to any help when affected with deafness or any ENT disorders. We intend to help create services and train their ENT, audiology professionals and make them self-sufficient.

Nicholas Eynon-Lewis – Vice Chairman
Nick is a Consultant ENT surgeon at Bart’s Healthcare NHS Trust. He has had a longstanding interest in overseas medicine. He spent a year in Cape Town on a TWJ fellowship and has been involved in various ENT projects in Africa. He is the lead for undergraduate education at Bart’s and organises and lectures on various postgraduate courses. He is the Vice Chair of the Global Health Committee
Robin Youngs MD FRCS
Robin is an ENT Consultant Surgeon in Gloucestershire who has an interest in the treatment of deafness. He has been involved with deafness in developing countries for 25 years and is a Director of The Britain Nepal Otology Service. In addition, he established the Mandalay School for the Deaf Charity, which supports deaf children in Myanmar. He has close connections with ENT surgeons in Myanmar and Nepal, having organized numerous educational activities. He was the first Lead for Global Health for ENTUK and is a Past President of the Otology Section of The Royal Society of Medicine. He is also Emeritus Editor of The Journal of Laryngology and Otology, an international publication. His MD degree from the University of London was awarded for research into chronic ear disease. He has a Postgraduate Certificate in Global Health Policy from the London School of Hygiene and Tropical Medicine.

Mr. Sanjiv Kumar MS, DM, FRCSI, FRCS(ORL-HNS)
I have been a consultant at University Hospital of North Midlands NHS trust since 2012, where I specialise in adult and paediatric otology and have been active role in education and training. I am interested in global health and equality of access to medical care and training across the world. I have been involved in humanitarian care doing ear camps in Uganda. I have been active in setting up and teaching primary care ENT to clinical officers in Uganda. As a member of the ENT UK’s Global committee, I am keen on co-ordinating and helping global charity work undertaken by UK surgeons abroad.

Andrew Robson
Andrew Robson is an ENT consultant in Cumberland, UK, specialising in head and neck surgery. He was chairman of the SAC in Otolaryngology from 2013 to 2016 and is currently Director of Education for ENT UK. He is a past examiner for the intercollegiate exam and is an examiner assessor.

Mr Mattew Clark Consultant Otologist, Gloucestershire Royal Hospital and Education & Training lead for ENT UKs Global Health Committee
Matthew was a trainee in Oxford before undertaking a fellowship in Otology & Neurotology in Vancouver, Canada. He was appointed as an Otologist in Gloucester in 2009 where he is a lead in training and education. This role now extends to ENT Uks Global Health Committee. He has worked in Nepal and Uganda on ear camps and courses, whilst also helping to establish and mentor a post-CCT fellowship programme in Cambodia. Research includes the development of an ear surgery simulator designed for low-resource settings and he is currently co-authoring a guide on delivering and developing Otology in remote or resource-poor countries.

Mr Sanjay Verma MB, BCh, MA, FRCS(ORL-HNS), PhD (Cantab)
Mr Sanjay Verma is an experienced Consultant ENT surgeon at the Leeds Teaching Hospitals NHS Trust and Nuffield Leeds Hospital, where he has a dedicated adult and children’s ENT practise. He specialises in ear, nose and sinus problems. Over the last decade he has been instrumental in developing laser ear surgery, endoscopic sinus surgery and coblation tonsillectomy techniques in the region.

Cheka Spencer
Cheka is currently a senior ENT trainee. His training has taken him from London to the West Midlands. His interest in teaching led to an award by the Higher Education Academy. He has garnered experience of andragogy in both undergraduate and postgraduate settings. He is committed to humanitarianism and has developed many links around the world. He has participated in ear camps in South Africa. He is keen to develop further activities around the world in particular Sierra Leone, his ancestral home.
Ms. Kate Stephenson FRCS ORL-HNS(Eng.), FC ORL (SA), MMed Consultant Paediatric Otorhinolaryngologist, Head and Neck Surgeon Birmingham Children’s Hospital
Kate is a Paediatric Otorhinolaryngologist at Birmingham Children’s Hospital. Her interests include paediatric head and neck, airway and voice. She trained in both the UK and South Africa and completed a fellowship at Great Ormond Street Hospital. Kate is the Networking Chairperson for the Young Otolaryngologists of IFOS and has reviewed for a number of ENT journals. She has also created Open Access educational materials in collaboration with the University of Cape Town. Kate is currently developing a global health section for the ENT UK e-lefENT website with Maha Khan.

Ms Maha Khan
Maha currently trains in Manchester. Her clinical interests are neurotology and skull base surgery, and translational and applied research. She has raised funds for and volunteered with ENT charities in both the UK and abroad, and has an interest in the diagnosis and management of paediatric hearing loss in a Global Health setting. Maha is a member of the ENT-INTEGRATE committee, and President of the North West Trainee Research Collaborative. She works to promote research and Global Health to students and Foundation doctors through her work with the ENT-UK’s Student & Foundation Doctors in Otolaryngology group. She lives in Cheshire with her husband and baby boy, and when not working, is happiest outdoors.

