CREATING SOLUTIONS IN A CHANGING WORLD

GASOC INTERNATIONAL CONFERENCE 2024

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SCIENTIFIC PROGRAMME

Manchester 2024

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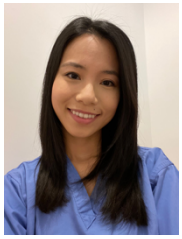
Introduction

The GASOC International Conference 2024 theme of "Creating Solutions in a Changing World" encapsulates the need to recognise the various challenges posed by ongoing humanitarian crises, political conflict and environmental changes to Global Surgery. In the spirit of 'creating solutions' to these challenges, we hope to highlight themes of hope, collaboration and innovation through the conference.

Our abstract authors have indeed risen to this challenge, with abstracts submitted from over 12 countries. These abstracts cover interesting themes of perioperative care of the global surgical patient and outcome measures, education and capacity building initiatives, and fascinating case reports on rare conditions and their management within resource-constrained settings.

We have also included our prize winners for the GASOC abstracts and posters prizes and the winner for the essay competition (sponsored by the Association of Anaesthetists).

Thank you again to all our delegates who have contributed to this conference, and I hope this booklet provides a source of inspiration for your next project in Global Surgery.



Dr. Pei Jean Ong
GASOC Vice-President 2024 and Abstracts Lead

Many thanks also go to the following, who were involved in abstract selection: (*Left to Right*)

[Claire Perrott (*Conference Organiser*), Joe Watson (*Conference Organiser*), Ryan Ellis, Marta Seid, Meghna Ray, Savannah Gysling, Henry De Berker, Johnny Odu, Martilord Ifeanyichi, Fiona Linton, Kerri Cooper, Vijna Boodhoo, Caren Chu, Hannatu Favour Kachiro, Juliet Cheung, Jan Man Wong, Maria Kansenga, Alison Rajan, Oladayo Oduola, Julia Harrington]

Oral Presentations – Winner 1

Innovative blood product delivery systems to acute and emergency settings in rural and urban areas – bridging a globally increasing disparity in demand-supply: a systematic review. Dr Murat Bektasoglu

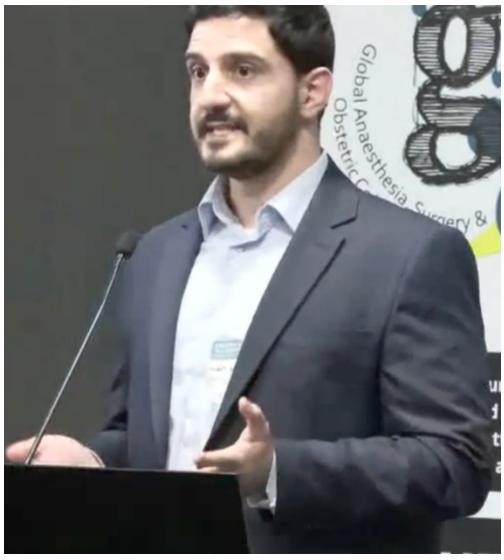
Introduction

Aim: There is an increasing deficit in demand-supply of blood products, particularly in low- and middle-income countries where voluntary donations are considerably less. This presents a significant challenge in the event of an acute, surgical or obstetrical emergency, in both rural and urban areas. This systematic review aims to explore the impact of the Electronic Remote Blood Issue (ERBI), Pneumatic Tube System (PTS), and Unmanned-Aerial Vehicle (UAV) in the delivery of blood products, and the current challenges associated with implementation.

Methods: A comprehensive search of the PubMed and Google Scholar databases was conducted. Studies assessing the three systems for delivery time, quality, and waste footprint was selected. The impact of mechanical forces was also explored.

Results: Twenty studies assessing overall delivery (ERBI, n=7; PTS, n=7; UAV, n=6), and seven studies assessing impact of mechanical forces to blood samples, met the inclusion criteria. The studies revealed a significant reduction to delivery time when compared with traditional services. ERBI and UAV preserved temperature and overall quality of blood products. ERBI demonstrated significant reduction to issue rate, return rate, and waste footprint by up to 88%, 72% and 30% respectively. Similarly, UAV reduced waste footprint by 67%. Acceleration-deceleration forces via PTS was associated with elevated levels of LDH.

Conclusion: ERBI, PTS and UAV systems provide an effective, alternative solution for the rapid provision of blood products, with potential for influencing blood usage habits. The impact of cost, mechanical forces, modification of existing systems, and stringent aviation regulations are some current barriers to implementation.



Dr Murat Bektasoglu

Oral Presentation – Winner 2

Quality of Life and Postoperative Recovery in Cardiac Surgeries in Developing Countries: A Systematic Review and Meta-Analysis. Dr Matheus Pereira

Aim: This study aims to evaluate the quality of life and postoperative recovery of patients undergoing cardiac surgeries in developing countries. The research explores factors influencing recovery, highlighting regional and socioeconomic disparities that affect long-term health outcomes.

Methods: A systematic review of the literature was conducted using databases such as Scopus and Cochrane Library. Studies published between 2000 and 2023 that analyzed quality of life and postoperative recovery in developing countries were included. The meta-analysis was conducted using RevMan 5.4 software, applying random-effects models to integrate data and identify global trends.

Results: Twenty-five studies, covering a total of 12,000 patients, were included. The analysis showed that although cardiac surgeries significantly improve quality of life, postoperative recovery is often prolonged and marked by complications due to barriers in accessing quality healthcare and the lack of adequate rehabilitation resources. Patients in low-income countries experienced a 30% longer recovery time, higher rates of infections and reoperations, and lower adherence to cardiac rehabilitation programs compared to those in upper-middle-income countries.

Conclusion: Despite the significant improvements in quality of life afforded by cardiac surgeries in developing countries, postoperative recovery faces considerable challenges, exacerbated by socioeconomic inequalities and limitations in healthcare systems. The high incidence of complications and prolonged recovery highlight the urgent need for investments in healthcare infrastructure, professional training, and expanded access to rehabilitation programs. Addressing these issues through an integrated approach is crucial to improving postoperative outcomes and reducing regional disparities in recovery and quality of life for patients.

Dr Matheus Pereira

Poster Presentations – Winner 1

Challenging the Status Quo: Insights from Managing Diabetic Foot Gangrene in Resource-Limited Settings in Benin City, Nigeria. Dr Believe Nomayo, Dr Oduware Osagioduwa

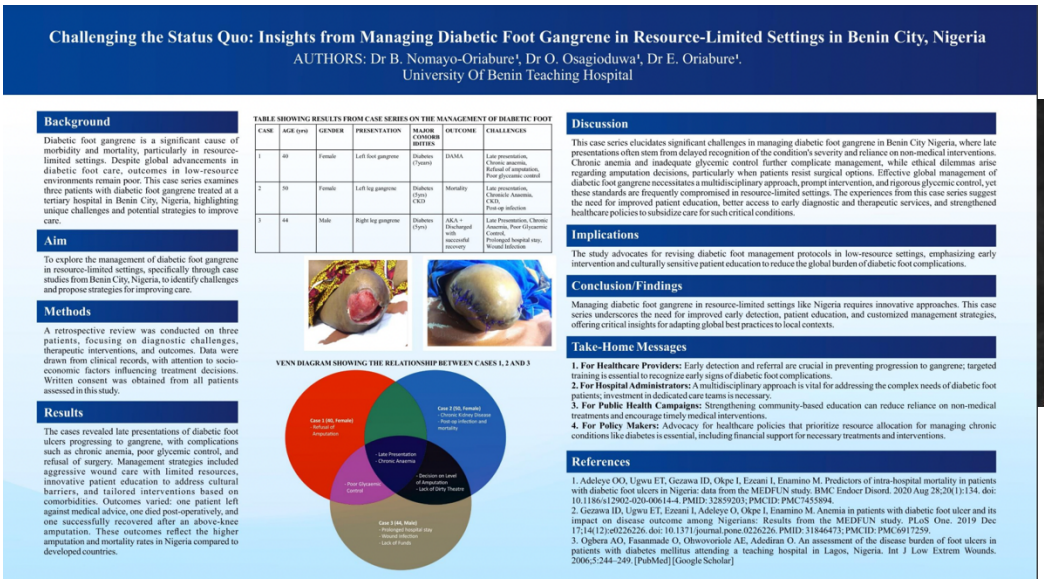
Aim: Diabetic foot gangrene is a significant cause of morbidity and mortality, particularly in resource-limited settings. Despite global advancements in diabetic foot care, outcomes in low-resource environments remain poor. This case series examines three patients with diabetic foot gangrene treated at a tertiary hospital in Benin City, Nigeria, highlighting unique challenges and potential strategies to improve care.

Methods: A retrospective review was conducted on three patients, focusing on diagnostic challenges, therapeutic interventions, and outcomes. Data were drawn from clinical records, with attention to socio-economic factors influencing treatment decisions. Written consent was obtained from all patients assessed in this study.

Results: The cases revealed late presentations of diabetic foot ulcers progressing to gangrene, with complications such as chronic anemia, poor glycemic control, and refusal of surgery. Management strategies included aggressive wound care with limited resources, innovative patient education to address cultural barriers, and tailored interventions based on comorbidities. Outcomes varied: one patient left against medical advice, one died post-operatively, and one successfully recovered after an above-knee-amputation. These outcomes reflect the higher amputation and mortality rates in Nigeria compared to developed countries.

Conclusion: Managing diabetic foot gangrene in resource-limited settings like Nigeria requires innovative approaches. This case series underscores the need for improved early detection, patient education, and customized management strategies, offering critical insights for adapting global best practices to local contexts.

Implications: The study advocates for revising diabetic foot management protocols in low-resource settings, emphasizing early intervention and culturally sensitive patient education to reduce the global burden of diabetic foot complications.



Dr Believe Nomayo

Poster Presentations – Winner 2

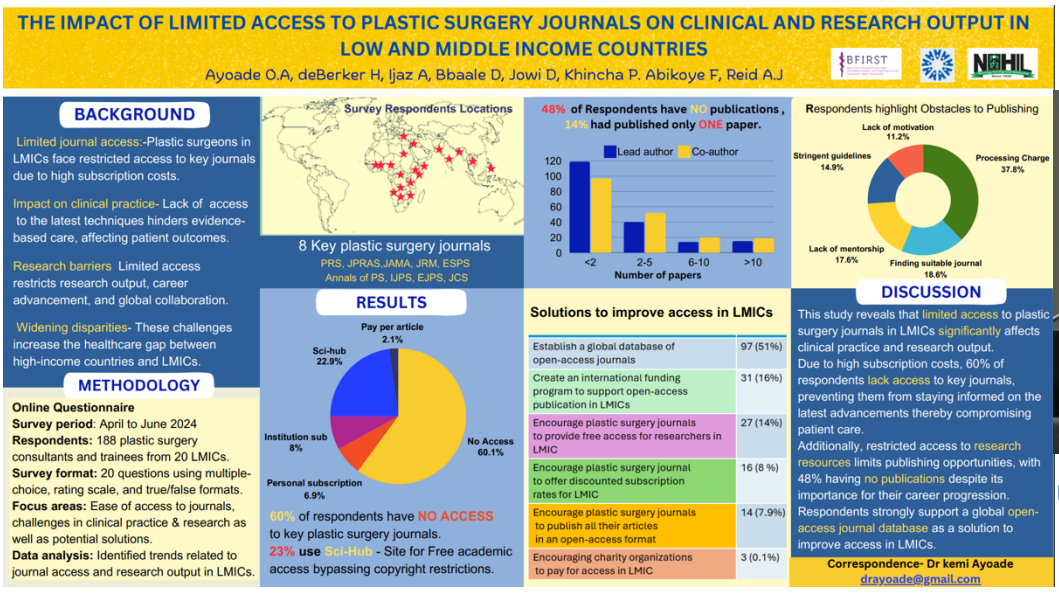
The impact of limited access to plastic surgery journals on research output and clinical practice in Low-and Middle-Income Countries (LMICs). Dr Oluwakemi Ayoade, Dr Henry deBerker, Dr Attiya Ijaz, Dr Dorothy Bbaale, Dr Dorsi Jowi , Dr Folake Abikoye, Dr Priyatma Khincha, Mr Adam Reid

Aim: Study aimed to evaluate challenges encountered by plastic surgeons from limited access to key plastic surgery journals. It investigates how restricted access to these journals influences research output, clinical practice and professional development in Low- and Middle Income Countries (LMICs).

