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Category: Adult pulmonology (including physiotherapy)

Synthesis of a Setswana Leicester Cough Questionnaire

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Introduction. The Leicester Cough Questionnaire (LCQ) is a patient-reported outcome measure (PROM) that assesses quality of life across physical, psychological, and social domains.

Objective. To develop a Setswana version of the LCQ for use in a South African context.

Methods. Guidelines for translation and cross-cultural adaptation of PROMs were followed. Phase I included forward translation, synthesis of the translations, back translation, and expert review to facilitate the cultural adaptation of the LCQ into Setswana. In Phase II, content validity was assessed through expert review using the item content validity index (I-CVI) and the scale content validity index (S-CVI). Meetings were audio-recorded, transcribed verbatim, and analysed using thematic content analysis to establish an audit trail, enhancing the credibility of the process.

Results. Five individuals participated in translating and adapting the LCQ to Setswana. The majority were female ($n=4$, 80%), with a mean age of 48.6 (SD 12.01). The translation process revealed linguistic challenges in the LCQ instructions and in questions 2, 3, 6, 9, 12, 15 and 18. Potential barriers to cross-cultural adaptation included cultural alignment and linguistic aspects, such as dialect, language descriptiveness and delivery mode. Items 9, 13 and 17 scored below 0.67 on the I-CVI, below the recommended score of 1.0. However, the overall S-CVI/Ave was 0.93, indicating excellent scale content validity.

Conclusion. A Setswana LCQ version with strong S-CVI is ready for testing in patient cohorts to evaluate the clarity of terms and reveal potential cultural bias.

Physical function and physiotherapy in severe South African community-acquired pneumonia patients: Retrospective record review

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Introduction. Community-acquired pneumonia (CAP) is a respiratory illness that affects global health and wellness of individuals. Due to

the prevalence of the human immunodeficiency virus (HIV) in Sub-Saharan Africa, the patient profile of pneumonia differs.

Objective. To establish the patient profile, assess physical function, describe physiotherapy interventions and identify whether an HIV-positive status influenced physical function.

Methods. A retrospective record review of 137 patient records admitted to an intensive care unit (ICU) at a public-sector hospital from 1 January 2016 to 31 December 2019 was undertaken.

Results. The most common presenting complaints were shortness of breath ($n=108$, 78.8%) and coughing ($n=107$, 78.1%). Nine (6.6%) walked into casualty at admission. The median age was 40 years (IQR 23), with high unemployment ($n=73$, 53.3%) and even distribution of gender (males: 69, 50.4%; females: 68, 49.6%). Eighty-eight (64.2%) were HIV-positive. The severity of illness was high ($n=62$, 45.25% with a CURB-65 score ≥ 3). Most required mechanical ventilation ($n=119$, 86.9%) and over half received physiotherapy ($n=73$, 53.3%). Chest physiotherapy ($n=70$, 51.1%) was frequently done, followed by active exercises in bed ($n=40$, 29.2%) and out of bed ($n=35$, 25.5%). ICU Mobility Scale scores improved from ICU admission to discharge ($Z = -7.306$, $p < 0.001$). HIV status was associated with admission ICU Mobility Scale results ($r=0.191$, $p=0.025$), with HIV-positive patients achieving higher functional levels at discharge.

Conclusion. The context of CAP in a public sector setting presents an interplay of acute and chronic health conditions. These findings underscore the need for tailored rehabilitation.

Classification and adherence to treatment guidelines in chronic obstructive pulmonary disease patients at two tertiary hospitals

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Introduction. Chronic obstructive pulmonary disease (COPD) is highly prevalent in South Africa. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) updated its classification and treatment guidelines in 2023.

Objective. To evaluate whether Charlotte Maxeke Johannesburg Academic Hospital (CMJAH) and Helen Joseph Hospital (HJH) have adopted the GOLD 2023 guidelines in place of the 2019 guidelines with regard to classification, clinical control and treatment.