David Strachan FRCS (Eng) FRCS (ORL), Dip HSM
Mr Strachan is a Consultant Ear Nose & Throat Surgeon with a special interest in Otology and Rhinology. He was appointed as a Consultant ENT Surgeon at Bradford Royal Infirmary in February 2000 and prior to that had trained in the Yorkshire Regional Rotation with 2 specialist training fellowships in France (Bordeaux, Cannes & Nancy). Mr Strachan is one of the regional Cochlear Implant surgeons working in the Yorkshire Auditory Implant Centre. He has presented his experience at meetings all over the world and publishes regularly in peer reviewed journals. In the last 3 years he has helped develop otology services in Malawi (7th poorest country in the world) including, with charitable support, a cochlear implant programme. He also plays golf regularly and harmonica in a blues band!

Mahmood Bhutta DPhil FRCS (ORL-HNS)
Mr Mahmood Bhutta is academic lead in ENT Surgery at Brighton & Sussex University Hospitals (UK) and founder of the BMA Medical Fair and Ethical Trade Group. He is a consultant ENT surgeon with diverse interests, particularly relating to global inequity. He was formally Phizackerley Senior scholar at Balliol College Oxford where his DPhil was in genetic susceptibility to otitis media. He works with national and international partners on labour rights concerns in healthcare supply chains. He also works on global ear disease, and has delivered training to health workers in Cambodia, Nepal and Uganda, and is a consultant to the WHO program on prevention of deafness and hearing loss.

profiles

Dulani Mendis B.Sc., DHMSA, DO-HNS, MBBS, MBA, FRCS (ORL)
Miss Dulani Mendis is an West Midlands trained Otolaryngologist specialising in Laryngology, Rhinology and Facial Plastics appointed as a Consultant in Kettering General Hospital. She has completed a Royal College interface fellowship in Cosmetic and Reconstructive Surgery and a fellowship in Toronto, Canada in Benign Head and Neck and Laryngology.

She has an interest in Health Policy, Health Inequalities and Clinical Leadership, Safety and Governance and has completed a Health related MBA at Keele University with distinction as a trainee and is currently completing a distance learning Global Health Postgraduate certificate leading to M.Sc. at the London School of Hygiene and Tropical Medicine due to an interest in Global Health and a desire to tackle health inequality.

Dulani Mendis B.Sc., DHMSA, DO-HNS, MBBS, MBA, FRCS (ORL)
Miss Dulani Mendis is an West Midlands trained Otolaryngologist specialising in Laryngology, Rhinology and Facial Plastics appointed as a Consultant in Kettering General Hospital. She has completed a Royal College interface fellowship in Cosmetic and Reconstructive Surgery and a fellowship in Toronto, Canada in Benign Head and Neck and Laryngology.

She has an interest in Health Policy, Health Inequalities and Clinical Leadership, Safety and Governance and has completed a Health related MBA at Keele University with distinction as a trainee and is currently completing a distance learning Global Health Postgraduate certificate leading to M.Sc. at the London School of Hygiene and Tropical Medicine due to an interest in Global Health and a desire to tackle health inequality.

Mahmood Bhutta DPhil FRCS (ORL-HNS)
Mr Mahmood Bhutta is academic lead in ENT Surgery at Brighton & Sussex University Hospitals (UK) and founder of the BMA Medical Fair and Ethical Trade Group. He is a consultant ENT surgeon with diverse interests, particularly relating to global inequity. He was formally Phizackerley Senior scholar at Balliol College Oxford where his DPhil was in genetic susceptibility to otitis media. He works with national and international partners on labour rights concerns in healthcare supply chains. He also works on global ear disease, and has delivered training to health workers in Cambodia, Nepal and Uganda, and is a consultant to the WHO program on prevention of deafness and hearing loss.
Provox Vega is a voice prosthesis used by thousands of people who have undergone a laryngectomy. It is known for being a robust, durable and reliable device, which is easy to maintain.

Provox Vega Puncture Set
Confidence to speak more naturally

Provox Vega Puncture Set allows voice prosthesis insertion immediately after tracheoesophageal (TE) puncture.
- Sterile all-in-one surgical set
- Creates a round puncture, leaving the surrounding tissue intact
- Preloaded with Provox Vega voice prosthesis
- Rapid procedure with minimum preparation

Each Provox voice prosthesis undergoes a series of rigorous quality checks before it leaves our factory, to make sure they always meet our high quality standards.

To find out more about the Provox Vega Puncture Set please email info.uk@atosmedical.com or call 0115 7841 899

Introduction

The lack of both ear, nose and throat (ENT) knowledge and services combined with limited access to care leads to many complications of ENT disease in developing countries, such as those in sub-Saharan Africa. Developing countries constitute the 50% of world’s people and have a greater proportion of ENT disease. ENT conditions remain a public health problem affecting all age groups. There are limited or sometimes non-existent ENT departments in developing countries; a survey done in 2009 showed a severe shortage of qualified ENT surgeons and a scarcity of ENT training programs in 18 African countries.
The Democratic Republic of Congo (DRC) is such a developing country with a need for greater ENT specialist care and improved management of ENT conditions. The eastern DRC is full of ENT disease-related complications. This report aims to describe the current challenging state of ENT care in the eastern DRC and to highlight the urgent need for greater availability of improved services.

Overview of ENT conditions and their complications in the Eastern DRC

The low-profile status of ENT disorders is thought to be due to a large number of patients affected at a given time and the often-non-life-threatening nature of the disease. Little has been known about ENT conditions and their complications in the DRC. Recent published research suggests that ear infections were the presenting complaint in 25% of all ENT-related admissions with chronic ear disease in over 40%. This is an expression of the burden of ear infections in this part of the DRC.

