

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1002	Orthopaedic Surgery

Authors

M.S.B.KOH¹, Z.Q.G.LIAU¹, A.R.ISHAK¹, S.P.M.NG¹, Z.B.CHIN¹, F.H.Y.KAGDA²

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Title Reliability of a novel practical method of predicting ACL graft size using preoperative MRI does not differ regardless of Orthopedic experience

Background & Hypothesis

It is important to pre-operatively identify patients who may have small-sized hamstring tendons, so surgeons can consider alternative graft sources. A novel and practical method was previously described to estimate the size of the hamstring tendon graft using preoperative MRI with a high specificity. However, the practicality of this method has not been assessed in a wider spectrum of clinicians.

This study aims to (1) Determine the performance of this method amongst a broader range of medical practitioners (2) to assess whether differences amongst members with various clinical experience can affect the accuracy of the estimation of the hamstring tendon graft size.

Methods

A retrospective review was conducted for 112 patients who underwent primary ACL reconstruction. Five evaluators were chosen to reflect a broad range of Orthopedic experience, including an Orthopedic senior consultant, a senior resident, a non-trainee medical officer and two medical students. All five evaluators measured the cross-sectional lengths and breadths of semitendinosus and gracilis grafts.

Results

Specificities ranged between 88.9% to 94.4% across all five evaluators. Percentage agreement was highest between the senior and junior surgeons (90.2%) and very high between the medical students (86.6%). High interobserver reliability was observed between the surgeons ($\kappa=0.795$) and between the medical students ($\kappa=0.713$). Overall, there is substantial interobserver reliability across all five evaluators ($\kappa=0.714$) based on the Landis & Koch scale.

Discussion & Conclusion

We have further established the accuracy and reproducibility of this novel practical method through an inter-observer study, thus enabling junior members of the surgical team to complete this role with similar competency.

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Abstract Details	
Abstract ID	Clinical Specialty
SHBC1005	Family Medicine
<p>Authors S.F.LOH¹, C.NGEOW¹, T.Y.WONG¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Diabetic Patients admitted in Integrated Care Hub (ICH) Ward – opportunities for improving chronic care</p> <p>Background & Hypothesis Diabetes mellitus (DM) and its complications are major healthcare issues globally, resulting in significant financial burden, and heavy strain on healthcare resources. Standard care for DM patients include: regular screening for complications for early identification and intervention, to slow down disease progression and reduce complications severity. The ICH trial Ward admits patients for step-down medical or nursing care, rehabilitation, and for discharge planning and case-coordination. During inpatient stay, there are opportunities for identifying and bridging care gaps for DM patients.</p> <p>Methods eRecords of patients admitted to ICH trial ward over one week in June 2023 were reviewed. DM patients were identified and assessed if they received dietary advice from dietician throughout their inpatient stay, had any diabetic foot screening or diabetic retinal examination within the past 12 months.</p> <p>Results A total of 34 patients were admitted from 1st to 7th June 2023. 38.2% (n=13) were identified to have DM, with mean age of 80.1 years. Mean HbA1c was 7.2% (range 5.1% -10.0%). Among DM patients, 92.3% (n=12) have ≥ 3 chronic diseases like hypertension & dyslipidaemia. 76.9% (n=10) were followed up by polyclinics, and 84.6% (n=11) were followed up by non-Endocrine specialist outpatient clinics. In the past 12 months, 53.8% (n=7) did not have diabetic eye screening while 69.3% (n=9) did not have diabetic foot screening. Only 30.8% (n=4) had ever received any dietary advice from a dietician.</p> <p>Discussion & Conclusion The ICH ward presents an unique opportunity to identify and address care gaps in the management of DM patients admitted for recovery & rehabilitation.</p>	

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Abstract ID	Clinical Specialty
SHBC1006	Orthopaedic Surgery
<p>Authors Z.Y.LIM¹, L.THWIN², K.G.TAN² ¹Lee Kong Chian School of Medicine (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Functional Outcomes and Quality of Life Continue to be Maintained Beyond One-Year Post-TotalKnee Arthroplasty</p> <p>Background & Hypothesis Total Knee Arthroplasty (TKA) is the well established gold-standard treatment of end-stage knee osteoarthritis. This study seeks to establish the temporal pattern of patient reported outcome measures (PROMs) and objective scores over a 2year period postTKA.</p> <p>Methods A retrospective cohort study of 755 patients who underwent unilateral primary TKAs between August 2017 to October 2020 was performed. PROMs include Oxford Knee Score (OKS), Knee Society Functional Knee Score (KSSF), 5-level EuroQol-5D questionnaire (EQ5D5L), EuroQol visual analogue scale (EQVAS) and pain score at pre-operative, 3months, 12months, and 24months postoperative. Objective measures included degree of passive flexion and range of motion (ROM), and Knee Society Objective Knee Score (KSSC).</p> <p>Results The greatest degree of improvement was seen in the first 3months postoperative for OKS, EQ5D5L, EQVAS, KSSF, KSSC, and pain score. There was no significant improvement in PROMs, except EQVAS beyond 12months. KSSC, degree of passive flexion and ROM improved till 24months. 79.2% of patients reported no pain at 24months, compared to 0.927% preoperative. Beyond 3months, there was a consistent degree of improvement in patients' perceived QOL over the 3to12month and 12to24month period (P<.001). Thaher et al. reported that function and pain were main predictors of perceived QOL. 56.6% of patients achieved full health profile in EQ5D5L at 24months, compared to 0% preoperative.</p> <p>Discussion & Conclusion The results reinforce the debilitating effect of knee osteoarthritis on QOL. The monitoring of patients' functional recovery, and how to best individualise rehabilitation programmes deserve a rethink. The expected recovery course should also be counselled to patients preoperative.</p>	

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Abstract ID	Clinical Specialty
SHBC1007	Orthopaedic Surgery
<p>Authors Z.Y.LIM¹, L.THWIN², K.G.TAN²</p> <p>¹Lee Kong Chian School of Medicine (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Is Pharmacological Thromboprophylaxis truly necessary: Predictive Factors for Venous Thromboembolic Events post-Total Knee Arthroplasty in an Asian Population</p> <p>Background & Hypothesis Venous thromboembolic (VTE) prophylaxis is routinely used in total knee arthroplasty (TKA) patients worldwide. Guidelines vary from aspirin to clexane with mechanical prophylaxis, and direct oral anticoagulants. This study's aim was to identify predictive or protective factors for VTEs in an Asian hospital and examine the efficacy of pharmacological VTE prophylaxis.</p> <p>Methods A retrospective cohort study of 2016 patients who underwent unilateral primary TKAs between August 2017 to July 2022 was performed. All patients received mechanical thromboprophylaxis in the form of calf intermittent pneumatic compression prophylaxis device (IPCD) postoperatively. Symptomatic patients were referred for radiological investigations to exclude VTE. We evaluated patient demographics, comorbidities and surgical parameters.</p> <p>Results There were 24 incidences of symptomatic VTEs including 1 pulmonary embolism, and 23 deep vein thrombosis. VTE incidence was 0.758% for IPCD only, as compared to 2.08% aspirin, 3.67% clexane, 0% clopidogrel and DOACs. Multivariate logistic regression revealed length of stay ($P < 0.001$) and blood transfusion ($P = 0.020$) as independent predictors of symptomatic VTEs. Tranexamic acid use did not affect VTE rates ($P = 0.056$), cementing the fact that TXA is effective in reducing blood loss without increasing complication rates. Choice of thromboprophylaxis did not affect VTE rates ($P = 0.086$). Other risk factors for DVT suggested in other studies such as age and obesity were not significant.</p> <p>Discussion & Conclusion Chemical thromboprophylaxis may not be required postoperative in Asian population. The identification of risk factors such as length of stay in this study reinforces the importance of enhanced recovery after surgery protocols, allows surgeons to individualize risk counselling and choose appropriate thromboprophylaxis.</p>	

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Abstract Details	
Abstract ID	Clinical Specialty
SHBC1009	Psychiatry
<p>Authors Y.LI¹, M.S.ANG¹, J.Y.YEE¹, Y.M.SEE¹, J.LEE¹</p> <p>¹Institute of Mental Health (Singapore)</p> <p>Title Negative symptoms and neurocognition as predictors of function in treatment-resistant schizophrenia</p> <p>Background & Hypothesis While predictors of functioning in schizophrenia have been studied, similar research in Treatment-Resistant Schizophrenia (TRS), a clinical subtype associated with the largest healthcare burden, is lacking. We investigate contributions of schizophrenia symptom domains and neurocognition to functioning in a well-characterised TRS sample. We hypothesise that lower severity of negative symptoms and better neurocognition will predict higher functioning in TRS.</p> <p>Methods 159 patients with TRS, defined as two prior ineffective antipsychotic trials, were assessed on the Positive and Negative Syndrome Scale (PANSS). Five symptom factor scores (Positive, Negative, Cognitive, Depressive, Hostility) were calculated. Two key negative symptom dimensions (Diminished Expressivity (DE) and Social Anhedonia (SA)) were further delineated from the PANSS negative symptom factor. Neurocognition was assessed using the symbol coding and digit sequencing tasks from the Brief Assessment of Cognition in Schizophrenia (BACS). Both PANSS and BACS, including the factor structures, were validated for use in Singapore. To comprehensively evaluate an individual's functioning, 3 measures were employed: Social and Occupational Functioning Assessment Scale (SOFAS), employment status and self-reported World Health Organization Disability Assessment Schedule 2.0 (WHODAS). Multiple regression analyses were performed against measurements of functioning.</p> <p>Results We found that a lower severity of negative symptoms, particularly SA, predicted better functioning on the SOFAS, employment and WHODAS. Better cognitive performance, particularly in executive functioning, only predicted successful employment. Depressive symptoms were associated with self-reported disability.</p> <p>Discussion & Conclusion Negative symptoms and cognitive impairments are vital treatment targets to improve functioning in TRS. Additionally, clinicians should look out for depressive symptoms in TRS to address self-reported disability.</p>	

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Abstract ID	Clinical Specialty
SHBC1046	Renal Medicine
<p>Authors H.WANG¹, S.C.YEO⁴, X.Y.OOI⁴, G.Y.ANG², C.K.LIM³ ¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²National Healthcare Group HQ (Singapore), ³NHG Polyclinics (Singapore), ⁴Tan Tock Seng Hospital (Singapore)</p> <p>Title Cost-Effectiveness of Screening for Chronic Kidney Disease in the General Adult Population: A Systematic Review</p> <p>Background & Hypothesis Chronic kidney disease (CKD) is a significant public health problem. Early identification and treatment of CKD can slow progression and prevent complications, but it is unclear if CKD screening is cost-effective. This study aims to conduct a systematic review of the cost-effectiveness of CKD screening strategies in adult populations.</p> <p>Methods Systematic literature search on studies comprising health economic evaluations of CKD screening strategies was performed. The primary outcome is the incremental cost-effectiveness ratio (ICER) of CKD screening, in cost per quality-adjusted life year (QALY), in 2022 USD equivalent.</p> <p>Results 21 studies were identified. The cost-effectiveness of screening for CKD varied widely, with ICERs ranging from \$113 to \$430,595, with a median of \$26,662 per QALY. Based on the pre-defined cost-effectiveness threshold of \$50,000 per QALY, majority of the studies found CKD screening cost-effective. Cost-effectiveness improved when screening is performed in high-risk patients (diabetics, high-risk ethnic groups, older adults). Home-based programmes using home urinalysis screening demonstrated cost savings of \$2,884 per patient per lifetime. Inclusion of cardiovascular consequences of CKD in economic analysis further improved cost-effectiveness. Existing studies incorporate only the effects of angiotensin-converting-enzyme inhibitor and angiotensin-receptor blockers. With recent therapeutic advances including sodium-glucose cotransporter-2 inhibitors, nonsteroidal-selective-mineralocorticoid-receptor antagonists, and glucagon-like-peptide-1-receptor agonists, slowing CKD progression and reducing cardiovascular complications have become increasingly effective, and may further improve cost effectiveness of screening.</p> <p>Discussion & Conclusion Screening for CKD is cost-effective, especially in high-risk patient groups. Newer therapeutics and rethinking screening approaches to include home-based screening may further improve cost-effectiveness.</p>	

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Abstract ID	Clinical Specialty
SHBC1047	Cardiology
<p>Authors V.Z.L.LOW¹, G.S.W.CHANG¹, X.T.WEE¹, K.H.PECK¹, P.Z.Y.LIM¹, T.C.TAN¹</p> <p>¹Khoo Teck Puat Hospital (Singapore)</p> <p>Title DESENS Study – Determination of Efficacy, Safety, and Operational aspects of a New Aspirin desensitization protocol in KTPH</p> <p>Background & Hypothesis Patients with NSAID or aspirin hypersensitivity require desensitization to receive dual antiplatelet therapy. From 2012 to 2021, Khoo Teck Puat Hospital devised 3 aspirin desensitization protocols, which were modified over time to improve tolerability. The revised protocols differed in total dose and duration: P2012O [original] (190.4mg/85mins); P2012M [modified] (90.4mg/60mins) and P2021 (100mg/180mins). Patients with life-threatening index drug allergy, haemodynamic instability and fever did not undergo desensitization regardless of protocol version. This study aims to compare tolerance rates (TR), adverse event rates (AER) and documentation of the desensitization results into the Critical Medical Information Store (CMIS).</p> <p>Methods Retrospective analysis of patients with NSAID hypersensitivity who underwent aspirin desensitization between 1 February 2020 to 28 February 2022 was performed.</p> <p>Results Eighty-nine patients underwent aspirin desensitization during this period. Highest TR of 94.6% was observed in P2012M (N=37), 85.4% in P2021 (N=41) and 72.7% in P2012O (N=11). For AER, the reverse trend was observed: 27.3% in P2012O, 22.0% in P2021 and 13.5% in P2012M. The most common adverse events were pruritus, rash and angioedema. No anaphylaxis occurred. Updating of CMIS documentation was <50% in all 3 protocols.</p> <p>Discussion & Conclusion P2021 was better tolerated than P2012O, which was likely driven by reduced total aspirin dose. AER in P2021 likely resulted from increased monitoring duration. There is a need to enforce appropriate CMIS documentation after completion of desensitization.</p>	

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Abstract ID	Clinical Specialty
SHBC1053	Rheumatology
<p>Authors C.XU¹, E.T.KOH¹, Y.Q.CHONG¹, R.DALAN¹, K.P.LEONG¹ ¹Tan Tock Seng Hospital (Singapore)</p> <p>Title The microvascular and macrovascular complications in patients with rheumatoid arthritis in an Asian multi-ethnic cohort</p> <p>Background & Hypothesis Cardiovascular complications remain a substantial burden of mortality and morbidity in patients with rheumatoid arthritis (RA). Early detection of subclinical microvascular and macrovascular complications is needed.</p> <p>Methods Patients were recruited from the Tan Tock Seng Hospital RA registry, Singapore. Exclusion criteria: known history of ischemic heart disease, cerebrovascular disease, peripheral artery disease, diabetes mellitus, or severe chronic kidney disease (eGFR < 30). Endothelial dysfunction was measured by Reactive Hyperaemia index – EndoPAT, aortic artery stiffness by pulse wave velocity, and Carotid Intima-Media Thickness (CIMT) by carotid ultrasonography. The cardiovascular risk score was calculated using Systematic COronary Risk Evaluation 2 (SCORE2). Pearson correlation test was performed among aortic stiffness, CIMT, and SCORE2.</p> <p>Results Forty-five patients with RA were recruited with the majority of Chinese (n = 37, 82%). The median disease duration was 13 years (interquartile range (IQR): 8-22 years). There were 39 (87%) patients in remission, 5 (11%) with low disease activity, and 1 (2%) with moderate/severe disease activity. Endothelial dysfunction was found in nine (20%) patients. There were three (7%) patients with abnormal CIMT and one (2%) with abnormal aortic artery stiffness. Based on SCORE2, there were 32 (71%) patients at low risk of cardiovascular risk, 13 (29%) at moderate risk, and none at high risk. Measurements of aortic artery stiffness (R = 0.45, p < 0.01) and CIMT (R = 0.58, p < 0.01) correlated with SCORE 2.</p> <p>Discussion & Conclusion The endothelial dysfunction and elevated cardiovascular risk are substantial in RA patients, even though the disease is in remission/low disease activity.</p>	

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Abstract Details	
Abstract ID	Clinical Specialty
SHBC1064	Public Health / Clinical Epidemiology
<p>Authors M.YIAMUNAA², R.L.GURUNG², T.K.KWAN², C.CHAN², Y-M.SHAO², S.C.LIM¹ ¹Admiralty Medical Centre (Singapore), ²Khoo Teck Puat Hospital (Singapore)</p> <p>Title Influence of Physical Activity and Diet on biological aging in type 2 diabetes patients with preserved kidney function - a pilot study</p> <p>Background & Hypothesis Type 2 diabetes (T2D) patients with higher “biological age” have increased risk for kidney failure, cardiovascular diseases, and mortality. Leukocyte telomere length (TL), a marker of aging, may be modulated by physical activity (PA) and diet. Given the high prevalence of T2D and cardiorenal complications in Singapore, we evaluate if PA and diet associates with Leukocyte TL in T2D patients.</p> <p>Methods In this cross-sectional study, we measured Leukocyte TL of 573 T2D, non-CKD and normoalbuminuria patients; with global physical activity questionnaire (GPAQ) and food frequency questionnaire (approximately 176 food items). We calculated metabolic equivalents (MET) minutes using GPAQ; categorizing patients into physically active (MET_{min}≥600) or inactive (MET_{min}<600). Regression coefficients were calculated, controlling for important covariates.</p> <p>Results Leukocyte TL robustly correlated with age ($r=-0.216$; $P<0.001$), and was longer in the physically active group (N=163) compared to the non-active group (N=410) ($P=0.045$). However, findings remained significant only in males (β[SE]=0.040[0.020], $P=0.050$); after adjusting for age, ethnicity, BMI, HbA1c, total cholesterol, SBP, diabetes duration and eGFR (full model). Leukocyte TL was significantly associated with overall energy intake (β[SE]=-0.029[0.015], $P=0.045$) and beta-carotene (β[SE]=0.016[0.008], $P=0.036$) after adjustment in full model, including gender.</p> <p>Discussion & Conclusion Our findings suggests that lifestyle may play an important role in telomere dynamics. Given that shorter Leukocyte TL is a risk marker for cardiorenal complications in T2D, engaging in healthy behaviours (reducing overall energy intake or increasing beta-carotene [Vitamin A]), may mitigate future cardiorenal complication risk associated with shorter leukocyte TL in T2D patients.</p>	

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Abstract ID	Clinical Specialty
SHBC1170	General Surgery
<p>Authors L.GE², G.ANG², J.A.D.C.MOLINA², Y.SUN², E.TAN³, H.L.LIEW⁴, D.CHAN¹, Z.W.LO⁵ ¹Khoo Teck Puat Hospital (Singapore), ²National Healthcare Group Corporate Office (Singapore), ³NHG Polyclinics(Singapore), ⁴Tan Tock Seng Hospital(Singapore), ⁵Woodlands Health (Singapore)</p> <p>Title Effectiveness of the Diabetic Foot in Primary and Tertiary (DEFINITE) Care Programme: A historical control study</p> <p>Background & Hypothesis Good management of diabetic foot ulcer (DFU) is essential for preserving patients' limb function and reducing healthcare burden. The DEFINITE Care programme is implemented to provide integrated and coordinated multidisciplinary care to patients with DFU. This study aims to assess the effectiveness of the programme in increasing lower extremity amputation (LEA)-free survival and optimizing healthcare utilization.</p> <p>Methods This study compared the outcomes between patients enrolled in the DEFINITE programme (n=2,798) from June 2020 to June 2021 and a historical control group (n=5,462) comprising DFU patients treated between June 2016 and December 2017. Propensity score matching (PSM) with replacement was employed to ensure comparability in demographics and clinical factors. Treatment effects of the DEFINITE programme on minor and major LEAs, mortality, inpatient admissions, and average length of stay (ALOS) in the subsequent 12 months were estimated.</p> <p>Results The DEFINITE cohort were younger (mean age: 65.7 vs. 71.6 years), had more males (61.4% vs. 53.8%) and non-Chinese (44.2% vs. 34.6%).After satisfactory PSM, the DEFINITE cohort demonstrated a 5% higher LEA-free survival rate, 1.0 fewer inpatient admissions, and a 5.5-day shorter ALOS, but a 5.4% higher minor LEA rate in one year (all p-values<0.001) compared to the matched historical control cohort.</p> <p>Discussion & Conclusion The findings highlight the potential benefits of the DEFINITE programme in increasing LEA-free survival rate and reducing inpatient care utilisation and mortality. Results warrant cautious interpretation due to limitations in study design.</p>	

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Abstract Details	
Abstract ID	Clinical Specialty
SHBC1212	Public Health / Clinical Epidemiology
<p>Authors C.TAN¹, K.W. ZENG², C. LIN², M CHEN² ¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²National Centre for Infectious Diseases (Singapore)</p> <p>Title Diagnostic performance of antigen rapid tests (ART) for COVID-19 and factors associated with ART-negative results among RT-PCR-positive individuals</p> <p>Background & Hypothesis While numerous studies have evaluated the real-world performance of ARTs for COVID-19 diagnosis, data on the effect of newer Omicron sublineages and reinfections on ART performance is limited. This study aimed to assess ART performance and factors associated with ART-negative results among individuals who tested SARS-CoV-2-positive by RT-PCR.</p> <p>Methods A retrospective cohort study was conducted among Singapore residents who underwent testing for SARS-CoV-2 with ART and RT-PCR in the same clinical encounter between 9 May and 21 November 2022 under the Acute Respiratory Infection surveillance programme at polyclinics. RT-PCR served as a reference standard for ART performance. Logistic regressions were used to estimate odds ratios (OR) of factors associated with negative ART results among RT-PCR-positive individuals.</p> <p>Results 8,684 clinical encounters were analysed, of which 3,547 (40.8%) were SARS-CoV-2-positive by RT-PCR. Overall sensitivity and specificity of ART was 84.5% (95% CI 83.3-85.7%) and 99.3% (99.1-99.5%) respectively. SD Biosensor test kit (OR 1.59 [1.16-2.16]) and ≥ 6 days between symptom onset and test (2.20 [1.07-4.53]) were significantly associated with testing ART-negative on multivariable regression analysis. Individuals with coinfection with another respiratory pathogen or a previous SARS-CoV-2 infection had higher odds of testing ART-negative, but the associations were attenuated after adjustment for cycle threshold values. There was no significant difference in ART performance between Omicron sublineages.</p> <p>Discussion & Conclusion ART remains a reliable rapid diagnostic tool for newer Omicron sublineages. However, a previous SARS-CoV-2 infection episode was associated with higher odds of testing ART-negative, which can contribute to under-ascertainment of reinfections.</p>	

