

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Health Professions Education Research Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
HPE-RI-01	Otorhinolaryngology/ENT	Health Professions Education
Authors A.Y.L.CHAI ¹ , K.C.C.CHOY ² ¹ MOH Holdings Pte Ltd (MOHH) (Singapore), ² Tan Tock Seng Hospital (Singapore)		
Title The use of a self-improvised ear canal and tympanic membrane model in the technical training of intratympanic steroid injection		
Background & Hypothesis Intratympanic steroid injection is an essential treatment option for sudden sensorineural hearing loss, especially when systemic steroid therapy fails. This common ENT procedure involves injecting dexamethasone into the middle ear space through a puncture in the tympanic membrane. It is technically demanding and challenging to teach safely.		
Methods A self-improvised training model was created using a 2ml syringe cut obliquely, a transparent adhesive dressing and a pre-fashioned disposable kidney dish, replicating the 25mm by 0.6mm anatomy of the ear canal and tympanic membrane. Junior doctors were recruited to practice intratympanic steroid injection on the model, and advised to explore technical variations. Pre and post questionnaires were administered, and the results were analysed.		
Results All Junior Doctors in KTPH ENT (July-August 2023) consented to participate in the study. Participants had a range of 5-months to 7-years of ENT experience, and had performed the procedure from 4 to 50 times. They rated their keenness for more practice 8.6 (mean) on a Likert scale of 0–10. Participants strongly agreed that the model was valuable in technical training. After using the model, confidence in performing the procedure increased from mean of 5.8 to 7.6 (10=Extremely confident).		
Discussion & Conclusion This self-improvised ear model proved effective and well-received for intratympanic steroid injection training. It is low-cost, easily reproducible and can play a larger role in medical education and technical training.		

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AWARD CATEGORY: Health Professions Education Research Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
HPE-RI-02	General Surgery	Health Professions Education
Authors S. CHAN ⁴ , Y Q C ONG ³ , S H N LIU ³ , W L TEO ² , C L K CHIA ¹ ¹ Khoo Teck Puat Hospital (Singapore), ² National Healthcare Group HQ (Singapore), ³ National University of Singapore, ⁴ Woodlands Health (Singapore)		
Title Medical Students' Understanding of Transdisciplinary Practice from the Learning Oriented Teaching in Transdisciplinary Education (LOTTE) Elective – An Exploratory Qualitative Study		
Background & Hypothesis The rise in complex medical conditions require clinicians to increasingly engage in transdisciplinary care to optimize patient outcomes. The Learning Oriented Teaching in Transdisciplinary Education (LOTTE) elective was introduced by Khoo Teck Puat Hospital (KTPH) to expose medical undergraduates to inter-professional collaboration through observations and presentations of complex clinical cases. This study aims to explore the student experience during LOTTE and their understanding of transdisciplinary care and education.		
Methods After completing their elective, LOTTE participants were invited to join the study. Using an interview guide, we conducted individual semi-structured interviews with the recruited participants via video conferencing. Interviews were then transcribed and analysed by two researchers utilizing inductive thematic content analysis.		
Results Twenty-eight participants were recruited, all of whom were fourth year medical students from a local institution. The most frequent reason for participating in LOTTE was the opportunity to be exposed to both medical and surgical disciplines within a single elective. As for the impact of transdisciplinary practice, common themes to emerge include developing an understanding of complex cases between medical teams and shared patient-ownership. Participants also highlighted the importance of inter-professional collaboration and valuing the contributions and perspectives from various healthcare professionals.		
Discussion & Conclusion Participants of this study not only took away medical knowledge after LOTTE, but also witnessed transdisciplinary practice in a “real-world” setting. Transdisciplinary education was identified as beneficial and relevant by participants, positively impacting their professional outlook for the future. This underscores its potential role in medical education, particularly in an era of increased emphasis on transdisciplinary clinical care.		

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AWARD CATEGORY: Health Professions Education Research Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
HPE-RI-03	General Surgery	Health Professions Education
Authors S.MANTOO ¹ ¹ Khoo Teck Puat Hospital (Singapore)		
Title Clinical Anorectal Surgical Skills Interactive Course (CLASSIC): "From Bench to Bedside: Mastering Anorectal Examination Skills - A Systematic Hands-On Workshop for Young Learners"		
Background & Hypothesis Anorectal conditions are underrepresented in medical education. Multiple educational strategies were blended to develop CLASSIC, as an interactive hands-on workshop to teach digital rectal examination (DRE), and proctoscopy (PCY). Aim was to assess effectiveness of workshop in improving confidence and clinical skills.		
Methods Educational plan included a 15-min lecture, a 5-min video and a 45-min hands-on session, to practice DRE and PCY, on a life size mannequin. 6-validated questions on cognitive and psychomotor domains were used to determine user confidence after completion of workshop. 16-step DRE and PCY assessment tool was used during hands-on session. After completion, students were asked to perform DRE and PCY on consented patients. The performance was rated using same 16-step assessment tool. Qualitative feedback was collected.		
Results 32, year 3 medical students, participated. 93% (30/32) had not performed DRE and PCY before. Statistically significant increases in correct responses were seen between pre- and post-workshop questionnaires (6.8 ± 2.0 vs. 12.8 ± 2.5 , $P < 0.01$, Cohen's $d = 1.7$). High L-SES scores for cognitive domain, 4.65, and for psychomotor domain, 4.47, (1- strongly disagree and 5 – strongly agree) were noted after completion of workshop. 95% (31/32) felt confident to perform DRE and PCY on a patient. Significant improvement in satisfactory scores were reported when DRE and PCY was performed on mannequin and real patient respectively (312/512 vs 438/512, $P < 0.01$).		
Discussion & Conclusion Systematic workshops like CLASSIC can help in development of clinical skills from bench to bedside in medical students		