The World Health Organization (WHO) has estimated that 72 million hearing aids are used worldwide and that 20% of hearing loss sufferers in developing countries would benefit from increased availability of hearing aids; unfortunately, less than 3% of those requiring hearing aids in developing countries have access to these devices.

ENT specialist services in the Eastern DRC

There are very few ENT specialists in the DRC as a whole (around 25 specialists for a population of around 80 million) and these clinicians are concentrated in the bigger cities, to the disadvantage of the rural population. Since 1997, the eastern part of the DRC has faced war, however people are trying their best to educate and build healthcare infrastructure. Medical officers generally provide the healthcare services in this region. There are a few specialists (around twenty) in limited fields such as internal medicine, paediatrics, gynaecology and general surgery for a population of around three million; ENT is a relatively forgotten field in this part of the DRC.

It is evident that people are suffering with ENT conditions and cannot be well-managed, leading to many complications. In a rural hospital, it was shown that complications of goitre surgery (46% recurrent nerve paresis, 23% hormonal deficiency (hypocalcaemia and/or hypothyroidism) and 4.6% mortality) occurred in 36% of a series of 300 thyroidectomies performed by a medical officer. Rural hospitals are also not equipped for ENT care, for example with otoscopes, headlights, laryngoscopes or bronchoscopes. This gives a snapshot of the efforts of medical officers in a war-torn part of a developing country and highlight the great need for improved training and facilities.

Role of governmental and non-governmental organisations

The major role of a responsible government is to maintain the peace and integrity of the country. Once this is stable, the education of the population and establishment of well-equipped accessible healthcare centers should follow. Improved public health care and health education will support better
ENT health. It is hoped that a proactive approach by the government of DRC could be taken to enlist the help of regional and international organisations with the purpose of both training DRC medical officers in ENT and to better equip ENT services.

**Conclusion**

There is a dire need for better ENT services in this part of the DRC. Complications of ENT conditions occur often and result in significant morbidity and mortality. Action by both the DRC’s government and by non-government organisations, including the World Health Organisation could and should have a long-lasting impact to improve the situation in this less fortunate part of the world.

**Acknowledgements**

Dr. Sikakulya would like to thank Mr. Vijay Pothula of the ENT UK Global Health committee and GVR Medical for the recent provision of otoscopes and headlights.

Ethics approval and consent to participate: Not applicable

Consent for publication: Not applicable

Consent: Written informed consent was obtained from the patients for publication of their images.

Competing interests: The authors declare no competing interests.

Funding: This work received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.
Access to educational and scientific material is key to improving both access to, and the quality of ENT care in developing countries. Yet current financial models used by publishers restrict access to academic information for many trainees, medical practitioners and researchers in developing countries who simply cannot afford textbooks and pay-to-view journals. In 2003, the World Health Organization (WHO) reported that of 75 countries with a GNP per capita per year of <US$1,000, 56% of medical institutions had no subscriptions to journals over the previous 5 years; 34% of countries with a GNP between US$1 and 3,000 had no subscriptions, and a 34% had an average of two subscriptions per year. Many ENT trainees in developing countries are not salaried, and specialists in some African countries earn as little as 400USD per month. Hence, they cannot afford major textbooks, the content of which is also often inappropriate for limited resource settings. Initiatives such as Hinari of the World Health Organisation do make journals available in low-income countries, but trainees and doctors in middle income countries in Africa (Algeria, Botswana, Egypt, Gabon, Libya, Mauritius, Morocco, Namibia, Nigeria, Tunisia) and elsewhere coming from disadvantaged backgrounds have restricted access. South Africa, even though ranked by the World Bank as
In this article I describe my experience with these open access resources to hopefully inspire and embolden both individuals and societies such as ENT-UK to adopt an open access approach to all educational resources.

The Open Access Atlas of Otolaryngology, Head and Neck Operative Surgery (OAA)

http://www.entdev.uct.ac.za/guides/open-access-atlas-of-otolaryngology-head-neck-operative-surgery

The OAA provides detailed, step-by-step, well-illustrated descriptions of a variety of surgical procedures, as well as relevant surgical anatomy. Authors are mostly international leaders in their fields and volunteered to write chapters. Because it is directed primarily at developing countries, it includes surgical procedures no longer performed in developed countries such as hammer and gouge mastoid surgery and laryngofissure, both which would not ordinarily be included in modern textbooks. Being in electronic as opposed to paper format, chapters are very detailed and include numerous photographs to illustrate the text, as well as videoclips. More chapters are still being written and added, and existing chapters are edited from time-to-time. This illustrates an important advantage of electronic vs. conventional paper-based textbooks, in that an electronic textbook does not have to be completed before being published, but a chapter can be released one-by-one over a period of time.

Table 1 illustrates how the popularity of the OAA has increased as additional chapters have been added, it has become better known, and the French and Spanish translations were added. Chapters have been downloaded more than 2m times. In 2017, the OAA received The Open Education Consortium (OEC) 2017 Award for Open Education Excellence from the Open Education Consortium (OEC) (http://www.oecconsortium.org/projects/open-education-awards-for-excellence/2017-oe-award-winners-oer-categories/), which is a tribute to all the authors and translators that have contributed to the textbook.