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Abstract ID	Clinical Specialty
SHBC1231	General Surgery
<p>Authors K.S.CHAN¹, J.W.LEE¹, M.W.ONG¹</p> <p>¹Khoo Teck Puat Hospital (Singapore)</p> <p>Title Evaluating the learning curve of laparoscopic totally extraperitoneal repair (TEP) of inguinal hernia with telescopic dissection – a cumulative sum (CUSUM) analysis</p> <p>Background & Hypothesis Laparoscopic totally extraperitoneal (TEP) inguinal hernia repair (IHR) reduces risk of injury to intra-peritoneal structures. Balloon dissection is more costly and has theoretical risk of injury to surrounding structures compared with telescopic dissection (TD). This study aims to evaluate the learning curve for TEP IHR with TD of a single surgeon.</p> <p>Methods This is a 3-year retrospective cohort study from January 2020 – December 2022 on patients who underwent elective laparoscopic TEP unilateral IHR with TD. Exclusion criteria were recurrent inguinal hernia. Cumulative sum (CUSUM) analysis was performed to evaluate the number of cases required to surmount the learning curve i.e. NLC for operating time (OT) and open conversion. One way ANOVA was used to perform groupwise comparison.</p> <p>Results There were 69 patients who underwent laparoscopic TEP unilateral IHR with TD. The median age was 58.0 years (range 24.0-80.0) and body mass index was 23.0 (range 18.6-30.0). Majority of the hernia was indirect (n=48, 69.6%). The median OT was 70 min (range 35-210). Three cases (4.3%) had open conversion. One-year recurrence was 4.2% (n=1/24). CUSUM analysis showed improvement in OT after the 8th case. However, this was followed by multiple inflection points with no apparent stabilisation in OT. Pairwise comparison showed decrease in OT between cases 18-36 and cases 37-54. There was no incidence of open conversion until the 56th case.</p> <p>Discussion & Conclusion Laparoscopic TEP IHR using TD is safe in the absence of a proctor. At least 36 cases are required to surmount the initial LC.</p>	

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Abstract Details	
Abstract ID	Clinical Specialty
SHBC1235	Rheumatology
<p>Authors X.R.LIM¹, E.T.M.TAN¹, F.L.CHIA¹, J.W.TAN¹, G.Y.CHAN¹, S.C.TAN¹, K.P.LEONG¹, T.C.TAN¹, C.M.L.TEO¹, S.S.M.LEE¹, B.Y.H.THONG¹ ¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Characteristics and outcomes of Good's syndrome patients in a tertiary adult institution</p> <p>Background & Hypothesis Good's syndrome (GS) or thymoma-associated immunodeficiency is a rare adult-onset immunodeficiency syndrome. We review the characteristics and long-term outcomes of GS patients from the Tan Tock Seng Hospital immunodeficiency registry.</p> <p>Methods Chart review of adults with GS who were followed up between 1 January 1999 and 1 July 2022.</p> <p>Results Of the 18 GS patients, 11 (61.1%) were females and the mean age at diagnosis of GS was 63 ± 8.7 years. There were 15 (83.3%) Chinese and 3 (16.7%) Malay patients. 6 patients (33.3%) were concurrently diagnosed with thymoma and immunodeficiency, 11 (61.1%) were diagnosed with GS on average 6.0 years (range 1-14) after diagnosis of thymoma, while one had no recorded date of diagnosis of thymoma. 15 (83.3%) patients underwent thymectomy and 5 (27.8%) had adjuvant radiotherapy. Immunological abnormalities include low IgG and IgA in all patients and low IgM in 16 (88.9%). 5 (27.8%) had a CD19 level of <5cells/ul, 13 (72.2%) had inadequate response to pneumococcal vaccination and 5 (27.8%) to tetanus vaccination. 5 patients (27.8%) developed autoimmune conditions including myasthenia gravis, polymyositis and ulcerative colitis. Immunosuppressants used include combination prednisolone and methotrexate, azathioprine or mycophenolate mofetil. 14 of 16 patients with recurrent infections received monthly intravenous immunoglobulin (IVIG) as 2 declined IVIG replacement. 8 patients died at a median of 4 (IQR 3-7) years after diagnosis of GS.</p> <p>Discussion & Conclusion GS is associated with autoimmune complications and malignancy. GS patients who developed COVID-19 infection have poor clinical outcomes.</p>	

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Abstract ID	Clinical Specialty
SHBC1306	Renal Medicine
<p>Authors S.TAN¹, P WONG²</p> <p>¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title TRANSITIONING DIALYSIS MODALITY FROM HAEMODIALYSIS TO PERITONEAL DIALYSIS: A single centre retrospective study</p> <p>Background & Hypothesis Transition between dialysis modalities should be included in a patient's life plan when discussing renal replacement therapy. Patients who are on haemodialysis (HD) may encounter issues that lead them to transition to peritoneal dialysis (PD). The outcome of patients who switch from HD to PD (PD-switch) is poorly studied and few studies have looked at survival after PD-switch</p> <p>Methods This is a retrospective single-centre study of patients who transitioned from HD to PD between 2006 to 2018. Reasons for PD-switch and outcomes after PD-switch were analysed.</p> <p>Results 45 patients transitioned from HD to PD. HD vintage prior to PD switch was 1192 (± 838) days. 91% patients transitioned to PD for poor vascular access with 73% having had ≥ 2 prior vascular accesses created. At the end of the study period, survival of all patients after PD-switch was 1151 (± 1192) days with a duration of 800 (± 908) days on PD-switch. PD-switch resulted in a significant reduction of hospitalizations (5.1 vs 1.9) when comparing admissions 1-year pre and post PD-switch ($p < 0.05$). 31% of patients required conversion back to HD, with 64% converting back to HD due to PD peritonitis. The average duration on PD-switch before conversion back to HD was 576 (± 416) days.</p> <p>Discussion & Conclusion PD-switch resulted in reduced hospitalisations in the year following PD-switch. Majority of PD-switch patients remain on PD. PD peritonitis was the main reason for conversion back to HD.</p>	

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Abstract ID	Clinical Specialty
SHBC1307	Infectious Diseases
<p>Authors J.Q.YEO¹, C.W.Y.TAN¹, P.C.TAN¹</p> <p>¹NHG Pharmacy (Singapore)</p> <p>Title Adverse drug reactions (ADRs) and COVID-19 residual symptoms after oral antiviral (OAV) therapy in Singapore</p> <p>Background & Hypothesis In 2022, Singapore approved Paxlovid and Monupiravir for vulnerable patients with COVID19. Their effects in Asians are unknown as most OAV literature are based on Western populations. This review aims to examine differences in the incidence of ADRs and COVID19 residual symptoms on day7, and how OAV adherence and demographics affect these outcomes.</p> <p>Methods Retrospective review of the electronic health records was performed on COVID19-positive patients from NHG Polyclinics. The study sample comprised 902 patients given Paxlovid full or renally-adjusted dose (n=791) or Molnupiravir (n=111) within 5 days of symptom onset, from July-October 2022.</p> <p>Results Diarrhoea was the most common ADR ($\geq 10\%$ across all OAVs), then bitter taste (Paxlovid full dose 15%, renal dose 7%), while allergies were uncommon (5%). Majority (89%) completed OAVs, their incidence of residual symptoms being lower (38%) than patients not adherent (43%). Paxlovid full dose and Molnupiravir had similar incidence of symptoms (40%), higher than renal dose (33%). Patients <75 years had almost double the incidence of gastrointestinal side effects than patients ≥ 75 years, and higher incidence of symptoms (41% vs 30%).</p> <p>Discussion & Conclusion Gastrointestinal side effects for Paxlovid were more common than literature, with full dose having higher incidence than renal dose. OAV effectiveness, extrapolated by the incidence of residual symptoms on day7, were similar between OAVs. Thus Paxlovid renal dose may lower ADRs without compromising OAV effectiveness. Younger patients had higher incidence of ADRs and residual symptoms, suggesting older age may not be the deciding factor. Future studies may examine longer term outcomes like COVID19-rebound.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1312	Hand Surgery
<p>Authors S..LIN¹, SHARANYA¹, C.X.LIU¹, D.D.SOUMEN²</p> <p>¹MOH Holdings Pte Ltd (MOHH), ²National University Hospital, ³Yong Loo Lin School of Medicine,</p> <p>Title Bone Remodelling Potential of Paediatric Hand and Wrist Fractures: A Scoping Review</p> <p>Background & Hypothesis Bone Remodelling is a phenomenon unique to children, due to the presence of epiphyseal growth plates. This allows for the correction of fracture misalignment, making anatomic reduction less essential for children. This review aims at identifying, evaluating and summarizing our current understanding of the remodelling potential of paediatric hand fractures, as well as its potential to guide management in the future.</p> <p>Methods MEDLINE, EMBASE and Cochrane Library databases were searched for studies which addressed (1) the paediatric population, (2) fractures of the hand and wrist, and (3) reported outcomes relating to bone remodelling. Results relating to both skeletal and functional remodelling were then extracted and analysed qualitatively.</p> <p>Results 10 studies with a total of 131 patients were included in this study. Studies were organised based on whether they focused on both skeletal and functional remodelling (n = 7), skeletal remodelling only (n = 1) and functional remodelling only (n = 2). Results from this review highlight the benefits of bone remodelling, with majority of patients obtaining an excellent functional outcome (n = 99, 80.5%), followed by good (n = 15, 12.2%), poor (n = 5, 4.07%) and fair (n = 4, 3.25%) functional outcomes. However, it also highlighted the general lack of studies reporting on bone remodelling in paediatric hand and wrist fractures, alongside the limited amount of skeletal remodelling data.</p> <p>Discussion & Conclusion A comprehensive understanding in bone remodelling is key in guiding the management of paediatric hand fractures in the future. Additional research is needed to aid our understanding of bone remodelling.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1313	Geriatric Medicine
<p>Authors G.CHIA¹, C.Z.Q.LIM², J.P.LIM², W.S.LIM², J.CHEW², A.YEO², C.N.TAN² ¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Comparison of CFS-A and CFS-Fast with functional outcomes in a community-dwelling population</p> <p>Background & Hypothesis Frailty assessment tools such as the Clinical Frailty Scale (CFS) have been developed for early detection of frailty. Two versions have been adapted and validated locally –CFS-Fast and CFS-A. Presently, there are no local studies comparing the associations between these tools with physical performance measures. We thus aim to examine CFS-Fast and CFS-A and their associations on functional outcomes.</p> <p>Methods A retrospective analysis of 230 community-dwelling older adults from the GeriLABS 2 study cohort was conducted. Patients were categorized as non-frail (CFS 1-2), pre-frail (CFS 3-4) and frail (CFS 5-9). CFS-A and CFS-Fast were scored by independent raters with standardised protocol. Inter-rater reliability was verified for the first 20 patients for each protocol. The associations of CFS-Fast and CFS-A with functional outcome measures including the Short Physical Performance Battery (SPPB), 5 Times Sit to Stand (FTSTS), Gait Speed and Handgrip Strength were compared.</p> <p>Results Low agreement between CFS-Fast and CFS-A were observed (kappa = 0.031). No patients were identified as frail when scored using CFS- Fast. More patients were identified as pre-frail or frail with CFS-A compared to CFS-Fast. Although CFS-A was found to be significantly associated with gait speed only (p=0.049), CFS-Fast was not associated with any of the functional outcome measures.</p> <p>Discussion & Conclusion Our results suggest that CFS-Fast and CFS-A represent distinct frailty screening tools amongst health community-dwelling older persons. The poor case detection for pre-frailty/ frailty using the CFS-Fast needs to be verified in well conducted prospective studies.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1315	Orthopaedic Surgery
<p>Authors C.ZHAO¹, M. YAM²</p> <p>¹Lee Kong Chian School of Medicine (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Role of patient specific 3D printed models in patient confidence, understanding and satisfaction of care in Singapore</p> <p>Background & Hypothesis Patient specific 3D models have been used for pre-op planning and intra-op guidance in orthopedic surgery in recent years. When used for doctor-patient communication these models allow greater patient engagement. This study evaluates the roles of customized 3D models in improving patient confidence, understanding and satisfaction of patient care in Singapore.</p> <p>Methods A prospective survey was conducted on 26 patients who were required to rate on a scale of 1 to 5, the effectiveness of patient specific 3D models in: 1) improving patient's understanding and, 2) helping patients cope with the condition, 3) boosting patients' confidence in the treatment and 4) in the surgeon.</p> <p>Results Over 80% of patients rated 4 and above (agree and strongly agree) for all four aspects evaluated. 92% patients rated 7 and above out of 10 for overall satisfaction. A positive correlation (Spearman coefficient > 0.553, p value = 0.00266) was identified between patients' education level and overall satisfaction.</p> <p>Discussion & Conclusion Customized 3D models constructed from abstract 2D images bridge the gap between surgeons and patients by helping patients visualize complex pathology so that patients understand the extent of injury and treatment better. Patients therefore are likely to experience higher overall satisfaction and confidence in the surgeon. Patients with higher education are more willing to take initiative to participate in a joint decision-making process and hence can better appreciate the use of patient specific 3D models to delivery clear communication. To conclude, patient specific 3D models significantly improves the quality of doctor-patient communication and patient care.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1319	Infectious Diseases

Authors

S.P.SADARANGANI³, T.L. THEIN³, J.M. CHAVATTE³, A. CHOW⁹, K. MARIMUTHU³, R.K.C. FONG¹, J.X.J. SOH⁵, D.L.S. ONG⁴, C.W. NG⁷, N.C. TAN⁸, C.Y.L. TAN⁷, R.T. CHEN⁷, J.G.H. LOW⁶, C.F. YUNG², C.Y. CHONG², S.A. SELAMAT³, O.T. NG³, C. LIN³, R. LIN³, S. VASOO³, M.I.CHEN³

¹Changi General Hospital (Singapore), ²KK Women's & Children's Hospital (Singapore), ³National Centre for Infectious Diseases (Singapore), ⁴National University Polyclinics (Singapore), ⁵Sengkang General Hospital (Singapore), ⁶Singapore General Hospital (Singapore), ⁷SingHealth Polyclinics (Singapore), ⁸Singhealth Polyclinics Head Office (Singapore), ⁹Tan Tock Seng Hospital (Singapore),

Title Factors associated with early COVID-19 vaccination intention/receipt in a longitudinal multi-institutional COVID-19 seroepidemiology cohort of healthcare workers (HCWs) in Singapore

Background & Hypothesis We aimed to evaluate the effectiveness of infection prevention measures in protecting HCWs from acquiring COVID-19 and investigated factors associated with early COVID-19 vaccination intention/receipt.

Methods HCWs at multiple healthcare institutions and primary care groups in Singapore were enrolled into a longitudinal seroepidemiology cohort study from March-October 2020 comprising two-four study visits till 2021. Surrogate viral neutralisation tests (cPass™) and Roche SARS-CoV-2 anti-N immunoassays were performed. Participants completed questionnaires at each visit. Factors identified a priori and in bivariate analyses were investigated for association with early COVID-19 vaccination intention/receipt in multivariable logistic regression.

Results 1,428 HCWs were enrolled. 1,263 (88.3%) completed the study with only 3 SARS-CoV-2 seropositive/seroconverted participants. 981/1,263 (77.7%) reported early COVID-19 vaccination intention/receipt of ≥1 dose vaccine. In multivariate analysis, older age (aOR 1.02, 95% CI 1.01-1.04, p=0.009), administrative role (aOR 1.65, 95% CI 1.04-2.60, p=0.034), working in private primary care (aOR 2.89, 95% CI 1.09-7.71, p=0.034), being non-Singapore resident/citizen (aOR 2.01, 95% CI 1.36-2.99, p=0.001) were positively associated with early vaccination intention/receipt, adjusted for COVID-19-related medical attendance and being HCW during SARS 2003, whereas pregnancy/breast-feeding (aOR 0.04, 95% CI 0.01-0.18, p<0.001) and vaccination questionnaire completion in January 2021 (reference: February-April 2021) (aOR 0.50, 95% CI 0.38-0.67, p<0.001) were negatively associated.

Discussion & Conclusion

Implemented measures were adequate to protect staff during the study. Understanding factors associated with COVID-19 vaccination intention/receipt will aid HCW engagement, communication, and vaccine implementation in future outbreaks/pandemics.

