ISW26-295-01 (0456)

SARCOPENIA, MYOSTEATOSIS, AND FRAILTY PARAMETERS TO PREDICT ADVERSE OUTCOMES IN PATIENTS UNDERGOING EMERGENCY LAPAROTOMY: PROSPECTIVE OBSERVATIONAL MULTICENTRE COHORT STUDY

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Introduction:
Functional compromise contributes significantly to adverse outcomes after emergency laparotomy. Sarcopenia, defined as reduced muscle strength and quantity, has been seldom assessed in this setting. This study examined functional compromise using sarcopenia, myosteatosis, and frailty parameters, and evaluated impacts on functional and patient-centred outcomes.

Material and Method:
Patients aged ≥55 years who underwent emergency laparotomy and preoperative CT at two New Zealand hospitals (Feb 2022–Oct 2023) were included in a prospective database. Sarcopenia was measured using the SARC-F questionnaire, isokinetic dynamometry for grip strength, and skeletal muscle quantity on CT. Myosteatosis was determined using CT, and frailty assessed via the Clinical Frailty Scale. Predictors for rehabilitation admission, days alive and out of hospital at 90 days (DAOH-90), and risk of not returning home were analysed using relative risk and proportional means regression. Secondary outcomes included 3- and 6-month mortality and inpatient morbidity (Clavien–Dindo classification).

Results:
Of 101 patients, 21.6% had sarcopenia, 34.7% myosteatosis, and 24.8% were living with frailty. Muscle strength parameters (low grip strength and positive SARC-F) showed significant relationships with primary outcomes. Low grip strength was most predictive for rehabilitation (adjusted RR 5.48, 95% CI 2.03–14.82), and a positive SARC-F for not returning home (adjusted RR 8.26, 95% CI 1.81–37.76). Low muscle quantity showed no association. Frailty was most associated with reduced DAOH-90 (−13.4%, 95% CI −24.3% to −0.8%). Sarcopenia and low grip strength predicted 3- and 6-month mortality.

Conclusion:
Sarcopenia and frailty are key determinants of functional compromise after emergency laparotomy. Muscle strength is more important than mass and measurable without imaging.

ISW26-295-02 (0246)

RISK FACTORS OF POOR LONG-TERM OUTCOMES IN ELDERLY PATIENTS WITH ESOPHAGEAL SQUAMOUS CELL CARCINOMA AFTER MINIMALLY INVASIVE ESOPHAGECTOMY

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Introduction:
As the global population ages, there is a concurrent increase in the number of elderly patients diagnosed with esophageal squamous cell carcinoma (ESCC) and undergoing esophagectomy. Elderly patients have more comorbidities and malnutrition than young patients, it leads poor prognosis. Elderly smokers have high mortality because of their physical dysfunction and smoking related disease according to long duration of smoking. This study aimed to identify the risk factors for long-term outcomes after minimally invasive esophagectomy (MIE) in elderly patients with ESCC and assess the prognosis such patients with risk factors.

Material and Method:
This study comprised 110 elderly patients (≥75 years) with ESCC who underwent MIE at Kobe University Hospital. Multivariate Cox proportional hazards regression analyses were performed to identify prognostic factors, including Geriatric nutritional risk index (GNRI), Charlson comorbidity index, elderly smoker status. We defined elderly smoker as patients smokes at the age of 70 years.

Results:
Multivariate analysis identified that elderly smoker, cT or cN status (cT2 ≤ or cN positive) and GNRI (≤92) were independent prognostic factors for overall survivals (p=0.026, 0.019, and 0.038, respectively). For the patients with cT2 ≤ or cN positive ESCC, elderly smoker with GNRI (≤92) have significantly worse survival (p=0.013). Elderly smoker was at a risk of death from other diseases 5 years postoperatively (p=0.016).

Conclusion:
Elderly smoker, cT2 ≤ or cN positive, and low GNRI were risk factors of poor survival. Furthermore, elderly ESCC patients with all these risk factors were associated with very poor survival outcome.

ISW26-295-03 (0918)

PEER PERFORMANCE IN BASIC SURGICAL SKILLS WITH UNDERGRADUATE STUDENT TUTORS

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Introduction:
The development of medical students' teaching skills is an essential part of medical curriculum.Despite the awareness of its importance in teaching medical students,the number of studies addressing the attempts to improve this topic is limited.Medical students regularly participate in study groups during courses and prior to examinations,thus assuming informal teaching roles.They also teach in other settings,as they become sources of health information for family,friends,&,during their clerkship,for patients.Student's ability to acquire enough surgical skills to perform routine technical procedures at a level suitable to a fresh medical graduate is another important skill to acquire.

Material and Method:
We conducted basic surgical skills sessions to assess the impact of peer tutoring versus instructor-led training.A total of 100 students participated, with 50 trained by certified instructors and 50 by peer tutors

Results:
Performance was evaluated across four tasks.For threading 10 loops, 2.9% of instructor-trained students succeeded vs.7.1% of peer-taught students($p = 0.649$).In stacking five cubes, success was 50% for instructors vs. 48.9% for peers ($p = 0.031$).Both groups excelled at picking 10 peas (97.2% vs. 97.6%, $p = 0.713$).For laparoscopic knots, success rates were 28.2% (peers) vs. 25% (instructors, $p = 0.181$). Cutting a circle of tissue showed 72.2% success for instructors vs. 24.4% for peers ($p = 0.002$).Results indicate varying effectiveness between peer tutoring and instructor-led training. While peer tutors can enhance learning, instructor-led sessions are crucial for mastering complex skills.