Methods: An online survey comprising 20 questions was conducted from April to June 2024, respondents include 188 plastic surgeons and trainees across 20 LMICs. The survey featured multiple-choice, rating scale, and true/false questions.

Results: 113(60%) respondents had no access to eight prominent plastic surgery journals, with 95(51%) citing expensive paywalls and subscription fees as the primary barriers. 99(53%) respondents identified difficulty staying updated with the latest techniques and innovations in their field as the most pressing challenge arising from limited journal access. Furthermore, while 137(73%) participants emphasized the importance of publishing research work for career advancement, 91(48%) had not published any papers, citing heavy patient workloads and restricted access to research resources and references as major obstacles. 147(78%) respondents strongly agreed that improved access to journals would significantly enhance research productivity, while establishing a global database of open-access journals was identified as key potential solution to improve access and foster better research outcomes in LMICs.

Conclusion: The findings underscore the substantial challenges faced by plastic surgeons in LMICs due to restricted access to essential literature. These challenges impede the ability of surgeons to stay current with latest advancements and hinder research productivity, emphasising the need for global initiatives to improve journal access and support research development in these regions.



Dr Oluwakemi Ayoade

Poster Presentations

Epidemiology, Management modalities, and Immediate outcomes of Traumatic Spinal Cord Injuries at the Bamenda Regional Hospital. Mr. NJOYA NGOUCHEME MUHAMMED, Dr. Esene Ignatius, Dr. Dissak-Delon Fanny Nadi, Prof. Fokam Pius

Aim: This study aimed to describe the epidemiological feature, management modalities, and immediate outcomes of patients with TSCI at the Bamenda Regional Hospital.

Methods: This was a cross-sectional study at the Bamenda Regional Hospital with retrospective data collection from files of individuals with TSCI, within the period January 2019 to December 2023 and a duration of 4-months, specifically from February to May 2024. Data was collected using a pre-designed data collection sheet from patients' medical records at the emergency, surgical, intensive care unit (ICU), and theatre. The collected data was analysed using statistical software R.

Results: A total of 225 patients out of 2175 trauma cases had TSCI, with a prevalence of 10.3%, mean age 38.5 ± 15.3 years, male to female ratio 2.3:1. Falls constituted the leading cause (42.2%) followed by RTAs (35.6%). A spine CT-scan was the neuroimaging modality of choice (59.1%), MRI was rarely used to diagnose TSCI. Most of patients benefited from conservative treatment (51.1%) and of the 37.8% who had surgery, 56.5% developed post-operation complications with bedsores being the majority (30.6%). The mortality rate was 12.4%.

Conclusion: The study found that the prevalence of TSCI at the Bamenda Regional Hospital was high. The leading cause of traumatic spinal cord injury were falls. A spine CT-scan was the neuroimaging modality of choice. Majority of patients with TSCI were managed conservatively and surgical interventions for selected cases. There was a high post-operative complication rate, with pressure ulcers affecting most. There was a low mortality rate.

Novel Approach to Addressing Surgical Resource Scarcity in Low-Income Settings: A Case Study from Rural Sudan. Mr ElMuhtadi B.Y. Gasoma.

Aim: Resource scarcity is a persistent challenge in low-income countries, significantly impacting surgical outcomes. Traditional solutions often fail to address the root causes, leading to poor patient outcomes. This study presents a novel, context-driven approach to optimize the use of limited surgical resources in rural Sudan.

Methods: A multidisciplinary team conducted a comprehensive needs assessment at a rural hospital in Sudan, identifying critical gaps in surgical capacity. Based on these findings, we implemented a multi-faceted intervention that included the local production of surgical supplies, the introduction of mobile surgical teams, and the utilization of telemedicine for remote consultations. Data were collected over 12 months to evaluate the impact on surgical outcomes, resource utilization, and patient satisfaction.

Results: The intervention led to a 35% increase in the number of surgeries performed, with a significant reduction in operative delays. The local production of surgical supplies reduced dependency on external

suppliers, lowering costs by 25%. The introduction of mobile surgical teams decreased patient referral rates to distant hospitals by 40%. Telemedicine consultations provided crucial specialist input in 80% of complex cases, resulting in improved decision-making and patient care.

Conclusion: This study demonstrates that a locally tailored, resource-sensitive approach can significantly enhance surgical capacity and outcomes in low-income settings. The success of this intervention suggests its potential scalability to other resource-limited regions, offering a sustainable solution to the challenges of surgical care in a changing world.

Myocardial revascularization surgery in Brazil from 2020 to 2023: An analysis of regional access from a global surgery perspective. Thallya Arianne dos Santos**,** Bianca Pimenta de Matos**,** Gabrielli Callegari Galli**,** Yasmin da Silva Moura**,** Carolina Furtado de Oliveira.

Aim: This study aims to assess regional disparities in myocardial revascularization surgery (MRS) access and outcomes in Brazil, examining the correlation between the distribution of cardiovascular surgeons and regional variations in MRS performance.

Method: Retrospective cross-sectional study on MRS and regional access in Brazil. The data was obtained from the Hospital Information System of the Unified Health System (SIH/SUS), from January 2020 to December 2023. Data regarding the distribution of cardiovascular surgeons was acquired from the 2020 and 2023 Medical Demography surveys by the Brazilian Medical Association.

Results: During the period analyzed, 72,648 MRS were performed. The region with the most procedures was the Southeast, with 31,581 (43.5%), whereas the North and Midwest had the lowest, with 3,312 (4.5%) and 4,300 (5.9%), respectively. The national mortality rate was 5.86, and the regions with the highest rates were the Midwest with 9.93 and North with 8.42. As for cardiovascular surgeons, there were 2,423 in 2020 and 2,247 in 2023 nationally. Regions with the lowest percentage of specialists were the North and Midwest, with 2.6% and 2.7% in 2020 and 8.7% and 9.0% in 2023, respectively.

Conclusion: The mortality rate in the Midwest and North was 69.4% and 43.6% higher than the national average, respectively, despite reporting the least amount of procedures. This data correlates with the fact that those regions have the lowest number of specialists. In conclusion, this analysis shows that disparity in surgical access is prevalent in Brazil and mostly affects regions with lower socioeconomic indicators.

Anaesthesia Challenges in High-Altitude Surgery: A Case Report from the Andes. Jasmin Blake

Aim: High-altitude surgery presents unique challenges due to reduced oxygen levels, atmospheric pressure variations, and extreme weather conditions. These factors complicate anaesthetic management, particularly in resource-limited settings. This case report highlights the successful peri-operative management of a patient undergoing emergency appendectomy in the Andes, emphasising innovative strategies and critical evaluation.

Case Description/Clinical History: A 35-year-old male presented to a remote Andean clinic with severe abdominal pain, nausea, and vomiting. Clinical examination and ultrasonography confirmed acute appendicitis requiring urgent surgical intervention. The clinic, situated at an altitude of 4,500 meters, had limited medical resources, including a basic operating room and restricted anaesthetic options. The patient's medical history was unremarkable, with no known co-morbidities.

Discussion: Given the high-altitude environment, the anaesthetic plan prioritised minimising hypoxia and managing atmospheric pressure changes. The team employed a combination of regional anaesthesia and low-dose intravenous sedation to reduce the risk of hypoxaemia. Continuous oxygen supplementation was provided, and meticulous monitoring of oxygen saturation, end-tidal CO2, and blood pressure was maintained. The surgical team utilised a minimally invasive laparoscopic approach to reduce postoperative pain and facilitate quicker recovery.

Postoperatively, the patient received supplemental oxygen and was monitored for altitude sickness symptoms. Pain management included non-opioid analgesics to avoid respiratory depression. The patient recovered without complications and was discharged on postoperative day three.

Main learning points: Combine regional anaesthesia with minimal sedation for high-altitude surgeries. Use minimally invasive techniques and non-opioid analgesics. Ensure continuous peri-operative monitoring. Adapt surgical techniques for diverse environments.

Enhancing Diversity in Surgery: Addressing Global Challenges in Medical Education and Patient Care. Miss Naireen Baber Asim

Aim: Diversity in surgery is essential for addressing healthcare disparities and improving patient outcomes by integrating varied perspectives, cultural competencies, and innovative approaches (1). Globally, clinicians face significant challenges in delivering effective medical care, particularly in resource-limited settings. This study seeks to identify barriers encountered by widening participation (WP) students in accessing medical education and evaluate the impact of introductory teaching sessions on their understanding of the medical school experience

Methods: Semi-structured interviews were conducted with WP students identified through the Education Funding Council for England criteria (2). Ethical approval was obtained from the HYMS Research Ethics Committee, and informed consent was secured via signed participant information sheets. Online webinars covered topics such as a day in the life of a medical student. Near-peer teaching by medical students from similar backgrounds ensured relatability. Pre- and post-webinar questionnaires measured changes in understanding and confidence.

Results: N=15 Interviews highlighted common barriers, including a lack of mentorship and financial support. In response, webinars engaged 90 students, focusing on networking with near-peer mentors and signposting to financial support resources. Post-webinar evaluations showed a 50% increase in understanding of medical school dynamics, with 48% advocating for broader WP initiatives. Additionally, 78% reported increased confidence in their medical school applications.

Conclusion: Addressing the challenges faced by WP students is essential in building a diverse surgical workforce capable of delivering effective medical care in difficult situations. Expanding these initiatives will help create a surgical profession that reflects the global population it serves, ultimately improving patient outcomes worldwide.

A Closed-Loop Audit on Communication Practice between Orthopaedic Trauma Patients and their Surgeons: Are we complying with the BOAST Guidelines? Dr. Miriam Eroh, Dr. Udemeobong Obong**,** Dr. Gbadega Adefemisoye**,** Dr. Oluwaseun Oyewumi**,** Dr. Goodfortune Madukoma

Aim: This audit aimed to assess communication practices in post-orthopaedic trauma care against the BOAST guidelines on Rehabilitation and Communication, identifying areas for improvement and potential interventions.

Method: Conducted at Babcock University Teaching Hospital, this closed-loop audit involved a retrospective and prospective analysis of 30 patients from the initial audit and 30 patients from the re-audit, focusing on upper and lower limb fractures. The study spanned one year, with six months before and six months after implementing interventions. Informed consent was obtained with ethical approval from the BUTH Ethical Committee. Data were collected using a structured questionnaire, manually recorded, and analyzed using IBM SPSS.

Results: Initially, 68% to 70% of patients were informed about their management plan, treatment duration, and any changes prior to implementation. Following interventions, which included the introduction of pamphlets, a closed-user group (CUG), and extended time for patient discussions, re-audit results showed a significant improvement, with 96% to 100% of patients being fully informed about their management plan, treatment duration, expected recovery time, and changes.

Conclusion: The audit identified a communication gap in the orthopaedics department. Subsequent interventions markedly improved communication practices, demonstrating the effectiveness of structured improvements in enhancing patient information and engagement. These findings highlight the importance of systematic communication strategies in trauma care, with potential benefits for similar settings globally.

A Community Based Study on Prevalence of Cognitive Dysfunction and Associated Behavioral Changes, Lactational Failure, and Their Determinants Among Postpartum Women in South India. Dr Sakshi Kumari

Aim: Estimate cognitive dysfunction and associated behavioral changes among postpartum women. Estimate the prevalence of lactational failure and its determinants among postpartum women.

Methods: Study Design: Cross-sectional study**.** Study Period: November 2023 - January 2024. Subjects: Postpartum women 1-6 months after delivery. Exclusion: previously diagnosed cognitive dysfunction not related to postpartum period, and non-consenting women. Sample size:151, calculated using p = 26%, d = 6%, and accounting for 10% non-responders. Sampling: 65% rural and 35% urban areas. Analysis: Conducted using

JAMOVI or Epi-Info software, with Chi square, Student T-test, ANOVA tests, and regression analysis to find associations.