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AWARD CATEGORY: Health Professions Education Research Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
HPE-RI-04	Intensive Care Medicine	Health Professions Education
<p>Authors S.A.SALLEH¹, H. C. LU¹</p> <p>¹Woodlands Health (Singapore)</p> <p>Title Nurses' Experiences in Utilizing Structured Online Learning Activities to Enhance Clinical Competence: A Descriptive Qualitative Study</p> <p>Background & Hypothesis Structured online learning have gained widespread popularity in the nursing field, especially during the COVID-19 pandemic. Many healthcare organizations utilize technology to enhance nurses' clinical competencies. This study explores nurses' experiences with structured online learning activities and identify the benefits and challenges associated with integrating online learning in their clinical development.</p> <p>Methods A descriptive research design was employed, and data were collected through semi-structured interviews with 8 nurses recruited from a tertiary hospital in Singapore using purposive sampling. Thematic analysis was utilized to analyse the data.</p> <p>Results The study revealed several challenges and limitations of online learning, including monotony, technical difficulties, and inadequacy in teaching certain practical skills. Participants emphasized the significance of interactive and engaging content, self-directed learning, and addressing learners' perceptions to enhance the effectiveness of online learning. In addition, hands-on training and timely feedback were identified as crucial components to bridge the gap between theory and practice, and improving nurses' clinical competence. Personalized and relevancy of contents were also highlighted as essential to address individual learning needs.</p> <p>Discussion & Conclusion The findings of this study provide valuable insights for nurse educators to reassess the design of current structured online learning activities and make informed improvements. By addressing challenges such as monotony and technical difficulties, nurse educators can enhance the engagement and effectiveness of online learning contents. Offering personalized and relevant content will ensure that nurses receive tailored learning experiences that cater to their individual needs. These findings contribute to the ongoing improvement of online learning in nursing education.</p>		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Health Professions Education Research Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
HPE-RI-05	Ophthalmology	Health Professions Education
Authors C.C.YIP ² , JAMES J. DING ³ , X. Z. THNG ⁴ , FRANCINE P. YANG ⁴ , ANDREW S. YAP ¹ , NICOLA Y. GAN ⁴ ¹ Head Quarter Army Medical Services (Singapore), ² Khoo Teck Puat Hospital (Singapore), ³ Singapore Armed Forces, ⁴ Tan Tock Seng Hospital (Singapore)		
Title Cultivating Reasoning through Example-based or Self-Explanation-based Teaching (CREST)?		
Background & Hypothesis Example-Based Teaching (EBT), underpinned by the Cognitive Load (CL) Theory, uses modelling examples to explicate the expert's mental models in diagnosing/managing diseases. Self-Explanation (SE) entails learning by explaining aloud the pathophysiology and inter-relationship of clinical findings. We hypothesize that EBT is superior to SE in teaching novices Clinical Reasoning (CR: diagnosing/managing diseases) with more optimal CL.		
Methods This longitudinal study involved 27 second-year medical students without prior Ophthalmology knowledge. On day-1, ocular anatomy and physiology were taught. On day-3, subjects were randomly assigned to learn retinal diseases through EBT/SE, followed by practice cases and CL assessment with a validated 10-item questionnaire. CR was tested with different scenario-sets (9 cases each) on days-10 and -40.		
Results Test score (median [inter-quartile range]) was higher in EBT-group (n=15) at day-10 (54.630 [17.593] versus 48.148 [13.889], p=0.047, Mann-Whitney-U test) than SE-group (n=12). There were no inter-group (Mann-Whitney-U test) differences at day-40 or intra-group (Wilcoxon-Signed-Rank test) differences across visits. Germane Load (median [inter-quartile range]) was higher in EBT-group (76.167 [10.834] versus 71.250 [8.542], p=0.016, Mann-Whitney-U test), without inter-group differences in Intrinsic and Extraneous Loads.		
Discussion & Conclusion With better test performance, EBT was more efficacious than SE in teaching novices CR for retinal disease. EBT's explication of the expert's problem-solving schema facilitates learning with a higher Germane load. This is unlike SE, which relies on the learner's weaker cognitive strategies. CL Theory explains EBT's superiority as an instructional design, as the optimized Germane load facilitates schema formation, leading to better CR.		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Allied Health Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-AH-01	Podiatry	Allied Health
<p>Authors N.F.SANI¹, T.CHEW¹, C.CHEONG¹, Z.W.LOH¹, E.YONG¹, L.ZHANG¹, R.C.CHONG¹, Q.HONG¹, G.TAN¹, H.LIEW¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Footwear and Offloading Profile of patients with Diabetic Foot Ulcers: A 4 years study of a multidisciplinary clinic in Singapore</p> <p>Background & Hypothesis International guidelines recommend footwear and offloading to prevent and heal diabetic foot ulcers (DFU). Ill-fitting footwear is a well-known risk factor of DFU. However, limited data exist on footwear habits and offloading uptake in patients with DFU. We aim to evaluate footwear choices, preventive footwear and offloading uptake in relation to wound characteristics in patients presenting to a tertiary multi-disciplinary diabetic foot clinic (MDFC).</p> <p>Methods Retrospective data collected from a MDFC between 19 April 2018 to 1 December 2022 involving 905 unique individuals with DFU was analysed.</p> <p>Results 70% patients had one DFU and 30% had multiple wounds. Majority of index DFUs were located over the toes (51%) or weightbearing aspects of the foot (38%). Reported wound aetiologies include non-footwear related trauma (31.9%), overloading (26.2%), footwear related trauma (10.5%), surgical (6.5%), non-traumatic blisters or skin lesions (3.8%) and others (20.8%). Majority of patients had non-protective, inappropriate footwear choices: slippers (26%), sandals (24%), slip-on covered shoes (15%), whereas a minority wore protective appropriate footwear including covered shoes with fixation (10%) and prescribed footwear or offloading devices (25%). Out of 384 patients recommended to change to prescriptive footwear or offloading device, only 37.5% accepted the change.</p> <p>Discussion & Conclusion Majority of patients with DFU have poor footwear choices and limited willingness to adopt recommended footwear or offloading changes. More resources should be put into patient education to improve the uptake of appropriate footwear. Additionally, qualitative studies investigating factors affecting resistance to footwear change and offloading uptake in an Asian population will be insightful to encourage behavioural change.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Allied Health Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-AH-02	Public Health / Clinical Epidemiology	Allied Health
<p>Authors S.GUNASEKARAN¹, E.H.TAY¹, S.SHAFIE¹, S.SHAHWAN¹, P.Z.WANG¹, Y.J.ZHANG¹, P.SATGHARE¹, F.DEVI¹, S.C.TAN¹, SUBRAMANIAM.M¹</p> <p>¹Institute of Mental Health (Singapore)</p> <p>Title A longitudinal study exploring psychological resilience and its associated correlates during the Covid-19 pandemic in Singapore</p> <p>Background & Hypothesis The mental health impact of the COVID19 pandemic has been an alarming cause for concern. Protective factors such as psychological resilience play an important role in ensuring individual coping during this adversity. Despite its dynamic nature, few studies have explored changes in resilience across time during the pandemic. We investigated resilience during the pandemic and its associated sociodemographic and psychological factors across two timepoints in Singapore.</p> <p>Methods The study was conducted across two timepoints from May 2020 to June 2021 (N=1129) and October 2021 to September 2022 (N=858) with Singapore adult residents. The questionnaire included sociodemographic information, Brief Resilience Scale, Patient Health Questionnaire-9, Generalized Anxiety Disorder Scale-7, the stress subscale of Depression, Anxiety and Stress Scale and six COVID19 related stressors. Multivariable linear regressions were conducted controlling for timepoints.</p> <p>Results The weighted prevalence of low, normal, and high levels of resilience were 13.10%, 75.55% and 11.36% respectively. Resilience levels remained the same across the two waves. Males, university-educated and employed individuals had higher levels of resilience. Higher levels of depression, anxiety and two COVID19 related stressors (i.e., possibility of loved ones contracting COVID19, financial concerns) were associated with lower levels of resilience.</p> <p>Discussion & Conclusion The findings suggest that most participants reported normal levels of resilience, and this remained unchanged over time, reflective of the population's ability to cope with the pandemic. However, there is still a need for more targeted interventions for individuals who are vulnerable to lower resilience. Continued research is needed to understand the long-term psychological effects of COVID19.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Allied Health Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-AH-03	Public Health / Clinical Epidemiology	Health Services Research