Methods. The study was quantitative, descriptive and cross-sectional in design. REDCAP was used for data storage. Validated questionnaires

including the Clinical COPD Questionnaire (CCQ), St George's Respiratory Questionnaire (SGRQ) and the COPD Assessment Test (CAT) were used. Patients >18 years old, diagnosed with COPD for a minimum of 6 months, were included. Shapiro-Wilk and chi-squared tests were used for data analysis.

Results. A total of 77 patients were included in the study, with a mean age of 68.3 years. Eight % were still categorised as GOLD D, while 43% were categorised as GOLD E, and 79% had an mMRC grade ≥ 2 . In all three questionnaires, higher scores were associated with more frequent exacerbations ($p < 0.05$) and with higher GOLD group classification ($p < 0.05$). All GOLD A patients were managed on a bronchodilator, while 51.6% of GOLD B patients received dual LABA + LAMA therapy. Only 5.1% of GOLD D and E patients were on LABA + LAMA therapy, with 66.7% receiving an additional inhaled corticosteroid. COVID-19 vaccination uptake was 77.9%, with the lowest uptake for the pneumococcal vaccination (9.1%).

Conclusion. GOLD categorisation of patients including treatment was largely consistent with 2023 recommendations. However, the symptom burden and overall well-being of most patients remain poor.

A cross-sectional analysis of pulmonary hypertension in hospitalised patients with active tuberculosis

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Introduction. Pulmonary hypertension (PH), a serious complication of pulmonary tuberculosis (TB), significantly contributes to patient morbidity and mortality. However, its prevalence and associated factors among hospitalised TB patients remain poorly characterised.

Objective. To determine the prevalence of PH and compare clinical, demographic, and echocardiographic features between TB patients with and without PH.

Methods. In this cross-sectional study, 87 adult patients with microbiologically confirmed active TB admitted to a TB referral hospital in South Africa, underwent structured clinical assessment, spirometry, and bedside trans-thoracic echocardiography (TTE). Pulmonary hypertension (PH) was identified using TTE. Demographic data, smoking history, comorbidities, body vitals, respiratory function, and echocardiographic parameters were compared. Statistical significance was set at $p < 0.05$.

Results. PH was identified in 8 of 87 patients (9.2%; 95% CI: 3.1 - 15.3). Median age did not significantly differ between patients with PH (31.5 years) and those without PH (34.0 years; $p = 0.602$). Patients PH with PH were more likely to be current smokers (75.0% v. 35.4%; $p = 0.020$), though with lower median number of pack-years (2.0 v. 6.0; $p = 0.014$). Significantly lower body weight (35.5kg v. 44.0kg; $p = 0.001$) and BMI (14.4 v. 17.0; $p = 0.003$) were observed in PH patients. No significant differences were found in respiratory function parameters or prevalence of hypertension, cardiovascular and thromboembolic diseases.

Conclusion. Approximately 1 in 10 hospitalised patients with active TB had PH, with two-thirds presenting with their first episode of TB. Low

BMI and active smoking were significantly associated with the presence of PH. These findings highlight the need for enhanced monitoring and targeted interventions in high-risk TB inpatients. Further research is required to clarify PH pathophysiology in active TB patients.

Factors affecting compliance and control of asthma at a tertiary center in South Africa

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Introduction. Asthma affects an estimated 300 million people globally and accounts for ~250 000 deaths annually, representing a significant burden on public health and well-being. Factors contributing to compliance and control of asthma are complex and multifactorial. Addressing these factors is essential to manage the burden of disease.

Objective. To identify and describe the factors influencing asthma control and treatment adherence among adult patients attending the Respiratory Outpatient clinic at Chris Hani Baragwanath Academic Hospital (CHBAH).

Methods. This prospective study included adult asthmatic patients attending scheduled appointments. Data on their demographics, comorbidities, inhaler technique, treatment adherence and pharmacy supply issues were collected using a structured prompt sheet.

Results. Among 137 patients, 68.4% had uncontrolled asthma despite 97.5% self-reporting adherence. Incorrect inhaler technique was observed in 55% of cases. Pharmacy stock issues and unauthorised medication substitutions were associated with poorer asthma control ($p = 0.036$ and $p = 0.017$, respectively)

Conclusion. Asthma control is multifactorial, with health system barriers such as medication availability contributing significantly. Enhanced patient education and improved pharmaceutical supply chains are necessary to improve outcomes.