Conclusion:
This study supports the value of both teaching methods in medical education, suggesting future research into hybrid models to optimize surgical training.

ISW26-295-04 (0373)

CESAREANS TO CROCODILE BITES: CASE DIVERSITY AND WORKFORCE ANALYSIS IN A PROVINCIAL HOSPITAL IN SOLOMON ISLANDS

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[2]*Ministry of Health & Medical Services, Gizo Hospital, Gizo, Solomon Islands*

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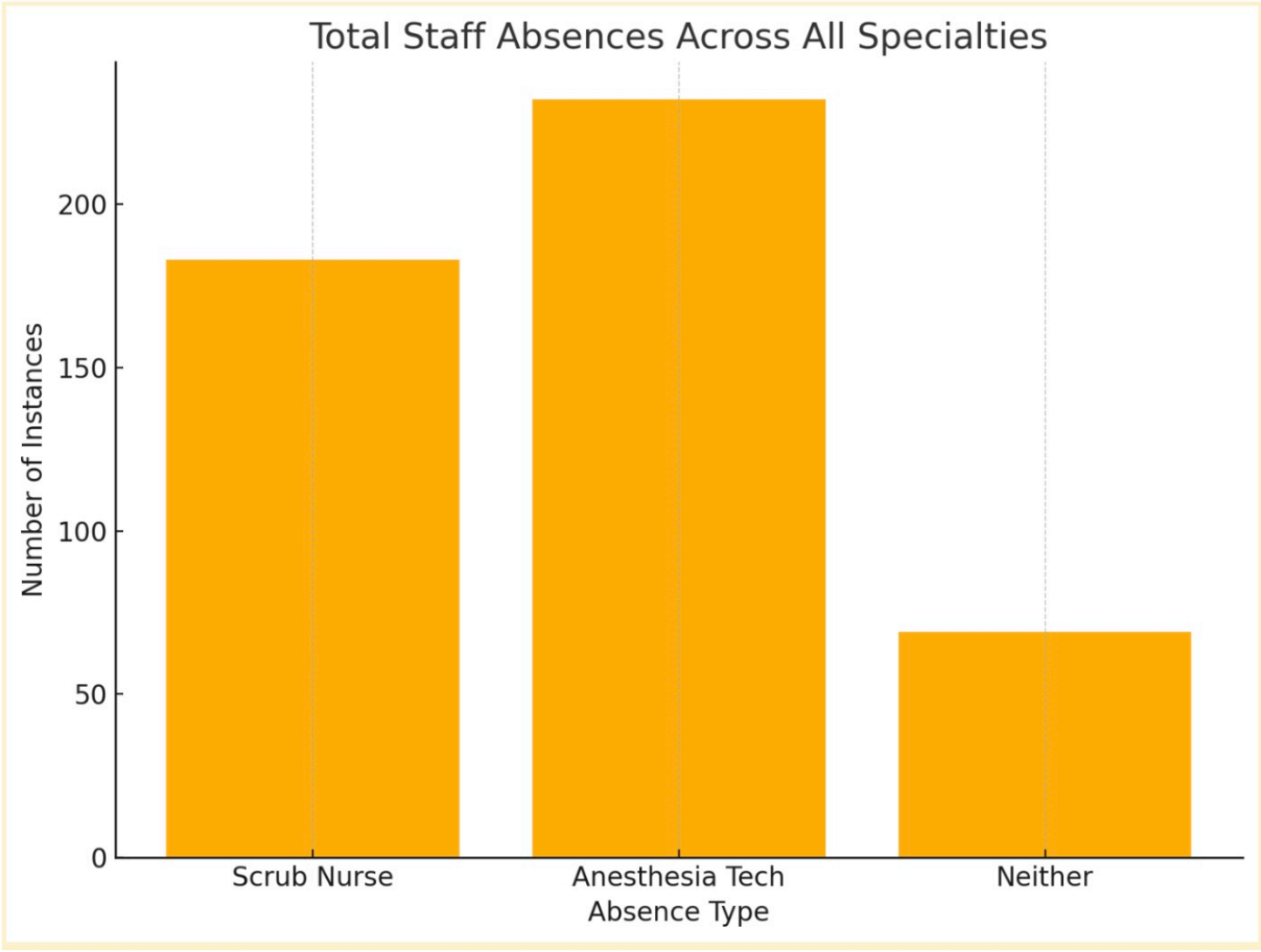
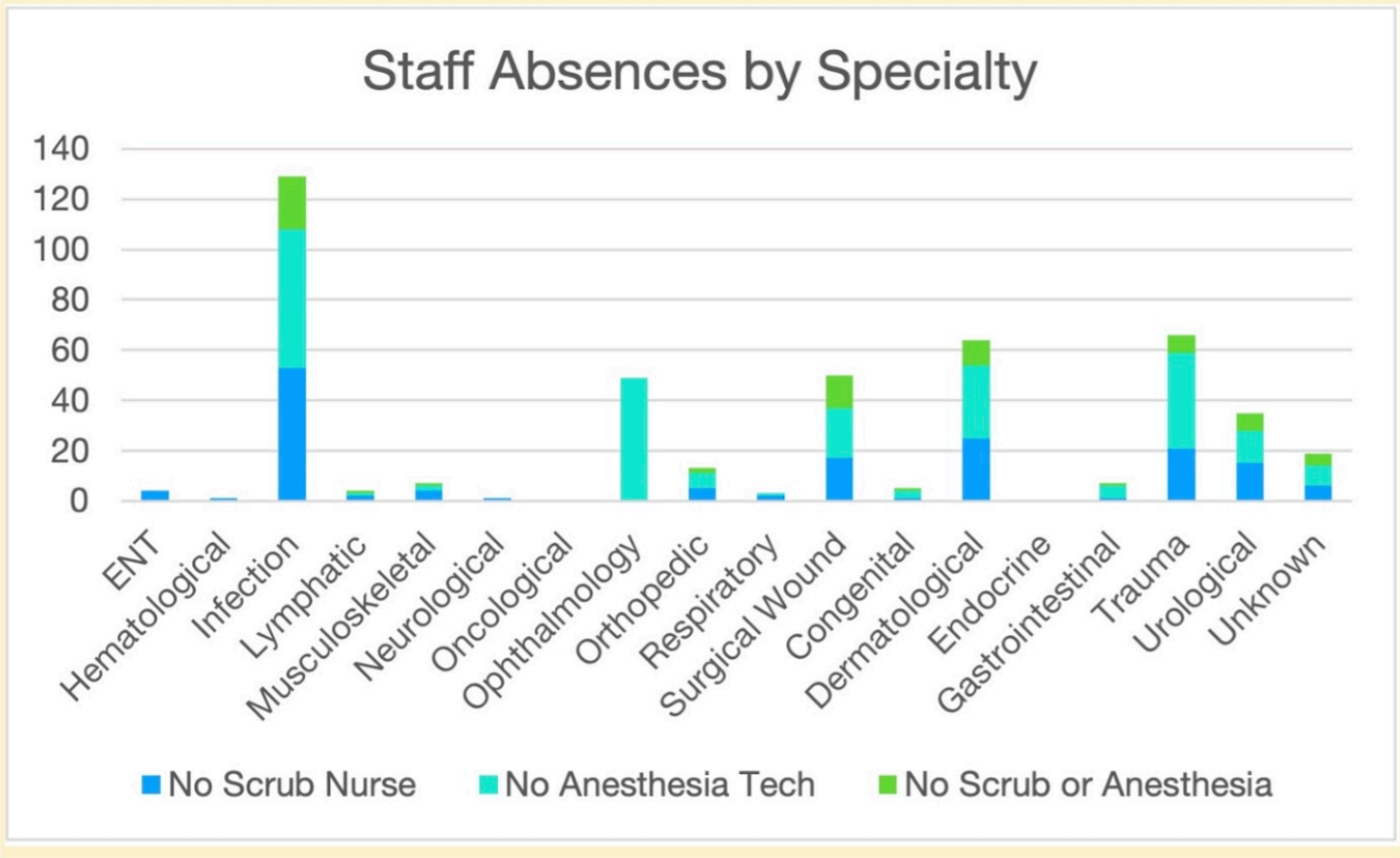
Introduction:
Solomon Islands spans nearly 1,000 islands and has one tertiary care center, making provincial hospitals essential for delivering surgical care. Gizo Hospital, a 90-bed provincial hospital, has two operating theatres, two anesthetic machines, and a single surgeon serving both Choiseul and Western provinces, which are home to 131,000 people across 9,312 square kilometers. We analyzed the operative caseload and workforce utilization to identify gaps in workforce and specialty training.