Results: Stress, anxiety, and depression were prevalent in 80.5%, 27%, and 30% of cases, respectively, with lactational failure in 21%. These conditions correlated strongly with lactational failure. Cognitive dysfunction was linked to factors like the male gender of the child, lack of social support, and insufficient milk production. Other significant factors included maternal relationships, education, delivery mode, birth weight, social support, breastfeeding initiation, childcare stress, comorbidities, and parity ($p < 0.001$ for all variables). Chi-square tests indicated significant associations between lack of social support and cognitive dysfunction ($\chi^2 = 16.2$, $p < 0.001$), and between insufficient milk and cognitive dysfunction ($\chi^2 = 9.31$, $p = 0.010$).

Conclusion: This study found high prevalence rates of stress, anxiety, and depression among postpartum women, strongly linked to lactational failure. Cognitive dysfunction was associated with factors such as the child's gender, lack of social support, and insufficient milk production. Further research is needed to explore the long-term impacts, intervention efficacy, and broader socio-cultural influences on these conditions.

Minimally Invasive Hepatopancreatobiliary Surgery Implementation in Low-Middle Income Settings. Mr. Adebayo Falola**,** Ms Chioma Ezebialu**,** Ms Sophia Okeke**,** Ms Rhoda Fadairo**,** Dr Oluwasina Dada**,** Dr. Ademola Adeyeye

Aim: Hepatopancreatobiliary minimally invasive surgery (HPB MIS) offers numerous advantages over traditional open approaches, yet its adoption in resource-constrained environments has been relatively slow due to several factors. The need to review the implementation of HPB MIS in resource-constrained environments and analyze outcomes necessitated this study

Method: PubMed, WoS, CENTRAL, EMBASE, and Google Scholar were searched, identifying 3,202 publications, 19 of which met the inclusion criteria. A Meta-analysis of outcomes with the 95% confidence interval was carried out using R statistical software. The methodological quality of the studies was assessed using the Cochrane ROBINS-I tool.

Results: This study reviews 3,075 HPB MIS procedures performed in India, Colombia, Sri Lanka, Nigeria, and Indonesia. Studies report the implementation of laparoscopic (57.89%), robotic (31.57%), endoscopic (10.53%) approaches. Robotics has been applied in HPB surgery only in India. Basic HPB procedures were the majority (60%) performed. While complex procedures accounted for 40%. The major indication for the procedures was malignant hepatic pathology (49.3%). The overall conversion rate and prevalence of morbidity were 8% [95% CI: 3;12], and 15% [95% CI: 7;24] respectively. Robotic HPB was associated with higher conversion (14% vs 3%) but lower morbidity (10% vs 21%). There were 5 cases of mortality from endoscopic retrograde cholangiopancreatography procedures.

Conclusion: HPB MIS is yet to be implemented in the majority of low resource settings. Based on our findings, we urge efforts from health ministries and surgical societies to strengthen training and acquisition of infrastructure for HPB MIS to advance global surgery in resource-constrained settings.

Predictors of Intraoperative blood transfusion in elective surgeries at different Hospitals of Addis Ababa, Ethiopia. Assistant Professor Yidersal Denberu, Dr. Rahel Tilahun Melaku

Aim: To assess the predictors of intraoperative blood transfusion in elective surgeries in Addis Ababa from November 1, 2023, to April 30, 2024.

Methods: A six-month multi-center cross-sectional analytical study was conducted from November 1, 2023, to April 30, 2024, at Tikur Anbessa Specialized Hospital (TASH), Menelik II Hospital (MH), Gandhi Memorial Hospital (GMH), and Lancet General Hospital (LGH). Hospitals were chosen through simple random sampling, and data were collected from all elective surgical patients using sequential sampling and a structured checklist. Intraoperative blood transfusion was assessed, and predictors were identified using bivariate logistic regression analysis.

Results: During the six-month study, 574 elective surgeries were conducted, with blood requisitions made for 469 cases (81.7%). Of the 824 units of blood prepared, 182 units were transfused intraoperatively for 126 patients. Multivariate logistic regression analysis identified significant predictors of intraoperative blood transfusion: intraoperative blood loss >15% (p=0.000, AOR=20.499), ASA class III and above (p=0.000, AOR=3.926), ASA class II (p=0.018, AOR=2.303), preoperative transfusion (p=0.000), surgery duration >3 hours (p=0.017, AOR=2.041), and general anesthesia (p=0.000, AOR=0.312). Age, platelet count, and type of surgery were not statistically significant predictors.

Conclusion: Significant predictors of intraoperative blood transfusion include substantial blood loss, higher ASA classification, preoperative transfusions, longer surgeries, and general anesthesia. These findings highlight the need for improved blood ordering protocols based on these factors to enhance efficiency and reduce wastage. Regular review and adjustment of guidelines are recommended for better resource management.

Systematic Review and Meta-Analysis: Efficacy of Video-Assisted Thoracoscopic Surgery versus Conventional Surgery in Traumatic Rib Fractures. Dr. Nidhruv Ravikumar**,** Dr. Husnaa Khan**,** Dr. Ashwitha Karnati**,** Dr. Preethi Jacob

Aim: This review aims to analyze the efficacy and safety of video-assisted thoracoscopic surgery (VATS) in managing traumatic rib fractures.

Methods: A systematic review was conducted following PRISMA guidelines to identify literature on the use of VATS for rib fractures. The primary efficacy outcome was the change in pain score. Safety outcomes included mortality, infection, and readmission rates. Meta-analysis was performed using RevMan and R software to assess pooled data.

Results: A total of 11 studies were included, comprising 866,044 patients, with 1,510 undergoing VATS and 12,555 undergoing conventional surgery. The majority of participants were male (77.46%), with a mean age of 53.22 ± 10.61 years. In the VATS group, a significant decrease in pain score of 2.60 points (95% CI [1.38–3.83]) was observed, which was higher compared to conventional surgery (SMD = -1.62, 95% CI [-2.25, -0.99], p <

0.01). The VATS group also showed lower rates of surgical site infections (OR = 0.21, 95% CI [0.06–0.68], p < 0.01) and pneumonia (OR = 0.15, 95% CI [0.03–0.84], p = 0.03). Mortality within 30 days was 2.09% (95% CI [1.43%–3.04%]), and readmission rates were 3.48% (95% CI [0.65%–16.59%]) for the VATS group.

Conclusion: The findings suggest that VATS significantly improves quality of life by reducing pain scores and infection rates, making it a viable alternative to conventional surgery for managing traumatic rib fractures. VATS demonstrates promising outcomes in terms of efficacy and safety, supporting its use in clinical practice.

How does institutional access to key journals vary for medical students across the globe? Ms Georgia Doohan-Smith

Aim: Without equitable medical education, including access to journals, health equity cannot be achieved globally. Despite an increase in open access resources, there is still disparity in journal access between medical schools. The aim of this study was to highlight and for the first time quantify the extent of this issue.

Method: To achieve this, institutional access for 1972 medical schools across 76 countries with varying economic status was analysed for Nature, The Lancet and The New England Journal of Medicine. Operational medical schools were identified using the world directory of medical schools website. The World Bank was used to identify the economic status of countries. Institutional access was assessed by typing the name of the medical school and affiliated university (in English and the native language where applicable) into the institutional login page for the journals; if the name appeared in the drop-down list of institutions access was assumed.

Results: Medical schools in LIC had the lowest access for Nature and the NEJM at 0% and 0.93% respectively compared to 43.28% and 24.37% of medical schools in HIC. Medical schools from LMIC had the least access to the Lancet at 23.78% of schools in comparison to 78.15% of medicals schools in HIC. These differences are statistically significant.

Conclusion: This study highlights stark disparities in access to key information for medical students based solely on where they attend medical school. This study therefore stresses a need for greater steps to be taken to make journal access open and equal.

Implementation of "WHO standardized emergency unit form: Trauma" in the surgical trauma department – Bashair Teaching Hospital, 2022. Dr. Khalid Salih**,** Dr. Ahmed Abdelrahman**,** Dr. Ali Mohamed

Aim: To audit the documentation process for trauma patients presenting to the surgical trauma department and implementation of the "WHO standardized emergency unit form: Trauma" in Bashair Teaching Hospital 2022.

Methodology: The audit was commenced by reviewing the documentation method for trauma patients. There was no standardized form in use. Current practice feedback was collected; then, the "WHO standardized emergency unit form: Trauma" was trialed. The form was then implemented in one unit, where sessions for

training on the proper use have been conducted. Sequentially, generalization in all surgical units was achieved. From the hospital's records, comparisons were made between complications, mortality rates, duration of hospital stay, and mean time to initial assessment prior to and after execution.

Results: Case coverage was the primary indicator, describing the percentage of cases documented using the form per week. In the first cycle, the first week scored 31%, improving to 67% following that. The second cycle had 84-91% coverage throughout. The last cycle faced doctor strikes in the first week and the start of a new shift of foundation year trainees, achieving 53%, which was restored to 78% in the succeeding week. Furthermore, the mean time to initial assessment was significantly reduced by 31%, decreasing from 39 minutes ± 7.2 to 27 minutes ± 5.8 (p = 0.023).

Conclusion: Medical documentation is crucial for patient care, ensuring continuity and addressing medico-legal issues. Implementation of the form improves communication between healthcare providers and ensures a systematic method to approach trauma patients, thereby warranting high-quality care.

The scourge of typhoid in Sub-Saharan Africa: A rare case of symmetrical lower limb gangrene with colonic perforation. Vitus Nduka, Daniyan Mohammad, LMD Yusufu, Yau Danladi, Saudat Bangaje, Amina Gana, Abdulkadir Abdulrauf, Fatima Ibrahim, Adamu Ndagi, LMD Yusufu

Introduction: Typhoid sepsis is associated with myriads of complications leading to increased morbidity and mortality. Intestinal perforation is a common complication with life-threatening consequences. Lower limb gangrene from typhoid sepsis is a rare complication and the consequences of which may cause significant reduction in quality of life.

Case Description/Clinical History: A 25-year-old undergraduate male presented with a fever and headache of 2/52 with generalized abdominal pain necessitating surgery in a peripheral center. He was subsequently referred to our facility with faecal leakage from the wound, peritonitis and bilateral lower limb gangrene. He had exploratory laparotomy with intraoperative findings of caecal and ascending colon perforations. He had limited right hemicolectomy with exteriorization of the transverse colon and ileum. He later had a bilateral below knee amputation.

Discussion: Lower limb gangrene complicating typhoid sepsis has been reported in the literature. It's mechanism of action is poorly understood but some studies identified endarteritis obliterans from immunologic reactions as a prominent cause and it is usually symmetrical and angiography is normal in most cases. A similar case has been reported following Klebsiella pneumonia in which the anti phospholipid membrane was implicated. Early commencement of antioxidants like vitamin C has been found to be effective.

Conclusion: Typhoid sepsis is a common systemic disease with several notable complications. Most of these complications are life-threatening. The need for public health intervention and improve sanitation cannot be overemphasized.

Virtual reality in non-physician surgical training: a novel way to train clinical officers in Malawi. Miss Vijna Boodhoo, Miss Johnny Odu, Miss Nadhirah Kahar, Professor Jagtar Dhanda

Aim: Virtual reality (VR) is increasingly being used in training doctors; however, its application in the training of non-physician groups remains limited. Malawi, with 0.49 doctors/ 10,000 people, has adopted task-shifting by training clinical officers (COs) to contribute to the surgical workforce, thereby addressing unmet surgical need. We report a novel use of virtual reality in the training of COs in Malawi.

Method: A teaching session on key procedures (fasciotomy, debridement, management of humeral fractures) was delivered to 5 trainee and 4 qualified orthopaedic COs in Blantyre, Malawi. The session incorporated VR in that each attendee had a head-mounted device, with access to 360 degrees pre-recorded videos of cadaveric dissections and demonstrations of these surgical procedures. Qualitative feedback about current training and experience using VR was gathered via a questionnaire post-session.