Histologic findings in adults hospitalized with hypoxaemic pneumonia during the COVID-19 pandemic in South Africa

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Introduction. Reports on COVID-19 pulmonary histopathology describe diffuse alveolar damage (DAD). However, few studies have compared histological findings between decedents who were mechanically ventilated and those who were not.

Objective. To describe pulmonary histological findings in decedents with hypoxaemic pneumonia during the COVID-19 pandemic. Within the COVID-19 cohort, findings in mechanically-ventilated decedents were compared with those who received only supplemental oxygen therapy.

Methods. This observational, prospective, single-centre study included adult decedents with hypoxaemic pneumonia attributable to both COVID-19 and non-COVID-19 causes

Results. A total of 81 decedents were enrolled, including 60 attributed to COVID-19 and 21 with non-COVID-19 pneumonia. The COVID-19 decedents had a lower SAPS II score than non-COVID-19 (30 v. 39; $p=0.03$). Histopathology findings more prevalent in COVID-19 included hyaline membrane formation ($n=45/60$ (75%) v. $n=7/21$ (33.3%); $p=0.01$, odds ratio (OR): 1.67; 95% CI 1.25 - 2.25) and alveolar collapse ($n=48/60$ (80%) v. $n=11/21$ (52.4%); $p=0.02$, OR 1.49; 95% CI 1.08 - 2.05). COVID-19 decedents were more likely to have type II pneumocytes displaying: hyperplasia ($n=54/60$ (90%) v. $n=13/21$ (61.9%); $p=0.01$, OR 1.88; 95% CI 1.23 - 2.87), cytomegaly ($n=50/60$ (83.3%) v. $n=9/21$ (42.9%), $p=0.01$, OR 1.86; 95% CI 1.33 - 2.62), nucleomegaly ($n=48/60$ (70%) v. $n=9/21$ (42.9%); $p=0.01$, OR 95% CI 1.22 - 2.32), and multinucleation ($n=42/60$ (70%) v. $n=8/21$ (38.1%); $p=0.02$, OR 1.45, 95% CI 1.09 - 1.91). Septal collagen deposition was more prominent among the non-ventilated COVID-19 patients compared with ventilated COVID-19 cases ($n=42/46$ (91.3%) v. $n=9/14$ (64.3%); $p=0.01$).

Conclusion. DAD was more frequent in decedents with hypoxaemic pneumonia attributed to COVID-19. Septal collagen deposition was more evident among the non-ventilated COVID-19 group, and the potential for patient self-induced lung injury should be considered.

Outcomes of HIV-associated pneumocystis Pneumonia in a high HIV/TB prevalence population

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Introduction. Pneumocystis pneumonia (PCP) is a common cause of severe respiratory illness in individuals with advanced HIV in sub-Saharan Africa.

Objective. To assess the outcomes of HIV-associated PCP.

Methods. We are undertaking a prospective observational in-patient cohort study of adults with probable (clinical case definition) or confirmed (immunofluorescent staining on sputum or bronchoalveolar lavage fluid) HIV-associated PCP. Eligible patients, enrolled at a District Hospital in Khayelitsha, Cape Town, undergo bronchoscopy and serial evaluation during admission, with follow up for the primary outcome of death at 90 days. This interim analysis reports on the clinical characteristics and short-term outcomes.