Material and Method:
Researchers conducted a retrospective review of a prospectively maintained surgical logbooks (2020-2022). Descriptive analysis was applied to diagnoses, procedures, and anesthesia modalities. Staff roles and team size was further analyzed by case type.

Results:
A total of 2,043 operations were performed across 106 unique procedures in 14 subspecialties. The most common diagnostic categories were gynecological/obstetric (N=677, 33.1%) and infections (N=475, 23.3%). Female sterilization (N=238, 35.3%) and obstructed labor (N=87, 12.9%) were the most frequent gynecological/obstetric cases, while diabetic ulcers/sepsis (N=208, 43.8%) were the most common infectious diagnoses. Common procedures included tubal ligation (N=240, 11.8%), cesarean section (N=220, 10.8%), mass/foreign body excision (N=181, 8.9%), and debridement (N=173, 8.5%). Local anesthesia was most commonly used (N=948, 46.4%), followed by spinal (N=500, 24.5%). Surgeons frequently operated alone across multiple subspecialties: Infection (n=43), Dermatology (n=28), Surgical Wounds (n=17), Urology (n=6), ENT (n=3) Hematology (n=1).

Conclusion:
Surgical outreach missions contributed to caseload variability. Our data demonstrate the broad scope of practice of a rural surgeon in Solomon Islands. Future research should explore integration of subspecialty training for rural surgeons in Solomon Islands through telehealth and remote consultation.