<p>Authors Y.S.KOH², P.V, ASHARANI², F.DEVI², K.ROYSTONN², P.Z.WANG², E.ABDIN², C.F.SUM¹, E.S.LEE³, S.A.CHONG², M.SUBRAMANIAM²</p> <p>¹Admiralty Medical Centre (Singapore), ²Institute of Mental Health (Singapore), ³NHG Polyclinics (Singapore)</p>		
<p>Title Diabetes Self-care Behaviours in Singapore: Prevalence and Associations with Diabetes Knowledge and Health Literacy</p>		
<p>Background & Hypothesis For patients with diabetes, self-care behaviours are crucial in improving long-term health outcomes. Our study examined the prevalence of self-management behaviours (diet, physical activity, medication adherence, glucose monitoring, and foot care) and their associations with potential enablers (having diabetes knowledge and health literacy) among patients with diabetes in Singapore.</p>		
<p>Methods Data were analysed from a nationwide survey conducted between 2019-2020 (n=436). Self-management behaviours were assessed using Dietary Approaches to Stop Hypertension (DASH) questionnaire, Global Physical Activity Questionnaire, and a diabetes care questionnaire. Diabetes knowledge questionnaire evaluated four domains: general knowledge, diabetes-specific knowledge, causes and complications of diabetes, whereas Brief Health Literacy Screen questionnaire assessed health literacy. Associations were examined using linear and logistic regression, adjusted for sociodemographic and disease-related characteristics.</p>		
<p>Results The prevalence of self-care behaviours were 73.15% for physical activity, 95.71% for medication adherence, 54.08% for glucose monitoring, and 70.18% for foot care. The mean (standard deviation) DASH score was 20.54 (6.10). Patients who were more informed about the causes of diabetes were more likely to adopt a healthier diet ($\beta=0.89$) and monitor their blood glucose (odds ratio, OR:1.83). Patients with better health literacy were less likely to follow a healthier diet ($\beta:-2.10$) and be sufficiently active (OR:0.05), but were more likely to monitor their blood glucose (OR:6.81).</p>		
<p>Discussion & Conclusion The prevalence of glucose monitoring was lower than other self-care behaviours. Moreover, better health literacy may not imply better self-care behaviours, which warrants future research. Healthcare professionals can emphasize on causes of diabetes to encourage self-care behaviours.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
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AWARD CATEGORY: Singapore Allied Health Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-AH-04	Public Health / Clinical Epidemiology	Clinical Research
<p>Authors Z.J.PHUA², A.A.HEIN², J.W.SIM², Z.B.LI¹, O.H.J.LIM², A.CHOW²</p> <p>¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²Tan Tock Seng Hospital (Singapore)</p>		
<p>Title The prognostic value of plasma albumin levels for 30-day mortality in patients with bacteraemia</p>		
<p>Background & Hypothesis Hypoalbuminaemia is an established biomarker for poor nutritional status and known to be associated with increased morbidity and mortality. This study examined plasma albumin (PA) levels measured at different time-points in the 30 days prior to a bacteraemia episode, to identify early prognosticators for 30-day mortality risk in patients with bacteraemia.</p>		
<p>Methods We conducted a historical cohort study on 11,627 patients with first-time bacteraemia episode hospitalised at Tan Tock Seng hospital, from 2006 to 2016. Earliest PA measured in the 30 days (segmented into 5-day intervals) before bacteraemia were compared with PA on the day of bacteremia (D0), using Pearson's correlation coefficient. Multivariable logistic regression assessed the associations of PA in 5-day intervals prior to bacteremia with 30-day mortality risk.</p>		
<p>Results Overall 30-day mortality risk was 16.9% (n=1,968). Median levels of earliest PA measured in all 5-day intervals ranged from 27-30g/L (IQR=22-43g/L), with lower PA levels closer to D0 (ptrend<0.001). Pearson's coefficients of 5-day intervals indicated positive correlation with PA on D0 (range=0.51-0.75, p<0.001), especially PA taken 1-5 days before D0 (D1-5) being most correlated to PA on D0 (r=0.75, p<0.001). All 5-day intervals showed that increase of one g/L in PA decreased the odds of 30-day mortality, particularly PA on D1-5 by 14% (aORs=0.86, 95% CI: 0.85-0.87).</p>		
<p>Discussion & Conclusion PA levels measured in the 30 days prior to D0 is a good prognosticator for 30-day mortality. Monitoring PA levels and addressing patients' nutritional deficiencies can reduce mortality risk.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
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Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-AH-05	General Surgery	Allied Health
<p>Authors W.Y.F.TAN¹, A.H.J.CHI¹, K.Y.HOW¹, B.WANG¹, S. KUNJURAMAN¹, L.P.KONG¹, NORAFIDA ISMAIL¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title A Singapore study: The outcomes of accelerated nurse-led mobilisation in elective colorectal patients</p> <p>Background & Hypothesis In Tan Tock Seng Hospital (TTSH), Enhanced Recovery After Surgery (ERAS) is the standard of care for all patients undergoing elective colorectal surgeries. Patients undergoing ERAS are mobilised out of bed on post-operative day one. However, in the fast-track concept, it is recommended that patients mobilise on the day of surgery by any members of the multidisciplinary team which is not routinely practiced in Singapore. Hence, this study aims to investigate the outcomes of a nurse-led accelerated mobilisation on the day of surgery.</p> <p>Methods A retrospective case-note review was conducted at TTSH. Patients who underwent elective colorectal surgeries were included (July 1, 2021-June 31, 2023). Primary outcomes include hospital length of stay (LOS), number of physiotherapy sessions required to achieve pre-morbid status and patients' discharge destinations.</p> <p>Results In total, 450 patients were included in the analysis. 84 patients underwent accelerated mobilisation and 367 patients received standard ERAS care. Statistically significant improvements were demonstrated in hospital LOS, number of physiotherapy sessions and discharge destinations ($p < 0.01$; $p < 0.01$; $p = 0.022$). There was a reduction in LOS from 7 (median)(Interquartile range (IQR)=10) to 4 (IQR=3) and number of physiotherapy sessions from 4 (IQR=6) to 2 (IQR=2).</p> <p>Discussion & Conclusion This is the first study in Singapore to evaluate the effects of accelerated mobilisation in patients post elective colorectal surgeries. This demonstrated that accelerated mobilisation led to shorter LOS, reduced number of physiotherapy sessions and greater ability to return home, thereby leading to potential cost savings. Additionally, this demonstrates the feasibility of a multidisciplinary approach to accelerated mobilisation.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Clinician Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-CIA-01	Ophthalmology	Clinical Research
<p>Authors R.AGRAWAL², Z.LUDI¹, S.CHOO², T.ZHENG², W.ROJAS¹, B.LEE¹, Y.LIM¹</p> <p>¹Lee Kong Chian School of Medicine (Singapore), ²Tan Tock Seng Hospital (Singapore)</p>		
<p>Title Collaborative Ocular Tuberculosis Study (COTS) Calculator as a guide to initiate antitubercular therapy in patients with ocular tuberculosis</p>		
<p>Background & Hypothesis The Collaborative Ocular Tuberculosis Study (COTS) Calculator is an evidence and experience-based online scoring tool (www.ocular.tb.net/cots-calc) for initiating antitubercular therapy (ATT) in patients with clinically suspicious ocular tuberculosis (OTB). The objective of the study was to educate healthcare professionals by validating the predictive ability of the COTS calculator to correctly recommend ATT.</p>		
<p>Methods The minimum data points required for COTS calculator input (TB endemicity region for the patient, clinical phenotype, Mantoux test, IGRA test, chest radiology findings) were extracted from the COTS-1 dataset. The predictive performance of the COTS calculator median scores 4 and 5 were then compared to ATT initiation based on the clinician's judgment at the time of treatment decision. The predictive accuracy of COTS calculator performance was then further validated based on treatment outcomes using machine learning technology.</p>		
<p>Results Among 633 patients included, 544 (85.9%) patients were treated with ATT based on the treating physician's discretion. Retrospective COTS calculator application stratified 283 (44.7%) patients with high or very high probability among international experts to initiate ATT (median score = 4 or 5) and 138 (21.8%) patients for very high probability alone (median score = 5). COTS calculator predictions using median score 5 show better specificity (0.43-0.61) over all time points than the clinician's judgement (0.15-0.19).</p>		
<p>Discussion & Conclusion COTS calculator provides greater predictive accuracy than the gold standard of individual uveitis expert judgement. Hence, it is a recommended tool for healthcare professionals to guide ATT treatment, therefore reducing drug resistance from inappropriate ATT use.</p>		