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1320	Gastroenterology
<p>Authors W.C.LIM¹, H.Y.LIN¹, L.L.GOH¹, R.F.H.LIANG¹</p> <p>¹Tan Tock Seng Hospital (Singapore),</p> <p>Title The Association Of Hla-Dqa1*05 Carriage With Immunogenicity To Anti-Tumour Necrosis Factor Therapy And Drug Persistence In Asian Patients With Inflammatory Bowel Disease</p> <p>Background & Hypothesis HLA-DQA1*05 carriage has been shown to increase the risks of anti-tumor necrosis factor (TNF) immunogenicity, loss of response (LOR) and lower drug persistence in European inflammatory bowel disease (IBD) patients. There is a paucity of data for Asian patients. We hypothesize that the HLA-DQA1*05 allele is present in Asian IBD population and associated with similar outcomes as European cohorts.</p> <p>Methods Single-center retrospective cohort study. Consecutive IBD patients on Infliximab(IFX) / Adalimumab(ADM) recruited. HLA-DQA1*05 carriage was tested using Sanger sequencing. Serum anti-drug antibody (ADA) levels and concomitant immunomodulator (IM) therapy was recorded. Primary outcome: immunogenicity to IFX/ADM (ADA ≥10 AU/ml); secondary outcome: LOR (recurrence/worsening of IBD-related symptoms). Associations between HLA-DQA1*05 carriage, ADA development, LOR and drug persistence were explored.</p> <p>Results 38 patient were included (mean age 39 years, median disease duration 10 years). 15/38 (39.5%) patients were positive for HLA-DQA1*05. Greater proportion of HLA-DQA1*05 carriers developed ADA (58.8% vs 40.9%, p=0.267), LOR (38.9% vs 26.9%, p=0.402); Cox regression analyses showed trends toward lower ADA-free survival (HR 1.43, p=0.435) and LOR-free survival (HR 1.43, p=0.508) for HLA-DQA1*05 carriers. Kaplan-Meier analysis showed similar persistence of anti-TNF agent between HLADQA1*05 carriers (73.3%) and non-carriers (69.6%) (median treatment duration 611 days; log rank p=0.395).</p> <p>Discussion & Conclusion In Asian IBD patients, HLA-DQA1*05 carriage may confer a higher risk of immunogenicity and LOR to anti-TNF therapy but may not affect treatment persistence. A Type II error was possible due to our small sample size. Larger prospective studies are needed to validate these findings.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1322	Endocrinology
<p>Authors J.H.X.Lin⁵, E.TAN³, H.LIEW⁴, W.H.HOI⁵, D.CHAN¹, L.GE³, G.ANG³, J.MOLINA³, Y.SUN³, E.YONG⁴, Q.HONG⁴, T.CHEW⁴, X.ZHU, P.ANG², C.LAW¹, N.RAMAN¹, J.HOE¹, H.Y.KOO², J.CHOO², K.Q.LOW², D.CHEW⁴, S.CHANDRASEKAR⁵, Z.J.LO⁵</p> <p>¹Khoo Teck Puat Hospital (Singapore), ²National Healthcare Group HQ (Singapore), ³NHG Polyclinics (Singapore), ⁴Tan Tock Seng Hospital (Singapore), ⁵Woodlands Health (Singapore)</p> <p>Title Rapid-access from primary care to a multi-disciplinary team diabetic foot clinic at tertiary care improves clinical outcomes for patients with diabetic foot ulcers: Results from Diabetic Foot in Primary and Tertiary (DEFINITE) Care's Lower Extremity Amput</p> <p>Background & Hypothesis Multi-disciplinary team (MDT) approach in the management of diabetic foot ulcers (DFU) improve outcomes in limb preservation. We evaluate the outcomes of patients with DFU within DEFINITE Care who were managed by MDT LEAPP clinic versus those who were not managed by the LEAPP clinic.</p> <p>Methods DEFINITE is a DFU care programme that spans across primary and tertiary institutions. Tertiary level MDT LEAPP clinic provide early access for DFU care including medical optimisation and revascularisation. Among patients in DEFINITE care, we performed a case-control study to establish differences in clinical outcomes between LEAPP and non-LEAPP cohort who were followed up for at least 12 months.</p> <p>Results Between June 2020 and June 2022, 2798 patients completed a minimum of 12-month follow up. 20.6% were enrolled from LEAPP and 79.4% were non-LEAPP patients. Patients in the LEAPP cohort were older with higher medical complexity. They had higher healthcare utilisation, emergency presentations and hospital admissions. Despite the increased admission rate, length of stay was shorter in the LEAPP cohort. Mean days to a minor or major lower extremity amputation (LEA) and death were significantly prolonged in the LEAPP cohort. The 1-year all-cause mortality was 40% lower in the LEAPP cohort, with improved major amputation-free survival.</p> <p>Discussion & Conclusion Management of DFU in high-risk complex patients require a coordinated and multi-disciplinary approach. We have shown that rapid access to a tertiary MDT clinic improves mortality, mean time to a minor or major LEA and death in older patients with complex underlying co-morbidities.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1349	Public Health / Clinical Epidemiology
<p>Authors W.SIM³, K.Y.FONG³, J.T.PAN³, C.W.X.CHUA³, B.LEE¹, S.H.WONG¹, H.H.OON², , , , , , , , , , , ¹Lee Kong Chian School of Medicine (Singapore), ²National Skin Centre (Singapore), ³National University of Singapore</p> <p>Title Are you in the red zone for cancer? A systematic review and meta-analysis investigating the association between Alcohol Flushing Syndrome and Cancers</p> <p>Background & Hypothesis The alcohol flushing syndrome (AFS), characterized by intense facial flushing, palpitations, and nausea after alcohol consumption, is experienced by up to 46% of East Asians but many continue to imbibe. This study aims to systematically assess risk of cancers associated with AFS, examine for dose-response relationship and to improve awareness of the risk associated with alcohol intake in at-risk individuals for early prevention against chronic alcoholism</p> <p>Methods Electronic databases MEDLINE, Embase, Scopus and Cochrane Library were searched from inception to 18 Jan 2023 to include observational studies on the effect of AFS and all-cancers. Dichotomous variables were pooled using Mantel-Haenszel random effects model. PRISMA guidelines and PROSPERO (CRD42023392916) protocol were adhered to.</p> <p>Results 18 articles comprising 387521 participants were included in the final analysis. AFS was associated with increased risk of all-cancers (OR: 1.19,95%CI: 1.06-1.34), oesophageal squamous cell carcinoma (OR: 1.47,95%CI: 1.05-2.05), gastric adenocarcinoma (OR: 1.40,95%CI: 1.14-1.72) and all-GI cancers (OR: 1.20,95%CI: 1.04-1.38) but not with oral-cavity-and-pharyngeal-cancers (OR: 1.00,95%CI: 0.77-1.29). All-cancers risk was only increased for flushers who drank >200g/week (OR: 1.78,95%CI: 1.24-2.56) but not for <200g/week (OR: 1.02,95%CI:0.79–1.32) and non-drinkers (OR: 0.99,95%CI:0.67-1.47). Males who flush exhibited a higher incidence of all-cancers (OR: 1.34,95%CI: 1.13-1.59) compared to females (OR: 0.92,95% CI:0.86-0.99).</p> <p>Discussion & Conclusion AFS is associated with an increased risk of all-cancers, oesophageal squamous cell carcinoma, gastric adenocarcinoma and an alcohol dose response relationship was observed. These findings suggest that aldehyde exposure may modulate cancer risk at different sites.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1366	Palliative Medicine
<p>Authors W.Y.GOH¹, A.Y.M.HUM¹ ¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Do older adults with cancer report less symptoms? A prospective comparison and its implication on survival prognostication.</p> <p>Background & Hypothesis In recent years, patient reported outcomes have been proven useful in survival prognostication models. The PROgnostic Model for Advanced Cancer (PRO-MAC) incorporates the Edmonton Symptom Assessment System (ESAS-r) alongside functional, disease and laboratory variables. However, there is little evidence regarding the impact of symptom disparity across age groups on survival prognostication.</p> <p>Methods This is a secondary analysis of a prospective study of subjects with incurable cancer seen by a palliative care service of a tertiary university hospital from June 2013 to March 2015. Subjects were categorised into four groups based on age. One-way analysis of variance with Bonferroni correction was used to compare symptom burden across age groups. The significance of ESAS-r summative as a prognostic variable across age groups was evaluated using multivariate Cox regression analysis based on the PRO-MAC model.</p> <p>Results 840 subjects were recruited. There were 248, 216, 236 and 140 subjects in 65 years (young) group, 65 to 74 (young-old) group; 75 to 84 (old-old) group and older than 85 (oldest-old) group respectively. With increasing age, there is a decrease in mean scores for pain, tiredness and ESAS-r summative ($p < 0.001$). ESAS-r summative maintained significance as a prognostic variable in the young and young-old groups only.</p> <p>Discussion & Conclusion Pain, tiredness and ESAS-r summative scores decreased with increasing age and affected survival. However, some older adults may not fully appreciate such a complex symptom grading system due to dementia. Further studies should evaluate the role of a simpler system of symptom measurement in the older adult and its potential in prognostication.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1372	Infectious Diseases
<p>Authors L.P.KOH¹, T.R.T.CHIA³, S.S.Y.WANG³, J.M. CHAVATTE⁴, R.HAWKINS⁴, Y.TING⁴, J.Z.T.SIM⁴, W.X.CHEN⁴, K.B.TAN², C.H.TAN⁴, D.C.LYE³, B.E.YOUNG³ ¹Lee Kong Chian School of Medicine (Singapore), ²Ministry of Health (Singapore), ³National Centre for Infectious Diseases (Singapore), ⁴Tan Tock Seng Hospital (Singapore)</p> <p>Title Risk Factors for Severe COVID-19 Among Fully Vaccinated Patients Hospitalised with Breakthrough Infection</p> <p>Background & Hypothesis The effectiveness of ISARIC 4C in vaccinated individuals remains uncertain, and there is limited data on whether serological markers can be used to estimate the risk of severe COVID-19. This study aims to identify the risk factors for severe COVID-19 in vaccinated patients and investigate the potential of serological markers in improving prognostication for COVID-19 severity.</p> <p>Methods This is a retrospective cohort investigation that includes all patients who were admitted to the National Centre for Infectious Diseases in Singapore and tested positive for SARS-CoV-2 from January 2020 to December 2021. We utilized generalized linear models to establish associations between predefined predictors with severe clinical outcome (death, ICU admission, or supplementary oxygen requirement).</p> <p>Results 5329 patients met study eligibility criteria and basic demographical data were analysed (median age: 47 years, female proportion: 23.7% female, median Charlson Comorbidity Index: 0, vaccinated proportion: 25.7%). Progression to severe disease occurred in 499 (9.4%) patients including 133 (2.5%) deaths. Among patients with low ISARIC score, a positive anti-S titre was associated with a decrease of severe COVID-19 from 7.7% to 2.6% while for patients with high ISARIC score, the decrease was from 64.3% to 27.5%. Likewise, among patients with low ISARIC scores, vaccination was associated with a decrease of severe COVID-19 from 4.5% to 3.0% while for patients with high ISARIC score, the decrease was from 59.5% to 24.5%.</p> <p>Discussion & Conclusion Anti-S titre is a prognostic adjunct to triage vaccinated patients for early intervention to reduce progression to severe COVID-19.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1380	Orthopaedic Surgery
<p>Authors J.D ONGGO², F.FONG¹, M.G.J YAM² ¹National University of Singapore, ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Applications of 3D printing in orthopaedics: a scoping review</p> <p>Background & Hypothesis In light of increasing adoption of 3D printing in clinical practice, this review aims to provide an updated overview on the current applications of 3D printing in orthopaedics and identify the gaps in existing literature.</p> <p>Methods Electronic database search of PubMed, Embase, Ovidmedline, Cochrane Library and Cumulative Index to Nursing & Allied Health Literature was performed on 7 April 2023, in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines for scoping reviews. The searches were conducted using the keywords relating to “orthopaedic” and “three-dimensional printing”. No restrictions were placed on the date of publication.</p> <p>Results 1333 articles were included in the final synthesis of this review. 6 main themes were identified: surgical planning (57.01%), implants (28.73%), prostheses (5.03%), surgical training and education (4.20%), orthosis (3.98%) and patient education (1.05%). Specialties which commonly used 3D-printing included trauma, spine and adult reconstruction. Common anatomical sites included pelvis, spine and knee. Titanium was the most used material, followed by polylactic acid and resin. Titanium was predominantly used in 3D printed implants while polylactic acid and resin were predominantly used during surgical planning. There was a paucity of literature pertaining to legal and economical papers.</p> <p>Discussion & Conclusion Existing literature demonstrates the growing applications of 3D printing in orthopaedics with the potential for it to address the needs of low-income countries, improve patient outcomes and enhance surgical practices. However, further research is needed to explore the clinical, economic aspects and optimization of workflow to establish 3D printing as a standard of care in orthopaedics.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1400	General Surgery
<p>Authors ZJ. LO⁷, K. HARISH², E. TAN³, J. ZHU³, S. CHAN⁷, H. LIEW⁶, WH. HOI⁶, S.LIANG⁷, Y.T. CHO⁷, HY. KOO⁵, K. WU¹, J. CAR⁴ ¹eKare Inc (USA), ²Lee Kong Chian School of Medicine (Singapore), ³NHG Polyclinics (Singapore), ⁴Nanyang Technological University (Singapore), ⁵National Healthcare Group HQ (Singapore), ⁶Tan Tock Seng Hospital (Singapore), ⁷Woodlands Health (Singapore)</p> <p>Title Feasibility study on the efficacy of a patient-owned wound surveillance system for diabetic foot ulcer care (ePOWS Study)</p> <p>Background & Hypothesis Wound image analysis tools hold promise in helping patients monitor their own wounds but literature regarding the implementation of these tools is lacking. We aim to perform a feasibility study on the efficacy of a patient-owned wound surveillance system for diabetic foot ulcer (DFU) care.</p> <p>Methods An artificial intelligence-enabled image analysis app was installed and patients-caregivers were instructed to take pictures of wounds during dressing changes. Primary outcomes include incidence of wound deterioration, wound healing, and wound stability at 6 months and secondary outcomes included study adherence and user experience.</p> <p>Results Between Jan 2021 and Dec 2021, 39 patients were enrolled in the study, with a mean age of 61.6 ± 8.6 years. All patients had documented diabetes and 85% (n=33) had peripheral arterial disease. At the conclusion of the study, 80% (n=20) had primary wound healing whilst 20% (n=5) had wound deterioration. Usage of the app for surveillance of DFU healing yielded a sensitivity of 100%, specificity of 20%, positive predictive value of 83% and negative predictive value of 100%. Of those who provided user experience feedback, 47% (n= 8) would recommend the wound analysis app to others but only 6% would pay for the app out of pocket (n=1).</p> <p>Discussion & Conclusion This pilot study found that implementation of a patient-owned wound surveillance system is feasible. Majority of patients were able to effectively monitor wounds using a smartphone app-based solution. The image analysis algorithm demonstrates strong performance in identifying wound healing and is capable of detecting deterioration prior to interval evaluation by physicians.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1416	Dermatology
<p>Authors T.CHIEW¹, B.YEO¹</p> <p>¹National Skin Centre (Singapore)</p> <p>Title Impact of increased PrEP prescriptions on STI notifications from the DSC Clinic</p> <p>Background & Hypothesis Sexually transmitted infections (STIs) continue to be a public health concern worldwide. Pre-exposure Prophylaxis (PrEP) has emerged as a promising biomedical intervention to reduce the risk of acquiring HIV via regular use of antiretroviral medications. This aims to assess whether an increase in PrEP prescriptions had resulted in an increase in STIs notification from the DSC Clinic.</p> <p>Methods We compared the total number of PrEP prescriptions a year to the total number of notifiable STIs reported from the DSC clinic.</p> <p>Results In 2017, there were only 38 prescriptions issued followed by an increase to 70 in 2018. From 2019, the total number of PrEP prescriptions started to increase - 418(2019), 442 (2020) & 659 (2021). It then decreased to 584 in 2022. During the same period, the trend of STI notified from DSC remained fairly stable. In 2017, there were a total number of 8585 cases, followed by a decrease to 7684 (2018) & 7533 (2019). There were only 5591 cases in 2020, followed by an increase to 6038 (2021) and 6456 (2022) despite a stark increase in PrEP prescriptions.</p> <p>Discussion & Conclusion The DSC clinic is the only public specialist STI clinic & accounts for at least half of all notified STIs in Singapore. This preliminary review suggests that even with a more than 10-fold increase in PrEP prescriptions over the past few years, the number of notifiable STIs seen remains stable & has even shown a decrease in some years. This highlights the importance of comprehensive STI prevention programs that integrate PrEP with other preventive measures.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1437	Geriatric Medicine
<p>Authors S.T.LEE¹, J.P.LIM², J.CHEW², A.YEO², C.N.TAN², W.S.LIM² ¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title SARC-CalF modified version with mid-upper arm circumference: Muscle function and mass across different body compositions</p> <p>Background & Hypothesis Mid-upper arm circumference(MUAC) is used as surrogate marker for muscle mass and nutrition. The addition of MUAC to SARC-CalF may enhance sarcopenia detection. However, it is unclear if SARC-CalF+AC truly enhances sarcopenia screening or overidentifies patients with malnourishment(low muscle mass/normal muscle function). We aim to examine the characteristics of SARC-CalF+AC (SAC-positive) compared to SAC-negative across different four body compositions of normal, sarcopenic, sarcopenic obese(SO) and obese.</p> <p>Methods Participants aged>50(n=230) were grouped into four groups, using the Asian Working Group for Sarcopenia 2019 criteria and waist circumference cut-offs from National Cholesterol Education Program (NCEP) for obesity. SARC-CalF+AC (cut-off≥11) was scored for all participants based on the SARC-F scores and presence of low calf-circumference and/or MUAC (10points each if positive). We compared nutritional scores, BMI, skeletal muscle index (SMI), gait-speed and handgrip strength of SAC-positive and SAC-negative across four groups.</p> <p>Results The proportion of SAC-positive in normal, sarcopenic, SO and obese were 47.5%, 73.5%, 57.1% and 21.5% respectively. Participants with SAC-positive had significantly lower BMI in normal, SO and obese groups as compared to SAC-negative. SMI was significantly lower in normal, sarcopenic and obese group with SAC-positive, though in SO group, SMI was lower but not statistically significant(p=0.055). The gait speed and handgrip strength were not statistically significant across the four groups.</p> <p>Discussion & Conclusion Compared to SAC-negative, SAC-positive participants had lower muscle mass in absence of lower muscle function, suggesting that SARC-CalF+AC may over-identify participants with malnourishment, especially in non-SO groups.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1446	General Surgery
<p>Authors ZJ. LO⁴, B. CHONG², H. LI³, Y.T. CHO⁴, S.LIANG⁴, J. CAR¹</p> <p>¹Nanyang Technological University (Singapore), ²National University of Singapore, ³University of New South Wales (Australia), ⁴Woodlands Health (Singapore)</p> <p>Title Understanding the Use of a Self-Management and Education App in the Community by Patients with Diabetes Foot Ulcers and their Carers: A Qualitative Study</p> <p>Background & Hypothesis Effective self-management of diabetic foot ulcers helps to decrease healing times, amputations, and improve quality of life. With the introduction of digital health to diabetes management, we aim to explore the experiences and perspectives of patients and carers regarding the use of a self-management and education app for diabetic foot ulcers.</p> <p>Methods Twenty-four patients with diabetes and twelve informal carers were interviewed. Semi-structured, open-ended questions were asked to gain a better understanding of both patients' and carers' experiences in diabetic foot ulcer management, and their perspectives on using an app to learn about and self-manage chronic wounds. Thematic analysis by Braun and Clarke was used to code and analyze transcripts.</p> <p>Results The thematic analysis revealed three primary themes, each with a number of subthemes. The three primary themes are: (1) impact of chronic illness on the patient experience, (2) navigating the nuances of caring for persons with diabetic foot ulcers, and (3) facilitators and barriers to self-management mHealth apps adoption.</p> <p>Discussion & Conclusion Both patients and carers are finding it challenging to manage diabetic foot ulcers, which could be avoided if patients were better educated and aware of their condition. Patients and carers were keen to explore how a self-management and education app for diabetic foot ulcers could benefit them.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1447	Public Health / Clinical Epidemiology
<p>Authors L.S.ONG¹, A.H.AUNG¹, A.CHOW¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Lessons from COVID-19 pandemic: Understanding determinants of nosocomial transmission of SARS-CoV-2 to guide targeted surveillance strategies post-pandemic</p> <p>Background & Hypothesis Post-COVID-19 pandemic, potential for nosocomial transmission of SARS-CoV-2 in healthcare settings remains. Understanding factors associated with nosocomial acquisition of SARS-CoV-2 during the pandemic will guide targeted surveillance strategies post-pandemic.</p> <p>Methods We conducted a historical cohort study on Tan Tock Seng Hospital (TTSH) patients with unexpected exposure (contacts) to patients with SARS-CoV-2 infections (index-cases) within the same non-isolation wards (15 February-30 July 2022; Epi-week 7 – 30). Multivariable logistic regression was performed to assess factors associated with SARS-CoV-2 acquisition, including index-case symptomatology, ward characteristics, after adjusting for age, gender, race, and co-morbidity severity.</p> <p>Results Study included 101 index-cases and 769 contacts. Among contacts, 547 were tested for SARS-CoV-2 via polymerase chain reaction test (detected=131, not-detected=416, attack-rate: 17%). Tested contacts exposed to symptomatic index-cases had increased odds of acquisition than those exposed to asymptomatic index-cases (aOR: 2.60, 95%CI(1.1 – 6.3), p=0.034). Compared to tested contacts of index-cases in 4-bed acute-wards, contacts in acute-wards with larger cubicles were not at increased odds of acquisition (5-6-beds: aOR: 2.24, 95%CI (0.5 – 10.1), p=0.294), although contacts in subacute-wards had increased odds of acquisition, across all cubicle sizes (4-beds: aOR: 49.66, 95%CI (3.4 – 731.7), p=0.004; 5-6-beds: aOR: 6.51, 95%CI (1.3 – 33.1), p=0.024; 8-10-beds: aOR: 7.99, 95%CI (1.7 – 37.9), p=0.009).</p> <p>Discussion & Conclusion Contacts exposed to symptomatic index-cases and in subacute-ward environments were more likely to acquire SARS-CoV-2. Active surveillance of these patients allows for early identification and isolation of acquired infections to prevent further transmission.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1449	Anaesthesiology
<p>Authors F.TAN¹, G.CHEONG¹</p> <p>¹Khoo Teck Puat Hospital (Singapore)</p> <p>Title Rebound Pain After Regional Anaesthesia</p> <p>Background & Hypothesis Rebound pain after regional anaesthesia (RA) is often an under-recognised yet debilitating condition occurring after resolution of the nerve block. This study aimed to investigate the incidence and factors associated with postsurgical rebound pain.</p> <p>Methods Data was retrospectively collected from patients who underwent surgery from January 2022 to December 2022, and had received single-shot peripheral nerve block or spinal anaesthesia. Patient demographics, surgery types, Visual Analogue Scale scores, upon resolution of RA, were collated.</p> <p>Results A total of 1177 patients were studied. Incidence of severe rebound pain was low, 0.8% (n=10) at rest and 4.5% (n=53) on movement. Incidence of moderate rebound pain was 6.4% (n=75) at rest and 19.1% (n=225) on movement. Age \leq 55 (OR 8.67, 95% CI: 2.62-28.63), female gender (OR 12.50, 95%CI: 2.96-52.77) and surgical type especially lower limb surgeries (OR 6.44, 95% CI: 3.19-13.01) were associated with increased rebound pain at rest ($p < 0.001$). Female gender (OR 0.05, 95% CI: 0.03-0.09), Indian ethnicity (OR 0.14, 95% CI: 0.07-0.27) and surgical site were associated with increased rebound pain on movement ($p < 0.001$). Top surgical sites with moderate-severe rebound pain at rest and movement were common in tibia surgeries (66%), shoulder surgeries (53 – 73%) and below-knee amputations (20 – 60%).</p> <p>Discussion & Conclusion Our study found that younger patients (< 55 years old), Indian race, and operations such as shoulder, tibia and below-knee amputations have higher rebound pain scores. Understanding the risk factors can help to identify patients who will benefit from pre-emptive multimodal analgesia before block recession and continuous RA techniques.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1453	Geriatric Medicine
<p>Authors S.LOW¹, A.MOH¹, K.ANG¹, S.C.LIM¹ Khoo Teck Puat Hospital (Singapore)</p> <p>Title Low skeletal muscle mass to visceral fat area ratio, mediated by arterial stiffness, is associated with cognitive decline – an 8-year longitudinal study in Asians with type 2 diabetes</p> <p>Background & Hypothesis Skeletal muscle mass to visceral fat area ratio(SVR) is a risk factor of type 2 diabetes(T2D) which confers higher susceptibility to cognitive dysfunction. Arterial stiffness damages cerebral micro-vessels with high pulsatile flow. We examined longitudinal association between SVR and cognitive function, and role of arterial stiffness as potential mediator.</p> <p>Methods This was a prospective study on 1365 patients(mean age 61.4±8.0 years) with T2D recruited from SMART2D. Muscle mass and visceral fat area were quantified using bio-electrical impedance analysis. Pulse wave velocity, an arterial stiffness index, was measured using applanation tonometry. We used Repeatable Battery for Assessment of Neuropsychological Status(RBANS) to assess baseline and follow-up cognitive function. We examined longitudinal association between SVR and RBANS score using linear mixed model, adjusting for demographics and clinical covariates.</p> <p>Results Quartile(Q)1(lowest SVR) and Q2 SVR were associated with lower baseline RBANS total score with corresponding adjusted coefficients -1.58(95%CI-2.90 to -0.26;p=0.019) and -4.04(95%CI-5.57 to -2.51;p<0.001). 612 patients were followed up to 8.6 years. Q1 and Q2 SVR were associated with decline in follow-up RBANS total score with corresponding coefficients -1.89(95%CI-3.55 to -0.22;p=0.026) and -3.96(95%CI-5.97 to -1.95;p<0.001). Q1 SVR was associated with RBANS score decline in memory, visuo-spatial/construction and attention. PWV accounted for 10.1% of association between Q1 SVR and RBANS total score.</p> <p>Discussion & Conclusion Lower SVR is associated with cognitive decline over time. SVR may serve as potential therapeutic point of intervention in T2D management.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1459	Orthopaedic Surgery
<p>Authors M.LEE², J.TEO¹, B.TAN³</p> <p>¹Lee Kong Chian School of Medicine (Singapore), ²Tan Tock Seng Hospital (Singapore), ³Woodlands Health (Singapore)</p> <p>Title Investigating the prevalence of prior upper limb fragility fractures in a hip fracture cohort and the rates of secondary intervention after the initial upper limb fracture</p> <p>Background & Hypothesis Upper limb (UL) fragility fractures often precedes hip fractures and are an indication of underlying osteoporosis. This is significant due to the rising rates, high prevalence, high mortality and poor prognosis of hip fractures. Thus, secondary prevention of hip fractures after an UL fracture is paramount. However, existing literature has identified that secondary prevention rates are low across the world, including Singapore. Thus, we aim to identify the prevalence of UL fractures prior to hip fractures and to analyse interventions performed after UL fractures.</p> <p>Methods A single-centre retrospective cohort study was performed using data extracted from Tan Tock Seng Hospital's (TTSH) hip fracture database from January 2012 to June 2020.</p> <p>Results The prevalence of previous UL fracture in patients with hip fracture is 4.9%. Evaluation of intervention rates revealed that 78.4% are not started on osteoporosis medications and 69% not having a BMD performed after the initial UL fracture. Analysis of intervention rates after subsequent sentinel events yielded similar results.</p> <p>Discussion & Conclusion Patients with UL fragility fractures are at high risk of hip fractures. Thus, UL fractures serves as an opportunity for secondary intervention which improves the functional outcomes of patients and should be routinely considered. However, secondary prevention is not routine in Singapore as evident from the poor intervention rates. Hence, rates of secondary interventions, such as the use of fracture liaison services and orthogeriatric services have to be increased in order to ensure early intervention and work towards the ultimate aim of preventing an eventual hip fracture.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1460	General Surgery
<p>Authors Y.S.D. DEXTER¹, K.J.THAM²</p> <p>¹Khoo Teck Puat Hospital (Singapore), ²National University of Singapore (Singapore)</p>	
<p>Title Risk factors for lower extremity amputation in a multicultural diabetic Asian population</p>	
<p>Background & Hypothesis Diabetic lower extremity amputations (LEA) are common in Singapore. We present our single centre series from July 2020 – June 2021 of patients who were admitted with a DFU in a multi-ethnic Asian population in the North of Singapore to identify risk factors for LEA in diabetic foot ulcer (DFU) patients and to validate whether race affects amputation and mortality rates.</p>	
<p>Methods A retrospective review of a prospectively collected database of patients who were admitted to Khoo Teck Puat Hospital with a DFU was performed. A bivariate analysis, followed by a multivariate analysis of baseline characteristics, clinical factors, the role of DFU clinics and preventive clinics was performed to identify independent predictive factors of major LEA and death.</p>	
<p>Results Of the 461 DFU admissions, 13.7% (n=63) had a major LEA and 24.5% (n=113) mortalities. 49.9% (n=230) of the cohort were non-Chinese. Following a multivariate analysis of significant bivariate variables for major LEA, end stage renal failure (ESRF) (OR 1.94, (1.09- 3.47), p =0.025) and previous major LEA (OR 3.13, (1.36-7.21), p=0.007) were independent predictors for major LEA. ESRF (OR 2.35, (1.31- 4.23), p=0.004), age >65 (OR 3.24, (1.80 – 5.84), p < 0.001) and previous stroke (OR 3.88, (1.25-12.03), p=0.019) were predictive for death.</p>	
<p>Discussion & Conclusion A sizable number of admitted DFU patients were minorities. Minority patients experienced higher mortality rates. ESRF is a major risk factor for both death and major LEAs in DFU patients. Previous major LEAs may lead to contralateral major LEA.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1472	Endocrinology
<p>Authors K.X.KEE², S.H.TAN.CLARA², W.T.CHAN.LOVYNN², Y.SON²G, F.V.RASHIDA³, K.P.YAP.FABIAN³, Y.C.KON.WINSTON⁵, Y.J.CHEE⁵, W.J.LOH¹, Z.LIM⁴, C.K.YEOH.ESTER², S.THAVINTHARAN², C.F.SUM², S.C.LIM²</p> <p>¹Changi General Hospital (Singapore), ²Khoo Teck Puat Hospital (Singapore), ³KK Women's and Children's Hospital (Hospital), ⁴NHG Polyclinics (Singapore), ⁵Tan Tock Seng Hospital (Singapore)</p> <p>Title Clinical presentation and renal outcomes of maternally inherited diabetes and deafness (MIDD) – observations from the NHG-KTPH monogenic diabetes registry</p> <p>Background & Hypothesis The mitochondrial variant m.3243A>G, which causes maternally inherited diabetes and deafness (MIDD) and mitochondrial encephalopathy, lactic acidosis, and stroke-like episodes (MELAS), can compromise mitochondrial function and result in kidney failure. Diabetes due to mitochondrial dysfunction may impose additional risk to kidney disease. We describe the clinical presentation and renal trajectory of patients identified with MIDD.</p> <p>Methods As part of the NHG-KTPH monogenic diabetes registry study, participants with young-onset diabetes (≤35 years) were screened for the m.3243A>G variant using quantitative polymerase chain reaction in DNA derived from urinary epithelial cells and whole blood. Clinical data were obtained from available clinical records.</p> <p>Results Among 13 patients with MIDD, 7 (54%) are male. The median age of diabetes onset is 29 (27-31) years, BMI 21.1 (18.4-22.0) kg/m² and HbA1c 7.9 (7.2-10.0) %. The heteroplasmy level of m.3243A>G in urine is significantly higher than in blood (81.8% (67.9-95.0%) vs. 37.0% (18.3-62.8%), p<0.001). 31% patients had maternal history of diabetes. The most prevalent symptoms were sensorineural deafness (31%), cardiac disorders (23%), and strokes, cerebellar and cerebral atrophy (8%). Renal trajectory data suggested that 23% developed macroalbuminuria (urinary albumin-to-creatinine >30mg/mmol). Out of which, 2 patients had rapid decline in estimated glomerular filtration rate (>4mL/min/1.73m²) despite optimal glycaemic control.</p> <p>Discussion & Conclusion The clinical presentation of affected patients is highly heterogeneous. Affected patients may be asymptomatic or present with severe phenotype (i.e., MELAS), with MIDD being the most prevalent. Chronic kidney disease (CKD) in affected individuals could be attributed to mitochondrial dysfunction notwithstanding optimal glycaemic control.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1479	Renal Medicine
<p>Authors F.CHEN¹, M.BAIRY¹ ¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Predictors Of Post Parathyroidectomy Hypocalcemia In End Stage Renal Disease Patients With Resistant Renal Hyperparathyroidism</p> <p>Background & Hypothesis Hypocalcaemia following parathyroidectomy for resistant renal hyperparathyroidism (rRHPT) is preventable yet highly prevalent despite protocolized management. We aimed to determine the predictors of post-operative hypocalcemia in our centre in order to aid review of the current protocol.</p> <p>Methods 75 ESRD patients who underwent parathyroidectomy for rRHPT between 05/2016 and 10/2022 were enrolled. We collected patients' demographic data, serum levels of albumin, calcium, phosphate, intact parathyroid hormone (iPTH), alkaline phosphatase (ALP), doses of phosphate binders, vitamin D and cinacalcet before and for up to 7days after parathyroidectomy. ROC curves with AUC for iPTH and ALP levels were used to determine cutoffs. Multivariable logistic regression model was used to determine the odds ratio. Generalized linear models using Poisson regression with robust error variance were used to estimate relative risk.</p> <p>Results 37men and 38women with mean age of 53.8±11.4years were enrolled. The mean dialysis vintage was 73.4months. 43(57%) patients developed severe hypocalcaemia (<2mmol/L). These patients had higher median pre-operative serum iPTH and ALP levels (216pmol/L vs.129.75pmol/L, 380U/L vs. 220.5U/L respectively) and longer post-operative hospitalization (10.5 vs 4.3days). Pre-operative iPTH level was the only significant predictor of hypocalcaemia. iPTH level>166pmol/L had 72% sensitivity and 73% specificity with a relative risk of 2.00 [95% CI 1.27-3.33, p=0.003].</p> <p>Discussion & Conclusion Pre-operative iPTH levels>166pmol/L can predict post-parathyroidectomy hypocalcaemia in ESRD patients. A clinical protocol utilising this iPTH level for risk stratification to determine frequency of calcium level monitoring and calcium and vitamin D supplementation perioperatively may help reduce the risk of hypocalcaemia.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1489	Psychiatry
<p>Authors Z.M.BINTE SHAHUL HAMEED¹, C.W.L. NG¹, K.K. HARJIT SINGH², L.T.K. LOW¹, , , , , , , , , , , ,</p> <p>¹Institute of Mental Health (Singapore), ²Ng Teng Fong General Hospital,</p> <p>Title Early Onset of Smoking and its Relationship with Substance Use</p> <p>Background & Hypothesis Aims: Cigarette smoking has been increasingly shown to be a gateway to subsequent use and abuse of other illicit drugs. Drawing on the gateway hypothesis, this study examines if smoking was a gateway drug for illicit substances such as Cannabis, Heroin and other Opioids later in adulthood among patients seeking treatment for Substance Use Disorders in Singapore.</p> <p>Methods Methods: A total of 100 participants presenting for alcohol and drug problems were recruited from the outpatient clinic of National Addiction Management Services (NAMS) from March 2020 to October 2021. Data on drug histories and the association between smoking and substance use in terms of age of initiation and drug progression were analyzed.</p> <p>Results Results: Majority of the study participants (78%) initiated their drug use experiences with smoking while 20% listed alcohol as their first initiated substance. Smoking at a young age was also found to be a significant predictor of subsequent use of Heroin and Cannabis. Our results indicate a significant association between smoking at young age and use of other illicit substances at adulthood.</p> <p>Discussion & Conclusion Conclusions: In light of current findings, it is critical to address smoking among adolescents as they are at-risk of using illicit drugs like Cannabis and Heroin with its attendant legal and health consequences. Future research could address if interventions for the prevention of smoking in youth and adolescents have a knock-on effect of reducing drug use later on in adulthood.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1500	Orthopaedic Surgery
<p>Authors K.THIRUKUMARAN¹, SI SIM¹, A.S.R.PANG¹, ZQG LIAU¹</p> <p>National University of Singapore (Singapore)</p> <p>Title A Novel Technique for Planning MIS Surgical Fixation of Hip Fractures</p> <p>Background & Hypothesis Hip fractures are expected to reach 4.5 million by 2050, with Asia accounting for over half of them. Dynamic hip screw (DHS) is considered the gold standard for fracture fixation of intertrochanteric fractures. Conventional DHS (CDHS) is limited by longer surgical time and delayed recovery when compared to minimally invasive DHS (MIDHS). We propose a novel MIDHS technique which provides the exact trajectory of the guidewire for the implant on all 3 planes instead of 2 previously described-AP/lateral/axial, that the surgeon would require before the first incision.</p> <p>Methods A prospective double-blind case-control study conducted included 15 patients with 4-hole DHS surgical fixation of intertrochanteric hip fractures between 2019 and 2023. Cases were performed by different surgeons with similar levels of experience. Main outcome measurements were tip-apex distance (TAD), surgery duration, haemoglobin loss, and hospital stay duration. TAD was measured by two independent assessors using the post-operative anteroposterior and lateral radiographs. Fractures were categorised using Kyle's classification.</p> <p>Results Baseline characteristics were similar between patients in the CDHS and MIDHS groups ($p>0.05$) except for fracture type ($p=0.04$). MIDHS group had more complex fractures (40% MIDHS Kyle 3/4 vs 10% CDHS Kyle 3/4). Mean surgical time was significantly shorter ($p=0.019$) (43.8 ± 12.3 minutes) compared to the CDHS group (73.4 ± 18.2 minutes). There was no significant difference ($p>0.05$) in postoperative hospital stay duration, haemoglobin loss, or TAD.</p> <p>Discussion & Conclusion Despite having more complex fractures, MIDHS group had shorter mean surgical time than CDHS group, with no significant difference in TAD, haemoglobin loss and hospital stay duration.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1503	Public Health / Clinical Epidemiology