Total Staff Absences Across All Specialties
Number of Instances
0
50
100
150
200
Scrub Nurse
Anesthesia Tech
Neither
Absence Type


Staff Absences by Specialty
140
120
100
80
60
40
20
0
ENT
Hematological
Infection
Lymphatic
Musculoskeletal
Neurological
Oncological
Ophthalmology
Orthopedic
Respiratory
Surgical Wound
Congenital
Dermatological
Endocrine
Gastrointestinal
Trauma
Urological
Unknown
No Scrub Nurse
No Anesthesia Tech
No Scrub or Anesthesia

ISW26-295-05 (0443)

REDUCTION OF COMPLICATIONS IN SURGICAL PATIENTS THROUGH NEBULIZED DRUGS

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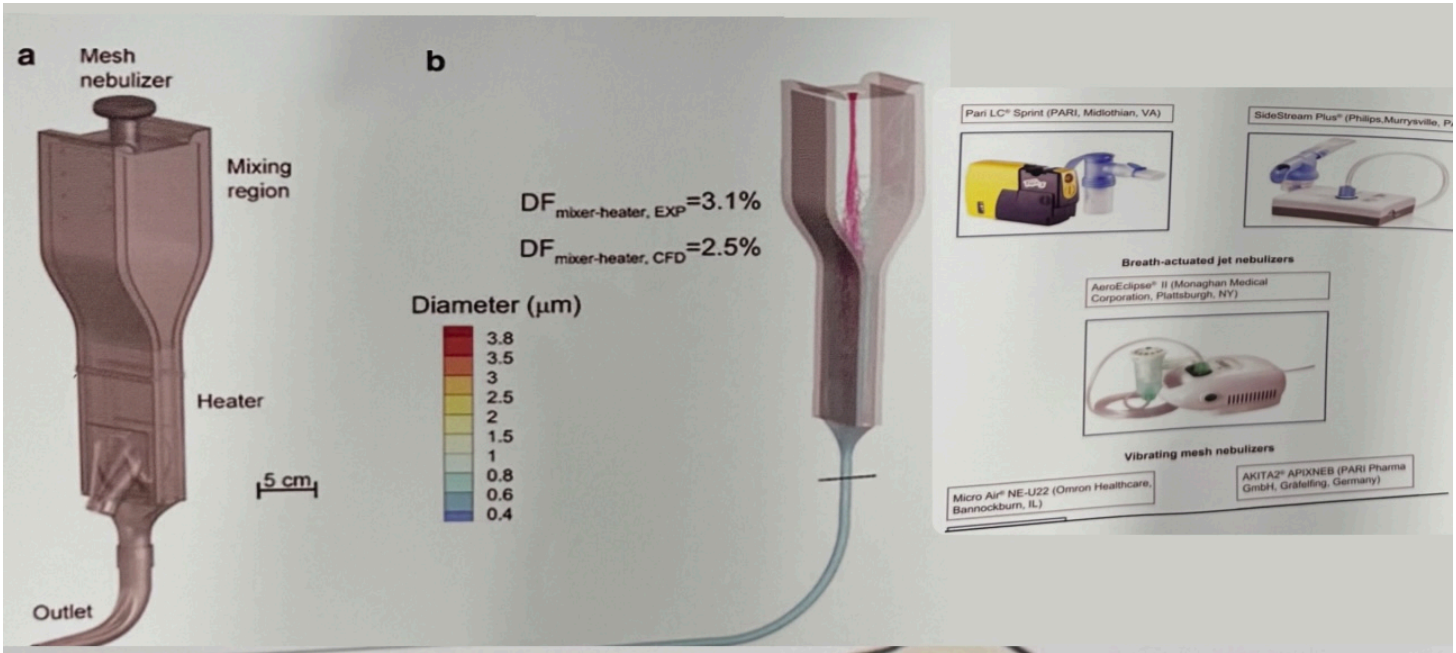
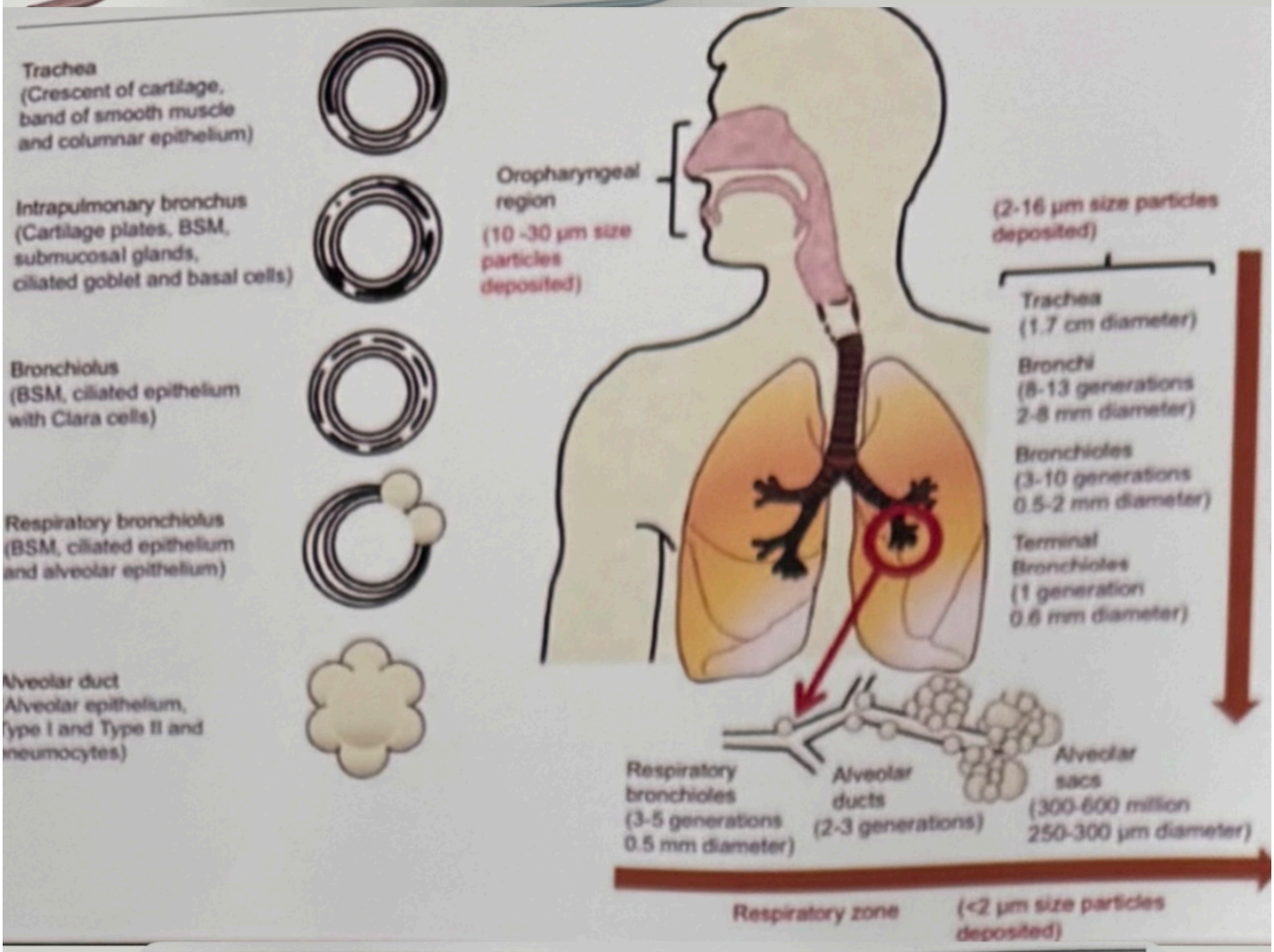
Introduction:
Synergistic effect of budesonide, salbutamol, and ipratropium bromide on lung function, inflammatory response to lung surgery, Evaluated through cytokine measurements in BLF; reduced concentrations of TNF-α, IL 1β, IL 6, and IL 8 in BLF.