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Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-CIA-02	Ophthalmology	Clinical Research
<p>Authors B.C.H.ANG², E.J.CHEN¹, W.K.CHEE², B.K.BETZLER¹, C.H.CHUA², V.C.H.YIP², L.W.L.YIP²</p> <p>¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²Tan Tock Seng Hospital (Singapore)</p>		
<p>Title Combined Phacoemulsification and Hydrus Microstent Implantation in Asian Eyes with Moderate-to-Severe Normal Tension Glaucoma – 12-Month Outcomes</p>		
<p>Background & Hypothesis To evaluate 12-month safety and efficacy outcomes of combined phacoemulsification and Hydrus Microstent (Ivantis Inc., Irvine, CA) implantation in Asian eyes with moderate to severe normal tension glaucoma (NTG).</p>		
<p>Methods Retrospective study of consecutive surgeries performed from August 2019 to August 2021 in a single tertiary eye centre in Singapore. Outcome measures included reduction in intraocular pressure (IOP), number of glaucoma medications, and intra- and post-operative complications.</p>		
<p>Results Data from 22 eyes of 22 subjects was analysed. All subjects were ethnic Chinese and majority were male (15, 68.2%). At baseline, mean IOP was 13.3 (2.3) mmHg, all eyes had a Humphrey Visual Field (HVF) mean deviation (MD) of ≥ -6 dB [mean -13.6(4.4) dB] and all eyes were on at least one glaucoma medication. There was no statistically significant reduction in IOP at all timepoints compared to baseline (all $p > 0.05$). However, median number of medications was reduced from 2 to 0 at all timepoints, up to POM12 (all $p < 0.001$). There were no intraoperative complications. No eyes underwent secondary glaucoma procedures nor lost any Snellen's line of visual acuity by POM12. One (4.5%) eye experienced numerical hypotony at POD1, which resolved conservatively. Two (9.1%) eyes underwent laser iridoplasty for stent occlusion by iris. There was no deterioration in HVF MD at POM12 compared to baseline ($n=21$, $p > 0.05$).</p>		
<p>Discussion & Conclusion Combined phacoemulsification and Hydrus Microstent implantation was effective in reducing medication burden in Asian eyes with moderate to severe NTG, up to 12 months post-operatively.</p>		