Authors

A.CHOW¹, H. GUO¹

¹Tan Tock Seng Hospital (Singapore)

Title

Non-uptake of Influenza Vaccination in Tropical Singapore: Reasons and Factors

Background & Hypothesis

Although influenza circulates year-round in tropical south-east Asia, the uptake of influenza vaccination remains low. With the resurgence of influenza post-COVID-19 pandemic, it is prudent to understand the reasons for non-uptake and the factors associated with them, to guide interventions to increase influenza vaccination rates.

Methods

We conducted a nationally-representative population survey in tropical Singapore(November 2020–January 2021), with questions on the receipt of influenza vaccination in the preceding year and reasons for the non-uptake of influenza vaccination. Multivariable logistic regression models were constructed.

Results

Of 2004 participants, the mean age was 44.5(SD 15.0) years, 48% were males, and 39% highly educated. 20% received influenza vaccination in the preceding year. Of 1599 who did not receive influenza vaccination, the top reasons were: not thought of it(55.7%) and not perceiving the need for it(48.5%). After adjusting for potential confounders, individuals aged <50 years(AOR=1.59[95%CI 1.26-2.00]), who were lower-educated(AOR=1.29[1.05-1.60]), and who self-perceived to have poorer health(AOR=1.34[1.08-1.67]) tended not to have thought of influenza vaccination. In comparison, males(AOR=1.48[1.21-1.81]), individuals aged ≥50years (AOR=1.28[1.01-1.61]), who did not have a chronic disease(AOR=1.45[1.13-1.86]), and who self-perceive to be in good health(AOR=1.86[1.50-2.31]) were more likely not to perceive the need for influenza vaccination.

Discussion & Conclusion

Younger and lower-educated adults were less likely to think of influenza vaccination, whilst older and healthy adults tended not to perceive the need for it. Educational messages targeting at these sub-populations are crucial to increase influenza vaccination uptake.