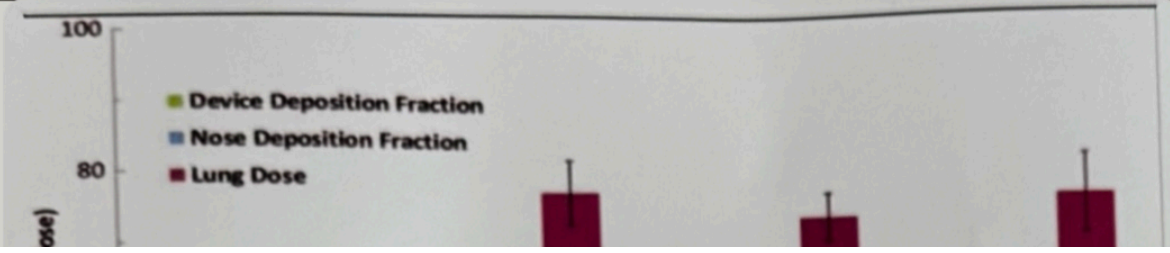
Material and Method:
159 patients scheduled for major lung resection segmentectomy, lobectomy, and wedge resection, with a distribution of 79 men and 80 women age range 18 to 85 years Dx NPS, Lung disease under study, lung metastasis, miliary disease, postinfectious necrosis, granulomatous disease, adenocarcinoma lung cancer, bullous disease, lung sequestration, mesothelioma All managed with nebulizations initiated in the immediate postoperative period with budesonide 0.250mcgr every 12hr, salbutamol 2.5 mg + ipratropium bromide 0.5 every 8hr undiluted, early mobilization, early passive pulmonary rehabilitation exercises, pain management with goals based on the analogous pain scale