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Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-CIA-03	General Surgery	Clinical Research
<p>Authors T.G.HO³, M. C. H. CHEN², E. YONG³, G. W. L. TAN³, R. C. CHONG³, Q. HONG³, M. H. W. MAK³, S. W. Y. CHAN¹, C. R. LEONG¹, D. Y. S. CHAN¹</p> <p>¹Khoo Teck Puat Hospital (Singapore), ²Lee Kong Chian School of Medicine (Singapore), ³Tan Tock Seng Hospital (Singapore)</p> <p>Title A Retrospective, Double-centre Study on the Use of TEVAR in the Treatment of Traumatic Blunt Thoracic Aortic Injuries</p> <p>Background & Hypothesis Blunt thoracic aortic injuries (BTAI) are life-threatening emergencies with almost 80% prehospital mortality rates. Traditionally, open repair was carried out, but this confers severe physiological stress and perioperative complications. The minimally invasive thoracic endovascular aortic repair (TEVAR) has shown to be superior. Our study aims to study primary outcomes of patients who underwent TEVAR for BTAI in two local hospitals.</p> <p>Methods This was a double-centre retrospective study of patients who underwent TEVAR for traumatic BTAI in Khoo Teck Puat Hospital and Tan Tock Seng Hospital from 2013 to 2023. Information gathered included Injury Severity Score (ISS) and stent technical details. Primary outcomes included: 30-day mortality, 1-year mortality, ICU length of stay (LOS), hospital LOS, stent-related complications, re-intervention and death.</p> <p>Results A total of 16 patients were included. 68.75% (n=11) were male, 50% (n=8) were Chinese and 68.75% (n=11) suffered injuries following road traffic accidents. Mean age at incident was 45.6. Mean ISS was 18.9. All had single-stent deployment mostly in Zones 2 and 3. Half (n=8) had coverage of the subclavian artery. Mean total months of follow-up was 15. Average ICU LOS was 4.25 days and hospital LOS was 26.75 days. 93.75% (n=15) survived at 30-days and 10 patients survived at 1-year. 1 patient reported stent-related endoleak requiring re-intervention. 1 patient died 2 years after the initial accident for unrelated reasons.</p> <p>Discussion & Conclusion Although there remains to be further research delving into late complications and long-term impacts, this study suggests safety of and supports use of TEVAR in BTAI management.</p>		

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AWARD CATEGORY: Singapore Clinician Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-CIA-04	Occupational Medicine	Clinical Research
<p>Authors J.Y.HWANG¹, C.H.J.HO¹, ASANNACHIYAAR.D.O.C¹, NUR.SYAFILLA.I.B.S¹, S.A.FERNANDEZ¹, J.CHNG¹</p> <p>¹Woodlands Health (Singapore)</p>		
<p>Title Wrist injuries among nurses and therapists in Woodlands Health: a cross-sectional study evaluating the prevalence, risk factors and barriers to return to work</p>		
<p>Background & Hypothesis While there is increasing awareness that wrist injuries can impact healthcare workers' work ability and sickness absence, little is known about their contributory factors. Our study aims to assess the burden and return to work (RTW) barriers of wrist injuries in one Singapore restructured hospital.</p>		
<p>Methods A self-administered anonymous online questionnaire was sent to all nurses, healthcare assistants (HCAs), physiotherapists (PTs), occupational therapists (OTs), speech therapists, and therapy assistants (TAs). Outcome measures included wrist injury history, RTW Self-Efficacy Scale, and perceptions of workplace support and medical leave.</p>		
<p>Results 386 participants responded, comprising 68 OTs, PTs and TAs (response rate 72%) and 317 nurses and HCAs (23%). 107 (28%) and 75 (19%) participants had wrist injuries after joining healthcare and the hospital, with higher incidence among those with over 2 years of hospital employment (25%, p<0.01) or from ICU/High Dependency (44%) and Emergency Department (27%) (p=0.02). 6 of 72 (8%) who felt their injury was work-related raised incident reports.</p> <p>Most participants given medical leave or light duties (34%) were neutral on their adequateness (60-69%) and had challenges finding available light duties (62%). 52% wore wrist protective devices; most agreed they affected job performance (70%) or posed infection control challenges (88%).</p> <p>Participants were neutral (55-59%) or agreeable (26-33%) that supervisors provided good support and took their injury seriously. While 52% knew Occupational Medicine offers RTW management, 9% consulted them.</p>		
<p>Discussion & Conclusion Wrist injury is a significant issue among healthcare workers. Supervisors and Occupational Medicine practitioners can do more to support our colleagues overcome various challenges.</p>		