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1505	Orthopaedic Surgery
<p>Authors WMQ YAP², JW NG¹, MJJR LEE³, E.KWEK³ ¹MOH Holdings Pte Ltd (MOHH), ²Tan Tock Seng Hospital, ³Woodlands Health (Singapore),</p> <p>Title Lower limb malrotation following minimally invasive plating in distal tibia fractures</p> <p>Background & Hypothesis Minimally invasive percutaneous osteosynthesis (MIPO) plating techniques have demonstrated good outcomes in the treatment of distal tibia fractures. Early arthritis and functional impairment may occur if length and rotation are not restored.</p> <p>This study aims to determine the incidence and severity of tibia malrotation following MIPO plating of isolated unilateral distal tibia fractures, defined as torsional difference of greater than 10 degrees as compared to the contralateral limb and whether the degree of malrotation affects functional outcomes scores.</p> <p>Methods This was a level 2 prospective cohort study. All patients with fractures of the distal tibia who underwent surgical fixation with the exclusion of patients with polytrauma, neurovascular injuries or pre-existing disabilities were recruited. Patients underwent MIPO plating followed by a post-operative Computed Tomography (CT) scan of bilateral lower limbs. AOFAS ankle-hindfoot score was recorded at 6 months and 1 year follow up.</p> <p>Results 24 patients (28 to 83 years old) were recruited. 19 patients obtained CT scans. 9 of the 19 patients (47.3%) had tibia malrotation. The mean tibia malrotation angle was 10.3° (0°-45°). The average AOFAS scores was 82.4 and 84.3 at 6 months and 1 year follow-up. Degree of CT malrotation was not significantly associated with AOFAS scores at 6 month (spearman rho -0.386) and 1 year (spearman rho -0.343).</p> <p>Discussion & Conclusion Tibia malrotation following MIPO plating of distal tibia fractures is common, with an incidence of 47.3% and an average malrotation angle of 10.3° . The degree of malrotation does not appear to have significant mid-term functional impact on the patient.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1508	Rheumatology
<p>Authors B.THONG², Y.Y.KHONG¹, X.R.LIM², H.S.HOWE² ¹Lee Kong Chian School of Medicine (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Comparing disease manifestations and outcomes in juvenile-onset SLE and adult-onset SLE patients: a nested case-control study within a Singapore cohort</p> <p>Background & Hypothesis To compare disease manifestations and outcomes of juvenile-onset SLE (jSLE) and adult-onset SLE (aSLE) patients using a nested case-control study of patients in a Singapore cohort.</p> <p>Methods A prospective cohort of SLE patients established at Tan Tock Seng Hospital from 1 January 2002 to 31 December 2017. Sociodemographic, clinical, laboratory and treatment data were collected according to a standardised protocol. jSLE patients (≤ 18 years old) were selected from this cohort and matched for gender and disease duration in a 1:1 ratio with aSLE patients. Data from the enrolment visit (V0) and last visit (VL) were analysed.</p> <p>Results There were 148 jSLE patients with sufficient information for analysis who were matched with 148 aSLE patients. Fever and lymphadenopathy ($p < 0.001$) and hypocomplementemia ($p = 0.002$ at V0) were significantly more common in jSLE, while cardiovascular manifestations were significantly more common in aSLE patients ($p = 0.008$ at VL). Disease activity measured by the SLE Disease Activity Index (SLEDAI) was higher in the jSLE group at V0 (median SLEDAI 4 vs 2, $p = 0.05$) and at VL (median SLEDAI 2.5 vs 0, $p = 0.007$). A significantly higher proportion of jSLE patients received immunosuppressants (intravenous cyclophosphamide, mycophenolate mofetil, azathioprine and ciclosporin) ($p = 0.003$ at V0, $p < 0.001$ at VL) and intravenous methylprednisolone ($p < 0.001$ at V0 and VL) compared to aSLE patients.</p> <p>Discussion & Conclusion A higher proportion of jSLE patients have fever, lymphadenopathy, hypocomplementemia, or more active disease requiring greater use of immunosuppressants compared to aSLE patients. Early diagnosis and treatment of jSLE may prevent development of major organ involvement, in particular renal and neuropsychiatric.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1510	Public Health / Clinical Epidemiology
<p>Authors A.CHOW¹, H. Guo¹ ¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Informing interventions to empower inpatients in shared decision making on antibiotic therapy: a mixed-methods study using COM-B</p> <p>Background & Hypothesis Shared decision-making (SDM) has evidently improved antibiotic use in primary care, but antibiotic decisions in hospitals are predominantly made by doctors. We aimed to understand the facilitators and barriers to inform interventions to empower inpatients for SDM on their antibiotic therapies.</p> <p>Methods We conducted a convergent parallel mixed-methods study with 23 in-depth interviews and a cross-sectional survey on 636 inpatients in Singapore (2019–2022). Both qualitative and quantitative findings were triangulated and mapped onto the COM-B model to identify areas for intervention.</p> <p>Results 23% of inpatients were highly involved in SDM for his/her antibiotic therapy. Although 90% were aware that they were on antibiotic therapy, only 11% knew the name and 31% knew of the side effects. Majority lacked the skills to actively query doctors on their antibiotic therapies, with only 24% reported high level of interactions with healthcare professionals on their hospital care. The lack of opportunity to interact was cited. Often, inpatients were informed of their antibiotic therapies by nurses during medication administration. Only 22% of inpatients were highly empowered in decisions on antibiotic therapy. They lacked motivation in SDM due to perceived paternalistic relationship with doctors, trust in doctors, and perceived lack of medical knowledge. Interestingly, inpatients who previously experienced side effects with antibiotics were more likely to question doctors/nurses on their antibiotic therapies.</p> <p>Discussion & Conclusion Highlighting potential side effects of antibiotics could motivate inpatients to query about their antibiotic therapies. Visual cues, like badges worn by nurses, could create opportunities for interactions and encourage SDM</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1532	Renal Medicine
<p>Authors G. BOH², X.Y. OOI², W.WENG², M.LOH¹, S.C.YEO², J.CHAMBERS¹, , , , , , , , , , , , , ¹Lee Kong Chian School of Medicine (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Traditional Risk Factors and their Severity Are Major Determinants of Ethnic Disparities in Singapore Population Kidney Health</p> <p>Background & Hypothesis In Singapore, the prevalence of chronic kidney disease (CKD) and kidney failure is higher in ethnic minorities. The cause is unknown. We examine the traditional, non-traditional, and socio-economic determinants of CKD using a large population cohort.</p> <p>Methods Demographics, socio-economic, clinical, and laboratory data were evaluated in a cross-sectional study to evaluate association of risk factors and its interaction with race, for primary outcome of advanced CKD.</p> <p>Results 9,931 individuals were included, mean age\pmstandard deviation (SD) of 54.7\pm11.7 years and 5,923 (59.6%) females. 6,734 (67.8%) Chinese, 939 (9.5%) Malays, 1,575 (15.9%) Indians and 683 (6.9%) others. Prevalence of hypertension was 20.3%, diabetes 9.3%, obesity 12.6% and dyslipidaemia 36.2%. The mean eGFR\pmSD was 94.8\pm13.9 ml/min/1.73m²; eGFR<60 ml/min/1.73m² (95% confidence interval, CI) 1.6% (1.3-1.8%). Odds ratio (OR) of eGFR<60 ml/min/1.73m² was 1.66 (95%CI:1.19-2.32, p=0.003) for ethnic minorities compared to Chinese (adjusted for age & gender), with highest OR 2.43 (95%CI:1.45-4.10) in Malays, OR 2.21 (95%CI:1.27-3.85) in others, and OR 1.19 (95%CI:0.75-1.89) in Indians. Higher prevalence and increased severity of traditional risk factors amongst ethnic minorities; lower education level but not income, associates with increased prevalence of eGFR<60 ml/min/1.73m²; both with no effect modification by race (p for interaction>0.05). Ethnic minority is not associated with increased risk of eGFR<60 ml/min/1.73m² (OR 0.90, p=0.605), after model adjustment.</p> <p>Discussion & Conclusion Higher prevalence of traditional risk factors and increased severity contributes to higher prevalence of advanced CKD in ethnic minorities; race and socio-economic factors do not.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1534	Internal Medicine
<p>Authors M.L.TAN¹</p> <p>Khoo Teck Puat Hospital (Singapore)</p> <p>Title N-Acetylcysteine (NAC) Therapy in Non-Acetaminophen Induced Acute Liver Failure: A Meta-Analysis of Prospective Controlled Clinical Trials</p> <p>Background & Hypothesis N-acetylcysteine (NAC) is an antioxidant established in the early treatment of acetaminophen induced acute liver failure (ALF), however, its role in non-acetaminophen related ALF is not established. The aim of this meta-analysis was to study the pooled outcomes of (NAC) therapy in non-acetaminophen related ALF.</p> <p>Methods Multiple databases were searched to identify prospective controlled clinical trials that compared the clinical outcomes of NAC in patients with non-acetaminophen ALF to control group. Random-effects model was used to calculate the pooled odds ratio (OR). Our primary goals were to assess the overall survival, transplant free survival, requirement rate of liver transplantation, and mortality.</p> <p>Results Five studies were included in the final analysis. The pooled OR of overall survival with NAC therapy was 3.93 (95% CI 1.19-12.97) and was statistically significant (p=0.025). The pooled OR of transplant free survival was 6.55 (95% CI 0.90-47.54, p=0.06). The pooled OR of patients requiring liver transplantation with NAC therapy as compared to control was 0.28 (95% CI 0.02-3.79, p=0.3). The pooled OR of mortality with NAC therapy was 0.36 (95% CI 0.18-0.73) and was statistically significant (p=0.005).</p> <p>Discussion & Conclusion Based on this meta-analysis of prospective controlled clinical trials, NAC demonstrates significant rates of overall survival and mortality, and therefore should be considered in the treatment of non-acetaminophen related ALF.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1539	Geriatric Medicine
<p>Authors X.H.G.C.NG³, S.L.G.GOH², F.S.J.SOONG², Y.L.MUNRO¹, S.Y.LAU³, W.S.LIM³ ¹Lee Kong Chian School of Medicine (Singapore), ²National University of Singapore (Singapore), ³Tan Tock Seng Hospital (Singapore)</p> <p>Title Factors and impact of caregiver burden in mild cognitive impairment: A scoping review</p> <p>Background & Hypothesis Mild cognitive impairment (MCI) is common (prevalence 15-25%), with rates of conversion at 10-15% per year. Caregiver burden begins in early stages of cognitive impairment but is less well-studied in MCI than in dementia. We aim to identify factors and impact of burden in caregivers of persons living with MCI (PwMCI) in this scoping review.</p> <p>Methods Scientific literature databases and grey literature were searched using terms related to MCI and caregiver burden. 3462 abstracts of quantitative and qualitative studies were screened independently by a team of 3 reviewers (2 reviewers per article; interrater reliability, Kappa=1.0). A total of 29 full-text articles were identified for data extraction.</p> <p>Results 2740 caregivers of PwMCI (mean age 52-75.4) were involved in the studies. 28-60% of caregivers endorsed significant burden, with mean Zarit-Burden Interview scores ranging 14.7-23.1. MCI disease characteristics associated with burden include uncertain prognosis, cognitive difficulties, neuropsychiatric symptoms, and functional impairment. Caregivers who were spouses, of younger age, co-residing with the PwMCI, or currently employed endorsed higher burden. Other caregiver characteristics that influence degree of burden include past caregiving experiences, role ambivalence, and future concerns. Caregivers reporting significant burden had higher rates of depression, anxiety, anticipatory grief, social isolation and lower perceived life satisfaction.</p> <p>Discussion & Conclusion Caregiver burden is prevalent and significant in MCI. Factors predicting burden include both MCI disease characteristics and caregiver characteristics, with caregiver psychological health most impacted by significant burden. Further studies are needed to elucidate potential points of intervention to reduce caregiver burden in MCI</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1542	Endocrinology
<p>Authors S.Y.TAN¹, S.Liang², Z.J.LO², W.H.HO², H.LIEW², J.H.X.LIN² ¹Nanyang Technological University (Singapore), ²Tan Tock Seng Hospital (Singapore), ³Woodlands Health (Singapore)</p> <p>Title The Perception of Diabetic Foot Care among Primary Healthcare Physicians in Singapore</p> <p>Background & Hypothesis Despite evidence that diabetes foot screening (DFS) prevents three out of four diabetes-related amputations, DFS rates are between 15-45% in the primary care setting. We aim to explore the perception of diabetes foot care management and to identify factors for improvement among primary care physicians (PCP).</p> <p>Methods An anonymous online qualitative questionnaire was disseminated to PCP in Singapore. The questionnaire has 5 main categories: demographics; provision of diabetes foot care; diabetes foot education and awareness; knowledge of referral criteria; and barriers in accessing diabetes foot services.</p> <p>Results 29 PCP completed the questionnaires from the North, East and Central regions of Singapore. 76% of physicians perform annual DFS in their clinic facility, with foot examination, pedal pulses and 10g monofilament being the most common modality. 90% of physicians provided some footcare education. Almost all respondents manage diabetic foot ulcers (DFU), however only 65% were aware of our local foot assessment guideline. At least 50% of physicians expressed confidence in DFS, foot education and managing DFU. Almost 80% of physicians were unaware of any diabetic foot ulcer referral pathway, and expressed barriers in early foot ulcer assessment. The top 2 barriers cited for DFS were limited access to on-site podiatry services and convincing patients for off-site DFS. Other challenges included access for subsidized podiatry care, lack of funding, coordination and long waiting times for DFS.</p> <p>Discussion & Conclusion Local PCP recognize the importance of diabetic foot care but more needs to be done to equip them with adequate training and streamlined resources to provide timely DFS.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1554	General Surgery
<p>Authors E.SIM, E.Y.TAN (Singapore)</p> <p>Tan Tock Seng Hospital (Singapore)</p> <p>Title B3 Breast Lesions: radiological significance and risk factors for malignant upgrade</p> <p>Background & Hypothesis High-risk breast lesions or B3 lesions comprise of different pathologies, with varying risks of upgrade to malignancy. In this study, we examined the rate of malignant upgrade among high-risk breast lesions detected on ultrasound and mammogram and evaluated for predictors of cancer.</p> <p>Methods A retrospective review was done on 489 women, who presented at our unit from 1st January 2016 to 31st June 2023. Frequency of finding a cancer at surgery (malignant upgrade) was documented. We compared clinical presentation, radiological features, biopsy technique and histology of the biopsy. Correlation analyses were performed using either the Chi-squared test or Fisher's exact test.</p> <p>Results There were 545 high-risk lesions, of which 95 (17.4%) lesions upgraded to cancer at the time of surgery. Of all the 545 high-risk lesions, 223 (41%) were only seen on mammogram, 214 (39.3%) lesions were only seen on ultrasound and 108 (19.8%) lesions were seen on both mammogram and ultrasound. Of the 95 lesions that had a malignant upgrade, 69 (72.6%) lesions were Atypical Ductal Hyperplasia (ADH). Age >95 and presence of microcalcifications on mammography were risk factors for malignant upgrade. There was no difference in the number of cores taken and needle gauge used during biopsy between lesions that had a malignant upgrade and did not upgrade.</p> <p>Discussion & Conclusion Overall incidence of a malignant upgrade to cancer in high-risk lesions was 17.4%. Majority of the lesions were seen only on mammogram. Patients with histologically confirmed ADH have an increased risk of a malignant upgrade at a later time.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1556	General Surgery
<p>Authors ZJ. LO⁵, G. NG², K. GAN², H. LIEW⁴, L. GE¹, G. ANG¹, J. MOLINA¹, S. YAN¹, P. PRAKASH⁴, K. HARISH³, S.LIANG⁵</p> <p>¹National Healthcare Group HQ (Singapore), ²National University of Singapore (Singapore), ³NYU Langone Health (USA), ⁴Tan Tock Seng Hospital (Singapore), ⁵Woodlands Health (Singapore)</p> <p>Title A systematic review and classification of factors influencing diabetic foot ulcer treatment adherence, in accordance with the WHO Dimensions of Adherence to Long-term Therapies</p> <p>Background & Hypothesis Effective treatment of diabetic foot ulcers (DFUs) often requires patients and healthcare providers to work hand in hand in multifaceted treatment plan to promote wound healing and prevent further complications. Given the lack of consensus data on the factors affecting patient adherence, we aim to perform a systematic review to identify and classify factors influencing patient adherence during DFU treatment according to the WHO Dimensions of Adherence to Long-Term Therapies.</p> <p>Methods We reviewed 643 articles from PubMed, Embase and Scopus. The inclusion criteria include both qualitative and quantitative studies which discussed factors affecting patient adherence to DFU treatment, had study populations that comprised patients with either prior history of or existing DFU, and had either prior history of DFU treatment or were currently in the process of treatment. Factors were then extracted and organized according to the WHO Dimensions of Adherence to Long-Term Therapies.</p> <p>Results 7 quantitative and 8 qualitative studies were included. Of the five categories, the largest proportion of factors studied within the literature were patient-related – 11 studies concluded that a patient’s cognitive and emotional response to DFU treatment significantly resulted in reduced adherence to DFU therapy.</p> <p>Discussion & Conclusion Current literature presents heterogeneous findings regarding factors affecting patient adherence. It would be useful for future studies to categorize factors as such to provide more comprehensive understanding and personalized care to patients. Further research can be done to explore how significant factors can be addressed universally across different cohort populations in different cultural and socioeconomic contexts.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1565	Infectious Diseases
<p>Authors X.H.SAM¹, Y.S.LEO¹, B.YOUNG¹</p> <p>¹National Centre for Infectious Diseases (Singapore)</p> <p>Title Adjunctive Immunomodulatory Therapies for Severe Influenza: A systematic review and meta-analysis</p> <p>Background & Hypothesis Immunomodulatory therapies have been proposed as adjunct to conventional antivirals as part of severe influenza treatment. The effectiveness and potential adverse effects of these therapies were systematically assessed.</p> <p>Methods We searched MEDLINE, EMBASE and CENTRAL for published studies and included RCTs comparing immunomodulatory therapy versus no immunomodulatory therapy for virologically-confirmed influenza infections in hospitalised patients. Two reviewers independently extracted data and assessed risk of bias. We pooled estimates of effect using fixed or random-effects meta-analysis models as appropriate and assessed heterogeneity using the I² statistic. The quality of the evidence and certainty of conclusions was assessed for each immunomodulatory agent and outcome.</p> <p>Results We identified ten eligible studies for inclusion in the meta-analysis of mortality: five studies of passive immune therapy (619 individuals); one study of macrolides (50 individuals); one study of NSAIDs (120 individuals); two studies of macrolide-NSAID combination therapy (271 individuals); and one study of mTOR inhibitors (38 individuals). On meta-analysis, passive immune therapy was not associated with an effect on mortality (RR 0.91, 95% CI 0.48-1.72), though assessment was limited due to the small number of mortality events in the trials (36 deaths, 5.8% of participants). Clinical status at Day-7 on a 6-point ordinal score was evaluable for four RCTs (593 individuals), and suggested improved outcomes at this time point with passive immune therapy (OR 1.45, 95% CI 1.09–1.94).</p> <p>Discussion & Conclusion Futher studies are needed to ascertain the clinical benefits of passive immune therapy and determine the mortality/morbidity outcomes of other adjunctive immunomodulatory therapies for severe influenza.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1566	Endocrinology
<p>Authors J.HOE¹, C.C.C.LAW², S.TAVINTHARAN¹ ¹Admiralty Medical Centre (Singapore), ²Khoo Teck Puat Hospital (Singapore)</p> <p>Title Addressing Psycho-Emotional Well-being in Patients with Diabetic Foot Ulcers improves Metabolic Control and Reduces Hospital Emergency Utilisation</p> <p>Background & Hypothesis Diabetic Foot Ulcers (DFU) can significantly impact a patient's quality of life. We hypothesise negative psycho-emotional symptoms related to DFU and that addressing psycho-emotional distress may improve outcomes. We aimed to describe and improve psycho-emotional well-being of patients with DFU.</p> <p>Methods Patients with a Diabetic Foot Ulcer and ≥ 1 admission in the last 12 months are recruited. Diabetic Foot Ulcer Scale Short Form (DFS-SF) questionnaire is administered to evaluate impact of DFU on various domains: Leisure, Physical Health, Dependence, Negative Emotions, Worry and Bother. Patients with a score $< 40/100$ in any domain are referred to a Behavioural Health Counsellor (BHC), Clinical Psychologist (CP) or Medical Social Worker, depending on the domain affected.</p> <p>Results From November 2021 to December 2022, 47 patients were recruited. Mean age 61.7 years, 66% male, Diabetes duration: 21.2 years. Mean Diabetes Complications Severity Index: 4.4 (indicating severe DM complications). Mean HbA1c 8.2%, LDL-C: 2.03. 28 (60%) patients had low psycho-emotional scores ($< 40/100$) on DFS-SF. Negative Emotions had the lowest score of 33/100. Among patients with low psycho-emotional scores, patients reviewed by BHC or CP (compared to patients who declined review) had 1) greater reduction in ED visits (mean difference in ED visits 12 months before and after: -1.12 vs -0.5). 2) greater increase in proportion with no ED admissions (31.3% increase vs 8% decrease), 3) greater HbA1c reduction after 12 months (-0.8% vs -0.4%).</p> <p>Discussion & Conclusion Psycho-emotional distress is a significant problem for patients with DFU. Addressing psycho-emotional well-being can improve outcomes and quality of life.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1579	General Surgery
<p>Authors K.CHUA², J.Ng³, Leong.C.R¹, D.Y.S.Chan¹ ¹Khoo Teck Puat Hospital (Singapore), ²MOH Holdings Pte Ltd (MOHH) (Singapore), ³Tan Tock Seng Hospital (Singapore)</p> <p>Title Review of lower extremity peripheral arterial trauma in northern Singapore</p> <p>Background & Hypothesis Traumatic peripheral artery injury (PAI) carries a high morbidity and amputation rate. We describe our experience with the surgical management of traumatic lower extremity PAI secondary in a regional hospital in Singapore.</p> <p>Methods A retrospective study was done of all patients who presented to our institution with traumatic lower extremity PAI between January 2014 to May 2023. Patients were clinically assessed to have lower extremity PAI with further confirmation on computed tomography (CT) angiography.</p> <p>Results Nine patients sustained a total of 5 popliteal artery injuries, 2 superficial femoral artery injuries, 1 common femoral artery injury and 1 anterior tibial artery injury in the 9-year study period, with a mean age of 46.8 years. 77.7% had concomitant ipsilateral orthopaedic fractures, 11.1% had contralateral fractures. 22.2% of patients underwent bovine patch repair, 55.5% underwent bypass grafting with harvesting of the ipsilateral saphenous vein, and 22.2% underwent primary anastomosis repair. Intra-operative fasciotomy was performed in 66.6% of patients. 30-day limb amputation rate was zero.</p> <p>Discussion & Conclusion We advocate the use of CT angiography when suspecting a PAI. Early involvement of orthopaedic and vascular teams is crucial. Expedient repair with minimal tension is key in the surgical management of PAI. Endovascular repair should be reserved for hemodynamically stable patients with minor arterial injuries. Prophylactic fasciotomy is recommended as early fasciotomy is an independent predictor of limb salvage with significantly fewer wound infections. Prompt recognition of an “at-risk” limb, expedient diagnosis, early multidisciplinary involvement and vascular repair are paramount to optimizing limb salvage rates in traumatic PAI.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1582	Infectious Diseases
<p>Authors X.Y.POH³, A.TORRES-RUESTA¹, T.YOONG³, N.WONG¹, C.W.TAN², A.ROUERS¹, J-M.CHAVATTE³, Y.S.GOH¹, S.RAO³, P.Y.CHIA³, S.W.X.ONG³, T.H.LEE³, S.P.SADARANGANI³, R.J.H.Lin³, V.NEO¹, I.K.J.KAM¹ ¹A*STAR (Singapore), ²Duke-NUS Graduate Medical School (Singapore), ³National Centre for Infectious Diseases (Singapore),</p> <p>Title Immunogenicity of mRNA vs. BBV152 vaccine boosters against Omicron subvariants: interim results from the PRIBIVAC study, A Randomized Clinical Trial (Phase B)</p> <p>Background & Hypothesis BBV152 (Covaxin™) is a whole-virion inactivated SARS-CoV-2 vaccine mixed with an immune adjuvant. We aimed to compare immune responses after booster vaccination with BBV152 versus an mRNA vaccine.</p> <p>Methods We conducted a randomized, participant-blinded, controlled trial. Fifty participants were enrolled and randomized to receive an mRNA booster (n=26) or BBV152 (n=24). Blood samples were collected pre-vaccination, at Day 7, 28 and 180 for analysis of humoral and cellular immune responses. Primary end point was the SARS-CoV-2 anti-spike antibody titer at day 28.</p> <p>Results Recruitment began in January 2022 and was terminated early due to the BBV152 group meeting pre-specified criteria for futility. At Day 28 post-boost, mean SARS-CoV-2 spike antibody titers were lower with BBV152 (2004 IU/mL; 95% confidence interval [CI]=1132-3548) vs mRNA (26669 IU/mL; 95% CI=21330-33266; p<0.0001). Titers were not significantly different at Day 180: BBV152 (10162 IU/mL; 95% CI=4875-21232) vs mRNA (10046 IU/mL; 95% CI=4667-21627; p=0.98). Levels of surrogate virus neutralizing antibodies against ancestral and Omicron subvariants BA.1 and BA.2 were significantly higher at all time-points among mRNA recipients. At Day 28 post-booster, levels of spike-specific CD4 and cytotoxic T-cells were similar in both booster groups. During the 180-day study period, 14 (56%) mRNA recipients and 10 (45%) BBV152 had COVID-19 infection (p=0.71).</p> <p>Discussion & Conclusion Surrogate virus neutralizing test levels against SARS-CoV-2 wild-type and Omicron subvariants BA.1/BA.2 were significantly higher at Day 28 in individuals who received booster vaccination with mRNA vaccine compared with BBV152.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1586	Endocrinology

Authors

J.LEE¹, S.LIU¹, J.J.LIU¹, K.ANG¹, Y.M.SHAO¹, S.C.LIM¹

Khoo Teck Puat Hospital (Singapore),

Title

Association of plasma N-formylmethionine with risk for progression to end-stage kidney disease in a South-East Asian Type 2 Diabetes cohort.

Background & Hypothesis

A recent metabolomic study unveiled that higher level of N-formylmethionine (fMet), might be protective against Type-2-diabetes due to its role in protein homeostasis. Given that mitochondrial dysfunction plays an essential role in progression of diabetic kidney disease, we hypothesize and aim to study whether plasma fMet levels are associated with lower incident end stage kidney disease (ESKD) in patients with type 2 diabetes.

Methods

1468 participants with T2D were recruited into KTPH SMART2D cohort between 2014 to 2017. pfMet concentration was measured by immunoassay. The primary outcome is a composite renal endpoint which includes sustained eGFR<15 ml/min/1.73m², dialysis or doubling of serum Creatinine. Association of pfMet with risk for the renal outcome was assessed by survival analysis.

Results

Participants with pfMet in the highest tertile (T3) had lower levels of body mass index, favourable lipids profile and better renal function at baseline. During 5.55±1.32 years' follow-up, 110 renal events were identified. Participants with occurrence of renal events had significantly lower levels of plasma fMet as compared to those without (median [IQR], 98.1 [82.7-118] versus 104 [86.4-129] pg/ml, p=0.006). Cox Regression model suggested that T3 participants had a reduced risk for progression to ESKD (HR: 0.88, 95% CI 0.68-1.14, p=0.33), albeit not reaching statistical significance.

Discussion & Conclusion

High level of plasma fMet may be protective against DKD progression towards ESKD in T2D patients. Our study paved the avenue to further characterize the role of protein dysregulation in mitochondrial dysfunction and its association with risk for progression towards ESKD.