Results. A total of 108 participants were enrolled over the period June 2023 to April 2025, 60 (55%) of whom underwent bronchoscopy. Among those, 29/60 (48%) had definite PCP on bronchoscopy and 42/108 (39%) had definite PCP on sputum. The median age was 36 years (interquartile range (IQR) 31 - 43) and 58/108 (53%) were women. The median CD4 count was 21 cells/mm³ (IQR 9 - 60), 12/107 (11%) participants were currently on antiretroviral therapy (ART), 38/108 (35%) were ART-naïve, and 58/108 (54%) had interrupted ART. The median ratio of arterial oxygen pressure to fraction of inspired oxygen

(P/F) 100/108 was 315 mmHg (IQR 217 - 450). 28/108 (26%) were newly diagnosed with tuberculosis co-infection. 95/108 (88%) had detectable cytomegalovirus (CMV) DNA in serum (median 855 IU/ml, IQR 174 - 9 245) and 59/60 (98%) had detectable CMV DNA in bronchoalveolar lavage (BAL) fluid (median 2 024 IU/ml, IQR 448 - 16 942). 23/108 (21%) were inpatient deaths.

Conclusion. Patients with HIV-associated PCP are ART experienced. Tuberculosis co-infection and CMV viraemia were prevalent. Clinical outcomes were poor with a high inpatient mortality.

Searching for evidence on the relationship between tuberculosis and lung cancer in Africa: A scoping review

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Introduction. Evidence shows that inflammatory lung diseases such as pulmonary tuberculosis (TB) can increase the risk of lung cancer, independent of smoking history. Given the high burden of TB in African countries, it is important to investigate the association between TB and lung cancer within this context.

Objective. To review the body of evidence from African countries on the relationship between TB and lung cancer.

Methods. We searched eight databases for observational cohort, case-control, and cross-sectional studies that reported data on the relationship between TB and lung cancer in Africa. No language or publication date restrictions were imposed. After charting the data, a descriptive overview of the studies in a narrative format about TB and lung cancer was written.

Results. We identified eight studies published between 2011 and 2022. All studies investigated patients with lung cancer patients and the occurrence of latent, active, or sequelae TB, except for two studies, which investigated lung scarring from any cause in lung cancer patients. We did not find any studies that investigated the causal relationship between TB and lung cancer in Africa.

Conclusion. The studies reviewed suggest a high co-occurrence of TB in patients with lung cancer. Despite the levels of TB and lung cancer co-occurrence, our review found no studies designed to assess the causal relationship between TB and lung cancer in Africa. This highlights an urgent need for longitudinal studies in countries with a high prevalence of TB to better understand the mechanisms of this association.

Two unusual presentations of life-threatening haemoptysis in HIV seropositive patients

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Introduction. Aortobronchopulmonary fistulae are abnormal

communications between the thoracic aorta and either the central airways, or the pulmonary parenchyma. Life-threatening haemoptysis is the common presentation, and left untreated, the condition is uniformly fatal.

Methods. We describe two patients who presented with life-threatening haemoptysis due to aortobronchopulmonary fistulae, both of whom were successfully managed by transthoracic endovascular aortic repair (TEVAR).

Results. Patient 1 is an HIV seropositive patient who presented with life-threatening haemoptysis in June 2018. He was diagnosed with pulmonary TB on admission. A CT angiogram revealed a thoraco-abdominal dissecting aortic aneurysm involving the coeliac artery. The angiogram was highly suggestive of a likely communication between the distal thoracic aorta and the left lower lobe of the lung. He was successfully managed by TEVAR and coeliac artery and superior mesentery artery bypass. Patient 2 is an HIV seropositive patient with a history of previous TB in 2016 and 2018. She had undergone bronchial artery embolisation for haemoptysis secondary to a left upper lobe mycetoma in August 2024, followed by elective left upper lobe lobectomy in December 2024. She presented with life-threatening haemoptysis again in May 2025 and was diagnosed with TB. CT angiogram demonstrated a pseudoaneurysm of the descending thoracic aorta just distal to the origin of the left subclavian artery. Active extravasation into the left pleural cavity and pulmonary haemorrhage was visible. Successful TEVAR was performed.

Conclusion. Although a rare cause of significant haemoptysis, early recognition and appropriate medical and surgical treatment is paramount to avoid mortality in patients with aortobronchopulmonary fistulae.

Retrospective Review of embolotherapy for significant haemoptysis

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Introduction. Life-threatening or recurrent significant haemoptysis are indications for interventional procedures, either as a bridging procedure prior to definitive surgical management or more commonly, as a salvage procedure in patients who are not candidates for definitive thoracic surgery.