Audiology and Hearing Aid Fitting for Otolaryngologists

http://www.entdev.uct.ac.za/guides/open-access-guide-to-otolaryngology-head-neck-cancer-operative-surgery

Only four countries in Sub-Saharan Africa (South Africa, Ghana, Kenya, Malawi) train audiologists. Hence, there is a tremendous shortage of audiologists, and audiological evaluation and fitting of hearing aids is generally done by ENT surgeons. This online textbook was therefore conceived to improve the quality of audiological care by ENTs in Africa. My co-editors, Profs Claude Laurent (Umeå, Sweden) and De Wet Swanepoel (Pretoria, South Africa) recruited international experts to write chapters for this open access resource. Table 2 illustrates the growing popularity of this textbook.

Publishing process of open access textbooks

More than 140 authors from 23 countries have contributed for free, and chapters have been translated into Portuguese, as well as into Spanish and French by 108 volunteers of the Spanish and French ENT Societies. Authors submit chapters to me in MSWord format, I do the editing and formatting and upload a PDF version to the University of Cape Town.
Town VULA webserver. The textbook is registered with the Creative Commons, a USA non-profit corporation, which enables free distribution of copyrighted work by issuing public copyright licenses (https://creativecommons.org). In terms of the Creative Commons copyright licence selected, readers may use material as they wish provided it is referenced, though not for commercial purposes. Hyperlinks to the individual chapters are maintained on the IFOS Developing World ENT website (www.entdev.uct.ac.za.guides), which is also on the University of Cape Town webserver.

Popularity and accessibility of textbooks

Compared to conventional “Big ENT Textbooks” that only sell about 4000 copies, the two open access textbooks have proven to be a very popular educational resource. Chapters have been downloaded >2.3m times from almost every country in the world, currently at a rate of 2100 chapter downloads per day, i.e. a download every 41 seconds. Even though the textbooks were intended for doctors in developing countries, the biggest 10 users surprisingly include only two developing countries (Table 3).

Table 2: Increasing number of “Open Access Audiology” chapters downloaded per month

<table>
<thead>
<tr>
<th>Month</th>
<th>Downloads</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-01</td>
<td>100</td>
</tr>
<tr>
<td>2019-02</td>
<td>200</td>
</tr>
<tr>
<td>2019-03</td>
<td>300</td>
</tr>
<tr>
<td>2019-04</td>
<td>400</td>
</tr>
<tr>
<td>2019-05</td>
<td>500</td>
</tr>
<tr>
<td>2019-06</td>
<td>600</td>
</tr>
<tr>
<td>2019-07</td>
<td>700</td>
</tr>
<tr>
<td>2019-08</td>
<td>800</td>
</tr>
<tr>
<td>2019-09</td>
<td>900</td>
</tr>
<tr>
<td>2019-10</td>
<td>1000</td>
</tr>
<tr>
<td>2019-11</td>
<td>1100</td>
</tr>
<tr>
<td>2019-12</td>
<td>1200</td>
</tr>
</tbody>
</table>

Table 3: Only 2 developing countries (shaded) are among the top 10 users of the Open Access textbooks

<table>
<thead>
<tr>
<th>Position</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>USA</td>
</tr>
<tr>
<td>2</td>
<td>India</td>
</tr>
<tr>
<td>3</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>4</td>
<td>South Africa</td>
</tr>
<tr>
<td>5</td>
<td>Spain</td>
</tr>
<tr>
<td>6</td>
<td>France</td>
</tr>
<tr>
<td>7</td>
<td>Netherlands</td>
</tr>
<tr>
<td>8</td>
<td>Saudi Arabia</td>
</tr>
<tr>
<td>9</td>
<td>Italy</td>
</tr>
<tr>
<td>10</td>
<td>Sweden</td>
</tr>
</tbody>
</table>

Open Access textbooks as revenue generator

Even though tempting to monetise the open access textbooks to raise funds for worthy causes such as education and training of ENT surgeons in developing countries, or to raise money for cochlear implants, this has not been done as authors have contributed on the basis of it being a "clean" website.

African Head and Neck Society (AfHNS) Clinical Practice Guidelines for Head and Neck Cancer in Developing Countries and Limited Resource Settings

https://developingworldheadandneckcancerguidelines.com/

The AfHNS (www.afhns.org) launched this novel open access resource in February 2019. The guidelines are formulated by African head and neck surgeons and oncologists, in consultation with American and European colleagues to assist clinicians to provide resource-appropriate best care that will benefit patients with head and neck cancers living in developing countries. International guidelines for head and neck cancers have limited value in limited resource settings due to lack of access to reliable cytology, specialised imaging, (chemo)radiation therapy, complex surgery, and even the ability to monitor and treat thyroid and calcium deficiency after thyroidectomy. Some international bodies e.g. the National Comprehensive Cancer Network (NCCN) are promulgating regional adaptations of their guidelines for low- and middle-income countries (LMICs). However, it is important that countries in the ‘Global South’ take the lead to develop resource appropriate guidelines for LMICs, rather than to be guided by institutions in the ‘Global North’, as clinicians who reside and work in developing countries know best what the challenges, limitations, and possibilities are in delivery of cancer care to their own communities. The first management guidelines available on the website are for thyroid, parotid, submandibular gland and laryngeal cancers, and are precisely tailored to the availability of to the patient and to the institution of diagnostic investigations, therapeutic interventions, and posttreatment support e.g. thyroid replacement therapy.

Figure 1 (overleaf) is an example of the guideline for a parotid tumour managed in the absence of cytology and specialised imaging. Additional guidelines for other head and neck cancer sites will be released in coming months.