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1587	Endocrinology
<p>Authors B.PANDIAN¹, X.L.TAN¹, S.U.B.M.ADNAN¹, J.K.C.KHOO¹, S.K.M.LOW¹, A.M.C.MOH¹, S.C.LIM¹</p> <p>¹Khoo Teck Puat Hospital (Singapore)</p> <p>Title Association between Clusterin and Poorer Leg Strength</p> <p>Background & Hypothesis Clusterin is a glycoprotein involved in inflammation and cell death. Inflammation contributes to sarcopenia which is characterized by loss of muscle mass and strength. It is unknown if Clusterin is associated with sarcopenia components.</p> <p>Methods We conducted a cross-sectional study on 100 participants aged ≥ 40 years. Clusterin was measured with enzyme-linked immunosorbent assay. Muscle mass was measured using bio-impedance. Hand dynamometer and 30-second chair stand test were used to measure handgrip strength and leg strength respectively. Linear regression was used to examine association between Clusterin and sarcopenia components, adjusting for demographics, diabetes status, body mass index(BMI) and lifestyle.</p> <p>Results The mean age of participants was 56.7 ± 10.2 years. Compared to tertile(T)1 (lowest levels), T3 Clusterin was associated with poorer 30-second chair stand test with adjusted coefficient $-3.57(95\%CI -6.69 \text{ to } -0.44; p=0.026)$. In those aged ≥ 50 years, T2 and T3 Clusterin were associated with poorer 30-second chair stand test with adjusted coefficients $-5.00(95\%CI -8.87 \text{ to } -1.14; p=0.012)$ and $-6.32(95\%CI -10.11 \text{ to } -2.52; p=0.002)$ respectively. T3 Clusterin was also inversely associated with 30-second chair stand test in those with $BMI \geq 23.5 \text{ kg/m}^2$ with adjusted coefficient $-4.43(95\%CI -8.65 \text{ to } -0.20; p=0.041)$.</p> <p>Discussion & Conclusion Our study revealed a novel finding on an independent association between Clusterin and poorer leg strength. The associations are evident in older age group and those with higher BMI. Clusterin is a potential biomarker of inflammation to poor lower leg strength for further investigation in future longitudinal studies and interventions.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1588	Public Health / Clinical Epidemiology
<p>Authors J.W.SIM¹, A.H AUNG¹, Z.J.J.PHUA¹, Z.B.LI¹, O.H.J.LIM¹, A.CHOW¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Risk factors of 7-day mortality after bacteremia episode in Tan Tock Seng hospital</p> <p>Background & Hypothesis Incidence of bacteremia, a life-threatening condition, is expected to increase due to the increasing life expectancy of Singaporeans. The aim of this study is to assess factors associated with 7-day mortality risk, to guide closer monitoring of high-risk patients to reduce avoidable deaths following bacteremia.</p> <p>Methods We conducted a historical cohort study on patients aged 15 and above admitted from 1 January 2006 to 31 December 2016 to Tan Tock Seng Hospital, Singapore. Patients with at least one day of hospital stay and one positive blood culture (with a pathogenic organism identified) were included. Multi-variable logistic regression models adjusting demographics, comorbidities, nosocomial infection, and bacteria group, were constructed to identify factors associated with 7-day mortality.</p> <p>Results Among 10,189 bacteremia patients, 907 (8.9%) died within 7 days of the bacteremia episode. The 7-day mortality risk was significantly higher in patients aged 65 and above [aOR 1.74, 95%CI 1.48-2.06], those with comorbidities (i.e myocardial infarction, peripheral vascular disease, renal disease, liver disease and malignancy), and nosocomial bacteremia (positive culture occurring more than 48 hours after hospital admission) [aOR 1.42, 95%CI 1.22-1.67]. Patients infected with <i>Acinetobacter baumannii</i> [aOR 12.05, 95%CI 8.40-17.28] had much higher odds of 7-day mortality than those with <i>Escherichia coli</i>.</p> <p>Discussion & Conclusion Special attention should be placed on bacteremia patients who were elderly, with co-morbidities, and infected with <i>Acinetobacter baumannii</i>, to reduce 7-day mortality risk.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1589	Infectious Diseases
<p>Authors X.H.SAM¹, T.LYSAGHT², J.SAVULESCU², H.J.TOH², P.A.TAMBYAH², B.YOUNG¹</p> <p>¹National Centre for Infectious Diseases (Singapore), ²National University of Singapore (Singapore)</p> <p>Title Developing Controlled Human Infection (CHI) studies in Singapore will require public engagement, clear communication and developing an appropriate reimbursement model</p> <p>Background & Hypothesis The strengths of CHI studies as a fundamental experimental technique to study selected infectious diseases and to accelerate the development of new vaccines are increasingly recognized. Knowledge about and attitudes towards such studies among the general population in Singapore is not known.</p> <p>Methods A self-administered survey exploring public perceptions to CHI studies was conducted between February to August 2023 and included adults from the Health Opinion Panel Singapore (HOPS), and current research participants at NCID.</p> <p>Results A total of 612 individuals responded, of which 187 (30.6%) had experience as clinical research participants. Overall, 441 (72%) had no prior knowledge of CHI studies, but after watching an animation explaining the concept, 373 (61%) positively agreed that a CHI study with SARS-CoV-2 should be conducted in Singapore. Willingness to participate was higher among those with experience as research participants compared to those without (49.7% vs 32.2%, Odds ratio 2.1, 95% CI 1.5-3.0, p<0.001). The majority felt that amount of reimbursement paid to participants should take into account the potential negative impact of a study on physical and mental health, as well as the time and inconvenience involved.</p> <p>Discussion & Conclusion While knowledge about CHI studies is generally low, with education about the design, rationale, and approaches to minimize risk, the majority of individuals have a favorable opinion. Reducing barriers to participants joining clinical research studies, including through appropriate financial reimbursement, may have broad benefits.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1597	Infectious Diseases
<p>Authors Y.LIN¹, X.E.YEO¹, S.SAHIB¹, S.T.OOI¹ ¹Khoo Teck Puat Hospital (Singapore)</p> <p>Title Is Respiratory Multiplex PCR an Inferior Alternative to COVID-19 PCR in Detecting SARS-CoV-2?</p> <p>Background & Hypothesis Timely and accurate COVID19 diagnosis remains crucial for disease management and implementation of infection control measures. While COVID-PCR is the gold standard for detecting SARS-CoV-2, respiratory multiplex PCR (ResMux) offers comprehensive detection of common respiratory pathogens, including SARS-CoV2. We aimed to evaluate the performance of ResMux as an alternative diagnostic approach in KTPH.</p> <p>Methods The cross-sectional study was conducted on patients with respiratory symptoms in emergency and inpatient settings (Feb-May 2023). Nasopharyngeal swabs for COVID-PCR and ResMux were matched within a 24-hour interval. Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were calculated to assess the accuracy of ResMux in detecting SARS-CoV2. In the subgroup of positive COVID-PCR, cycle threshold values (CT-values) between SARS-CoV2 detected/not detected by ResMux were compared by using Wilcoxon Rank Sum test. ResMux's SARS-CoV2 positivity was estimated for CT-values below/above 30.</p> <p>Results During the study, 597 pairs of COVID-PCR and ResMux from 572 encounters were matched, with 24.1% (144) tested positive by COVID-PCR. ResMux demonstrated 0.924 sensitivity (133/144; 95% CI: 0.867-0.961), 0.989 specificity (448/453; 95% CI: 0.974-0.996), 0.964 PPV (95% CI: 0.917-0.988), and 0.976 NPV (0.958-0.988). Subgroup analysis revealed that CT-values were lower in SARS-CoV2-positive individuals from ResMux (median [IQR]: 26.3 [20.7-33.9] versus 38.9 [35.9-42.6]; p<0.001). ResMux's SARS-CoV2 positivity was significantly higher for CT-values below 30 (100.0%, 95% CI: 95.7%-100.0% versus 81.7%, 95% CI: 69.6%-90.5%; p<0.001).</p> <p>Discussion & Conclusion ResMux is effective in detecting SARS-CoV-2, particularly in individuals with CT-values below 30, suggesting it as a viable alternative to COVID-PCR.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1600	Geriatric Medicine

Authors

K. YONG², J. CHEW², K. LOW³, A. YEO¹, C.N. TAN¹, J.P. LIM², Y.Y. DING², W.S. LIM²

¹Institute of Geriatrics and Active (Singapore), ²Tan Tock Seng Hospital (Singapore), ³Woodlands Health (Singapore)

Title Predictive validity of intrinsic capacity for frailty progression at 2 years in community-dwelling older adults: Comparison of 4 scales

Background & Hypothesis

Intrinsic capacity (IC) and frailty are complementary constructs which encapsulate functional capacities of older adults. Although studies suggest low IC increases frailty risk, gaps remain with limited longitudinal studies, varying IC operationalisation, and limited studies using the World Health Organisation's Integrated Care for Older People (ICOPE) tool. We aimed to compare different IC scales in their predictive ability for 2-year frailty progression in healthy community-dwelling older adults.

Methods

We studied 230 participants (age 67.2±7.4years) from the GeriLABS-2 cohort study. Based on four IC domains (locomotion, cognition, vitality, psychological) at baseline, we derived 4 scores: IC1-Chew, range: 0-8; IC2-Liu, range: 0-4; IC3-ICOPE, range: 0-4; IC4-modified ICOPE, range: 0-8. The primary outcome was 2-year frailty progression using modified Fried score. We performed logistic regression to examine association of baseline composite IC with frailty progression. We also examined the impact of individual domains and number of impaired domains on frailty progression.

Results

Amongst 193 participants who completed follow-up, 20 (10.4%) met progression criteria. 8-point scales (IC1/IC4) predicted increased risk of frailty progression (OR=4.13,95%CI:1.49-11.43; OR=4.78,95%CI:1.68-13.58). Impaired locomotion was most commonly associated with frailty progression, followed by vitality. Greater number of impaired domains predicted increased risk of frailty progression on IC1/IC2 ($\beta=0.16-0.18, p<0.05$) but not ICOPE scales.

Discussion & Conclusion

Amongst healthy community-dwelling older adults, baseline IC was associated with frailty progression underpinned by locomotion/vitality domains and number of impaired domains. Eight-point IC scales (in particular, modified ICOPE) had better predictive validity for frailty progression.