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Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-CIA-05	Otorhinolaryngology/ENT	Clinical Research
<p>Authors H.LI², C.C.Y.Lee¹, M.M.Bundele², J.Y.J.Gan², E.W.Z.Fu², M.Y.Lim², H.W.Khoo², A.Y.Q.Soon²</p> <p>¹MOH Holdings Pte Ltd (MOHH) (Singapore), ²Tan Tock Seng Hospital (Singapore)</p>		
<p>Title Refining The Management of Bethesda III Thyroid Nodules by Combining Nuclear Atypia with Sonographic Risk Stratification</p>		
<p>Background & Hypothesis The risk of malignancy in cytologically Bethesda III thyroid nodules ranges from 10 to 30%. Further stratification by nuclear atypia and sonographic risk may aide the decision for diagnostic hemithyroidectomy.</p>		
<p>Methods We retrospectively reviewed consecutively resected Bethesda III thyroid nodules from Tan Tock Seng Hospital between 2010 and 2016. Two radiologists independently classified the nodules according to American College of Radiologist - Thyroid Imaging Reporting and Data System (ACR-TIRADS), blinded to their diagnoses. A head and neck pathologist reviewed the cytology to determine nuclear atypia. Univariate and multivariate analyses are performed to determine the indicators of malignancy. Risk of malignancy (ROM) is calculated in each category of indicators.</p>		
<p>Results Sonographic images can be matched to the histological diagnoses in 246 out of 289 nodules. Sixty-four (26%) are malignant (35 papillary carcinomas, 26 follicular carcinomas, 2 lymphomas, 1 poorly differentiated carcinoma). Nuclear atypia and higher ACR-TIRADS categories are significantly more common in malignant nodules ($p < 0.01$). ACR-TIRADS remains significant on multivariate logistic regression. Between the radiologists, the average area under the receiver-operator-curve of the composite diagnostic model incorporating age, gender, nuclear atypia, and ACR-TIRADS is 0.642; the ROM of an ACR-TIRADS 1, 2, 3, 4, 5 nodule with nuclear atypia is 0%, 11.7%, 18.5%, 33.7%, 70%, respectively, versus 50%, 27.9%, 11.2%, 25.2%, 7.4%, respectively, in nodules without nuclear atypia.</p>		
<p>Discussion & Conclusion Diagnostic hemithyroidectomy should be considered in ACR-TIRADS 5 nodules with nuclear atypia. Molecular testing or repeat fine-needle aspiration cytology may be beneficial in other risk categories.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Clinician Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-CIA-06	Geriatric Medicine	Basic Science / Translational Research
<p>Authors S.LOW², A.MOH², B.PANDIAN², X.L.TAN², S.PEK², K.ANG, T.SUBRAMANIAM¹, C.F.SUM¹, S.C.LIM²</p> <p>¹Admiralty Medical Centre (Singapore), Khoo Teck Puat Hospital (Singapore)</p> <p>Title Plasma Leucine-rich α-2-glycoprotein 1 is longitudinally associated with reduced cognitive function in type 2 diabetes with insights from Mendelian randomization</p> <p>Background & Hypothesis Leucine-rich α-2-glycoprotein 1(LRG1) is an emerging pro-inflammatory protein implicated in pathogenesis of diabetic complications. LRG1 was also linked to arterial stiffness which damages cerebral micro-vessels through high pulsatile flow. It is unknown if LRG1 is associated with lower cognitive function in type 2 diabetes(T2D).</p> <p>Methods We conducted prospective cohort study on 1039 patients recruited from SMART2D. Baseline plasma LRG1 was measured with enzyme-linked immunosorbent assay. Baseline and follow-up cognitive function was assessed using Repeatable Battery for Assessment of Neuropsychological Status(RBANS). Linear regression was performed to examine association between LRG1 and cognitive function, adjusting for demographics and clinical covariates. One-sample MR was performed with LRG1-associated single-nucleotide polymorphism (rs4806985) to determine causality of association.</p> <p>Results Mean age was 64.1\pm6.4 years. Elevated LRG1 was inversely associated with baseline RBANS total score (adjusted coefficient -1.38;95%CI-2.55 to -0.21;p=0.021). 545 patients had up to 9.3 years' follow-up for cognitive assessment. Elevated LRG1 was associated with lower follow-up RBANS score for total, immediate and delayed memory with adjusted coefficients -1.38(95%CI-2.70 to -0.07;p=0.039), -2.76(95%CI-4.83 to -0.69;p=0.009) and -3.00(95%CI-5.42 to -0.57;p=0.016) respectively. Genetically predicted higher levels of LRG1 was associated with lower follow-up RBANS total score with coefficient -7.44(95%CI-14.14 to -0.74;p=0.030) per unit LRG1 increase.</p> <p>Discussion & Conclusion Our findings revealed previously unobserved association between plasma LRG1 and cognitive function with support by MR analysis. LRG1 may be potential intervention target for early prevention of cognitive impairment in T2D.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Clinician Investigator Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-CIA-07	Emergency Medicine	Health Services Research
<p>Author C.ONG¹, C.WU¹, N.ASWEN¹, J.YAP¹, K.VELU¹, N.YAHYA¹, C.LIM¹, K.X.NG¹ Ng Teng Fong General Hospital (Singapore)</p> <p>Title Case Management in the Emergency Department (ED) Reduces Hospital Admissions and ED Re-attendances</p> <p>Background & Hypothesis Hospitals face growing pressure to decrease unplanned hospital utilisation given rising healthcare demand of our ageing population. Transitional care strategies from the Emergency Department (ED) have been implemented with the aim of improving patient safety and reducing acute hospital usage. The Case management for At-Risk patients in the ED (CARED) programme in Ng Teng Fong General Hospital targets patients who re-attend ED within thirty days of hospital discharge and frail older patients (Clinical Frailty Score [CFS] ≥ 4). The objectives are right siting of patients after a geriatric assessment in the ED to reduce unnecessary ED re-attendances and acute hospital (re)admissions.</p> <p>Methods Case managers/Doctors in the ED pick up eligible patients based on their 30-days risk scores, CFS, and a clinical derived at-risk criteria. The outcomes were hospital (re)admissions and ED re-attendances. Comparisons of the outcomes between the intervention and propensity-matched control group were performed using difference-in-difference estimation with bias-adjusted generalising estimating equation.</p> <p>Results Compared to the control group, emergency hospital admissions for the intervention group was significantly lower in the 30- and 60-days follow up period post-ED discharge ($P=0.03$, 95% CI -0.93 to -0.06 and $P=0.001$, 95% CI -0.95 to -0.25 respectively). ED re-attendances were also significantly lower in the 60-days follow up period ($P=0.02$, 95% CI -0.64 to -0.07).</p> <p>Discussion & Conclusion ED case management (CARED) reduces unplanned acute hospital usage for at-risk patients at 30- and 60-days post-ED discharge and can help reduce healthcare burden and improve patient safety at the transitions of care.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Nursing Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-NR-01	Community Nursing	Nursing
<p>Authors C.W.S.AW¹, S.H.P.TAN¹, S.Y.A.WONG¹, Y.S.NG¹, K.A.ANG¹, C.L.POH¹, H.Y.WU ¹Woodlands Health (Singapore)</p> <p>Title Efficacy of Telehealth in the Management of Chronic Conditions in Community Dwelling Older Adults</p> <p>Background & Hypothesis Telehealth has gained momentum for managing diabetes and hypertension in older adults, yet its clinical outcomes and usability remain underexplored, especially in the context of comorbidities.</p> <p>This study evaluates the efficacy of telehealth in managing type 2 diabetes and/or hypertension in community dwelling older adults.</p> <p>Methods A single-group repeated measures quasi-experimental design was employed. Dependent variables including blood glucose, blood pressure, body mass index, health knowledge, behaviour, and status were assessed bi-monthly over a year. Participants' engagement and perceived telehealth usability were measured at pre-intervention, third, and sixth telehealth appointments.</p> <p>Results Thirty-one participants were recruited. Analysis revealed statistically significant differences in mean knowledge ($F(3.441, 103.226) = 26.914, p < .001$), behaviour ($F(2.215, 66.465) = 6.835, p = .001$), and status ($F(2.932, 87.968) = 4.384, p = .007$) scores across visits. Post-hoc analysis indicated that knowledge ($-.516(95\% \text{ CI}, -.842 \text{ to } -.190), p < .001$) and behaviour scores ($-.323(95\% \text{ CI}, -.632 \text{ to } -.013), p = .035$) improved significantly after the third and fifth visits respectively. Mean commitment scores ($-.105, p = .021$) increased post third visit. Participants reported high satisfaction ($-.903, p < .001$) and found the telehealth system easy to use ($-1.022, p < .001$), effective ($-1.194, p < .001$), and reliable ($-1.215, p < .001$).</p> <p>Discussion & Conclusion Telehealth enhances participants' knowledge and behaviour in managing diabetes and hypertension. Participants expressed increased commitment to self-care and receptiveness toward telehealth integration into routine care. No significant impact was observed on other dependent variables. Further exploration of these outcomes is recommended.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Nursing Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-NR-02	Psychiatry	Nursing
<p>Authors B.CHEN¹, X. TAN¹, P. C. TOR¹</p> <p>¹Institute of Mental Health</p> <p>Title The impact of the number of previous illness episodes on outcome in electroconvulsive therapy (ECT) in psychosis, mania, depression, psychotic depression, and catatonia: A naturalistic transdiagnostic analysis</p> <p>Background & Hypothesis Electroconvulsive Therapy (ECT) is an effective treatment for mood and psychotic disorders but there is growing evidence of treatment resistance. We aim to investigate the relationship between the number of previous illness episodes and the symptomatic improvement after acute ECT treatment. We hypothesized that the number of previous illness episode is inversely associated with symptoms improvement.</p> <p>Methods We conducted a retrospective naturalistic cohort analysis of patients' ECT registry data from March 2017 to February 2023. We categorized the number of previous illness episodes into "0-3" and ">3 episodes", paired T-tests were used to compare the changes in scores of clinical assessments using Clinical Global Impression-Improvement and Severity (CGI-I and CGI-S), Brief Psychotic Rating Scale (BPRS) and Montgomery-Asberg Depression Rating Scale (MADRS) after 6 sessions of ECT treatment, generalized linear models were used to analyze the association number of previous illness episodes and change in symptomatic scores.</p> <p>Results A total of 1137 patients were included for analysis. There was a significant global improvement in psychiatric symptoms (CGI) after 6 ECT treatments across five indications at the group level ($P < 0.010$). There was a significantly lower chance of symptom improvement after 6 ECT treatment in >3 previous illness episodes group after adjustment for age, gender, antidepressant, antipsychotics, and past ECT (adjusted OR: 0.7, 95% CI, 0.518 to 0.946; $P=0.02$).</p> <p>Discussion & Conclusion Our findings support the clinicians in offering ECT earlier in the course of illness for patients and their significant others in reaching a shared decision about ECT treatment which might have better outcome.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Nursing Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-NR-03	Nursing	Nursing
<p>Authors G.GLASS¹, J.CHOO¹, E. CHEW¹, E.Y. CHAN</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title "Weighing Down Hearts" - Examining Predictors to Caregiving Burden in Family Caregivers of Older Adults</p> <p>Background & Hypothesis In Singapore, family caregivers play a crucial role in caring for older adults. However, they often experience significant stress and burden, which can lead to depression and institutionalisation of their care recipient. Effective, actionable strategies are critical to address both care recipient and caregiver-specific factors to alleviate caregiver burden. We aimed to identify predictors of caregiver burden in family caregivers of older individuals.</p> <p>Methods Caregiver-care recipient pairs were recruited from a Singaporean tertiary hospital in 2022. Caregiver burden was measured using the 12-item Zarit Burden Interview (ZBI-12). Surveys and electronic records captured potential predictors identified in literature such as care-recipients' Charlson Comorbidity Index scores and caregivers' availability of caregiving help. Multivariable linear regression was performed with a significance level of 0.05. The best-fitted model yielded regression estimates (β) with a 95% Confidence Interval (CI).</p> <p>Results We recruited 68 caregiver-care-recipient pairs. Mean ZBI-12 score was 17.19(SD=9.15). Our model accounted for 58% of variability in ZBI-12. Availability of caregiving help ($\beta=0.19$, 95%CI:0.43 to 7.83, $p=0.03$), caregivers' mental health scores ($\beta=0.48$, 95%CI: 0.51 to 1.11, $p<0.001$), caregivers' daily sleep duration ($\beta=0.23$, 95%CI:0.27 to 2.30, $p=0.02$) were negatively associated with ZBI. Care-recipients' Charlson Comorbidity Index scores ($\beta=0.23$, 95%CI: 0.20 to 1.73, $p=0.02$) were positively associated with ZBI.</p> <p>Discussion & Conclusion Our study identified caregiver- and care-recipient-specific predictors of burden. Providing help and night respite to improve sleep opportunities can temper stressors such as care-recipients' severity of comorbidities. Further research is needed to investigate these interventions' benefits.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Nursing Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-NR-04	Psychiatry	Nursing
<p>Authors Z.LI², D. S. H. Koh², J. Ng¹</p> <p>¹Connections MindHealth (Singapore), ²Institute of Mental Health (Singapore)</p>		
<p>Title Examining the Use of The Columbia - Suicide Severity Rating Scale in Suicide Screening in Emergency Mental Health Setting</p>		
<p>Background & Hypothesis The screening of suicidal risk constitutes a fundamental initial measure in the sphere of suicide prevention in mental health care. The efficacy of the screening tool plays a pivotal role in enabling nurses to initiate appropriate nursing interventions promptly for patients at such risks. The Columbia - Suicide Severity Rating Scale (CSSRS) has been used in triaging patients at Emergency Service (ES). However, false negative and false positive cases have been noted. This study aimed to examine the sensitivity and specificity of the CSSRS in identifying suicidal risk.</p>		
<p>Methods This is a retrospective study, involving retrieving and analysing assessment records of patients who had assessment using CSSRS at ES. The duration for the medical record retrieval was one year. A data record sheet was developed for CSSRS scores and suicidal risk status.</p>		
<p>Results The CSSRS test (n=1690) can identify 63.52% of patients (n=313) with suicidal risk to be admitted with Precaution of Suicide (PS) and identify 91.42% of patients (n=1377) without suicidal risk. The CSSRS has relatively acceptable sensitivity but very good specificity. The probability of patients with positive test score admitted with PS is 87.08%. The Probability of patients with negative test score truly will admit to hospital without PS is 73.35%.</p>		
<p>Discussion & Conclusion This study provided the knowledge on the usefulness and efficacy of the CSSRS in assessing the severity of the suicide risk in our local population. This will aid the treatment team to be more precise in early identificatoin and preventive treatment for patients who has suicidal risk.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Nursing Award