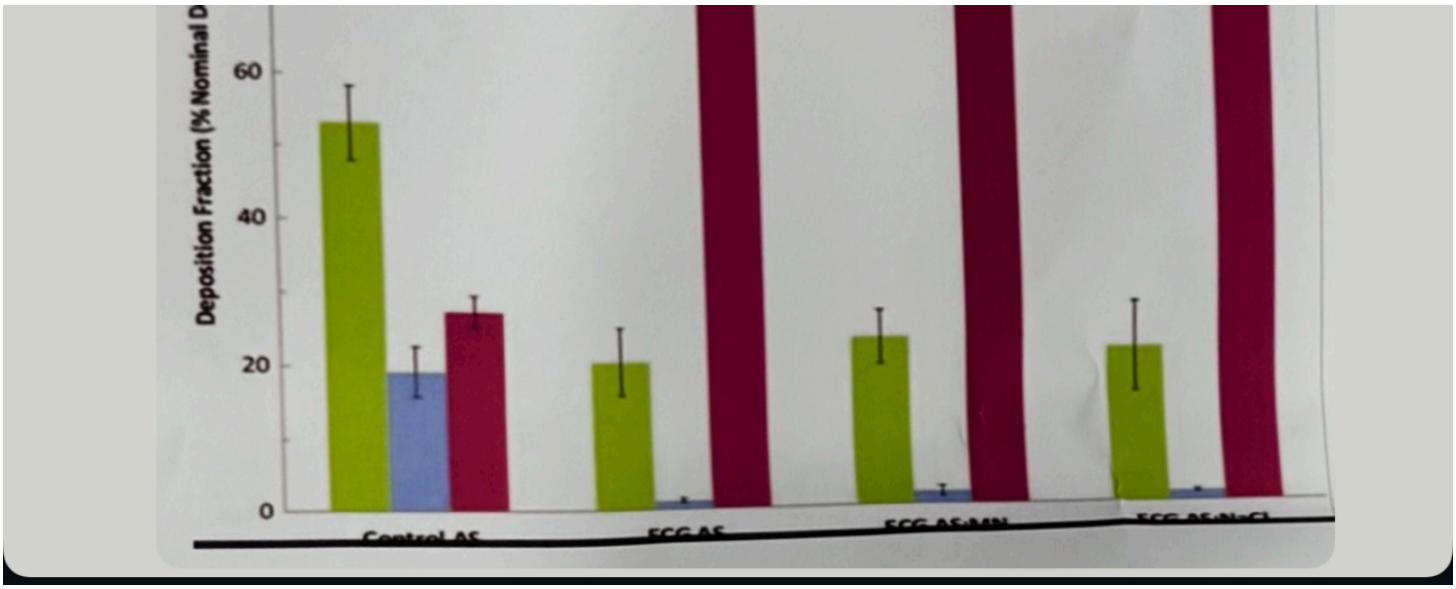
Results:
All patients nebulized with schedule from the 2nd hour after surgery, using inhaled steroids and local bronchodilator based on anticholinergic and B2 adrenergic, Improvement was found in oxygen saturation maintaining figures equal to or greater than 90% with weaning of the same at 24hr postoperatively, improvement in expectoration along with bronchial clearance and exercise tolerance after nebulization

Conclusion:
Nebulization of budesonide improves ventilatory mechanics and reduces the inflammatory response; salbutamol treatment induced significant increases in Pao2/Fio2 ratio accelerates the resolution of lung edema, improves blood oxygenation, and stimulates cardiovascular function. The synergistic reduce extravascular lung water improves oxygenation by stimulating epithelial fluid clearance and cardiovascular function


a
Mesh nebulizer
Mixing region
Heater
5 cm
Outlet
b
$DF_{mixer-heater, EXP}$=3.1%
$DF_{mixer-heater, CFD}$=2.5%
Diameter (μm)
3.8
3.5
3
2.5
2
1.5
1
0.8
0.6
0.4
Pari LC® Sprint (PARI, Midlothian, VA)
SideStream Plus® (Philips,Murrysville, P
Breath-actuated jet nebulizers
AeroEclipse® II (Monaghan Medical Corporation, Plattsburgh, NY)
Vibrating mesh nebulizers
Micro Air® NE-U22 (Omron Healthcare, Bannockburn, IL)
AKITA2® APIXNEB (PARI Pharma GmbH, Gräfelfing, Germany)


Trachea
(Crescent of cartilage, band of smooth muscle and columnar epithelium)
Intrapulmonary bronchus
(Cartilage plates, BSM, submucosal glands, ciliated goblet and basal cells)
Bronchiolus
(BSM, ciliated epithelium with Clara cells)
Respiratory bronchiolus
(BSM, ciliated epithelium and alveolar epithelium)
Alveolar duct
Alveolar epithelium, Type I and Type II and pneumocytes)
Oropharyngeal region
(10 -30 μm size particles deposited)
(2-16 μm size particles deposited)
Trachea
(1.7 cm diameter)
Bronchi
(8-13 generations
2-8 mm diameter)
Bronchioles
(3-10 generations
0.5-2 mm diameter)
Terminal Bronchioles
(1 generation
0.6 mm diameter)
Respiratory bronchioles
(3-5 generations
0.5 mm diameter)
Alveolar ducts
(2-3 generations)
Alveolar sacs
(300-600 million
250-300 μm diameter)
Respiratory zone
(<2 μm size particles deposited)


100
80
Device Deposition Fraction
Nose Deposition Fraction
Lung Dose


Deposition Fraction (% Nominal D
60
40
20
0
Control AS
FCG AS
FCG AS:MN
FCG AS:NaCl

ISW26-295-06 (0124)

CARBUNCLE MANAGEMENT: A PILOT CONTROLLED TRIAL COMPARING SKIN-SPARING SAUCERIZATION FOLLOWED BY DELAYED PRIMARY CLOSURE VERSUS TRADITIONAL SAUCERIZATION

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Introduction:
Carbuncles are deep infections of the subcutaneous often requiring surgical intervention. The traditional approach, saucerization presents several limitations such as delayed wound healing, extended hospital stays and heightened risks of antibiotic resistance. This study evaluates a skin-sparing saucerization technique followed by delay primary closure demonstrated improved outcomes in wound healing and overall patient recovery.