This ability to self-publish open access web-based guidelines permits Africa and other countries in the “Global South” to assume leadership and to take responsibility for their regions without having to work through established institutions or publishers. The power of open access web-based resources is illustrated by the fact that in the first 8 months, there had already been 2800 visitors and 14000 page-views of the new guidelines. Only 6 of the top 20 countries visiting the guidelines were from developed countries, indicating that the guidelines are reaching their intended readership.
Why adopt an open access policy for educational material?

Apart from the benefits outlined above, there are other reasons why societies such as ENT UK, as well as individual authors, should adopt an open access policy for educational material:

- Unlike conventional textbooks, our open access texts have not cost a cent to produce other than the time and expertise of the contributors.
- Authors do not cede copyright to publishers.
- A publication cannot be discontinued by publishers.
- As it is a “living” document, chapters can be edited/updated anytime, even on a mobile phone.
- Being internet-based, it reaches the most rural areas as well as conflict zones where textbooks would not normally be accessible.
- One can include less popular topics e.g. hammer and gouge mastoid surgery.
- It can be read on a mobile phone.
- Electronic texts will become accurately translatable into many languages.

References


Address for Correspondence:

Professor Johannes Fagan
Division of Otolaryngology
University of Cape Town
H53 OMB
Groote Schuur Hospital
Observatory, Cape Town, 7925
South Africa
johannes.fagan@uct.ac.za
Tel: +27828973473
Readers of this journal are well aware of the global burden of chronic suppurative otitis media (CSOM) and its elevated prevalence in low and middle income countries, as well as the conditions exacerbating this burden: inadequate knowledge of and access to ENT care and a dearth of trained providers with reliable access to proper diagnostic and surgical equipment to provide that care.

In Cambodia, a country of 16 million people, the state of ENT care has long been affected by such conditions. While short term surgical missions from high income countries have offered periodic respite since 1992 when the country began welcoming foreigners after decades of conflict, their impact is only so great and a more sustainable vision for ENT care was needed in Cambodia. Broadly, many challenges to accessing and providing ENT care persist but it is worth reflecting on the progress one ENT unit has made both in and beyond the country’s capital.

A novel long term training program was launched in 2014 at the charitable Children’s Surgical Centre (CSC) in Phnom Penh in an effort to increase the surgical and diagnostic skill of its local ENT doctors. The all female Cambodian ENT unit comprised two surgeons, Drs. Davy and Sothea, and two nurses. Davy and Sothea had been practicing ENT at CSC for one year when the program, lead by two UK trained ENT fellows, began. In late 2014 CSC...
welcomed Dr. Charlie Huins for a six month course in type I tympanoplasty followed by Dr. Mahmood Bhutta in early 2016 for a four month course on tympanomastoidectomy.

Although the early career surgeon Davy was already a recognized trainee of the Cambodian Society of Otorhinolaryngology by 2014, this title translated to just basic ENT surgical experience. Prior to Huins' arrival, neither Cambodian surgeon had exercised more than an assisting role in a tympanoplasty case.

“The year before Dr. Charlie came, all we could do was tonsillectomy, septoplasty, and polypectomy,” the department’s head ENT surgeon Davy explains.

Huins and Bhutta focused their respective courses on surgical anatomy, disease diagnosis and management, microsurgical technique, and intraoperative judgement and problem solving.

Since their departures, Davy and Sothea have independently completed over 300 tympanoplasties and over 100 mastoidectomies at or above globally acceptable success rates. This alone is a remarkable testament to the training program, but perhaps more impressive is Davy and Sothea’s ability to spread the knowledge to a third surgeon hired in 2016, Dr. Kim. Today, the three surgeons perform these previously unavailable procedures daily in their practice on patients who travel from all corners of Cambodia to receive free ENT treatment at CSC.

The skill and staff expansion since 2014 has allowed for an increase in the delivery of free consultations and surgeries. From 2014 to 2018 annual consultations and operations increased from 4,690 to 6,611, and 160 to 294 respectively.

In addition to an already existing ENT unit with eager to learn physicians, this program could not have succeeded without the generous time commitments of the foreign trainers and foundation grants which covered their airfare and modest lives in Phnom Penh. This Cambodian ENT clinic and its hundreds of patients continue to benefit from the training program’s success, and efforts to replicate this model in similar settings could meaningfully contribute to easing the global burden of ENT disease.

Another foreign educational support came later in 2016 when audiologists from the University of Melbourne came to CSC to train three nurses in pure tone audiometry (PTA) and tympanometry. Previously, CSC had been relying on an audiometry service across town, an inefficient extra trip for patients at a centre that charged them $5 US per audiogram. The following year the Melbourne team returned to teach CSC staff how to fit hearing aids, and have maintained a twice yearly mission schedule to continue developing the audiology department.

Of course some greater structural challenges do remain in Cambodia that can not be so neatly addressed by foreign collaborations.

Low education about ear disease enables a long term neglect of symptoms, which for CSC means a higher proportion of advanced stage disease in their presenting patient population. “Some patients don’t know what it is when they have ear discharge so they’ll just clean their ear and think its no problem,” Davy says of her patients who may ignore symptoms for many months before seeking care. “Sometimes when they experience hearing loss it doesn’t affect their work so they don’t think it’s important to get treatment. Whenever the disease has lasted a long time it causes more complications during treatment.”
In the context of Cambodia’s working poor, financial insecurity keeps many patients working as their disease worsens. Although consultation and treatment at CSC are free of charge, the financial burden of missing work and paying travel costs to the clinic are enough for some to continue working through non-physically debilitating symptoms like discharge, pain, and hearing loss.