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1609	Orthopaedic Surgery
<p>Authors C.ZHAO¹, M. Yam² ¹Lee Kong Chian School of Medicine (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title 3D printing for preoperative planning and intraoperative surgical jigs - a prospective study on surgeon perception</p> <p>Background & Hypothesis Patient specific 3D printed models have been widely used as a complement to 2D imaging for preop planning in orthopedic surgery. This study discusses surgeons' view on the use of custom-made 3D models for pre-op planning and intraoperative guiding.</p> <p>Methods Two prospective surveys were conducted on surgeons' view on pre-operative use of patient specific 3D models (n=64) and intraoperative jigs (n=14) respectively. The usefulness of 3D models in pre-op planning was evaluated in four areas on a scale of 1 to 5: 1) improving surgeons' understanding of patients' anatomy, 2) aiding in pre-operative planning and 3) explaining the condition to others, and 4) portraying the anatomy accurately. For intraoperative jigs, surgeons were required to rate on the ease of use, effectiveness of the jigs in improving the ease, accuracy, and outcomes of surgery, and in reducing surgery time.</p> <p>Results Majority of the participants rated 4 and above (agree and strongly agree) for all areas evaluated on pre-operative and intraoperative use of 3D models. We noted a higher rating on "aid in explaining the condition to others" by surgeons with 0-3 years of practice post exit compared to the other two groups (3-6 years and above 6 years).</p> <p>Discussion & Conclusion We opine that these full-scale individualized models allow clear visualization of complex anatomy from various angles and planes, and simulation of specific surgical procedures. Surgeons therefore can anticipate possible challenges and plan out solutions accordingly. When used intra-operatively, these guides facilitate accurate cuts and positioning of implants, therefore improving the ease and outcome of surgery.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1619	Psychology
<p>Authors R.J.M.ONG³, D.X.SEAH³, N. RANE¹, A.GOYAL³, Z.Y.TAN², H.M.TAN³, J.KEPPO³, G.C.Y.TAN¹ ¹Institute of Mental Health (Singapore), ²Lee Kong Chian School of Medicine (Singapore), ³National University of Singapore,</p> <p>Title The influence of self-referential biases on the risk of developing depressive symptoms</p> <p>Background & Hypothesis Negative biases in self-referential processing (SRP) in the Self-Referential Encoding Task (SRET) is associated with depression and future relapse. We aim to compare measures of SRP bias in recall/recognition for predicting depressive symptoms.</p> <p>Methods Depressed patients and healthy controls were administered a modified SRET and Inventory of Depressive Symptoms (N=202). Signal Detection Theory (SDT) measures (response bias, c, for positive endorsed ($c+$), negative endorsed ($c-$) recognised), proportion of positive endorsed (recall+) and negative endorsed (recall-) recalled were calculated. We conducted bivariate correlations and linear regression using JASP 0.16.3 and elastic nets in Rstudio.</p> <p>Results Depressive symptoms positively associated with $c+$ minus $c-$ (Pearson $r(200)=.503$, $p = 3.313e-14$), (regression $B=6.27$, $t=8.18$, $p=3.313e-14$), recall - (Pearson $r(200)=.318$, $p=4.132e-6$), (regression $B=15.07$, $t=4.74$, $p=4.132e-6$) and $c+$ (Pearson $r(200)=.396$, $p= 6.196e-9$), (regression $B= 7.59$, $t=6.08$, $p=6.196e-9$). Depressive symptoms negatively correlated with recall+ (Pearson $r(200)=-.342$, $p= 6.298e-7$), (regression $B=-16.25$, $t=5.15$, $p=6.298e-7$), and $c-$ (Pearson $r(200)= -.404$, $p= 3.127e-9$), (regression $B=-7.78$, $t=-6.21$, $p=3.127e-9$). We tested scores with elastic nets from raw data predictive values, finding similar results ($\alpha = 0.900$, $\lambda = 0.051$, $ROC(StdD) = 0.860(0.116)$, $Sensitivity(StdD) = 0.774(0.192)$, $Specificity(StdD) = 0.685(0.223)$).</p> <p>Discussion & Conclusion The measure $c+$ minus $c-$ best predicted depressive symptoms. SDT measures can improve bias detection and predicting depressive symptoms, and show potential in screening for depression</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1629	Public Health / Clinical Epidemiology
<p>Authors Y.W.TANG², Z.L.KYAW¹, B.ANG², K.MARIMUTHU² ¹National Centre for Infectious Diseases (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Prevalence of Healthcare-Associated Infections Among Adult Inpatients in Tan Tock Seng Hospital - A Pre- and Peri-Pandemic Comparison</p> <p>Background & Hypothesis Point prevalence surveys for healthcare-associated infection (HAIs) were conducted for Tan Tock Seng Hospital (TTSH) inpatients in 2019 and 2020, and results were analysed to investigate the effect of the COVID-19 pandemic.</p> <p>Methods HAIs were identified using the European Centre for Disease Prevention and Control (ECDC) protocol. Factors associated with HAIs were identified using multivariable regression, and HAI prevalence was determined using Chi square and Fisher's exact tests.</p> <p>Results Of 1176 patients surveyed pre-pandemic in 2019, 159 had at least one HAI (13.52%, 95% confidence interval (CI) [11.68, 15.60]). In comparison, 172 out of 1149 patients surveyed peri-pandemic in 2020 had at least one HAI (14.97%, 95% CI [13.02, 17.15]), with a significant increase of HAIs among surgical patients (pre-pandemic: 13.55, 95% CI [10.17, 14.98]; peri-pandemic: 24.51, 95% CI [19.64, 30.15]; $\chi^2 = 11.2$, p-value = <0.01). Independent risk factors of HAIs in both surveys include surgery without implants (pre-pandemic adjusted odds ratio (aOR): 1.69, 95% CI [1.11, 2.60]; peri-pandemic aOR: 3.09, 95% CI [2.04, 4.66]) and central venous catheters (pre-pandemic aOR: 2.20, 95% CI [1.45, 3.34]; peri-pandemic aOR: 9.53, 95% CI [4.05, 22.40]) and urinary catheters (pre-pandemic aOR: 2.17, 95% CI [1.53, 3.07]; peri-pandemic aOR: 1.94, 95% CI [1.35, 2.79]). Enterobacterales were the most prevalent causative microorganisms, (pre-pandemic: 49.45%; peri-pandemic: 44.44%) with high non-susceptibility to third generation cephalosporins (pre-pandemic: 51.11%; peri-pandemic: 32.50%).</p> <p>Discussion & Conclusion There is no significant change in overall HAI prevalence in TTSH although surgical site, and eye, ear, nose, throat or mouth infections increased significantly peri-pandemic.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1641	Cardiology
<p>Authors SYLVIA¹, JJ.LIU¹, C.CHAN¹, YM.SHAO¹, S.C.LIM¹</p> <p>¹Khoo Teck Puat Hospital (Singapore)</p> <p>Title Prevalence of un-diagnosed heart failure in real world setting among patients with type 2 diabetes</p> <p>Background & Hypothesis Heart failure (HF) is a serious complication of type 2 diabetes mellitus (T2DM) which is associated with repeated re-hospitalization and high mortality. However, HF is often under-diagnosed and under-treated in real world setting. N-terminal prohormone B-type natriuretic peptide (NT-proBNP) level has been commonly used as biomarker for diagnosis and prediction of heart failure. We aim to survey the prevalence of HF in KTPH patients with type 2 diabetes.</p> <p>Methods 1,240 T2D outpatients were recruited between 2012 and 2017 in KTPH and followed for a median of 4.2 (IQR 3.6-5.8) years. Clinical diagnosis of HF was identified by ICD-9 and ICD-10 codes in the hospitalization discharge summary. Plasma NT-proBNP was quantified using sandwich ELISA.</p> <p>Results Participants mean age was 56±12 years and median diabetes duration was 10 (interquartile range 5-16) years (46% Chinese, 32% Malay, 22% Indian). Using a cut-off of plasma NT-proBNP >600pg/mL, i.e., the criteria for ascertainment of heart failure in the landmark DAPA-HF trial, 126 (10.2%) patients were identified as having HF. Of note, only 45.2% of these HF patients had been clinically diagnosed and admitted into hospital for specific treatments. The other 54.8% remained under-diagnosed albeit carrying higher risk for HHF and mortality. Excluding patients with HF history did not significantly alter the outcome with 61.6% of the high-risk patients remain un-diagnosed.</p> <p>Discussion & Conclusion Heart failure is a common complication of type 2 diabetes. Our data suggest that heart failure might be under-diagnosed in real world clinical setting. More intensive clinical surveillance is warranted to improve clinical outcomes.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1643	General Surgery
<p>Authors C.W.OEI¹, Y.M.CHAN¹, X.J.ZHANG¹, K.H.LEO¹, E.M.YONG¹, R.C.CHONG¹, L.ZHANG¹, Y.PAN¹, G.W.L.TAN¹, H.W.M.MAK¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Predicting the Risk of Diabetic Foot Amputation Using Machine Learning Methods</p> <p>Background & Hypothesis Diabetic foot ulcers (DFU) remain a serious complication of diabetes mellitus, which can lead to lower extremity amputation (LEA). Developing a prediction model to predict the amputation risk in a DFU patient can help early intervention and prevent adverse outcomes. This study aims to predict the risk of a DFU patient experiencing LEA within 180 days from admission using Machine Learning (ML) algorithms and a model explainability technique for interpretation.</p> <p>Methods Retrospective analysis of 2795 patient episodes admitted for DFU at a tertiary hospital from 2012 to 2017. Features collected include laboratory results, medication history, diagnoses and comorbidities, demographics and wound characteristics. A repertoire of ML algorithms was implemented to train the model with its hyperparameters tuned using Bayesian Optimization. The model was evaluated using balanced accuracy and area under receiver operating curve (AUROC). Three different ML models were developed to predict major, minor and lower extremity amputation respectively. SHAP (SHapley Additive exPlanations) is a model explainability technique implemented for model interpretation.</p> <p>Results XGBoost algorithm has the best performance in predicting major LEA event, with balanced accuracy and AUROC of 0.749 and 0.820 respectively. With SHAP, the model identified important features for explainability. Total white cell (TWC) count, comorbidity score and red blood cell count contributed highest weightage to a major LEA event. TWC, eosinophils, and necrotic eschar in the wound contributed most to any LEA event.</p> <p>Discussion & Conclusion ML algorithms perform well in predicting the risk of LEA in DFU patients. Further developments include exploration of deep learning methods and prospective studies.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1654	Ophthalmology
<p>Authors R.AGRAWAL⁴, A.HOSKIN³, S.NG, B.LEE², W.ROJAS², R.BLANCH¹</p> <p>¹Institute of Inflammation and Ageing (United Kingdom), ²Lee Kong Chian School of Medicine (Singapore), ³Sydney Eye Hospital (Australia), ⁴Tan Tock Seng Hospital (Singapore),</p> <p>Title Ophthalmic trauma outcome and risk factors for visual morbidity: The International Globe and Adnexal Trauma Epidemiological Eye Study (IGATES)</p> <p>Background & Hypothesis Global variation in incidence and etiology affects the applicability of locally collected data to international treating physicians and to public health interventions aimed at reducing incidence. We aimed to characterize the international and annual variation in ophthalmic trauma in a unique international dataset.</p> <p>Methods Data were collected from 24 participating centers across 11 countries; India, Iran, Guatemala, Indonesia, USA, Colombia, Singapore, Nepal, Mexico, Thailand and Pakistan utilizing the web-based International Globe and Adnexal Trauma Epidemiological Eye Study (IGATES) registry data collected between April 2014 and December 2022. Data including demographics, mechanism and setting of injury and visual outcomes were reported with descriptive statistics and analyzed using Kruskal-Wallis tests.</p> <p>Results 4625 eyes (4463 patients) with a male-to-female ratio of 3.7 and mean age of 30.2 years old (range 0.1 to 96 years old, standard deviation 18.5). Gender distribution ranged from 100% male in Pakistan to 2:1 in Singapore. There was a significant association between the month and mechanism type ($p=0.005$), with sharp (16.2%) and blunt (15.8%) injuries more common in June and firework-related injuries more common in November (16.6%). Significant variation occurred between country and setting ($p= 0.04$) with the highest rate of workplace injuries (52.7%) in Iran and the highest rate of domestic eye injuries (67.0%) in the USA.</p> <p>Discussion & Conclusion We demonstrate significant variation in age and gender predispositions as well as etiology, with firework and agricultural injuries common internationally, although not in high-income countries. IGATES provides an opportunity to formulate relevant prevention strategies to reduce injury incidence.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1657	Ophthalmology
<p>Authors R.AGRAWAL⁵, R.LIU², A.SULE³, S.CHOO⁵, A.SEN⁴, A.KHATRI¹</p> <p>¹Birat Eye Hospital (Nepal), ²Harvard Medical School (USA), ³National University of Singapore (Singapore), ⁴Sadguru Netra Chikatsalya (India),</p> <p>Title Perspectives on ideation of a practical model for effective eye care delivery in Asian rural communities</p> <p>Background & Hypothesis Community-based eye care delivery in rural areas is crucial for reducing visual impairment by providing access to care for those who might not otherwise seek it. However, models for community eye care delivery are not standardized, and this perspective aims to examine existing models' strengths and weaknesses, leveraging this knowledge to propose a more feasible and sustainable model in rural settings.</p> <p>Methods A semi-structured descriptive survey was administered using close and open-ended questions. Participants (ophthalmology healthcare workers/experts) were sourced through community ophthalmology groups, their achievements and publications, or during a 2-week trip to India and Nepal in December 2022.</p> <p>Results Physicians had varying degrees of satisfaction with their tools. Experts generally believed that untrained surgeons and delayed presentation causing higher-grade cataracts were the most common causes of surgery complications in rural settings. The major barriers to sustainable eye care delivery and positive outcomes in rural areas are competent and motivated human resources, unequal funding distribution, lack of infrastructure, and patient awareness.</p> <p>Discussion & Conclusion This perspective highlights the shortage of competent human resources, inadequate infrastructure, lack of transparency in fund allocation, and low patient awareness as the major challenges to effective eye care delivery in rural areas. Integrating technology into community ophthalmology practices is one way to overcome these barriers. A human chain supply distribution system (HCSDS) using a healthcare management platform (HMP) could increase transparency in the system, providing a single open-source platform for data tracking, auditing, self-administered vision assessment, and cataract surgery screening and outcome tracking.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1663	General Surgery
<p>Authors ZJ. LO³, K .HARISH², L. LAU¹, S.LIANG³ ¹MOH Holdings Pte Ltd (MOHH), ²NYU Langone Health (USA), ³Woodlands Health (Singapore)</p> <p>Title Systematic Review on the usage of Artificial Intelligence in Peripheral Vascular Diseases</p> <p>Background & Hypothesis The use of Artificial Intelligence (AI) in healthcare is based on machine-learning algorithms and software to replace human cognition in the analysis of medical data. We aim to provide a systematic review on the usage of AI in peripheral vascular diseases (PVD).</p> <p>Methods A systematic review was conducted through the PubMed database. Search terms were focused to identify studies reporting artificial intelligence OR algorithm OR natural language processing OR machine learning OR neural networks AND peripheral vascular disease NOT robotics.</p> <p>Results A total of 26 articles from 1956 to 2020 were included. The studies examined the application of AI software in the identification of risk factors and screening (2 studies), diagnosis (13 studies), management (2 studies) and complication assessments and severity of PVD (8 studies). Out of 25 articles, the AI software had shown positive results in their respective domains in 24 articles. Risk factors for PVD were utilized by the AI software to screen for asymptomatic PVD and the positive predictive value for the AI was twice that of the Inter-Society Consensus (ISC) screening criteria. The AI was able to interpret the results to generate a diagnosis of PVD with high specificity and sensitivity. It was also able to generate a management algorithm with multiple treatment routes based on the patient's profile.</p> <p>Discussion & Conclusion AI is helpful to aid in the patient journey of PVD patients from screening to management. However, more research and development are required before it can be widely applied to assist doctors in the management of patients with PVD.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1664	Infectious Diseases
<p>Authors R.LEE³, X.Y.POH³, C.W.TAN², J.M.CHAVATTE³, S.W.FONG¹, Y.S.GOH¹, A.ROUERS¹, N.WONG¹, A.TORRES-RUESTA¹, A.YEOH², S.RAO⁴, P.Y.CHIA⁴, S.ONG⁴, T.H.LEE⁴, S.SADARANGANI⁴, R.LIN⁴, Y.Q.CHIN³, D.LIM³, W.CHIA², L.NG¹, L.RENIA¹, E.R.REN¹, D.LYE⁴, L.F.WANG², B.YOUNG⁴ ¹Agency for Science, Technology and Research (A*STAR) (Singapore), ²Duke-NUS Graduate Medical School (Singapore), ³National Centre for Infectious Diseases (Singapore), ⁴Tan Tock Seng Hospital (Singapore)</p> <p>Title Antibody response of heterologous versus homologous mRNA vaccine boosters against SARS-CoV-2: Final results from phase A of the PRIBIVAC randomized controlled trial</p> <p>Background & Hypothesis Waning antibody levels post COVID-19 vaccination have raised the need for boosters. It is unknown which vaccine combinations offer the most robust immune response against SARS-CoV-2.</p> <p>Methods This randomized, participant-blinded, controlled phase 4 trial assessed the immunogenicity of COVID-19 vaccine booster combinations. One-hundred individuals who had received two-dose BNT162b2 at least six months prior were enrolled between October and November 2021. Participants were randomized 1:1 to homologous (BNT162b2 + BNT162b2 + BNT162b2; “BBB”) or heterologous (BNT162b2 + BNT162b2 + mRNA-1273; “BBM”) mRNA booster vaccine. Key endpoints measured up to one year included the level of antibody neutralization against SARS-CoV-2, level SARS-CoV-2 anti-spike immunoglobulins, and COVID-19 infections confirmed by ART and/or PCR and/or Elecsys® anti-nucleocapsid assay.</p> <p>Results No COVID-19 infections occurred in the first 28 days post-boost, although 34.4% of the cohort reported infections from days 29–180 and 36.6% from days 181–360. There was no difference in proportion of infections or time to infection in the BBB and BBM groups. Among the uninfected at day 28 and day 180, mean SARS-CoV-2 anti-spike titers were significantly higher in BBM compared with BBB, as was the median surrogate SARS-CoV-2 neutralization inhibition. At day 360, with only 29.0% uninfected, there was no difference in the levels of SARS-CoV-2 anti-spike or neutralizing antibodies in both groups.</p> <p>Discussion & Conclusion BBM elicited stronger humoral immune response against SARS-CoV-2 compared with BBB, however, this did not translate to better protection against COVID-19 infection.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1666	Infectious Diseases
<p>Authors T.R.T.CHIA², B.E.YOUNG⁵, D.H.L.NG⁴, P.A.TAMBYAH³, T.W.YEO¹</p> <p>¹Lee Kong Chian School of Medicine (Singapore), ²National Centre for Infectious Diseases (Singapore), ³National University Hospital (Singapore), ⁴Singapore General Hospital (Singapore), ⁵Tan Tock Seng Hospital (Singapore),</p> <p>Title Sputum Biofire FilmArray Pneumonia Panel has a higher sensitivity compared with oral swabs and routine clinical testing in community-acquired pneumonia</p> <p>Background & Hypothesis I3D RESPIRO is an ongoing multisite prospective observational study of adult patients hospitalized with non-COVID-19 moderate-to-severe community-acquired pneumonia. We hypothesized that pathogen detection will increase with use of molecular panels with a wider target profile than with routine clinical tests.</p> <p>Methods Patients with community acquired pneumonia were prospectively enrolled from three major academic medical centers in Singapore. Oropharyngeal swabs and sputum samples were tested by Biofire® (Salt Lake City, Utah) Respiratory Panel 2.1® and FilmArray® Pneumonia Panel respectively.</p> <p>Results We analysed the results of the first 161 subjects recruited who contributed 76 swabs and 63 sputum samples. Routine clinical testing identified viruses (predominantly influenza 37.8%, 13.5% RSV, 10.8% rhinovirus) in 23% of patients while the Respiratory Panel 2.1® detected viruses in 32.9% of oropharyngeal swabs tested (36% influenza, 32% rhinovirus/enterovirus, 20% RSV) and the FilmArray® Pneumonia Panel identified viruses in 63.5% of sputum samples tested (37.5% influenza, 20% RSV, 17.5% rhinovirus/enterovirus, 17.5% metapneumovirus, 15% non-COVID coronaviruses). In total, 46.6% of our patients were positive for at least one viral pathogen while 6.8% were positive for two.</p> <p>Discussion & Conclusion Sputum analysis using the Biofire® FilmArray® Pneumonia Panel has the potential to increase the pathogen detection rate in community acquired pneumonia in Singapore. This has implications for infection prevention and antimicrobial stewardship. More cost-effective technologies are clearly needed to optimize the detection of respiratory viral pathogens for better clinical care and infection prevention.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1667	Endocrinology
<p>Authors B.PANDIAN¹, A.M.C.MOH¹, X.L.TAN¹, S.K.M.LOW¹, K.K.L.ANG¹, T.K.KWAN¹, S.C.LIM¹ ¹Khoo Teck Puat Hospital (Singapore)</p> <p>Title Association of circulating Clusterin with cognitive function in older multi-ethnic Asians with type 2 diabetes – A 5-year longitudinal study</p> <p>Background & Hypothesis Clusterin is ranked the third most prominent genetic risk factor of cognitive disorders including Alzheimer’s disease, and both protective and risk alleles have been identified. The ubiquitously-expressed protein has been implicated to confer conflicting effects in pathophysiological processes. In this 5-year longitudinal study, we assessed the association between circulating Clusterin and cognitive function in older multi-ethnic Asians with T2D.</p> <p>Methods This study included subjects who participated in the SMART2D study during 2014-2017 (baseline; n=430, age: 63±6 years, 52.8% male, RBANS scores: 101±8) and followed-up during 2019-2022. The inclusion criteria were baseline aged ≥55 years old and underwent cognitive assessment by Repeatable Battery for the Assessment of Neuropsychological Status (RBANS). The RBANS is a 12-item test assessing five cognitive domains: attention, language, visuospatial abilities, and immediate and delayed memory. Plasma Clusterin levels were measured using immunoassay.</p> <p>Results Cross-sectionally, a positive correlation was observed between baseline RBANS scores and Clusterin levels (r=0.105 P=0.030). Univariable linear regression analysis revealed an association between Clusterin and increased RBANS scores (B=3.43, 95% CI:0.34–6.53, P=0.030). After adjusting for demographics, duration of diabetes, waist circumference, metabolic parameters and education, the association remained significant (B=3.45, 95% CI:0.91–5.98, P=0.008), specifically in the immediate and delayed memory domains. Multivariable linear mixed model showed an independent relationship between baseline Clusterin levels and increase in RBANS over time (Coefficient=2.77, 95% CI:0.43–5.12, P=0.020).</p> <p>Discussion & Conclusion Higher circulating Clusterin levels are associated with a preserved cognitive function in T2D, suggesting a neuroprotective role of Clusterin, potentially in cell survival and neuroplasticity processes.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1668	General Surgery
<p>Authors D.Y.S. CHAN¹, S.W.H. CHAN², J.C.L. WONG¹, C.R. LEONG¹ ¹Khoo Teck Puat Hospital (Singapore), ²Woodlands Health (Singapore)</p> <p>Title A review of outcomes of carotid endarterectomies for patients in Northern Singapore</p> <p>Background & Hypothesis In many countries worldwide, carotid endarterectomies are conducted in high-volume centres. As the ability of this procedure to be conducted in a safe and efficient manner in a low volume setting directly affects morbidity and mortality of patients, this study aims to review outcomes of patients who underwent carotid endarterectomy in a regional centre.</p> <p>Methods A retrospective review of 40 cases of carotid endarterectomy from 2013 to 2022 was performed. Patients with carotid stenoses were diagnosed based on an ultrasound duplexes and CT 4 vessel angiograms. Patients were assessed for 30-day mortality, post-operative stroke and complications.</p> <p>Results Amongst these cases, aged 46 to 84 years (mean 67), 85% were symptomatic. Twenty-five percent of patients had ischaemic heart disease, 78% had hypertension, 40% had diabetes mellitus, 70% had hyperlipidaemia, and 55% were smokers. Regarding the indications for endarterectomy, 60% had a previous stroke, while 10% had a previous transient ischaemic attack, and 13% had episode(s) of amaurosis fugax. The waiting time from the onset of symptoms to the endarterectomy operation ranged 6 to 1756 days (median 14), while the mean operation duration was 153 minutes. There was 1 death and 1 post operative stroke in this series of 40 cases. 98% of our patients came through surgery without major neurologic deficits.</p> <p>Discussion & Conclusion Carotid endarterectomy can be safely conducted in a low-volume setting, as the surgical outcomes in this case series are commensurable to that of larger existing series.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1676	Renal Medicine
<p>Authors S TY TEOH¹, NAB KASMAN¹, CC CHAI¹, CJ RENAUD¹, EK LIM¹, G FL TAN¹, CU UBEYNARAYANA¹, C SI, Y DENG¹, A YL LIU¹ Khoo Teck Puat Hospital (Singapore)</p> <p>Title Comparison of Standard versus High Dose Urokinase for Dysfunctional Tunneled Dialysis Catheters (TDC) in Haemodialysis (HD) Patients: A Randomized Controlled Trial</p> <p>Background & Hypothesis Thrombolytic therapy with urokinase is first line therapy to restore catheter patency in HD patients with TDC dysfunction before considering a TDC exchange which is more invasive, expensive and requires hospitalisation. We aim to study if a higher dose of urokinase (30,000unit per catheter lumen) is more effective in restoring catheter patency without a higher risk of adverse effects compared to standard dose urokinase (20,000unit per lumen).</p> <p>Methods Patients who meet eligibility criteria are randomized via block randomization method to standard or high dose groups. A successful final outcome is defined as smooth flows during HD and discharge to outpatient centre for chronic dialysis. In successful cases, follow up phone calls to the dialysis centre are performed at 1 and 6 months. Post-instillation, patients are monitored for 12 hours for bleeding events. Clinical and outcome data are collected and analysed with R 4.2 software for statistical analysis.</p> <p>Results 34 catheters in 33 patients were enrolled. Overall, a successful outcome was achieved in 61.8% of catheters; 61.1% versus 62.5% in the standard and high dose groups respectively (p=NS). In successful cases, mean time to recurrent dysfunction was 70.83±61.8days versus 50.44±28.41days in standard dose and high dose groups respectively (p=NS). No patient or catheter characteristics were predictive of outcome. There were no adverse events.</p> <p>Discussion & Conclusion There is no difference between high and standard doses of urokinase in restoring or maintaining catheter patency in this small study. Higher doses are safe and can ease drug preparation and administration for 60,000unit vials used locally.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1677	Psychiatry
<p>Authors K.C.SOH¹, Y.H.TAY¹, C.LOH² ¹Khoo Teck Puat Hospital (Singapore), ²MOH Holdings Pte Ltd (MOHH) (Singapore)</p> <p>Title Prazosin for Nightmares associated with Post Traumatic Stress Disorder in a Multi-ethnic Asian Civilian Population: A Case Series</p> <p>Background & Hypothesis Prazosin is an α-1 adrenoceptor antagonist that has been identified with a role in treating nightmares associated with PTSD. Much of the data about its usage for this purpose comes from the military population in the US, with far less known about prazosin's effect on civilians of Asian ethnicity. This case series seeks to collate the prescribing experience of using prazosin for nightmares associated with PTSD in this specific population.</p> <p>Methods The authors present a case series of prescribing experience utilizing prazosin on a case series of 7 such subjects, in the context of nightmares related to PTSD. The tolerability and efficacy of prazosin is reviewed in a naturalistic clinical setting, by means of reviewing clinical notes from psychiatrists and psychologists, as well as examining objective measures undertaken.</p> <p>Results Out of the 7 subjects having initiated prazosin treatment alongside antidepressant and/or psychotherapy, 5 of them reported improvement in both their nightmares and sleep quality. This was at prazosin dosages of 6mg to 7mg, though some subjects were still in the midst of undergoing dosage titration which had scope to reach higher eventual dosages. Prazosin was generally well-tolerated with minor side effects that tended to be self-limiting.</p> <p>Discussion & Conclusion This case series lends weight to the notion that prazosin is efficacious and well-tolerated in the treatment of nightmares associated with PTSD in civilians of Asian ethnicity.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1678	Orthopaedic Surgery
<p>Authors S.K.K.CHUA¹, Q.Y.SOH¹, C.J.LIM³, W.S.Y.WONG², I.T.H.CHUA², E.B.K.KWEK³, B.Y.TAN³ ¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²Tock Seng Hospital (Singapore), ³Woodlands Health (Singapore),</p> <p>Title A stratified rehabilitation protocol for non-operatively treated proximal humerus fractures based on fracture stability is safe and effective</p> <p>Background & Hypothesis There remains little evidence on rehabilitation protocols for proximal humerus fractures (PHFs), although early mobilization has been associated with positive clinical outcomes. The study aim was to evaluate the safety and effectiveness of a stratified rehabilitation protocol based on fracture stability adopted by Tan Tock Seng Hospital for non-operatively treated PHFs.</p> <p>Methods Patients in our institution with non-operatively treated PHFs underwent a stratified rehabilitation protocol that classified patients into Accelerated versus Standard protocol-with more stable fractures undergoing an accelerated rehabilitation programme. The Oxford Shoulder Score (OSS), Quick Disabilities of the Arm, Shoulder and Hand Score (QuickDASH), EuroQol-5-Dimensions (EQ5D) questionnaires, shoulder range of motion (ROM) and grip strength were prospectively used to assess functional outcomes of patients at 6-months and 1-year post-injury. The frequency of adverse events resulting in need for surgical intervention was noted.</p> <p>Results We included 164 patients and 43% (71/164) went through the accelerated protocol. Overall, patients had favourable OSS (median[range]47[44-48]), EQ5D (median[range]1.0[0.82-1.00]) and QuickDASH scores (median[range]2.3[0- 10.7]). Shoulder ROM and grip strength above the requirement for functional activities of daily living (ADL) were reported at 1-year. No adverse events were reported 1-year post-injury.</p> <p>Discussion & Conclusion Favourable outcomes with improvement in functional outcome scores (OSS/EQ5D/QuickDASH/ROM/grip strength) and the absence of adverse effects were observed among patients. The stratified rehabilitation protocol is a safe and effective option in non-operatively treated PHFs, achieving greater healthcare personalization through an easily implementable protocolized structure for rehabilitation.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1682	Ophthalmology
<p>Authors J.S.GOH¹, J. BOON¹, W. ROJAS-CARABALI¹, M. PUAH¹, B. LEE¹, R. AGRAWAL¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Eye Doctor in Pocket (PocDoc): Visual Acuity Screening Made Accessible</p> <p>Background & Hypothesis Visual acuity (VA) is the measure of clarity of vision. Singapore's high prevalence of eye diseases, spanning from childhood myopia to glaucoma in the elderly, creates a vital need for visual acuity testing. This study aims to ascertain how effective PocDoc's online VA test is compared to conventional VA test in assessing vision among Singaporeans.</p> <p>Methods From March 2022 to July 2023, patients from Singapore's Tan Tock Seng Hospital were evaluated using the PocDoc VA test and conventional VA test. Bland-Altman plot was used to compare PocDoc and conventional VA tests. Subsequently, Fisher's Exact tests compared categorical parameters, and Kruskal-Wallis test investigated relationships between categorical parameters and numerical parameters.</p> <p>Results We analysed data from 353 patients (686 VA measurements) with mean age of 52.2 (SD: 20.6) years. PocDoc produced higher logMAR scores (mean logMAR: 0.145) than conventional (mean logMAR: 0.121). Comparing the results, PocDoc had a sensitivity of 80.8% (95% confidence interval between 67.5% and 90.4%), specificity of 96.2% (95% confidence interval between 94.4% and 97.56%), positive predictive value (PPV) of 63.6% and negative predictive value (NPV) of 98.4%, with a 95.0% accuracy. Difference between PocDoc and conventional VA increased with higher logMAR values, suggesting that the app was less accurate for patients with poorer VA.</p> <p>Discussion & Conclusion Singapore's population is susceptible to a wide range of sight-threatening diseases at all stages of life. Making simple yet accurate VA testing accessible can assist in early intervention and reducing incidence of visual impairment and ensure quality of life as the population continues to age.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1687	Ophthalmology

Authors

S.I.TAN², S.M.S.NG², B.T.K.LEE², A.K.HOSKIN⁵, S.BHALERAO¹, S.MOHAN³, R.BLANCH⁶, R.AGRAWAL⁴

¹Kode Venkatadri Chowdary Campus (India), ²Lee Kong Chian School of Medicine (Institution), ³Medcare Eye Centre (Dubai), ⁴Tan Tock Seng Hospital (Singapore), ⁵The University of Sydney (Australia), ⁶University of Birmingham (United Kingdom),

Title

Factors predictive of outcome in patients with Zone III open globe injuries – The International Globe and Adnexal Trauma Epidemiology Study (IGATES)

Background & Hypothesis

To determine the baseline characteristics and identify prognostic factors of patients presenting with Zone III eye injuries to better guide management and clinical counselling.

Methods

Retrospective and prospective data was collected from patients from 13 healthcare institutions worldwide through the IGATES registry. Included patients had open globe injuries (OGIs) with Zone III involvement, surgical treatment performed and a minimum follow up duration of 3 months. Patients with significant past ocular history were excluded. Statistical analysis was then conducted.

Results

Baseline characteristics of 681 patients suffering from OGIs with Zone III involvement was determined. Of which, 558 (81.9%) were male and 123 (18.1%) were female. The mean age of the cohort was 32.4 years (SD=18.5). Subgroup analysis was then performed on 53 patients (n=53) satisfying the study criteria to determine the prognostic factors of OGIs. Poorer initial BCVA ($p < 0.05$), visual axis involvement ($p < 0.05$), presence of RAPD ($p = 0.0196$), blunt trauma ($p = 0.0425$), presence of conjunctival injury ($p = 0.0291$) and iris prolapse ($p = 0.00450$) were determined to be poor prognostic factors for Zone III OGIs. Of which, initial BCVA was found to be the most important prognostic factor.

Discussion & Conclusion

Initial BCVA, visual axis involvement, presence of RAPD, blunt trauma, presence of conjunctival injury and iris prolapse were poor prognostic factors for Zone III OGIs. These findings could be used to develop a revised Ocular Trauma Score (OTS-2).

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1688	Ophthalmology

Authors

N.ANG¹, W.CHEONG¹, W.R.CARABALI¹, C.C.GONZALEZ¹, C.R.AGRAWAL¹, V.GUPTA¹, A.D.L.TORRE¹, A.SEN¹, R.AGRAWAL¹

¹Tan Tock Seng Hospital (Singapore)

Title

Fundus Fluorescein Angiography (FFA) findings of retinal vasculitis identified through Natural Language Processing

Background & Hypothesis

This study aimed to utilize natural language processing (NLP) techniques, specifically an Artificial Intelligence (AI) language model, to extract data from Fundus Fluorescein Angiography (FFA) findings in patients with retinal vasculitis (RV). By identifying recurrent patterns, this study seeks to enhance comprehension of common manifestations of retinal vasculitis observed through FFA.

Methods

We used ChatGPT, an advanced NLP algorithm, to analyze the FFA findings obtained from the medical records of 149 patients with RV. The FFA findings were entered into the AI model, which categorised them. The AI then identified the frequency of these findings through a data-driven approach, providing a robust qualitative and quantitative analysis and identifying the most common findings associated with RV.

Results

Using ChatGPT, we were able to quantify the frequency of some of the most common FFA findings of RV from a real-life unstructured dataset (primary data). FFA findings included capillary non-perfusion, disc hyperfluorescence, and various forms of leakage. Comparing the FFA findings identified from the primary data and the clinical literature showed a high degree of correlation, suggesting the consistency of the analysis methodology and reliability of our findings.

Discussion & Conclusion

RV exhibits various manifestations detectable through FFA. The findings from our data aligned well with those reported in the clinical literature, reinforcing the accuracy and relevance of AI-assisted analysis. This confirms the utility of NLP in extracting clinically relevant information from unstructured medical data, with potential applications in clinical decision support and research.

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1689	Ophthalmology

Authors

S.I.TAN², B.T.K.LEE², S.BHALERAO¹, S.MOHAN³, R.BLANCH⁴, R.AGRAWAL⁵

¹Kode Venkatadri Chowdary Campus (India), ²Lee Kong Chian School of Medicine (Singapore), ³Medcare Eye Centre (United Arab Emirates), ⁴University of Birmingham (United Kingdom), ⁵Tan Tock Seng Hospital (Singapore)

Title

Factors Predictive of Vision Outcomes in Open Globe Injuries Presenting with No Light Perception – The International Globe and Adnexal Trauma Epidemiology Study (IGATES)

Background & Hypothesis

To determine the baseline characteristics, final vision outcomes and prognostic factors of eyes with open globe injuries (OGIs) presenting with initial best corrected visual acuity (BCVA) of No Light Perception (NLP).

Methods

Retrospective and prospective data was collected from patients from 13 healthcare institutions worldwide through the IGATES registry. Eyes with OGIs, primary surgical treatment performed, and initial BCVA of NLP were included. Eyes with significant ocular history were excluded. Statistical analysis was then performed.

Results

Data from 120 eyes (n=120) were analysed. Of which, 101 subjects (84.2%) were males and 19 (15.8%) were females. The mean age of the subjects was 33.8 years (M=33.8, SD=19.3). Of the 74 eyes that had this data recorded, 8 eyes (10.8%) showed an improvement in final BCVA. The other 66 eyes (89.2%) had BCVA remaining as NLP. Corneal opacity, cataract, phthisis, glaucoma, retinal abnormality, hyphaema, hypopyon, vitreous involvement, flat anterior chamber, shallow anterior chamber and lens matter involvement were found to be associated with final vision outcomes.

Discussion & Conclusion

Majority of eyes with OGIs that present with NLP remained NLP and only a minority (10.8%) showed an improvement in BCVA. Corneal opacity, cataract, phthisis, glaucoma, retinal abnormality, hyphaema, hypopyon, vitreous involvement, flat anterior chamber, shallow anterior chamber and lens matter involvement has prognostic value in predicting final vision outcomes in these eyes, thus guiding management of patients.