Material and Method:
A pilot-controlled trial was conducted involving patients with carbuncles, involve two groups: traditional saucerization and skin-sparing saucerization. Outcome measures included wound healing duration, hospital stay and complications. Clinical parameters including age, sex, comorbidities (DM, HTN), wound size, anatomical location, healing duration, and hospital stay were recorded. Statistical analyses including independent t-tests and Pearson correlation were used to compare healing outcomes and identify significant predictors.

Results:
Patients in the skin-sparing group had significantly shorter healing durations (29 ± 14 days vs. 92 ± 77 days, $p < 0.001$) and shorter hospital stays (1.7 ± 0.7 vs. 3.3 ± 0.5 days, $p < 0.001$) compared to the traditional group. The incidence of complications was lower in the skin-sparing group, despite having a slightly larger average wound size (5.6 ± 1.7 cm vs. 4.7 ± 2.0 cm). No statistically significant difference in the distribution of diabetes or hypertension was observed between groups.

Conclusion:
This alternative new approach show non inferiority, reduces hospital stay, enhances wound healing and allows for an earlier return to daily activities, ultimately improving patient quality of life. Further studies with larger sample sizes are necessary to establish standardized protocols and confirm the broader efficacy of this method.

ISW26-295-07 (0232)

PLACE-BASED INNOVATIONS IN RWANDAN UNDERGRADUATE SURGICAL EDUCATION: A DISTRICT HOSPITAL CLINICAL CLERKSHIP FRAMEWORK

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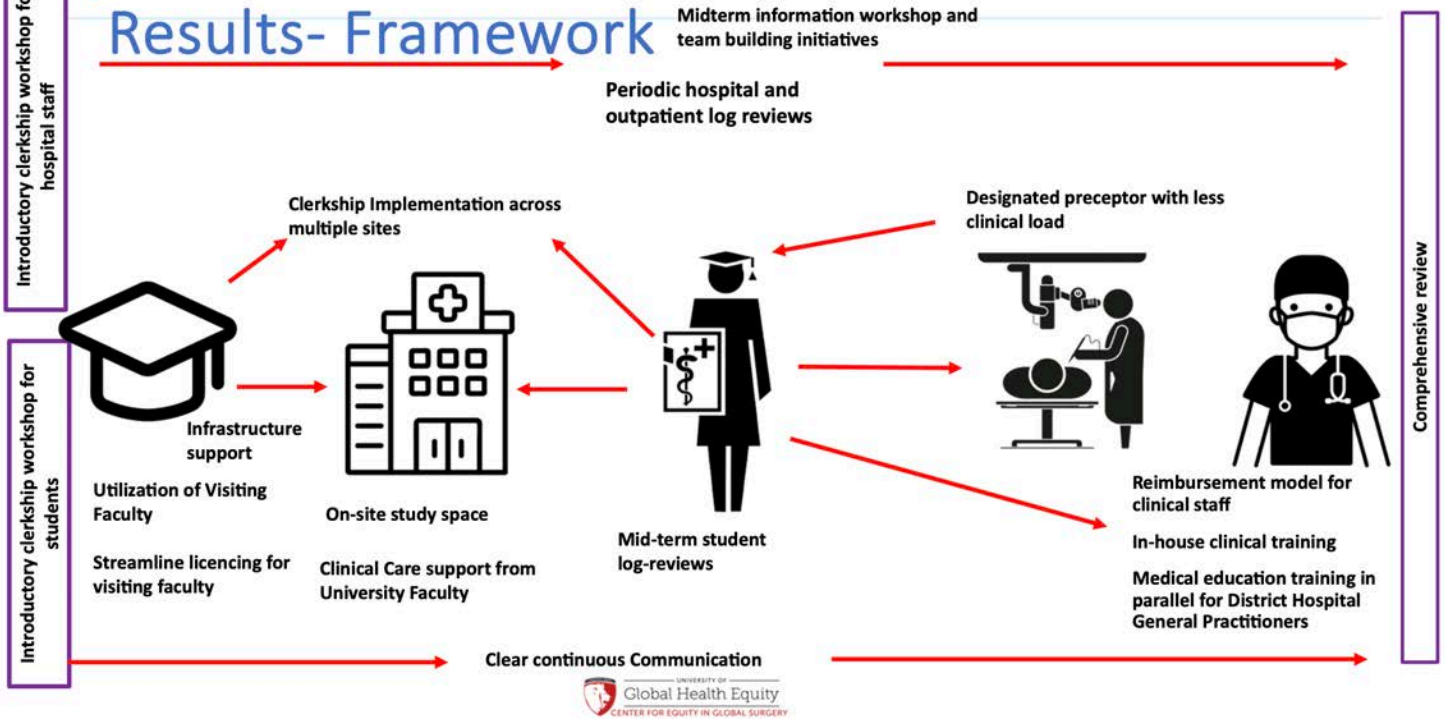
Introduction:
Surgical training in rural facilities improves provider retention and is a key feature of postgraduate programs across Central, East, and Southern Africa. However, undergraduate surgical clerkships based entirely at rural district hospitals remain rare.