Results: All participants had acquired or were enrolled in a Diploma of Clinical Orthopaedics and Trauma. They reported usually learning procedures “in theatre, hands-on”. The barriers identified in their current training were lack of theatre space and equipment, limited resources for practice, lack of training materials. None had previous experience with VR. 5/9 reported finding use of VR equipment “very easy” (3 “somewhat easy”/ 1 “neutral”). 9/9 (100%) reported that VR could be useful if incorporated to their training. They reported ease of use, easy access to procedures and an improved learning experience as reasons for this.

Conclusion: Virtual reality surgical training sessions may be helpful in training non-physician groups to improve capacity building in LMICs.

Experience with surgically managed pseudo-pancreatic giant cyst following battery-Assault in adolescent and Road-traffic accident in Adults-Case series. Dr George Duke Mukoro**,** DR Muhammad Daniyan Muhammad**,** Professor Lazarus M.D Yusufu**,** Professor Yahaya A. Ukwenya**,** Dr Iji Lambert**,** Dr James Philip

Introduction: Pseudo-pancreatic cysts, though rare, are known to arise from acute or chronic pancreatitis1 and rarely from deep blunt abdominal injuries 1,2. Three adult cases were surgically managed in the past 6 years. Laparoscopy may be challenging for these types of cases due to intra-abdominal pressure and size, therefore, open surgeries suffice and vary depending on intra-operative findings.

Method: Our report is a retrospective review of 3 cases of giant pancreatic pseudocyst developed after conservative management of blunt abdominal injury.

Case report: A female adolescent with a history of multiple abdominal assaults of 3 years duration presented with recurrent abdominal pain and asymmetric abdominal distension. CT scan revealed a pseudo-pancreatic cyst with sonographic size of 27x35x19cm (9.3L). The second and third cases were adult men, involved in RTA. Imaging reports at 5th and 8 weeks after the incident showed a 15x12 cm and a 24.4x23.4x16cm pseudocyst, respectively. The 1st and 2nd giant pseudocysts were adherent to the posterior stomach wall, necessitating a cyst-gastrostomy while their 3rd was adherent to the anterior peritoneum, compressing and displacing the

surrounding visceral. Roux-en-Y cysto-jejunostomy with 4 units of blood transfused was done. Histopathology confirmed a benign cyst. All fully recovered and discharged.

Discussion: The size, location, visceral relation, surgeon experience, and available facilities determine the drainage option in these conditions.

Conclusion: Repeated deep blunt abdominal assaults or road traffic accidents, can result in the formation of giant pseudo-pancreatic cysts 2, necessitating clinical suspicions, regular monitoring via clinic visits, and timely intervention through open surgery.

Optimizing Surgical Outcomes in Resource-Limited Settings: A Novel Approach to Sustainable Perioperative Care. Mr ElMuhtadi B.Y. Gasoma

Background: In resource-limited settings, surgical care faces unique challenges, including inadequate infrastructure, limited supplies, and a shortage of trained personnel. To address these issues and improve surgical outcomes, we developed and implemented a sustainable perioperative care model that integrates local resources with innovative solutions.

Objective: This study aims to evaluate the effectiveness of a multidisciplinary perioperative care model tailored for resource-constrained environments, focusing on improving patient outcomes, reducing complications, and enhancing the utilization of available resources.

Methods: A retrospective analysis was conducted on 250 surgical cases managed using the new perioperative model across three rural hospitals in Sub-Saharan Africa from January 2022 to June 2023. The model included preoperative risk stratification, task-shifting among healthcare workers, and the use of locally sourced or low-cost surgical supplies. Outcomes measured included surgical site infection (SSI) rates, length of hospital stay, and mortality.

Results: Implementation of the model resulted in a significant reduction in SSI rates from 18% to 8% ($p < 0.01$) and a decrease in average hospital stay from 8.5 to 5.2 days ($p < 0.05$). Mortality rates also declined from 5% to 2% ($p < 0.01$). The model's adaptability to local constraints was crucial to its success.

Conclusion: This perioperative care model demonstrates that a tailored, resource-conscious approach can significantly improve surgical outcomes in low-resource settings. Scaling up this model could play a vital role in creating sustainable surgical solutions in a rapidly changing world.

Unveiling the Unexpected: A Rare Case of Massive GIST in a Middle-Aged Man. Dr Ajithkumar Navaneethan**,** Dr Akshaya Nandhagopal

Introduction: Gastrointestinal stromal tumors (GISTs) are rare sarcomas and the most common mesenchymal tumors of the GI tract, primarily affecting the stomach (60%) or small intestine (20-30%), and constituting 0.1-3% of GI malignancies. About 30% of GISTs are malignant, typically affecting those in their 60s.

Case Report: A 45-year-old Nigerian male presented with sudden left pleuritic chest pain and a seven-year history of left upper quadrant discomfort, bloating, and easy satiety. Examination revealed a taut abdomen with left upper quadrant fullness and raised D-dimer levels. A chest X-ray showed a prominent gastric bubble under the left raised hemidiaphragm, and a CT TAP revealed a large 22×10×25 cm left-sided abdominal mass likely arising from the anterior gastric wall, suggesting a probable GIST or primary mesenteric tumor. OGDscopy showed mild erosive duodenitis with no malignancy signs. EUS-guided FNA confirmed the mass as a GIST with positive DOG1 and CD117 immunohistochemistry. The tumor progressed to 35 cm, causing GOO and UGI bleeding, managed conservatively.The patient was referred for further management to the sarcoma service.

Due to the tumor's size and inoperable status, immunotherapy with imatinib was initiated, starting at 100 mg and increasing to 400 mg due to a good initial response. After 20 weeks, the patient showed notable clinical improvement and tumor size reduction.

Conclusion: This case highlights an uncommon, large gastric wall GIST. Despite surgical resection being typical, the initial inoperability required an alternative approach, showcasing the efficacy of immunotherapy. This case report aims to assist in diagnosing and managing similar conditions.

Building Essential Skills for Global Surgery: The Impact of the 'More than a Medic' Program on Future Surgeons. Miss Naireen Baber Asim

Aim: The *"More than a Medic"* program addresses the critical need for surgeons to develop skills beyond clinical expertise, including research literacy and leadership. Traditional medical education often lacks focus on these areas, prioritising clinical skills and disease pathology.

"More than a Medic" aims to equip future surgeons with the necessary skills to meet the challenges of global surgery at a grassroots level within medical school and deliver high-quality care in resource-limited settings.

Method: The program featured four virtual sessions: abstract writing, poster presentation, CV building, and elective planning. These sessions were designed using educational approaches e.g. Kolb's Experiential Learning Theory to ensure a comprehensive and practical learning experience (1). Near-peer teaching was employed via Microsoft Teams to foster engagement and relatability. The program's impact was evaluated through pre- and post-session questionnaires, which assessed changes in participants' knowledge, skills, and confidence.

Results: A total of 168 participants from various stages of medical education engaged in the program. Pre-assessments revealed significant gaps in critical skills, with over 50% rating their understanding of research

and CV building as poor. Despite these gaps, 37.5% and 60% of participants exhibited high motivation to improve these areas. Post-session evaluations showed notable improvements: a 20% increase in confidence in abstract writing and a 40% increase in confidence in poster presentation and elective planning.

Conclusion: By enhancing adaptability and providing practical skills, the program supports the development of well-rounded healthcare professionals capable of addressing the complexities of delivering effective care in challenging environments.

Hidden for years: Torsion and infarction in the wandering spleen of a 45-year-old woman. Dr Alsadig Suliman, Hiba Suliman

Introduction: Wandering spleen (WS), characterized by abnormal mobility due to laxity of its ligaments, is a rare condition often presenting diagnostic challenges. Its complications, such as torsion and infarction, necessitate prompt recognition and management to prevent life-threatening outcomes.

Case presentation: We report a case of a 45-year-old female presenting with acute abdominal pain, constipation, and a palpable mass in the right iliac fossa. Imaging revealed a torsion of a wandering spleen, a rare occurrence exacerbated by delayed diagnosis despite a decade of symptoms. Informed writing consent for presentation, including the use of images, was obtained from the patient.

Discussion: Diagnostic imaging, including abdominal ultrasound and CT scan, played a crucial role in confirming the ectopic spleen and guiding surgical intervention. Immediate laparotomy revealed a twisted spleen necessitating splenectomy due to non-viability post-detorsion attempt.

Conclusion: This case underscores the importance of considering wandering spleen in the differential diagnosis of acute abdominal pain, especially in patients with chronic intermittent symptoms. Surgical intervention remains the definitive treatment, emphasizing the risks associated with conservative management in preventing complications.

Penoscrotal extension and fistulation from urothelial carcinoma of the Bladder. Dr Anna Akpala, Miss Suzanne Dunk, Mr Debashis Sarkar

Introduction: Bladder cancer is the most common malignancy of the urinary tract and the tenth most diagnosed cancer worldwide.

Case Report: Case of a gentleman with muscle invasive bladder cancer who underwent radical radiotherapy. He presented 9 days into the course of his radiotherapy with new symptoms of pain, swelling and discharge particularly at the penoscrotal junction.

Ultrasound scans of the testes were normal, and he was treated as a scrotal skin abscess with antibiotics. His symptoms persisted and worsened over time despite treatment and multiple hospital attendances. He developed discharge of fluid from multiple sinuses in the area. Further cross-sectional imaging and direct

visualisation with cystoscopy led to the conclusion that there was a urethral recurrence of his urothelial carcinoma which had extended locally into the soft tissues in the penoscrotal area and caused uro-cutanenous fistulous tracts.

Extensive literature review showed no documented cases of vesicocutaneous fistula from urothelial carcinoma making this the first reported case. Written consent obtained from patient's next of kin.

Discussion: It is rare for bladder cancers to metastasise to or directly invade through to the scrotum or penoscrotal subcutaneous tissue or skin. Invasion into the scrotum directly from a urothelial carcinoma of either the bladder or urethra would be classed as locally advanced T4 disease and carry poor prognosis. In patients with urothelial carcinoma with persistent skin symptoms, a fistulous tract should be considered, and this should prompt early investigation and intervention as appropriate.

A Close Loop Audit on Radiological Investigations In Patients Diagnosed With Gallstone Disease. Doctor makeda kingue

Aim: This retrospective audit aims to assess the different radiological investigations used in gallstones and the reasons behind this.

Method: Data was collected from a cohort of 108 patients over 2 months, all diagnosed with gallstones. Information on demographics, imaging, and imaging reasoning was analysed. These results were then presented at the local general surgery CGM, and the findings were communicated to doctors within the hospital. The audit was then repeated a year later.

Results: Female preponderance in both audit and re-audit cycle. Patients were more likely to have imaging when abdominal pain was present AND deranged LFTs as opposed to just one of the two. Comparing total number of scans: fewer patients are undergoing CT scans (44 in audit period vs 31 in re-audit period) - 30% decrease**.** Decrease in the number of patients having CTAP as the first mode of scan (38 in audit period vs 21 in re-audit period) - 45% decrease.

Conclusion: Gallstone disease is increasingly common in global surgery. Various guidelines recommend liver function tests and ultrasound for suspected gallstones. Still, ultrasound is often not the first choice due to varying clinical judgment, different specialities ordering tests, lack of guideline awareness, and ultrasound delays.

Initial audits showed an overuse of CT imaging for diagnosis—however, adherence to guidelines improved over time. Ultrasound, being inexpensive and increasingly accessible in resource-limited settings, is a preferable diagnostic test. Publishing NICE protocols within the trust and conducting a further audit cycle can identify if further improvements are required.

Optimising Postoperative Recovery: Evaluating Multimodal Opioid-Sparing Analgesia and Its Impact on Opioid Consumption and Postoperative Ileus in Colorectal Surgery. Dr thomas Richard, Dr Imesha Jayasuriya, Dr Zain Nasser, Dr Hannah ODonohoe, Dr Anushka John, Mr Ondrej Ryska

Background: A multimodal, opioid-sparing (MOS) approach to post-operative analgesia enhances recovery in colorectal patients by combining multiple pain-relief mechanisms - improving pain control while minimising side effects. Resulting in early mobilisation, quicker bowel recovery, and fewer complications.