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SG-NR-05	Psychiatry	Nursing
<p>Authors J.L.TAY¹, C. P. WONG¹, F. P. L. TAN¹, Z. W. GAO¹</p> <p>¹Institute of Mental Health (Singapore)</p> <p>Title Comprehensive development and content validation of a psychiatric curriculum for Advanced Practice Nurse Interns</p> <p>Background & Hypothesis Traditionally, the specialty training for the Advanced Practice Nurse (APN) was embedded within the school curriculum of the Masters' Degree of Nursing. Due to increasing healthcare cost, specialty track curriculum had ceased, and APN-interns will instead attend their specialty track training within their respective field of work after the 1.5 years of Masters in Nursing program. This paper aims to describe the development and the content validation of the psychiatric curriculum for APNs–interns within a psychiatric hospital in Singapore.</p> <p>Methods The development of the curriculum was conducted in four phases. The four phases were: (1) learning needs analysis, (2) evaluation of available overseas and local curriculum developed for psychiatric APNs, (3) identification of specific topics for curriculum based on findings from (1) and (2), and lastly, (4) content validation of the draft curriculum by experts. In content validation, topics were excluded if they failed to meet the meet pre-determined Mean>5 and SD<2.</p> <p>Results APN-interns were least familiar with pharmacological and psychological management. Curriculums in America had a greater focus on psychiatric assessment and pharmacological management, while Australia curriculums had a greater focus on psychotherapy management. Curriculums from UK were generally more theoretical. In content validation, intraclass correlation coefficient amongst the experts was 0.98, signifying excellent reliability. Three topics were excluded while a new topic was added: Cultural influences in psychiatry.</p> <p>Discussion & Conclusion This is the first paper that describes and validates the development of an APN psychiatric curriculum. It is possible to develop hospital-based curriculum to provide training to APN interns.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: SHBC Student Awards (Open Category)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SHBC-SA-01	Basic Science/Translational Research	Basic Science / Translational Research
<p>Authors Y.JIANG², R.WONG², SK.LIM¹, WS.TOH³</p> <p>¹Agency for Science, Technology and Research (Singapore), ²National University Centre for Oral Health (Singapore), ³National University Hospital (Singapore)</p> <p>Title MSC exosomes alleviate osteoarthritis through complement inhibition</p> <p>Background & Hypothesis Excessive complement activity has been implicated in osteoarthritis (OA) pathogenesis. This study investigated the effects of MSC exosomes on C5b-9 formation in OA of temporomandibular joint (TMJ) in rats.</p> <p>Methods MSC exosomes were purified from the conditioned medium of a human MSC line. Twenty-four rats were randomly divided to OA+Exo, OA+PBS, and Sham groups. OA was induced by injecting monoiodoacetate into bilateral TMJs. After two weeks, OA+Exo rats received 3 weekly intra-articular injections of MSC exosomes, whereas OA+PBS rats received PBS injections. Sham rats received needle pricks. At 4 weeks post-treatment, animal tissues were harvested for analyses.</p> <p>Results Transcriptomic analysis of synovium showed preferential gene expression of complement inhibitors over effectors with exosome treatment. The multiplex cytokine assay showed higher levels of anti-inflammatory cytokines (IL-2, IL-4, and IL-10), and lower levels of pro-inflammatory cytokines (IL-12, IL-17, IFN-γ, IL-18, and MIP-3a) in the synovium with exosome treatment. Relative to OA+PBS rats, OA+Exo rats had lower percentage of C5b-9+ cells in both synovium and condyle. Concomitantly, OA+Exo rats had reduced pain, suppressed inflammation, and decreased matrix degradation than that of OA+PBS rats, and were comparable to that of sham rats.</p> <p>Discussion & Conclusion Exosome-mediated repair of osteoarthritic TMJs was characterized by reduced complement activity, suppressed pain and inflammation, and improved joint restoration. MSC exosomes alleviate OA inflammation and degeneration, possibly by reducing C5b-9 formation to inhibit complement activity.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: SHBC Student Awards (Open Category)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SHBC-SA-02	Palliative Medicine	Health Services Research
<p>Authors L.P.KOH¹, K.Y², YANG GM²</p> <p>¹Lee Kong Chian School of Medicine (Singapore), National Cancer Centre Singapore</p>		
<p>Title Exploring the Experiences and Perspectives of Patients who Participated in the ENABLE-SG Program – a Proactive Model of Early Palliative Care</p>		
<p>Background & Hypothesis ENABLE-SG program (Educate, Nurture, Advise, Before Life Ends) is a nurse coach-led, comprehensive palliative care model designed for patients with advanced cancer and their family caregivers. It has been culturally adapted for the Singapore setting and focuses on early intervention and support. This study aims to explore the experiences and perspectives of participants.</p>		
<p>Methods We purposively sampled patients from the National Cancer Centre Singapore who were 21 years, diagnosed with stage IV solid tumour cancer, able to speak and read in English, and underwent the ENABLE-SG program. Semi-structured interviews were audio-recorded, transcribed verbatim, and thematically analyzed.</p>		
<p>Results Generally, all 17 patients found the program useful in enhancing self-awareness. Successive sessions built familiarity and trust between coach and patient. Patient experiences differed by personality traits and beliefs. Patients less willing to co-share their disease burden with families and friends perceived ENABLE-SG as an alternative source of support and most useful for verifying self-sought information. Patients with extrovert characteristics highly valued the opportunity to talk to an experienced nurse-coach, whereas patients with introverted characteristics encountered challenges with open-sharing. Hence, introverts ascribed greater importance to the accompanying educational booklet in managing their expectations and facilitating discussions during coaching sessions. Lastly, patients with a positive outlook towards life after diagnosis were more inclined and ready to share their experiences.</p>		
<p>Discussion & Conclusion Delivery of health coaching programs should consider how varying patient traits and beliefs affect patient-coach communication and perceived program utility. The coach should flexibly adapt to patients' communication styles and leverage educational booklets to enhance program utility.</p>		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: SHBC Student Awards (Open Category)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SHBC-SA-03	Cardiology	Health Services Research
Authors H.J.RAMACHANDRAN ² , C.W.A.SEAH ² , T.J.YEO ¹ , Q.SYED GANI ¹ , P.S.LIM ¹ , S.M.LAI ¹ , W.WANG ² ¹ National University Heart Centre (Singapore), ² Yong Loo Lin School of Medicine (Singapore)		
Title An Integrated-Cardiac Rehabilitation Employing Smartphone Technology (I-CREST) – Preliminary Results of a Single-blinded Randomized Controlled Trial		
Background & Hypothesis To evaluate the effectiveness of an Integrated-Cardiac Rehabilitation Employing Smartphone Technology (I-CREST) system as an alternative to center-based cardiac rehabilitation (CBCR) in patients with coronary heart disease (CHD).		
Methods Patients in the I-CREST arm received a novel home-based I-CREST system – bespoke I-CREST smartphone application and a wearable heart rate monitoring device and were remotely supervised via the I-CREST web-portal and weekly telephone calls with a research nurse. Patients in the CBCR arm received 12 group-based face-to-face exercise sessions with educational materials. We evaluated cardiac rehabilitation (CR) utilization (uptake, adherence, and completion) and the 6-minute walk test (6MWT) at the 6-weeks timepoint. Data were analyzed using IBM Statistical Package for Social Sciences version 28.0. Ethical approval was obtained from the National Health Group–Domain Specific Review Board (Reference number:2020/00006).		
Results 30 patients were randomized to either receive the I-CREST intervention (n = 16) or the CBCR control (n = 14). Both groups demonstrated significant improvements in 6MWT results from baseline to 6-weeks (I-CREST: 462.8±87.7 m–544.8±74.6 m, p-value < 0.001; CBCR: 462.4±71.3 m– 510±69.4 m, p-value = 0.008). In terms of CR utilization (I-CREST vs CBCR): uptake was 93.8% (15/16) vs 100% (14/14); adherence was 93.3% (14/15) vs 78.6% (11/14); completion was 81.3% (13/16) vs 42.9% (6/14). CR completion was significantly different between groups (p-value=0.029). No significant between-group differences were observed for 6MWT and CR uptake and adherence.		
Discussion & Conclusion Preliminary results suggests that the I-CREST system has the potential to be an equally effective alternative to CBCR for CHD management.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: SHBC Student Awards (Open Category)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SHBC-SA-04	Dermatology	Clinical Research
Authors N.K.W.TAN ² , A.TANG ² , N.C.Y.L.MACALEVEY ² , BKJ.TAN ² , H.H.OON ¹		
¹ National Skin Centre (Singapore), ² National University of Singapore		
Title Risk of suicide and psychiatric disorders among isotretinoin users: a meta-analysis		
Background & Hypothesis Despite its efficacy in treating acne, isotretinoin has reportedly been associated with the development of psychiatric disorders. We seek to clarify the epidemiological association and predictors of psychiatric disorders among isotretinoin users.		
Methods We searched four databases from inception till 24 January 2023. Two authors independently selected randomized trials or observational studies which reported the incidence, risk and predictors for suicide and psychiatric disorders among isotretinoin users. We pooled data using inverse variance-weighted meta-analyses, measured heterogeneity with I ² and conducted meta-regression analyses.		
Results We included 25 studies out of 1,895 records. The one-year pooled incidence from between two to eight studies of completed suicide, suicide attempt, suicide ideation and self-harm were each less than 0.5%, while that of depression was 3.83% (95%CI=2.45-5.93, I ² =77%, 11 studies). Isotretinoin users were less likely than non-users to attempt suicide during treatment (RR=0.60; 95%CI=0.54-0.68, I ² =0%, three studies) and at the second (RR=0.91; 95%CI=0.84-1.00, I ² =0%, two studies), third (RR=0.85; 95%CI=0.77-0.94, I ² =0%, two studies), fourth (RR=0.82; 95%CI=0.72-0.93, I ² =0%, two studies) and fifth year (RR=0.79; 95%CI=0.68-0.92, I ² =0%, two studies) following treatment. Isotretinoin was not associated with the risk of all psychiatric disorders (RR=1.08; 95%CI=0.99-1.19, I ² =0%, four studies). Study-level meta-regression found that older age was associated with lower one-year incidence of depression, while male sex was associated with higher one-year incidence of completed suicide.		
Discussion & Conclusion Isotretinoin users are not at increased risk of suicide or psychiatric diagnoses, and may instead have lower risk of suicide attempts during and up to five years following treatment.		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: SHBC Student Awards (Open Category)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SHBC-SA-05	Dermatology	Clinical Research