Objective. To analyse the demographics and aetiology of patients requiring an interventional procedure for significant haemoptysis and to evaluate the complications and outcome of patients who underwent embolotherapy with polyvinyl alcohol particles and/or coils at a single centre (Chris Hani Baragwanath Academic Hospital).

Methods. We conducted a retrospective review of 88 consecutive patients who underwent an interventional radiological intervention for haemoptysis between January 2024 and June 2025.

Results. Eighty-eight patients aged 19 to 89 years (mean 42.9 years) underwent embolotherapy using either polyvinyl alcohol particles ($n=78$) or coils ($n=17$). Seven patients were managed with vascular occlusion by both polyvinyl alcohol particles and coils. The most common underlying aetiologies for haemoptysis were mycetomas ($n=29$), post-TB lung disease ($n=22$) and current active pulmonary

TB ($n=20$). Blood transfusions were required in 43/78 patients. Five patients died (3 from re-bleeding following their procedures, 1 from probable nosocomial sepsis, 1 who had an underlying non-pulmonary malignancy unrelated to her haemoptysis and where the cause of death was unclear). Two patients developed neurological deficits although both patients made a good, although incomplete, recovery. One patient developed anterior spinal artery infarction.

Conclusion. Interventional radiological procedures for haemoptysis does save lives. However, there is a risk of morbidity and mortality which must be weighed up against the risk of fatal haemoptysis.

Case report: Lymphatic dysplasia in a patient with Noonan Syndrome

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Introduction. Noonan syndrome is an autosomal dominant multisystem genetic disorder characterized by dysmorphic features and a range of other organ abnormalities, most notably cardiac defects. Although molecular confirmation is possible, pathogenic variants of a number of different genes affecting the RAS-MAPK pathway are involved. The phenotype varies in severity and features change with age, often resulting in missed or delayed diagnosis.

Objective. To highlight the occurrence of lymphatic dysplasia in an adult patient diagnosed with Noonan syndrome.

Methods. Retrospective report of a previously undiagnosed adult female with Noonan syndrome complicated by bilateral chylothoraces, probable pulmonary lymphangiomatosis and chylous ascites.

Results. A 24 year old female presented to Chris Hani Baragwanath Academic Hospital with a 5-month history of progressive dyspnoea and hypoxaemia (SpO₂ 87% on room air). She had phenotypical features consistent with Noonan syndrome and had bilateral chylothoraces. Her CT scan of the chest also demonstrated diffuse bilateral interlobular septal thickening, most likely representing pulmonary lymphangiomatosis. She had presented 6 years earlier to the private sector with chylous ascites and a right chylothorax. Despite extensive investigations, no secondary cause had been found. She had been prescribed a low fat diet with some response. The patient is currently undergoing further investigation. We plan to utilise more recent advanced radiological imaging (dynamic contrast magnetic resonance lymphangiography) to better map her lymphatic anatomy in the hope that definitive therapy may be feasible.

Conclusion. In patients presenting with lymphatic dysplasia without an obvious cause, features of Noonan syndrome should be looked for.

Case report: Spontaneous regression of lung cancer

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Introduction. Spontaneous regression of cancer, although rare, has been documented. The most common malignancies reported are renal cell carcinoma, lymphoma, malignant melanoma and neuroblastoma.

Primary lung cancer has very rarely reported to undergo spontaneous regression.

Objective. To report a patient with probable spontaneous regression of metastatic primary lung cancer.

Methods. Retrospective report of a patient evaluated 15 years after the diagnosis of metastatic adenocarcinoma of the lung.