Davy, who was granted a generous scholarship from the Global Health division of ENT-UK to attend the April conference in London was also able to witness firsthand salient contrasts between the UK and her own healthcare system when shadowing ENT departments in Brighton and Sussex. “When I was in the UK I saw many ENT patients who came from their GP,” Davy reports. “In Cambodia we have more GPs than any specialty all over the country, however they do not understand enough about ENT to screen or transfer the patients to us.”

Looking ahead, the primary challenge Davy is facing in improving ENT care across Cambodia is lack of collaboration between the ENT doctors spread across cities and hospitals with little incentive to work together.

As more incoming GPs in Cambodia begin their careers aware of ENT concerns, the problem of grave education gaps amongst patients and GPs will lessen.

She explains the culture is difficult to break as everyone prefers working alone over collaborating with other ENT surgeons, but her unique experiences abroad motivate her leadership. Davy, however cautious, feels this is her initiative to take. “Now I plan to go talk with paediatrics hospitals and share my own results with them and discuss what I do at my hospital. It’s very hard for me because right now I feel alone. I need something to push me, a needle to push me, but we all have to try to cooperate.”

For more information about Children’s Surgical Centre, please visit: csc.org

References


Introduction:

E

Introduction:

duction and training are at the heart of developing safe and effective surgical care, not least in the low-resource setting, where the primary goal should be the development of a self-sufficient and sustainable local service rather than one that relies upon help from abroad. The Lancet Commission on Global Surgery highlighted such issues and the need for non-governmental organisations to integrate training programmes into their work. It recognised that low-cost simulation was one way to develop and ensure competency that was not at the expense of patient care or scarce hospital resources.

The ear trainer was developed with this ethos in mind, designed to facilitate training for procedures performed down an ear canal. The simulator needed to be robust, low-cost and easily maintained to be fit for purpose. It also needed to recreate a series of otological tasks that would be suitable for various healthcare professionals and allow for skill development. Over the last 10 years, the ear trainer has been studied and validated to achieve these goals.

Methods:

The ear trainer was designed to be a fair representation of the ear canal, with dimensions akin to real anatomy. Different ear canal inserts allow for a variety of anatomical variations to be achieved – from straight and wide ear canals to more narrow and tortuous ones. The tympanic membrane was recreated with either the end of a latex glove or a cigarette paper, depending upon the task being performed – both readily

Mr Matthew P A Clark
ENT Consultant, Gloucestershire Royal Hospital
Education & Training lead, ENT UKs Global Health Committee

Creating an ear surgery simulator for training in low-resource settings
available at minimal cost. A middle ear chamber allowed for procedures to extend to this anatomical region. The simulator can be easily positioned on a table and the angle adjusted to represent the position of the ear canal when the patient is in the lying position with their head tilted away (fig. 1).

A series of tasks were devised:

- Removal of foreign bodies from the ear canal
- Ventilation tube insertion
- Myringoplasty techniques
- Skills involving manipulation within the middle ear

Initially the ear trainer was assessed for use with the operating microscope. Simple tasks were also assessed for use with a headlight only. At a later date, the same trainer was assessed for use with an endoscope (fig. 2).

A series of demonstration videos were developed to demonstrate ideal technique for those being trained. Both face and construct validation studies were conducted initially in a high-resource setting and then repeated in the low-resource setting with both ENT trainees/staff and other health care workers.

Subjects were video recorded whilst performing their tasks and later assessed by a blinded assessor using a validated global rating scale and task-specific check list. The check list included assessments to demonstrate efficiency of movement, performance of key steps (such as the correct siting of a myringotomy), an overall global rating of how the task was performed and how long it took. Such assessments were made before and after periods of practice in order to demonstrate any progression made.

Full details of the tasks with links to video demonstrations, and the assessment scales used, are available through the references below.

Results:

The ear trainer developed was produced at approximately £100 per unit, achieving its low-cost goal. It has proved robust over the years of assessment and all replaceable parts are readily available at minimal cost.

Face validity was demonstrated, with the ear trainer shown to be of realistic proportions and expected layout comparable to a real ear. It was considered helpful in developing skills and learnt skills were considered to translate to real surgery.

Initially construct validity was assessed in the high-resource setting. The results demonstrated that experts (Otology consultant grades) performed better than those with middling experience (Specialist Registrars) who in turn performed better than novices (junior doctors with no prior experience of operating in the ear). The time taken for each task proved to be the most useful differentiator between the groups where experts completed the tasks more quickly.

The ear trainer was then assessed on both primary ear and hearing technicians in Cambodia for headlight tasks (such healthcare professionals see and assess patients in the community) and ENT medical staff at Makerere University, Uganda. Again face and construct validity were demonstrated and microsurgical skills shown to improve with practice.
Finally the ear trainer was used to see if endoscopic ear surgery skills could also be developed and assessed (foreign body removal and ventilation tube insertion) on ENT trainees from Africa attending a temporal bone dissection course in Uganda. The results indicated a development of depth perception, efficiency of movements and improved steadiness of view and an overall improved global rating of the task with practice. 90% of participants got quicker at the tasks with practice6.