Aim: To evaluate compliance with Royal Lancaster Infirmary (RLI) analgesia guidelines based on MOS principles from Enhanced Recovery After Surgery (ERAS) guidelines. To establish a baseline consumption as morphine milligram equivalents (MME).

Methods: A retrospective review of 32 patients who underwent elective major colorectal surgery at RLI (May-August 2023). Data on non-opioid analgesics, regional anaesthesia, and adjuvant use was collected, with the impact on opioid consumption and postoperative ileus (POI) evaluated.

Results: Epidurals were administered to 100% of open cases, and spinal or epidural anaesthesia to 91% of laparoscopic cases. Regular paracetamol was prescribed in 66% of patients, ibuprofen in 22% and gabapentin in 0%. Tramadol was prescribed for 47%, and 94% received rescue analgesia like Oramorph. MME ranged from 0 to 234 mg/day, averaging 46 mg/day. POI occurred in 75% of patients consuming >50 mg/day MME (90% CI: [49.9%, 100%]) versus 30% in those consuming <50 mg/day (90% CI: [13.9%, 44.4%]).

Conclusion: The project highlighted areas of improvement in the delivery of a MOS approach, notably the underuse of non-opioids and the overuse of strong opioids. We have implemented MOS teaching, analgesia prescribing prompts and simplification of guidelines to encourage compliance. Opioid consumption >50 mg/day MME was associated with higher POI rates, but further research is needed to address the sample size limitations.

Transitioning from Disposable to Reusable Surgical Hats: A Sustainable Approach to Green Surgery. Dr Imesha Jaya, Dr Thomas Bickerton, Ms Panna Patel

Aim: The NHS aims to achieve net zero carbon emissions by 2040, with a focus on reducing the environmental impact of healthcare facilities, including operating theatres that rely heavily on single-use disposable items. This project targeted Furness General Hospital's theatres, aiming to decrease its carbon footprint by switching from disposable viscose hats (DVHs) to reusable cloth hats (RCHs).

Methods: We evaluated the proposed policy's acceptability, cost, and efficacy. Acceptability was gauged through an internal staff survey. Cost analysis involved prospective data collection from March-May 2024, tracking the usage of DVHs in theatres. Efficacy was assessed by comparing the carbon footprint of DVHs with RCHs.

Results: Out of 54 survey respondents, 93% (95% confidence interval [CI] 86.2-99.8) use DVHs. 65% (95% CI 52.2-77.8) are open to switching to RCHs with 37% (95% CI 24.2-49.8) citing laundering of RCHs as a barrier.

Cost analysis reveals that the approximate annual spend on DVHs is £6,325, £18,975 over three years, whereas the initial cost for RCHs is around £5,593, with a projected three-year saving of £13,382. CO2 comparison could not be performed, due to the lack of public data, and highlighted the need for carbon data transparency. However, with research into the materials used, we concluded RCHs were more sustainable overall.

Conclusion: Integrating RCHs into surgery aligns with global sustainability goals and offers a cost-effective way to lessen environmental impact. Our hospital has started to implement the change. Standardised guidelines and carbon data transparency are essential for broader adoption and informed decision-making towards sustainability.

Case Series on Management of difficult airway. Dr Yidersal Denberu, Dr Jason Denise Cyr

Abstract

Case One: Blind Nasal Intubation for management of airway for elective surgery of Bilateral Temporomandibular Joint Ankylosis.

An 8-year-old female (weighing 21kg, 115cm height) child presented with progressive difficulty in opening her mouth for the past 3 years.

Case Two: Intubation of a difficult airway patient using Classic LMA after removing the aperture bars. An 11 years old boy weighing 30 kg, was scheduled for facial reconstruction surgery after he sustained a Hyena bite on his face 02 years back.

Case Three: Awake fiberoptic intubation using low-dose 10 microgram fentanyl and 10-milligram ketamine.

A 14-year-old female presented with progressive difficulty in opening her mouth for the past 3 years. She had a history of trauma in childhood but was uneventful. She was scheduled with a diagnosis of unilateral TMJ ankylosis and planned to have unilateral GAP arthroplasty

Discussion: Most maxilla-fascial cases including TMJ Ankylosis have difficult airways that challenge anesthesiologists. This challenge is increased in resource-limited setups like our hospital where there is a lack of equipment and drugs for both anticipated and unanticipated difficult airway, management. Anesthesiologists face these challenges at all stages of preoperative management, from intubation, maintenance of anesthesia, extubation, and post-operative care. Awake intubation and spontaneous ventilation are the best techniques for securing the airway in TMJ ankylosis, as these patients should never be given relaxants till the control of the airway is achieved. Also after successful intubation maintaining spontaneous ventilation is mandatory until the mouth opening is corrected.

A Case of Marfan Syndrome presenting with multivalvular insufficiency in a 23-year-old male with atypical chest pains at Ndola teaching hospital, Zambia. Miss Catherine Chabi**,** Dr. Mackson Banda**,** Dr. Christopher Nyirenda

Aims: Marfan syndrome is a rare autosomal dominant disorder of the connective tissue due to mutation in FBN1 gene. It occurs in approximately 1/3000 to 5000 individuals globally resulting in multi-sysytem complications with the cardiovascular determining the long-term prognosis. Research has shown that Beta blockers and Angiotensin Receptor blockers improve patient outcomes and minimize the need for surgical interventions. It is noteworthy that though an extraordinary condition, studies on its entities are obscure especially in Zambia. Therefore, this case highlights the importance of utilizing a multi-disciplinary approach towards adequate management of the complexities of Marfan syndrome.

CASE PRESENTATION: A young adult male, 23 years old experienced abrupt, life-threatening chest discomfort due to an aortic root dilatation and dissection. Upon presentation, the patient had normal vitals except for reduced oxygen saturations. His physical exam was remarkable for arachnodactyly, highly arched palate, crowded teeth, pectus carinatum, a pansystolic murmur, and reduced air entry.

Laboratory results and ECG were unremarkable. Chest X-Ray revealed spontaneous pneumothorax. Echocardiogram demonstrated aortic root dilatation greater than 3cm with severe aortic dissection and regurgitation. An intercostal drain tube was inserted, antibiotics, Beta blockers and Angiotensin Receptor Blockers were instituted and later the patient was transferred to National Heart Hospital for further management.

When dealing with chest pain in a Marfan's syndrome patient, a careful and meticulous methodology must be used due to the potentially life-threatening underlying processes. In order to guarantee the prolonged survival of such patients, an intensive surgical procedure followed by lifelong cardiovascular monitoring is advocated.

Robotic-Assisted vs. Conventional Total Knee Arthroplasty: A Systematic Review and Meta-Analysis. Dr Maymunah Malik**,** Mr Omar Mostafa**,** Dr Usman Ishaq**,** Mr Abdul Muhaymin Khan**,** Mr Abdus Samee Wasim**,** Ms Zain Alsoud**,** Mr Kaif Qayum**,** Mr Sohail Quraishi

Aims: To compare alignment accuracy and clinical outcomes of robotic-assisted TKA (RA-TKA) with conventional TKA (C-TKA).

Method: A comprehensive search of electronic databases was conducted, to include all published randomized controlled trials (RCTs) from inception to August 2024. Risk of bias version 2 (ROB-2) was used to assess the quality of the included studies. Meta-analysis was conducted using RevMan 5.4 software.

Results: Our systematic review included 21 RCTs. RA-TKA was associated with significantly longer operative time compared to C-TKA (Mean difference, MD = 19.94 minutes, 95% confidence interval (CI) [9.2, 30.68], P = 0.0003). No significant differences were found in intra-operative blood loss, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) scores, or Oxford Knee Score (OKS) changes between the two techniques (Ebrahimzadeh et al., 2014; Noble et al., 2012).

RA-TKA demonstrated significant advantages in alignment, with a lower mechanical alignment outlier rate (risk ratio, RR = 0.34 [0.19, 0.60], P = 0.0002) and less deviation from neutral mechanical axis (MD = -0.93 [-1.21, -0.66], P < 0.00001). Postoperative Knee Society Score (KSS) was significantly higher in the RA-TKA group (MD = 1.03 [0.50, 1.57], P = 0.0002), while no significant difference was observed in postoperative range of motion (ROM) (Dawson et al., 1998).

Conclusion: Despite longer operative times, RA-TKA offers significant advantages in achieving more accurate mechanical alignment and reducing outliers. These improvements in surgical precision may contribute to better clinical outcomes, as evidenced by higher postoperative KSS scores. Further research is needed to determine the long-term impact of these advantages on patient satisfaction and implant longevity.

The impacts of reducing fasting duration in the preoperative management of elective surgical procedures.
Miss Stella Monteiro, Senhorita Leticia Monteiro Azevedo

Aim: To evaluate the observed impacts of reduced fasting duration in the preoperative management of elective surgical procedures, by synthesizing the primary complications associated with prolonged fasting.

Method: This study is a literature review, conducted through searches in the PubMed and SciELO databases. Five articles published in the past six years were selected for this research.

Results: Preoperative fasting has traditionally been implemented to prevent respiratory complications from gastric content aspiration. However, advancements in anesthetic techniques have improved patient safety, leading contemporary research to suggest that prolonged fasting may cause metabolic impairments. This is linked to the exacerbation of the Endocrine Metabolic Response to Trauma (EMRT), resulting in an increased release of pro-inflammatory cytokines (IL-6, IL-1, and TNF). This disruption of homeostasis is accompanied by heightened sympathetic nervous system activity. Consequently, processes such as glycogenolysis, gluconeogenesis, and lipolysis are intensified, causing elevated cortisol levels, increased glucose, reduced circulating insulin, and elevated glucagon. The result is peripheral insulin resistance, which can compromise the immune system postoperatively. To address these issues, protocols for reducing fasting durations have been adopted in preoperative care. The ACERTO protocol, for example, maintains fasting times but includes the administration of a carbohydrate-enriched solution (12.5% maltodextrin) 6 and/or 2 hours before the procedure. This approach aims to counteract surgical trauma effects and has been shown to significantly improve gastrointestinal symptoms, respiratory function, glycemic control, and functional parameters.

Conclusion: Reduced fasting duration has demonstrated substantial benefits in the postoperative period.

5 year Clinical Outcome of Sacral Nerve Stimulation for Neuromodulation of the Lower Urinary Tract in a Tertiary Hospital. Dr Anna Akpala, Mr Thomas King

Introduction: Sacral nerve stimulation (SNS) therapy has found widespread use in restoring bladder and bowel dysfunction. Some indications of SNS include refractory overactive bladder, neurogenic bladder, non obstructive urinary retention, etc.

Aims: to assess clinical outcomes in terms of overall conversion rates from trial to permanent implant, compare conversion of PNE or tined lead to permanent, revision rates, complications, device survival, battery life span for all patient's undergoing SNS for the past five years at Queen Elizabeth hospital Birmingham.

Methods: Retrospective observational study. Only patients who had first stage of SNS were included in the study. The data collected included age, type of trial i.e PNE vs tined lead, response after trial, conversion to permanent implant, complications, revisions, etc.

Results: 94% of the total (198) patients had PNE at first trial while 6% had tined lead. 130 patients had a positive response after first trial, 48 had a negative response and 20 had equivocal response. Our conversion rate from trial to permanent implant was 69%.100 patients had permanent implant fitted, only 18% had complications and 77.7% of these required revision due to lead migration (36%), connection failure (14%), battery charging

Conclusion: The conversion and complication rates attained in our centre are comparable to national standards and documentations from the literature. However, our infection rates are low. SNS therapy is well established, safe and effective procedure used to treat bladder dysfunction. Unfortunately due to its cost it is yet to find a place in low and medium income countries.