Material and Method:
The University of Global Health Equity in rural northern Rwanda piloted a junior surgical clerkship for two cohorts of third-year medical students, delivered exclusively at a rural district hospital. This experience informed the development of a structured framework for undergraduate clinical clerkships at district-level hospitals. A mixed-methods evaluation was conducted, including student and staff surveys, focus group discussions, faculty reflections, and logbook audits. Data were analyzed using grounded theory, SWOT analysis, and a modified Jabareen conceptual framework development approach. An expert panel reviewed and validated the final framework.

Results:
The resulting District Hospital Clinical Clerkship Framework integrates key strategies to strengthen rural surgical education. Strengths included hybrid delivery with simulation support, and strong collaboration between university and clinical faculty. Areas for improvement were supervision capacity, case mix and volume, and infrastructure. To address these, the framework incorporates: 1)Multi-site clerkship design with designated faculty per site; 2) Parallel upskilling of general practitioners; 3) Engagement of visiting faculty via external partnerships; 4) Continuous, structured communication with students and staff (See Figure 1).

Conclusion:
This contextualized framework offers a practical approach to delivering high-quality undergraduate surgical training at district hospitals in sub-Saharan Africa. It ensures adequate clinical exposure, supervision, and educational standards, contributing to workforce development and rural surgical capacity.

Results- Framework



Global Health Equity
CENTER FOR EQUITY IN GLOBAL SURGERY

ISW26-295-08 (0458)

FRAILTY USING THE CLINICAL FRAILTY SCALE TO PREDICT SHORT AND LONG-TERM ADVERSE OUTCOMES FOLLOWING EMERGENCY LAPAROTOMY: META-ANALYSIS

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[2]*University of Auckland, Statistics, Auckland, New Zealand*

Introduction:
Emergency laparotomy has high morbidity and mortality rates. Frailty assessment remains underutilized in this setting, in part due to time constraints and feasibility. The Clinical Frailty Scale is the most appropriate tool for frailty assessment in emergency laparotomy patients and is recommended for all older patients undergoing emergency laparotomy. The prognostic impact of measured frailty using the Clinical Frailty Scale on short- and long-term mortality and morbidity remains to be determined.

Material and Method:
Observational cohort studies were identified by systematically searching Medline, Embase, Scopus and CENTRAL databases up to February 2024, comparing outcomes following emergency laparotomy for frail and non-frail participants defined using the Clinical Frailty Scale. Primary outcomes were short- and long-term mortality. A random-effects model pooled effect estimates, and a separate narrative synthesis was created. Risk of bias was assessed.

Results:
Twelve articles comprising 5704 patients were included. Frailty prevalence was 25% in all patients and 32% in older adults (age ≥55 years). Older patients with frailty had a significantly greater risk of postoperative death (30-day mortality OR 3.84, 95% c.i. 2.90 to 5.09; 1-year mortality OR 3.03, 95% c.i. 2.17 to 4.23). Meta-regression showed variations in frailty cut-offs did not significantly affect the association with 30-day mortality. Frailty was associated with higher major complication rates (OR 1.93, 95% c.i. 1.27 to 2.93) and discharge to increased care.

Conclusion:
Frailty is significantly associated with mortality, morbidity, and adverse functional outcomes. Identifying frailty using the Clinical Frailty Scale may support patient-centred decision-making and tailored care strategies.

ISW26-295-09 (0807)

TWO REALITIES, TWO CONTINENTS: AN ECOLOGICAL PERSPECTIVE ON LICHTENSTEIN TECHNIQUE IN PORTUGAL AND BRAZIL

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Introduction:
Inguinal hernia repair is one of the most frequently performed procedures in General Surgery. The Lichtenstein technique is widely adopted worldwide. In recent years, there has been growing interest in assessing the environmental impact of surgical procedures, considering not only direct costs but also the carbon footprint associated with material use. Differences in hospital policies and resource management can significantly influence this impact.

Material and Method:
A comparative analysis was conducted of Lichtenstein inguinal hernioplasties performed between April 1st and June 30th in a public hospital in Brazil and a hospital in Portugal. In both centers, a detailed inventory of single-use materials employed per procedure was recorded. Using carbon emission factors from reference databases (Green Surgery Protocol, NHS Sustainable Healthcare) the carbon footprint of each intervention was estimated.

Results:
The Brazilian hospital demonstrated a lower consumption of single-use materials, with a predominance of reusable instruments and components, whereas the Portuguese hospital showed higher reliance on disposable items. The analysis suggests that these differences stem primarily from institutional purchasing and supply policies rather than technical variations in the procedure. However, the total number of elective inguinal hernia repairs performed was lower in the Brazilian center.

Conclusion:
The Lichtenstein technique shows marked differences in material consumption patterns between the two countries, directly influencing the associated carbon footprint. Implementing strategies that combine surgical safety with resource optimization may reduce costs and environmental impact, underscoring the importance of integrating sustainability criteria into hospital decision-making.