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1692	Public Health / Clinical Epidemiology
<p>Authors M.YIAMUNAA², M.K.D.YONG², S.U.B.MOHAMMED ADNAN², B.K.LIM², A.M.C.MOH², B.LAM², T.SUBRAMANIAM¹, C.F.SUM¹, R.L.GURUNG², S.C.LIM¹ ¹Admiralty Medical Centre (Singapore), ²Khoo Teck Puat Hospital (Singapore)</p> <p>Title Impact of diet induced weight loss on blood pressure among type 2 diabetes patients - An interim analysis</p> <p>Background & Hypothesis The effectiveness of a very low-calorie diet (VLCD)-based weight management program on blood pressure (BP) in local population with type 2 diabetes (T2D) was evaluated in this study.</p> <p>Methods The ongoing Diabetes Remission programme at AdMC, adopted from United Kingdom Diabetes Remission Clinical Trial (DiRECT), provided the framework for this study. T2D patients with diabetes duration of 0-6 years and a body mass index of 27-45kg/m² underwent three phases: total diet replacement with VLCD for 1-3 months (Phase 1), food reintroduction for two months (Phase 2), weight maintenance for remaining two years (Phase 3). Clinical outcomes measured were total weight loss and changes in blood pressure; including home blood pressure reading for the first 14 days.</p> <p>Results Of 16 patients enrolled, 12 completed Phase 1 and 11 completed Phase 2, with median weight loss of 8kg and 5kg, respectively. Participants experienced an immediate change in mean home BP within one week. Those who achieved at a weight loss of at least 5% in Phase 1 (N=8) and 2 (N=7) showed reductions in mean clinic systolic BP by 6-14mmHg and 2-8mmHg, respectively. During Phase 1, patients without hypertension (N=8) had more favourable weight loss and decrease in systolic BP compared to patients with hypertension (N=4) (11kg vs 3kg; 10mmHg vs -13 mmHg).</p> <p>Discussion & Conclusion Interim findings suggest that a favourable weight loss response to VLCD reduces BP. However, the degree of weight loss and BP response decreases over time. Long-term observations in a larger population from the on-going study will ascertain our findings.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1696	Orthopaedic Surgery

Authors

G.GAN¹, Y.R.LUM¹, R.KUNNASEGARAN¹

¹Tan Tock Seng Hospital (Singapore)

Title Distal Femoral Replacement & Plate Fixation in Supracondylar Femoral Periprosthetic Fractures around the TKR

Background & Hypothesis

Periprosthetic fractures around the total knee replacement (TKR) is a surgical challenge. Though it remains an uncommon complication, it is expected to increase in incidence with an aging and more active population. This study aims to evaluate the outcomes of distal femoral replacement and plate fixation in supracondylar femoral periprosthetic fractures.

Methods

This is a prospectively-collected retrospective review of 14 patients who underwent either a distal femoral revision (DFR = 10) or a plate fixation (PF = 5) for a supracondylar femoral periprosthetic fracture between 2017 and 2022. The study's primary outcome measure was for return to pre-morbid function. Secondary outcome measures were for time to weight bear, pain control and complications. The mean follow-up period was 20.1 months.

Results

The mean age of the patients is 80.1 years. All patients are female. At follow up, 33.3% (3/9) of the DFR patients and 80% (4/5) had returned to their pre-morbid function. The mean time to weight bear was 2.1 days and 62.2 days respectively. All 14 patients were able to achieve a VAS score <3/10. There were 7 complications seen in the DFR group not requiring reoperation, whereas there were 5 complications seen in the PF group with 1 requiring reoperation.

Discussion & Conclusion

The outcome of DFR is comparable with plate fixation in the supracondylar femoral periprosthetic fracture. Though fewer patients were able to return to their pre-morbid, the DFR afforded an earlier time to weight bear, and sustained no complications requiring reoperation. It can be seen as a viable option when indicated.

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1701	Rehabilitation Medicine
<p>Authors Y.H. LOW¹, P.L. ONG², M.S. QUEK², C.W. OE², S.Y. TJAN² ¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²Tan Tock Seng Hospital (Singapore)</p> <p>Title Clinical Outcome of Amputee Rehabilitation in Singapore</p> <p>Background & Hypothesis The major limb amputation rate for diabetes patients in Singapore was 95 per 100,000 in 2017.1 Amputee rehabilitation holds the potential to enhance patients' quality of life. This study evaluates outpatient amputee rehabilitation outcomes in Singapore.</p> <p>Methods An exploratory, retrospective observational cohort study included 90 lower limb major amputees visiting the Foot Care & Limb Design Centre at Tan Tock Seng Hospital between January 1st and December 31st, 2019. Functional outcomes were categorized using the Medical Functional Classification Level (MFCL) as non-ambulators (K0) and ambulators (K1 and above). Logistic regression analysis identified associations.</p> <p>Results The ambulator group was notably younger, with a mean age of 58.9 (SD 13.1), compared to non-ambulators with a mean age of 65.3 (SD 11.5, p=0.016). The majority of patients were able to walk in the community before amputation, particularly in the ambulator group [94% (47/50) vs. non-ambulator 67.5% (27/40), p=0.005]. About 55.6% (50 patients) achieved ambulator before discharge, primarily transtibial amputees. Regression analysis revealed that older age (p=0.022, odds ratio 0.935) and a history of myocardial infarction (p=0.045, odds ratio 0.159) were linked to an inability to use a walking prosthesis.</p> <p>Discussion & Conclusion Despite favourable pre-morbid ambulation abilities, a significant proportion of patients struggled to achieve functional prosthesis use. Further exploration of contributing factors is crucial to address this subgroup. Our study underscores the importance of considering these factors when prognosticating the functional outcomes of individuals with major lower limb amputation.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1717	Gastroenterology
<p>Authors A.SIM¹, LWC²</p> <p>Tan Tock Seng Hospital (Singapore)</p> <p>Title Is There A Role For Pre-Emptive Tips In Acute Variceal Bleeding? Real World Data From A Local Asian Cohort</p> <p>Background & Hypothesis Current standard of care (SOC) for acute variceal bleeding (AVB) are administration of vasoactive drugs, antibiotic prophylaxis, and endoscopic variceal ligation (EVL). Early pre-emptive transjugular intrahepatic portosystemic shunt (p-TIPS) is recommended in patients at high risk of re-bleeding. However, it is not widely practiced. We aimed to review our patients to identify optimal candidates.</p> <p>Methods All cirrhotic patients presenting with AVB from esophageal and type 1/2 gastro-esophageal varices to our hospital was retrospectively reviewed (January 2016 -December 2021). Primary outcome was 6-week rebleeding rate. Secondary outcomes were 1-year rebleeding, 6-week and 1-year all-cause mortality.</p> <p>Results 155 patients (mean age 63 years, male 71%) successfully treated with SOC were analyzed. The mean MELD score was 16, mean Child Pugh Score (CTP) was 8. 22% CTP-A, 59% patients CTP-B, and 19% CTP-C. Compliance to SOC was high. All patients underwent successful EVL. No placement of p-TIPS was done. High risk patients who would have qualified for p-TIPS had higher 6-week rebleeding (23.7% vs 9.4% p=0.047; HR 2.7 [1.1-6.5]) and all-cause mortality at 6 weeks (34.2% vs 5.8%, p<0.001; HR 5.8 [2.4-14.1) and at 1year (21.1% vs 4.3%, p=0.003). 6-week rebleeding in the high-risk group was not associated with 6-week (22.2% vs 27.3%, p=.46) or 1-year mortality (22.2% vs 20.7%, p=1.0).</p> <p>Discussion & Conclusion These findings suggest that while p-TIPS may have prevented rebleeding in high-risk patients, it wouldn't have improved mortality. Larger studies are needed to identify patients who benefit from p-TIPS at improving rebleeding and mortality.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1719	Gastroenterology
<p>Authors A.SIM¹, R.AU¹, C.CHAU¹, CWD¹, CV¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title How useful is the International Consensus Diagnostic Criteria (ICDC) histological criteria in EUS-guided tissue acquisition for the diagnosis of autoimmune pancreatitis? : real-world experience from a tertiary centre in Singapore</p> <p>Background & Hypothesis Histological confirmation is a gold standard for diagnosing autoimmune pancreatitis (AIP). Endoscopic ultrasound-guided tissue acquisition (EUS-TA) is the best minimally invasive method for obtaining specimens but making a histological diagnosis is challenging. Despite the advent of fine needle biopsy (FNB), the diagnostic yield of EUS-TA in AIP was 46-55%. We evaluated the diagnostic yield of EUS-TA in our patients.</p> <p>Methods All AIP patients (2011-2023) in our registry were reviewed. The International Consensus Diagnostic Criteria (ICDC) for diagnosing AIP was used and those who had EUS-TA evaluated. Primary outcome was the diagnostic yield of EUS-TA. Secondary outcomes were sample adequacy and safety.</p> <p>Results 24 patients (mean age 63, 18 males) had definitive AIP (18; 75%) and probable AIP (6; 25%). 22 (91.7%) were Type 1 AIP and 2 (8.3%) were AIP-NOS (not otherwise specified). EUS-TA was performed in 16 patients (62.5%). 11 underwent FNB and FNA (fine needle aspirate). Histological and cellular yield were adequate for FNB (100%) and FNA (81.3%), but none fulfilled the ICDC histological criteria. 3 patients were started empirically on steroids prior. IgG4 positive cells (in 3 patients but less than 10cells/high power field) and/or plasma cells (in 4 patients but not lymphoplasmacytic infiltrate) were seen only with FNB. There were no adverse events.</p> <p>Discussion & Conclusion Our findings highlight limitations of the ICDC histological criteria, which was established with the “ideal” histological specimen (sometimes surgically obtained), before FNB needles became available. It is necessary to fine tune the histological criteria for AIP that commensurate with FNB tissue acquisition better.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1721	Endocrinology
<p>Authors J.CHEN³, A.CHIA², E.SEET², I.LIM², A.MOH², S.LOW², S.SIM³, Z.X.TAY³, T.SUBRAMANIAM¹, S.C.LIM²</p> <p>¹Admiralty Medical Centre (Singapore) ²Khoo Teck Puat Hospital (Singapore), ³Nanyang Polytechnic (Singapore)</p> <p>Title Association between nocturnal hypoxemia and chronic kidney disease in type 2 diabetes mellitus</p> <p>Background & Hypothesis Obstructive sleep apnea is prevalent in people with type 2 diabetes mellitus (T2DM). Nocturnal hypoxemia (NH) may trigger oxidative stress and inflammatory changes which contribute to chronic kidney disease (CKD) in T2DM. Hitherto, it remains unclear if duration of nocturnal monitoring for reduced arterial oxygen saturation (SpO₂ <90%) is associated with CKD.</p> <p>Methods This was a cross-sectional study of 23 patients with T2DM recruited from a regional hospital in the northern part of Singapore. The SpO₂ during sleep of each subject was monitored transcutaneously using pulse oximeter (PULSOX-300i). The 4% Oxygen Desaturation Index (ODI) is the number of desaturation events per hour of recording time. CKD is defined as estimated glomerular filtration rate < 60 ml/min/1.73m² or urinary albumin-to-creatinine ratio ≥ 30 mg/g based on KDIGO guidelines.</p> <p>Results Mean age of patients was 59.6 ± 9.7 years. CKD was present in 60.9% of participants. In multivariable modified poisson regression, per unit increase in ODI and per % increase in duration for SpO₂ <90% were positively associated with CKD, with corresponding relative risk (RR) 1.03 (95%CI 1.00-1.05, p=0.042) and 1.06 (95%CI 1.00-1.13, p=0.038), having adjusted for demographics, diabetes duration, clinical co-variables and medication. When stratified by body mass index (BMI), per % increase in duration for SpO₂ <90% remained positively associated with CKD with RR 1.74 (95%CI 1.23-2.47, p=0.002) in patients with BMI <30kg/m².</p> <p>Discussion & Conclusion Higher ODI and nocturnal duration of SpO₂ were associated with presence of CKD in T2DM. The association was evident in non-obese patients.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1722	Endocrinology
<p>Authors S.PEK², JKMHOE¹, SITI², ATIQA², D PARK², B.SARAVANAN², CR LEONG², C LAW¹, S.TAVINTHARAN¹ ¹Admiralty Medical Centre (Singapore), ²Khoo Teck Puat Hospital (Singapore)</p> <p>Title Clinical and socio-demographic characteristics in patients with diabetic ulcers pre- and post-hospitalization</p> <p>Background & Hypothesis Patients with Type 2 Diabetes have a 10-fold increased risk of lower limb amputation. We report clinical and socio-demographic characteristics in patients admitted with diabetic foot ulcers.</p> <p>Methods This is a longitudinal study, where patients were followed-up for up to one year. All consecutive patients admitted to KTPH inpatients and outpatients were recruited from Oct2021. Data were collected at baseline and 3-monthly follow-ups. Data was analysed (SPSS).</p> <p>Results 58 patients were recruited. Reasons for hospitalization: cellulitis:2(3.4%), abscess:3(5.2%), ulcers:11(19.0%), infection:5(8.6%), osteomyelitis: 1(1.7%), peripheral vascular disease: 1(1.7%), acute limb ischemia:1(1.7%), gangrene:2(3.4%). Age:(62.0±8.44)years, age of diabetes onset: 44.0(39.0-50.0)years, diabetes duration:20.3(9.8-24.3)years. Males:69.6%, Chinese:41.3%, Malay:45.7%, Indian:10.9%. Marital status: Singles:33.4%, availability of caregiver:44.4%, household income:<\$1000-\$3000: 62.8%, >\$3000:11.6%. HbA1c:(8.32±2.35)mmol/l, total-cholesterol:(4.00±1.46), LDL-C:(2.26±1.12)mmol/l, HDL-C:(1.05±0.37)mmol/l, TG:1.63(1.00-2.00)mmol/l, eGFR:44.0(10.0–81.0)ml/min/1.73m², urine ACR:1005.0(100.5–3415.5)mg/g, Dialysis:44.4%, Retinopathy:13.8%. At admission: osteomyelitis/sepsis:18.6%, lower limb angioplasty:56.8%, open vascularization:5.7%, reintervention on revascularized segment:5.7%, minor amputations:41.4%, major amputations:5.2%, coronary stenosis:32.1%, coronary artery bypass:3.4%.</p> <p>Discussion & Conclusion Patients admitted for diabetic foot complications have long-standing diabetes, more likely to be from lower socioeconomic group, high disease burden with multi-commodities and diabetes-related complications. The longitudinal nature of the study will allow us to evaluate factors which can predict wound healing and outcomes.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1746	Orthopaedic Surgery

Authors

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Title Validation of Brief Fear of Movement (BFOM) scale Among Patients with Knee Osteoarthritis in Singapore

Background & Hypothesis

Brief Fear of Movement (BFOM) scale is used to evaluate kinesophobia in individuals with osteoarthritis (OA). This study aims to validate the BFOM scale among patients with knee osteoarthritis in Singapore.

Methods

This study is part of a prospective cohort study on knee osteoarthritis in Singapore. Inclusion criteria were: i) meets NICE criteria for knee OA, and ii) independent community mobilisers. Subjects were excluded if they had: i) alternative diagnosis to knee OA, ii) secondary arthritis, iii) severe medical and/or cognitive comorbidity or iv) previous knee arthroplasty. Exploratory Factor Analysis (EFA) was performed on baseline data to determine the underlying relationships between the measured variables. Factor structure was confirmed by Confirmatory Factor Analysis (CFA) using the 3 months data. Multi-group analysis was used to test invariance of the BFOM scale among gender.

Results

284 participants were included in the EFA analysis. One factor was extracted with minimum communalities and factor loading of 0.371 and 0.609 respectively, accounting for 53.41% of variance. 199 participants were included in the CFA and multi-group analysis. The model fit of the final CFA model were: CF FIT= 0.410; RMSEA (95% CI) = 0.012 (0.000-0.085); SRMR= 0.028; CFI= 0.999; and TLI= 0.998 with composite reliability of 0.851, demonstrating good validity and reliability. Multi-group analysis showed that BFOM scale is invariant among gender.

Discussion & Conclusion

BFOM is valid and reliable among patients with knee OA in Singapore's population, and is invariant among gender. Hence, BFOM can be a useful tool used in clinical practice and research work.

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1747	Ophthalmology
<p>Authors J.E.BONG¹, X.WEI¹, J.LIN¹, S.CHOO¹, J.BOON¹, W.ROJAS-CARABALI¹, R.AGRAWAL¹</p> <p>Tan Tock Seng Hospital (Singapore)</p> <p>Title Comparing three-dimensional (3D) Choroidal Vascularity Index (CVI) and two-dimensional subfoveal (2D) CVI in patients with uveitis</p> <p>Background & Hypothesis This study aims to compare the role of 3D and 2D CVI as biomarkers for the diagnosis of uveitis. The 2D CVI is expected to be partially representative of 3D CVI in uveitic eyes since the same was shown to hold true in healthy eyes.</p> <p>Methods Optical coherence tomography (OCT) B-scans were taken of the right eye for 49 healthy controls, and of the diseased eye for 46 patients with anterior, intermediate, posterior, or panuveitis. After image binarisation and segmentation, 3D CVI was calculated by integrating CVI values across entire volume scans. Comparison of 3D and 2D CVI between control and uveitis groups was performed using t-test, Pearson correlation analysis, and linear regression.</p> <p>Results Mean age was 50.4±13.2 without differences between groups (p=0.852). The mean 3D CVI in the control and uveitis group was 62.8% and 62.0% respectively. The mean 2D CVI in the control and uveitis group was 63.9% and 62.9% respectively. There was a strong positive correlation between 3D and 2D CVI (Pearson's r=0.854, p<0.001). There was no statistically significant difference in the 3D CVI between control and uveitis group (p=0.289) but the 2D CVI of controls was significantly higher than that of uveitis group (p=0.017).</p> <p>Discussion & Conclusion The 2D technique seems to be more sensitive in identifying differences in CVI between uveitis and healthy subjects.</p>	

SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1750	Orthopaedic Surgery
<p>Authors S.Y.Y.THAM², C.X.ZHAO¹, L.THWIN³, K.G.TAN³</p> <p>¹Lee Kong Chian School of Medicine (Singapore) ²MOH Holdings Pte Ltd (MOHH) (Singapore), ³Tan Tock Seng Hospital (Singapore)</p> <p>Title Is Routine Blood Test Required after Total Knee Arthroplasty?</p> <p>Background & Hypothesis Routine full blood count (FBC) tests are commonly performed after total knee replacement (TKR) surgeries. This study aims to evaluate the association between postoperative haemoglobin (Hb) levels and postoperative outcomes, and identify risks factors of postoperative transfusion.</p> <p>Methods All patients who underwent primary TKR between August 2017 to April 2018 in a single tertiary institution in Singapore were recorded. Patients clinical data were retrospectively collected. Descriptive, univariate and multivariate analysis was performed. Multivariate logistic regression was performed to identify risk factors associated with transfusion. Receiver operative characteristic (ROC) curve was conducted to determine preoperative Hb threshold for transfusion.</p> <p>Results A total of 259 patients were included in this study. Preoperative Hb was 13.07 ± 1.32 g/dL while postoperative Hb was 11.70 ± 1.30 g/dL, and estimated blood loss was 94.59 ± 60.60 ml. Preoperative anemia was identified in 25.1% (65/259) patients. 6.9% (18/259) patients required transfusion after surgery, of which 77.8% (14/18) had preoperative anemia. Multivariate logistic regression revealed that intraoperative blood loss (odds ratio 1.013, $p=0.034$), tranexamic acid use (odds ratio 0.206, $p=0.026$) and preoperative anemia (odds ratio 27.34, $p<0.001$) are significant risk factors of postoperative transfusion. Preoperative Hb ≤ 12.05g/dL was the threshold value for predicting postoperative transfusion based on ROC curve (sensitivity = 0.833, specificity = 0.837, area under curve = 0.880, $p<0.001$)</p> <p>Discussion & Conclusion This study demonstrates that preoperative anemia, higher volume of intraoperative blood loss and lack of perioperative tranexamic acid administration are significant predictors of postoperative transfusion. Hence, routine postoperative FBC is not necessary.</p>	

**SHBC 2023 SCIENTIFIC COMPETITION
ACCEPTED ABSTRACTS
ABSTRACT CATEGORY: Clinical Research**

Abstract Details	
Abstract ID	Clinical Specialty
SHBC1751	Ophthalmology
<p>Authors J.LIN¹, X.WEI¹, J.E.BONG¹, S.CHOO¹, J.BOON¹, W.ROJAS-CARABALI¹, R.AGRAWAL¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Inter-rater Agreement for OCT-derived Vitreous Haze Index (VHI) in Uveitis and Healthy Populations; Insights from OCTOMERIA Study</p> <p>Background & Hypothesis Vitreous inflammation is difficult to assess clinically due to its subjective and variable grading among clinicians. In this study, we aim to assess inter-rater agreement on semi-automatically calculated vitreous haze indices (VHI) derived from optical coherence tomography (OCT) scans.</p> <p>Methods We segmented OCT scans of 49 eyes (25 healthy, 24 uveitis) using a novel semi automatic software (OCTOMERIA Study). VHI was calculated as the number and volume of hyperreflective dots within the vitreous segmented into anterior, middle, posterior. We compared results obtained by 2 trained independent operators using the Pearson correlation coefficient and an intraclass correlation.</p> <p>Results The correlation between graders for total count and average volume of dots was $r=0.825$ ($p<0.001$) and $r=0.647$ ($p<0.001$), respectively. For the number of dots identified in the posterior, middle and anterior vitreous, correlations were $r=0.854$ ($p<0.001$), $r=0.957$ ($p<0.001$), and $r=0.365$ ($p<0.001$), respectively. For the average volume of dots identified in the anterior, middle and posterior vitreous, correlations were $r=0.591$ ($p<0.001$), $r=0.920$ ($p<0.001$), and $r=0.138$ ($p<0.001$), respectively. Finally, the ICC for total volume of dots in the whole vitreous was 0.404 (CI 95%, 0.438-0.546) with an agreement of 0.498.</p> <p>Discussion & Conclusion In general, the correlation is moderate. There is variability in inter-rater agreement depending on the area of vitreous segmentation.</p>	