Results. A 74-year old female presented to Chris Hani Baragwanath Academic Hospital in 2011 with back pain. Further investigation revealed a 10.4 x 7.6 cm descending aortic aneurysm. She was a current smoker since 13 years of age. She reported that she had been diagnosed with lung cancer in 1996. Other than analgesia and possible palliative radiotherapy (not confirmed), she had not received any chemotherapy and had defaulted follow-up. We found records of her admission in 1996 which documented that she had a large right upper lobe lung mass. No endobronchial mass was noted on flexible bronchoscopy, but subsequent fine needle aspiration of the mass confirmed an adenocarcinoma. A bone scan showed metastases to her ribs and clavicle. On admission in 2011, there was no evidence of a RUL lung mass on chest X-ray or CT scan, and there were no osteoblastic metastases on a bone scan. She underwent insertion of an endovascular stent and jump graft, and a superior mesenteric artery to right iliac artery bypass graft.

Conclusion. Records of this patient suggest that her lung cancer underwent spontaneous regression, an extremely rare phenomenon.

Category: Paediatric pulmonology (including physiotherapy)

Antenatal air pollution, oscillometry and spirometry among children in the MACE birth cohort

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Introduction. Oscillometry (OS) and spirometry determine lung function in children, assessing the smaller and larger airways, respectively.

Objective. To determine pollutant-related in oscillometry and spirometry measurements among children in the Mother and Child in the Environment (MACE) cohort.

Methods. Pregnant women were recruited at public antenatal clinics in their first trimester of pregnancy from low-socioeconomic communities in Durban, South Africa. We report on a subset of children aged 5 - 10 years ($n=206$), with same day OS and spirometry tests performed according to American Thoracic Society guidelines. Exposure to antenatal ambient particulate matter ≤ 2.5 microns ($PM_{2.5}$) and nitrogen dioxide (NO_2) at each participant's residence was determined through hybrid land-use regression and dispersion modelling.

Results. The mean age of the children was 7.2 year (SD 1.53), with 5.8% reporting doctor-diagnosed asthma. Median pollutant concentrations ($\mu g/m^3$) (range) were: NO_2 : 15.7 (7.54 - 25.9) and $PM_{2.5}$: 13.1 (9.02 - 14.1). Environmental tobacco smoke (ETS) and home dampness was reported by 47% and 30.6%, respectively. The median (interquartile range) R5 z-score and FEV_1/FVC z-score were 0.29 (-0.34 to 0.83) and 0.59 (-0.42 to 1.26), respectively. Exposure to ETS was associated with a significantly lower FEV_1/FVC z-score (β : -0.53 - 95% CI -1.03 - -0.03). Increasing NO_2 and $PM_{2.5}$ exposure were associated with a decrease in OS and spirometry parameters, but these were not statistically significant.

Conclusion. Environmental agents, such as household damp and ETS are likely to be associated with small airways dysfunction. The association with ambient pollutants is suggested, but requires further study.

Case report: Cystic fibrosis and HIV infection in an infant: Challenging diagnosis and management

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Introduction. The coexistence of HIV and cystic fibrosis (CF) is very rare and presents significant challenges in diagnosis and management in resource-limited settings.

Case. A 10-week-old HIV-exposed infant was referred to our hospital with suspected heart failure secondary to severe anaemia. On admission, she was in severe distress, moderately wasted, with clinical signs of heart failure. Investigations show haemoglobin 2.1 g/dl, metabolic acidosis, and elevated lactate levels. HIV PCR was positive, while tuberculosis and TORCH screens were negative. Chest X-ray showed bilateral haziness. She was managed with CPAP, blood transfusions, empirical antibiotics and antiretroviral drugs. Despite optimised nutritional and medical support, there was persistent cough, wheezing, and poor weight gain. Further investigation revealed low faecal elastase and an inconclusive sweat test. CFTR mutation analysis confirmed CF with homozygous 3120+1G mutation. She was started on pancreatic enzyme replacement, vitamins and physiotherapy. She remained hospitalised for two months and has since had multiple admissions for pulmonary exacerbation and one episode of elevated liver enzymes. Her care has been complicated by poor adherence due to social challenges and her mother's young age. She is currently at special center for the optimal care management.

Conclusion. This case highlights the rare coexistence of HIV and CF and emphasizes the importance of considering CF in any child with failure to thrive, persistent respiratory symptoms, and malabsorption even in the context of other co-existing causes such as HIV infection.