Discussion:

There are a large number of health-care professionals from high-resource centres around the World that provide help to centres in low-resource settings. Otology in particular is a sub-specialty that lends itself well to this and for which there is a great need. The World Health Organisation has identified that more than 466 million of the world's population have significant hearing loss5, that 80% of the burden of this disease lies in developing countries and that a large proportion of such cases are attributable to correctable causes such as wax occlusion, the presence of foreign bodies, tympanic membrane perforation and chronic otitis media. There is a clear need to develop surgical skills in such settings in order to help address the problem in a sustainable way.

Such care has often focussed on the provision of ear camps where suitable patients are identified and operated upon by visiting teams. These projects are commendable and there are many examples of how they have been successfully implemented. One such example is the British Nepal Otology Service (BRINOS), founded in 1988, that has sent teams to Nepal that have performed hundreds of ear operations each year and in 2016 established a purpose built Ear Care Centre. Each camp has involved the training of local surgeons (along with primary ear care, audiology and scrub nurse services) to help create ear care that is sustainable and long-lasting. However, visits by teams from high-resource settings, will always be for limited periods of time such that there is still a need to help provide training resources that can be effective throughout the year.

Surgical training has progressed from the traditional apprenticeship model to recognise the importance of simulation. Validated simulators can help trainees develop skills in a safe environment, where mistakes can be made without risking patient care or using often scarce hospital resources. The ear canal and middle ear are challenging confined anatomical regions, where hand movements are not performed under direct vision (hand-eye dissociation). This is an area where the safe acquisition of skills outside of the operating room will inevitably help trainees (and their patients). Whilst high-fidelity simulators are now available for such purposes, their cost is prohibitive for use in the low-resource setting.

In developing the ear trainer, it was recognised that various health-care professionals access the ear canal, such that it needed to be suitable for the training of all. In many low-resource countries primary ear care workers work in the community armed with a headlight or auroscope only. They do not have access to a microscope, yet need to be able to view and assess the ear in order to apply simple treatments or recognise those patients that require onward referral. Wax occlusion, dry-mopping of secretions and foreign body removal need to be learnt in order to achieve this goal and the ear trainer has been shown to be effective for such training. Centres that provide audiology services (hearing tests and hearing aid provision) have similar requirements. In hospital settings ENT trainee surgeons need to develop skills using an operating microscope. A range of skills are required for which the tasks developed for our ear trainer are appropriate (but by far from exhaustive). There is a need for a range of tasks that increase in complexity and also a need for a range of difficulty provided by the anatomy. The ear trainer had tasks ranging from simple foreign body removal through to a challenging task of threading a needle in the middle ear insert, to recreate the sort of dextrous skills that might be used in an ossiculoplasty procedure, for example. Different ear canal inserts allow for different anatomical variations that might be encountered.

In recent years endoscopic ear surgery has grown in popularity. The appropriateness of this technique in the low-resource setting has been considered. It may, in fact, offer some advantages over traditional microscopic techniques as the equipment required is easier to transport, the images displayed are helpful for patient and staff education alike, and it can prove easier to perform day case procedures by this method. The ear trainer was assessed in Uganda and successfully applied to this surgical technique (without modification of the simulator). Of note, the local staff were clearly very keen to be taught what they considered an up-coming technique.

To date the ear trainer has proved itself a useful companion to training in Otology. It would appear to have achieved its primary goals of providing a low-cost, robust, simulation of the external and middle ear and has been demonstrated to show face and construct validity. Whilst here in the UK we are considered a high-resource setting, most involved in education and training recognise the limited budgets available for such purposes. The ear trainer has become a regular feature on the ENT ‘boot camp’ for new Specialist Registrars where it is employed in an simulated environment of a theatre to not only assess a surgical skill, but also to see how a trainee can react to disturbances during the procedure (e.g. a call from the emergency department and an anaesthetist who keeps knocking the operating table!). It has been used at the last two British Academic Conference in Otolaryngology (BACO) meetings in the clinical skills sessions for students and trainees and at the Student and Foundation Doctors in Otolaryngology (SFO) meetings. The remaining task is to now make it available to all through formal manufacture – a work in progress.

References:

4. Clark M, Nakk D, Westerberg B. An endoscopic ear trainer for the low-resource setting. Accepted for publication, J Laryngol Otol 2019.
The Queen’s Elizabeth Central Hospital is a 1000 beds tertiary hospital serving for the Southern Region of Malawi. Also, it is a teaching Hospital for the Malawi College of Medicine. The ENT/HN department is one of the youngest surgical subspecialties in the institution. Currently the local team is composed of one ENT Surgeon (Doctor Wakisa Mulwafu, head of department) and one Head and Neck Surgeon, two ENT Residents and three ENT Clinical officers. The department has an audiology service as well and is the only one organizing major ENT procedures in the country as there is another ENT department opened last year in Lilongwe at Kamuzu Central Hospital, but this one is still in early stage of development.

With the high demand of patients from the whole country who need attention the department is usually overwhelmed.

Since 2016 the African Hungarian Union, which is a non-governmental, non-profit organization that deals with international development, aiding the management of relationships between Africa and Hungary started to organize ENT missions every year. The African Hungarian Union identify ENT surgeons and anesthesiologists in Hungary and send them to Malawi where they spend about 2 weeks with the local ENT team. The local team prepares patients before the visitors arrive and when they are in together, reassessment and management plan are done.