Determining the efficacy of breast specimen radiograph reporting by breast surgeons and radiologists. Dr Ruth Hodson

Introduction: X-Ray visible markers, placed after core biopsy, allow for precise breast lesion localisation for non-palpable lesions. Wide local excision is now possible in these cases. Specimen XR is used intraoperatively to determine if a lesion has been fully excised. XRs are then reported by the surgeon intraoperatively and the radiologist, most often, post-operatively. This study aims to determine if the surgeon and radiologist can assess the radiograph with similar efficacy.

Method: Operation data, taken from 1st March 2023 to 31st October 2023, included 438 breast surgery cases. 123 of these cases were image guided and were included. 4 cases were excluded due to; no images available, procedure abandoned, no visible target lesion on XR and breast screening unit closed. Data was collected including the surgeon's report, radiologist's report, histology, MDT outcome and whether further surgery was required.

Results: Localisation surgery was performed in 123 cases. In 25 cases the histological resection margins were involved or close to the lesion and 9 patients had re-excision. The positive predictive value of the specimen radiographs to a complete excision was 81% and 77% by the surgeon and radiologist respectively.

Where good radiograph margins were reported in 60 and 72 patients by the radiologist and surgeon, respectively, 14 and 14 had histologically involved margins.

Conclusion: This study shows that a radiologist and surgeon can assess specimen radiographs with similar efficacy. Complete histological resection is not guaranteed despite specimen radiographs demonstrating clear margins. Histology of samples remains the gold standard to determine complete excision.

Epidemiology, clinical, radiologic and histopathologic diagnostic aspects of brain tumours in Cameroon: a multicentric study. Dr Ubraine WUNDE

Aim: Brain tumours are by virtue of their location a diagnostic and therapeutic challenge. The peculiarity is even more important in the developing world. Research remains timid in this area of subspecialty in the peripheries of Cameroon. To bridge this gap, we sought to describe the epidemiologic profile and to bring out the diagnostic aspects in our context.

Method: This was a cross-sectional multicentric study covering five regions of Cameroon. These centres include Bamenda, Bafoussam, Buea, Bertoua, and Garoua. The files of patients diagnosed with Brain tumours, meeting our inclusion criteria were systematically searched and sourced for information. Results were recorded using a pre-formed and pre-tested data collection tool, analysed using R 4.4.0. and results are displayed in charts and tables.

Results: Brain tumours have a prevalence of 0.9% of neurosurgery hospitalisations. Paediatric brain tumours account for 21.8% with marked predominance in the north region. Headache was the most common (37.7%) presenting complaint. CT scan was the imaging modality that was most used (86.1%). Histologic diagnosis was the least implemented diagnostic modality, accounting for only 41.9% of all participants hence, remains a diagnostic challenge in our setting. The most common histologic subtype is meningiomas.

Conclusion: About 9 in 10,000 persons are affected by brain tumours in Cameroon. CT scan is the most used radiologic diagnostic technique with hydrocephalus being a major co-finding in the adult and paediatric age groups. Meningiomas were the most common subtype in adults, while medulloblastomas predominated among children.

Quality of documentation of operation note against the Royal College of Surgeons of England guidelines. Dr Eu Fang Foo Eunice Foo**,** Mr Mark Bignell

Aim: This was a single-centre closed-loop audit which aimed to evaluate the quality of documentation of digital operation notes against the Royal College of Surgeons (RCS) of England guidelines. (1)

Methods: Data was collected from a single emergency theatre in a tertiary unit. The first cycle involved a retrospective review of fifty emergency general surgery digital operation notes. Every subsequent five surgical procedures performed from 1/1/2024 were reviewed. Compliance to audit standards were presented locally. The second audit cycle involved a prospective review of 50 consecutive emergency general surgical operation notes from 22/4/24. Five parameters were excluded - date and time, elective or emergency procedure, extra procedure performed, prosthesis, and signature. Grade of documentor was noted - consultant, registrar, or senior house officer.

Results: The parameters which achieved 100% in both cycles included operative procedure, operative findings, details of tissue removed, added, or altered, and detailed postoperative care instructions. There were no significant difference in documentation compliance between the different grades of training. The documentation compliance of operative diagnosis improved from 18% to 60%, any problems or complications from 38% to 52%, and name of the theatre anaesthetist from 40% to 42%. The remaining parameters achieved a compliance of 80% or higher in both cycles. The only parameter which reduced was anticipated blood loss from 34% to 28%. The overall compliance improved from 76.1% to 82.2%.

Conclusion: Regular audits combined with novel ways of increasing compliance need to be conducted to continually improve documentation standards to the published guidelines.

SurgeryECHO, Project ECHO SAMA Experience, A Process Evaluation. Dr Noora Abubaker, Dr Noora Abubaker

Introduction: SurgeryECHO was one of 6 projects conducted by Sudanese American Medical Association, SAMA, it aimed to provide house officers/ fresh graduates with the essential background knowledge regarding common surgical emergencies. In this study, we aimed to evaluate the SurgeryECHO program, how it was implemented, including specific project activities, the number and characteristics of participants, and fidelity to the original program model.

Method: SurgeryECHO was composed of 7 sessions that covered selected common surgical emergencies. The program records, including the iECHO database, were used as a source of secondary data for process evaluation. The anatomy of the sessions was assessed against the approved concept note. In addition, the information about the duration of each part of the session was obtained from the video records.

Results: A total of 7 biweekly sessions were operated. All sessions were conducted according to the preformed structure. Regarding the duration of the sessions, the average was 80.77 minutes, and 5 out of 7 sessions were within the allocated time. The program has a cumulative total of 167 learners, with a mean of 48.86 learners per session (range 23 - 108). Regarding the gender distribution, 57.49 % (96) were males, while 41.92% (70) were females.

Discussion: In addition to the early recruitment of the SMEs, upfront planning and preparation of the team. The marketing for the sessions was a strength as well, an introductory video was published through SAMA platforms, introducing the target audience to the program and instructing them about the registration process.

Effectiveness Of Simulation-Based Training Versus Standard Lecture For Outbreak Investigation Among Medical Students At CMH Lahore Medical College (CMH LMC)- A Randomized Control Trial, 2023. Rana Sajawal Joiya Rana Sajawal Joiya

Introduction: Transferring classroom learning to real-life situations is a challenge in medical colleges where lectures remain the mainstay of teaching. Tabletop Simulation Exercises (TSE) offer a low-cost and context-specific approach for teaching appropriate responses during health emergencies. Literature is lacking on the use of TSE to enhance the outbreak response of medical students.

Aims:

1. To assess the feasibility of TSE for outbreak investigation
2. To compare the effectiveness of TSE with a standard lecture

Methods: A Randomized Controlled Trial (RCT) was conducted at CMH LMC from February to July 2023. A sample size of 82 was calculated keeping alpha= 0.05, power= 0.80 and effect size= 0.3. All consenting students of 4th-year MBBS class were randomly divided into control (standard lecture) and intervention (TSE) groups. A self-administered questionnaire was developed, validated (Lambda statistic=0.7) and administered to both groups before and after the teaching session to measure knowledge and skills scores. Single blinding was done during data entry and analysis. Paired t-test was used to compare the improvement in knowledge and skills scores of each group.

Results: The post intervention knowledge and skills scores of TSE group (7.73 ± 2.093) was significantly higher ($p < 0.001$) as compared to the standard lecture group (5.48 ± 1.798).

Conclusion: Simulation-based teaching is more effective than a standard lecture for improving the knowledge and skills of medical students in outbreak investigation. These findings led to the inclusion of TSE in the standard curriculum for 4th year MBBS at CMH LMC for teaching outbreak investigation.

Reliability of Digital Artery Palpation and Pulse Oximetry Waveform As Alternatives to Radial Pulse in the Assessment of Upper Limb Injuries. Dr Milad Mossanen Parsi, Dr Ahmed Elmahdi, Dr Matthew Coombe Jones, Mr Edward Gee

Introduction: Radial pulse palpation is the gold standard for assessing distal vascular perfusion in the upper limb. However, it may not be accessible in cases involving splints, casts, swelling, or injuries near the radial artery. This study evaluates two alternative methods for assessing hand perfusion: digital pulse palpation and pulse oximetry (PO) waveform.

Methods: Twenty-four healthy adult volunteers (48 hands) were assessed by two examiners. Digital artery pulses were palpated, and ease of location was recorded. A brachial cuff was inflated to 20 mmHg above systolic pressure to occlude distal perfusion. Radial pulse, digital artery pulse, and PO waveform were monitored as the cuff pressure was deflated in 5 mmHg increments to determine when each returned, comparing the reliability of these methods to the radial pulse.

Results: The digital artery pulse was easily located in 20/24 participants, most reliably over the proximal phalanx of the index finger. With brachial artery occlusion, no distal pulses were palpable, and PO showed no waveform. As cuff pressure was incrementally reduced, the digital pulse returned at the same or lower pressure than the radial pulse in all cases, indicating a high positive predictive value. PO waveform returned at the same or higher pressure than the radial pulse, suggesting greater sensitivity in assessing hand perfusion.

Conclusion: Digital pulse palpation is a reliable surrogate for assessing hand perfusion, with a high positive predictive value. PO waveform is more sensitive, often indicating perfusion before pulses are palpable, making it a superior clinical test.

Role of cystoscopy as primary initial investigation in Intersitial cystitis/BPS. Mr Rajat Sharma, Mr Olanrewaju Amusat

Aim: To assess cystoscopic findings in Interstitial cystitis / Bladder Pain Syndrome. To prove role of cystoscopy in early timely detection of classic HL variety of interstitial cystitis. To prove role of cystoscopy as primary initial investigation in IC/BPS

Method: Prospective observational study. 35 female patients aged 18-69 years presenting with clinical symptoms of IC/BPS. Inclusion/Exclusion – Followed as per NIDDK criteria and O leary Sant questionnaire. Patients were subjected to cystoscopy under anesthesia with hydrodistension and analysis performed.

Results: All patients were female. Age range - 18 to 69. Mean age - 46.8 years Mean bladder volume was 170 ml. Grades of interstitial cystitis. No of patients. Percentage of patients, I - 9 26.67%, II - 8 13.33%, III - 0 0.00%, IV - 7 30.00%, Normal findings 11 30.00%

Conclusion: Cystoscopy when done in a patient with clinical suspicion of interstitial cystitis can detect about 20% of the cases of ulcerative type which offers immediate relief upon hydrodistension and fulguration. When done in those with clinical suspicion in an early stage, the cystoscopy might yield a higher sensitivity. Larger

studies comparing the diagnostic value of cystoscopy and those evaluating the impact of earlier use of cystoscopy guided interventions are needed.

Giant desmoid tumor of the anterior abdominal wall presenting as an intraperitoneal mass in a child: A Case Report. Dr Naziru Alhassan, Prof Lofty-john Chukwuemeka ANYANWU, Dr Liadi Sabiu

Background: Desmoid tumor is a rare benign, locally invasive, and aggressive form of fibromatosis. The best treatment is surgery, but chemotherapy or radiotherapy can be incorporated as an adjunct to surgery.

Aims: We report herein the case of a giant desmoid tumor of the anterior abdominal wall in a child.

Case report: The patient was a 14-year-old boy with 3 years history of progressive abdominal distension associated with mild abdominal pain. There was no history of jaundice, rectal bleeding, or decrease in urinary output. There was a history of abdominal surgery performed in a peripheral hospital on account of the mass however, no history suggestive of intestinal polyps or familial adenomatous polyposis (FAP). Imaging suggested an intra-abdominal mass presumably an omental cyst, lymphangioma, or neuroblastoma. Exploratory laparotomy revealed a giant anterior abdominal wall mass which extended into the peritoneal cavity. It was excised with the overlying skin and the anterior abdominal wall was reconstructed and reinforced with an onlay synthetic mesh. The histology report of the mass was in keeping with desmoid-type fibromatosis.

Conclusion: A high index of suspicion is required in the diagnosis of a giant intraperitoneal mass attached to the anterior abdominal wall.

Urgent Suspected Cancer Referral from Primary Care: A Closed Loop Audit. Dr Ke En Oh

Aim: The aim of this audit is to evaluate the colorectal referrals from primary care to the Urgent Suspected Cancer (USC) pathway in our health board.

Methods: A pre-interventional cycle was conducted from January to March 2024. Subsequently, faecal immunochemical testing (FIT) letter was introduced. Following its implementation, a follow up cycle was carried out to evaluate its effectiveness in guiding referrals for patients with suspected colorectal cancer from April to June 2024. Patients with a negative or absent FIT test and no red flag symptoms were downgraded to urgent review. The referrals were compared against NICE guideline DG56.

Results: In the pre-intervention cycle, there are a total of 870 referrals through the USC pathway, of which only 456 (52.4%) referrals were accompanied with FIT test. A FIT letter was introduced to streamline the USC pathway and ensure that USC outpatient slots were used appropriately. After implementation, there are a total of 748 referrals, with 430 (57.5%) referrals with FIT test. This demonstrated an improvement of 5.1% compared to the pre-intervention (P = 0.041). 92 FIT letters were provided to GPs as they don't meet the recommendation. The average time to first outpatient appointment has also decreased from 11.1 days to 10.2 days.

Conclusion: This closed loop audit demonstrated a significant improvement in appropriate colorectal cancer referrals from primary care to the USC pathway. This intervention enhanced the prioritisation of USC referrals, decreased delays and ensured more appropriate use of outpatient appointment slots.

Essay Prize

The GASOC International Conference 2024 Essay Prize was kindly sponsored by Association of Anaesthestist. They set the essay title and selected the winning entry.

"Reimagining the future of anaesthesia and critical care provision in resource-constrained settings. Creating Solutions in a Changing World"

Winning Entry: Dr Sarah Palfreyman

Highly Commended: Dr Vitus Nduka

Highly Commended: Mr Davis Banturaki

Abstract ***Dr Sarah Palfreyman***

This essay examines models of Critical care provision in low and middle income countries. It summarises some of the challenges faced, solutions presented and suggests the concept of lay observation charts, for settings where regular monitoring is required but there is not the staff or resources to do so. The charts are not designed to replace trained vital signs such as heart rate or blood pressure, but to flag up a potentially deteriorating patient at a point that basic care may be able to prevent further deterioration, or definitive plans can be made either within the hospital or with time for transfer to a larger unit. It is an untested idea, but based on the evidence based principles of Early Warning Scoring Systems.

Introduction

Critical Care provision in low resource settings is a challenging theme not least due to the heterogeneity of both 'low resources' and the approaches to 'critical care' in these contexts. With evidence from both literature review and my own experiences, I explore the models and difficulties faced, and add a solution of my own to the theme of Early Warning Scoring Systems.

What is Critical Care?

Critical Care is usually thought of as a physically separate department with specifically trained staff and expensive equipment, much more complex than ward based care. However, vital organs are frequently supported and stabilised outside of these settings, for instance in the Operating Theatre or Emergency Department Resuscitation area.

The World Federation of Societies of Intensive Care Task Force defines critical care as "a multidisciplinary and interprofessional specialty dedicated to the comprehensive management of patients having, or at risk of developing, acute, life-threatening organ dysfunction." [1].
In addition to staff, resources and equipment, many definitions include systems in place for education, development and research [1], [2], [3].

A broader concept is Essential Emergency and Critical Care (EECC), defined as "the care that should be provided to all critically ill patients of all ages in all hospitals in the world."[2]

This system complements existing hospital departments with a focus on three principles:

1. Triage for those with the most urgent clinical need, including both early identification and timely care.
2. Provision of the life-saving treatments that support and stabilise failing vital organ functions.
3. Effective care of low cost and low complexity. It does not need to include definitive diagnosis or care.

A robust system can provide early interventions to support vital organ function of the critically ill patient—these interventions can be performed at any point of patient contact and can be delivered across diverse settings in the healthcare system.

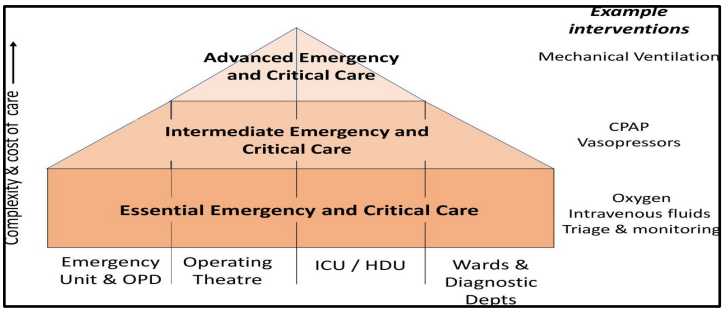
Models of Critical Care provision in Low Resource settings

Model	Notes
ICU Model	Physical unit with specific parameters for provision in terms of specialist staff and resources. Allows for concentration of expertise and resources. Often divided into Levels indicating capability.
Integrative hospital model	Patients requiring critical care be identified at triage and taken directly to a specific physical location within the hospital that is not necessarily an ICU but is still a dedicated critical care area. Recommendations for this model include resource provision, lower nurse to patient ratios, and clinical guidelines for the critical care area with a focus on simple and inexpensive tools and equipment
Hospital-wide triage model / EECC	Proposes implementing tools that allow for the recognition and treatment of critically ill patients regardless of location. This process is supported by provider education and systemic quality improvement efforts with the goal of improving deployment of relatively low-cost interventions and systems, such as oxygen for pneumonia or resuscitation fluids and antibiotics for septic patients
Note on Staff	Staffing for the above models may be provided by a variety of staff including Doctors, Nurses and Physician's Assistants. They may have advanced or next to no training in Critical Care, Anaesthetics and Emergency Medicine. In the Humanitarian response setting, there may be International Aid Organisations with volunteers experienced in Critical Care and Disaster/Conflict medicine as well as Logistics teams to support them.

[2], [3], [4]

Figure 1 [5]

Conceptual model outlining how we might structure care for those with critical illness.



At the base of the pyramid, all facilities or departments (including outpatient (OPD) and diagnostic departments should implement processes to identify critical illness, monitor patients and deliver essential interventions such as oxygen and intravenous fluids. Delivery of intermediate or more advanced care needs more specialised settings.

Challenges for Critical Care provision in Low Resource settings

Access to Critical Care and the burden of health along with age, comorbidities and drug resistance are unevenly distributed across the world and within LMICs [6], [7].

Accessibility: ICUs may be in the cities, hence geographically and financially out of reach to many of the population. Pre-hospital care, transfer capabilities, communication between field settings and hospitals and infrastructure for patient movement and information flow are often lacking.

Investment: ICUs may be underfunded due to lack of finances and diversion to other disease specific areas as well as misconceptions that Critical Care has to be complicated and technology sophisticated. [8]

Human Resources: Staff need training, appropriate pay and working conditions for workforce satisfaction and stability. 'Brain drain' may be an issue in some areas. [4]

Sustainability: Consumables need replacing and larger equipment needs maintenance, parts supply line and a power supply. Reactive responses from HICs donating hardware are often inappropriate [9], [10]. Other challenges include leadership, governance and relevant local research. Aspects such as drug resistance, war, humanitarian disaster and system collapse can impact provision. The

articles I have read are only those English language printed or translated. Patient/ user perspectives are not included in the studies and few include local staff.

Achievable Solutions (and more problems)

Many potential solutions to challenges faced in Critical Care provision are on a National level, more money and more resources would be ideal but there are some smaller scale examples which can bring about tangible change.

Partnerships

International Telemedicine, with discussion of cases with a Speciality Consultant can be a formal arrangement between National healthcare systems or via Non-Governmental Organisations (NGOs). Protocolised emergency response training can empower staff without critical care specific training, eg Basic Emergency Care (BEC) for frontline healthcare providers who manage acute illness and injury with limited resources [11], [12], [13], [14]. Often this involves addressing symptoms rather than diagnoses, sometimes referred to as Sentinel conditions, eg Respiratory failure [10]. Protocols should be adapted to local settings.[13]

Cognitive Tools

Check lists can be used for the hourly tasks such as drug administration and dressing checks. These check lists need to be achievable and do require training and resources. For instance, to complete the task of repositioning a patient to improve respiratory mechanics, staff must identify suboptimal breathing, have enough personel to manually handle the patient and equipment such as a tilting bed or enough pillows for sitting upright. [15]

Check lists and algorithms can aid in consistency for quality of care. As an Anaesthetist I've personal experience in these and they are invaluable at times when there is a multi- disciplinary team with variable skills, especially if they are also fatigued or overwhelmed. Examples include shadow boards for setting up intubation equipment and algorithms for management of unexpected difficult airways. Again these need to be specific to the environment, an algorithm requiring a PaO2 as a discriminator is less helpful when there is no access to blood gas analysis.

A key feature for the care of critically ill patients is their early identification. Triage on admission and Early Warning scoring systems for inpatients on wards are designed to highlight those at risk of deterioration, enabling them to be seen by priority. "EECC is almost a state of mind requiring a form of systemic vigilance and response, while ensuring the care that is most needed is prioritised first' [5]. These systems save lives as the intervention can occur whilst it is still possible to instigate effective treatment with limited resources as well as transfer for definitive care as required. Many triage systems use a traffic light approach to categorise how unwell a patient is, with red being most unwell and green least. Pre-hospital triage may include Black - Dead or so irreversibly critically unwell so that resources should be used elsewhere. (Appendix 1)

My 'two mls of propofol' worth

My experience in Critical Care is mostly limited to British hospitals. I learnt a lot about flexibility and change to systems and infrastructure when demand exceeded capacity during the Covid19 pandemic. There are almost unlimited uses for a roll of tape when donning/doffing and isolation areas need to appear rapidly!

I have also spent some time working Internationally including expeditions, pre-hospital in a Ski Field Clinic and on one occasion for Médecins Sans Frontières (MSF) Emergency hospital in a conflict zone/area of healthcare system collapse. My mentor from this time, experienced MSF doctor and lecturer in Global Health, Dr Anne-Marie Pegg values algorithms and trains staff to 'focus on the yellow'.

If basic resources as IV fluids, antibiotics, oxygen and transfer to definitive care are very limited then focusing on the yellow may have the greatest impact on improving overall morbidity and mortality. Unfortunately, this results in a deprioritisation of the most unwell patients, which has ethical consequences. Concepts such as End of Life Care and withdrawal of active treatment are challenging. So far I have summarised that algorithms and triage systems are helpful in prioritising care. These rely on regular observation of patients, to obtain the data on vital signs. Some settings will not have the technology or nursing staff for continuous or frequent monitoring of ECG, oxygen saturations etc.

Many hospitals rely on informal/ lay carers to assist with care such as feeding and washing the very unwell. These may be untrained staff, volunteers, family or friends. I propose a simple chart which these individuals could use to highlight a deteriorating patient and to provide additional information for trained staff doing medical reviews.