African Hungarian Union a non-governmental organization based in Hungary and coordinating different health missions in Africa has organized so far four ENT missions in Malawi since 2016.
2016 and 2 Subsequent Missions

During the first mission in 2016, the African Hungarian Union sent a group of four surgeons and one anesthesiologist for a period of 2 weeks. This team was composed of two ENT professors, Professor Gerlinger, Otologist and Head of department of the University ENT Clinics of Pécs and Professor Katona, Pediatric ENT, Head of department of the Heim Pál Hospital from Budapest, two residents and one anesthesiologist and a total of 43 surgeries were performed. In 2017 and 2018 other missions of the same structure but new members took place and more than 70 surgeries were performed.

2019 Mission

The last ENT mission took place during the spring fall in 2019. Unlike the previous missions this time 2 ENT surgeons plus the coordinator came to support the department. This difference was due to the philosophy of total knowledge transfer including the local residents in all surgeries. During the mission over 40 adult and pediatric patients were seen and assisted medically and surgically. 26 surgeries were done, 6 under local anesthesia and 20 under general anesthesia, including many aspects of the head and neck surgery. Besides of the thyroid surgeries, salivary glands, nasal pathologies and ear surgeries were in the focus, representing congenital malformations, infections, foreign bodies and a variety of benign and malign tumors, including HIV positive
patients. None of the unforeseen arrivals with life-threatening conditions were refused. These cases of skull-base injury, ear infection with multiple complications and other infectious cases were added to the planning and successfully operated.

During their stay, Dr Késmárszky, who also has a degree in Tropical medicine and Dr. Bartku managed to find the opportunity to consult other specialties in the Hospital in order to maximize the management of patients. This included neurosurgical and dentoalveolar aspects, complicated pediatric cases and infectological problems. These problems were either successfully resolved or programmed to be operated with an interdisciplinary team later. Both parts of the team learned a lot from each other during this fruitful common work. Patient follow-up is assured now by the local team and regular online staffs.

This was the second ENT UK Global Health meeting jointly run with the BSA which was held at the Wesley Hotel in Euston on Friday April 5th. The challenges of addressing health inequalities in ENT and Audiology worldwide are daunting, for example, 450 million people are thought to have disabling hearing loss globally and there is a huge unmet need for the treatment of many conditions such as head & neck cancer in low and middle income countries. This meeting was aimed at anyone with an interest in global health. We wanted to provide a forum for discussing the huge challenges that are being faced in health inequality and highlight some of the existing global health activities, partnerships...
and initiatives that are currently taking place. We particularly wanted to encourage and enable involvement in global health by trainees and students.

The day proved to be a great success with a variety of speakers from several countries. Presentations were given by experienced clinicians, trainees, students and non-clinical staff working in global health. The day was divided into four sessions starting with an introductory session looking at the scale of the overall challenge that exists in low and middle income countries followed by sessions on sustainable service development, education and training and the potential benefits of advances in technology.

Some of the highlights of the day included an excellent talk by Johann Fagan from Cape Town who discussed some of the difficulties of providing healthcare in Africa and ways of improving the provision of care including the of training surgeons in Cape Town from other parts of Africa who later return to their own countries to develop services and establish links between countries. He also stressed the vital role that the internet has in disseminating information to trainees worldwide and talked about the origins and success of the Open Access Atlas of Otolaryngology, Head & Neck Operative surgery which has now been downloaded in most countries in the world.
Sok Davy Touch, a young surgeon from Cambodia discussed ways of developing otological services in Cambodia and demonstrated how excellent surgical results can be achieved with collaboration, support and training from experienced surgeons. She gave a joint presentation with Mahmood Bhutta. Robin Youngs gave an inspiring talk about the global challenge in deafness and there were excellent talks by other ENT surgeons including Vijay Pothula, Rishi Mandavia, Owain Rhys-Hughes and Misha Verkerk. Kate Stephenson discussed the e-lefENT Global Health Module.

We were also delighted that three speakers from the Department for International Development were able to attend and discuss the new Global Partnership for Assistive Technology. There were also inspiring talks from Tamsin Brown, a Paediatrician from Cambridge with one of her students Surina Fordington and Tim Pring who worked in the SALT Department at City University for many years and has been involved in service delivery and training in Cambodia. There were several excellent talks given by our Audiology colleagues and the collaboration between ENT UK and the BSA proved once again to be successful.

The atmosphere of the meeting was informal and it was an excellent chance to network and discuss ideas and experiences of working in and promoting global health. The panel discussions generated some interesting and stimulating debate on a variety of topics and controversies. We would like to thank the staff of the ENT UK office and Nirmal Kumar for their support for this event.

We hope to continue to expand and develop the conference with the backing of ENT UK and the BSA.
EXPANDING WHAT'S POSSIBLE

StealthStation™ ENT
Navigation System

The StealthStation™ ENT is a navigation system for your most basic to your most complex cases. It is built on decades of scientific, clinical and engineering research. StealthStation™ ENT offers electromagnetic technology that expands what was previously possible with image-guided surgery so you can see more, do more.

- Flat under-the-head emitter
- Optional side-mount emitter
- Additional EM coils create large EM field
- Patient registration provides numerical and visual accuracy feedback
- Virtual endoscopy provides a simulated 3D endoscopic view of the sinuses
- 3D modeling provides enriched visualization

Medtronic

For further information, please contact: rs.entrmtkg@medtronic.com