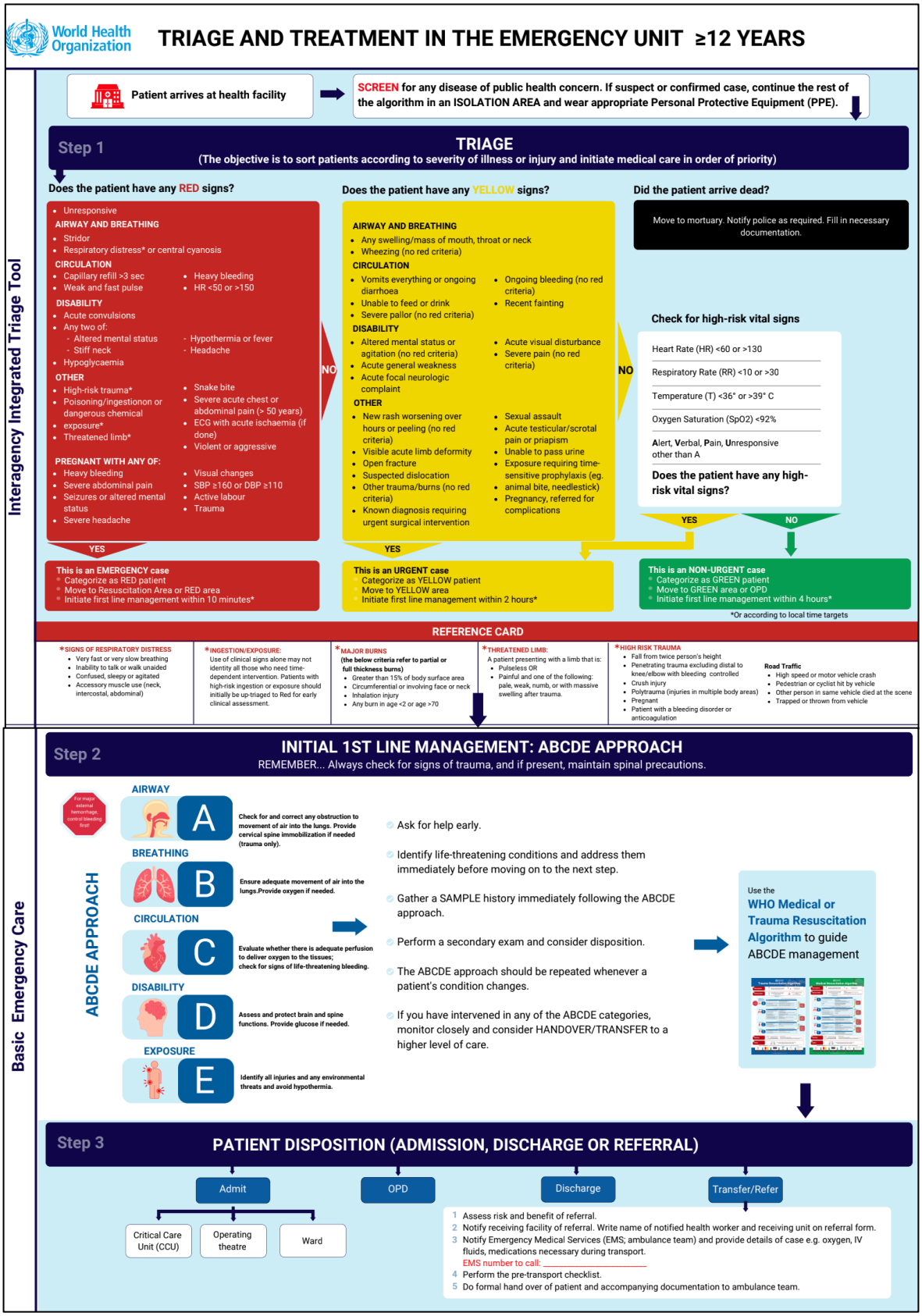
The layout would need to be simple and easy to follow, in relevant local languages and taking into account cultural sensitivities. It would not be required where sufficient staff or monitored beds are available. Potential problems may include low numeracy skills, illiteracy and multiple languages especially with a large diaspora. Some people may not have anyone to care for them, especially those with infectious diseases. There may be a lack of objectivity from people untrained in healthcare, with error introduced from interpretation or inconsistency from different carers. There may also be deliberate alteration of the dynamics if it is perceived that the family member will receive extra care for certain parameters, or if an individual is keen to be discharged. Routine, objective observations by trained personnel should still be carried out, these charts would serve to add information and frequency to the monitoring.

This is not evidence based. It would have to be piloted on a small scale, then any adjustments made to the data collected, chart wording/ layout or the values totalled for each parameter. Even with an anticipated level of error, if it is able to highlight a pattern of deterioration over several hours for a specific patient then it is surely of benefit in identifying that individual whilst they are 'in the yellow' and intervention may be beneficial.

Conclusions

Critically ill patients benefit from being cared for in environments rich with human and material resources. In the absence of these, there are many ways in which a good quality of care can improve outcomes for critically unwell surgical patients. One concept is a lay observations chart allowing existing informal carers to provide data for the early triage and treatment within the capabilities of the institution.

Appendices


World Health Organization
TRIAGE AND TREATMENT IN THE EMERGENCY UNIT ≥12 YEARS
Interagency Integrated Triage Tool
Patient arrives at health facility
SCREEN for any disease of public health concern. If suspect or confirmed case, continue the rest of the algorithm in an ISOLATION AREA and wear appropriate Personal Protective Equipment (PPE).
Step 1
TRIAGE
(The objective is to sort patients according to severity of illness or injury and initiate medical care in order of priority)
Does the patient have any RED signs?
Unresponsive
AIRWAY AND BREATHING
Stridor
Respiratory distress* or central cyanosis
CIRCULATION
Capillary refill >3 sec
Weak and fast pulse
Heavy bleeding
HR <50 or >150
DISABILITY
Acute convulsions
Any two of:
Altered mental status
Stiff neck
Hypothermia or fever
Headache
Hypoglycaemia
OTHER
High-risk trauma*
Poisoning/ingestionon or dangerous chemical exposure*
Threatened limb*
Snake bite
Severe acute chest or abdominal pain (> 50 years)
ECG with acute ischaemia (if done)
Violent or aggressive
PREGNANT WITH ANY OF:
Heavy bleeding
Severe abdominal pain
Seizures or altered mental status
Severe headache
Visual changes
SBP ≥160 or DBP ≥110
Active labour
Trauma
YES
This is an EMERGENCY case
Categorize as RED patient
Move to Resuscitation Area or RED area
Initiate first line management within 10 minutes*
NO
Does the patient have any YELLOW signs?
AIRWAY AND BREATHING
Any swelling/mass of mouth, throat or neck
Wheezing (no red criteria)
CIRCULATION
Vomits everything or ongoing diarrhoea
Unable to feed or drink
Severe pallor (no red criteria)
Ongoing bleeding (no red criteria)
Recent fainting
DISABILITY
Altered mental status or agitation (no red criteria)
Acute general weakness
Acute focal neurologic complaint
Acute visual disturbance
Severe pain (no red criteria)
OTHER
New rash worsening over hours or peeling (no red criteria)
Visible acute limb deformity
Open fracture
Suspected dislocation
Other trauma/burns (no red criteria)
Known diagnosis requiring urgent surgical intervention
Sexual assault
Acute testicular/scrotal pain or priapism
Unable to pass urine
Exposure requiring time-sensitive prophylaxis (eg. animal bite, needlestick)
Pregnancy, referred for complications
YES
This is an URGENT case
Categorize as YELLOW patient
Move to YELLOW area
Initiate first line management within 2 hours*
NO
Did the patient arrive dead?
Move to mortuary. Notify police as required. Fill in necessary documentation.
Check for high-risk vital signs
Heart Rate (HR) <60 or >130
Respiratory Rate (RR) <10 or >30
Temperature (T) <36° or >39° C
Oxygen Saturation (SpO2) <92%
Alert, Verbal, Pain, Unresponsive other than A
Does the patient have any high-risk vital signs?
YES
NO
This is an NON-URGENT case
Categorize as GREEN patient
Move to GREEN area or OPD
Initiate first line management within 4 hours*
*Or according to local time targets
REFERENCE CARD
*SIGNS OF RESPIRATORY DISTRESS
Very fast or very slow breathing
Inability to talk or walk unaided
Confused, sleepy or agitated
Accessory muscle use (neck, intercostal, abdominal)
*INGESTION/EXPOSURE:
Use of clinical signs alone may not identify all those who need time-dependent intervention. Patients with high-risk ingestion or exposure should initially be up-triaged to Red for early clinical assessment.
*MAJOR BURNS
(the below criteria refer to partial or full thickness burns)
Greater than 15% of body surface area
Circumferential or involving face or neck
Inhalation injury
Any burn in age <2 or age >70
*THREATENED LIMB:
A patient presenting with a limb that is:
Pulseless OR
Painful and one of the following: pale, weak, numb, or with massive swelling after trauma.
*HIGH RISK TRAUMA
Fall from twice person's height
Penetrating trauma excluding distal to knee/elbow with bleeding controlled
Crush injury
Polytrauma (injuries in multiple body areas)
Pregnant
Patient with a bleeding disorder or anticoagulation
Road Traffic
High speed or motor vehicle crash
Pedestrian or cyclist hit by vehicle
Other person in same vehicle died at the scene
Trapped or thrown from vehicle
Basic Emergency Care
Step 2
INITIAL 1ST LINE MANAGEMENT: ABCDE APPROACH
REMEMBER... Always check for signs of trauma, and if present, maintain spinal precautions.
For major external hemorrhage, control bleeding first!
ABCDE APPROACH
AIRWAY
A
Check for and correct any obstruction to movement of air into the lungs. Provide cervical spine immobilization if needed (trauma only).
BREATHING
B
Ensure adequate movement of air into the lungs.Provide oxygen if needed.
CIRCULATION
C
Evaluate whether there is adequate perfusion to deliver oxygen to the tissues; check for signs of life-threatening bleeding.
DISABILITY
D
Assess and protect brain and spine functions. Provide glucose if needed.
EXPOSURE
E
Identify all injuries and any environmental threats and avoid hypothermia.
Ask for help early.
Identify life-threatening conditions and address them immediately before moving on to the next step.
Gather a SAMPLE history immediately following the ABCDE approach.
Perform a secondary exam and consider disposition.
The ABCDE approach should be repeated whenever a patient's condition changes.
If you have intervened in any of the ABCDE categories, monitor closely and consider HANDOVER/TRANSFER to a higher level of care.
Use the WHO Medical or Trauma Resuscitation Algorithm to guide ABCDE management
Step 3
PATIENT DISPOSITION (ADMISSION, DISCHARGE OR REFERRAL)
Admit
Critical Care Unit (CCU)
Operating theatre
Ward
OPD
Discharge
Transfer/Refer
1 Assess risk and benefit of referral.
2 Notify receiving facility of referral. Write name of notified health worker and receiving unit on referral form.
3 Notify Emergency Medical Services (EMS; ambulance team) and provide details of case e.g. oxygen, IV fluids, medications necessary during transport.
EMS number to call: _____
4 Perform the pre-transport checklist.
5 Do formal hand over of patient and accompanying documentation to ambulance team.

Lay Monitoring Chart

Draft Version

Date _____ Time (1)	Level of Consciousness	✓	Airway	✓	Breathing	✓	Circulation (2)	✓	Capillary Refill (3)	✓	Diet	✓	Pain	✓	Prayer / other (4)	✓
1200	Awake?		Able to talk to you?		Talking easily?		Skin is warm, comfortable		less than 2		Eat and drink normally		No pain, able to stand and walk to toilet		Able to fully join in usual activity	
	Asleep but will wake when called?		Able to drink without coughing?		Talking few words, not full sentences		Very hot and sweaty or very Cool		2-3		Small amounts only		Pain manageable, difficulty moving to toilet		Joining in from bed	
	Asleep but will wake when shaken?		Asleep and snoring / gurgling		Gasping for breath						Only sips of fluid		Pain moderate, unable to move from bed			
	Unable to wake		Not awake, no sound and cannot wake		Not awake, chest not moving		Pale or mottled, cold extremities		4 or more		No oral intake		Pain severe and constant, unable to roll over in bed		Not awake	

For each ticked box Green scores 0, Yellow Scores 2, Red Scores 4
Total: 0-2 Unconcerning, 4-10 Needs Review by Medical Staff 11+ needs Urgent Review

If colour printing/ photocopying not available then different shades of grey could be used. A laminated sheet may help with wipe clean pen.
Clinical context should be taken into account eg if known critical unwell and situation unchanging Urgent Review not required

Notes:

1. To be individualised for each patient and lay Carer - required times to be completed by Trained staff handing out form. Ideally a clock should be available on the ward, or a bell or gong used to chime relevant hours if patients in a cohort are on the same frequency of observations.
2. Assessing Circulation - aims are to identify if a patient is becoming peripherally shut down or approaching septic shock. Exact wording would need to take into account local temperatures.
3. Capillary refill assessment maybe variable with different skin tones. Extra options include finger nail bed or inside of lip
4. As relevant to patient and local practises. Other example could be - Able to wash self?

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