Authors

W.R.TAN¹, X.HUANG⁴, C.F.LIEW³, H.H.OON⁴, B. LEE²

¹King's College London (United Kingdom), ²Lee Kong Chian School of Medicine (Singapore), ³Mount Elizabeth Medical Centre (Singapore), ⁴National Skin Centre (Singapore)

Title

Mapping metabolic syndrome and comorbidities in associated inflammatory skin disorders : A scoping review of the global prevalence.

Background & Hypothesis

Comorbid associations have been established between components of metabolic syndrome (MetS), non-alcoholic fatty liver (NAFLD)/metabolic dysfunction-associated steatotic liver disease (MASLD) and increasingly, inflammatory dermatoses. Yet, challenges remain in recognition and management of metabolic syndrome in patients with inflammatory dermatoses. To ascertain whether current data support association of MetS components and to summate MetS' global prevalence in associated inflammatory dermatoses, a scoping review was performed.

Methods

PubMed was searched for peer-reviewed research articles published since inception to August 1, 2023. Meta-analyses that reported either MetS or its components, cardiovascular diseases or NAFLD/MASLD were selected.

Results

A total of 25 unique studies were included. Reported odds ratio ranges (ORR) for MetS prevalence were 0.34-2.63(n=7), 1.65-2.39(n=3), 2.70-3.46(n=2), 1.72-1.87(n=2), 1.98(n=1), 2.81(n=1) for psoriasis, vitiligo, androgenetic alopecia, rosacea, hidradenitis suppurativa (HS) and lichen planus respectively. NAFLD/MASLD was associated with psoriasis (ORR:1.96-2.15, n=2) and HS (ORR:1.78, n=1). Reported global MetS prevalence in patients with psoriasis are higher than the overall MetS prevalence, with some countries such as Singapore (45.1% v. 20.8%) and Israel (54.8% v. 25.3%) doubling the regional MetS prevalence.

Discussion & Conclusion

Publication heterogeneity and paucity, particularly in some associated inflammatory dermatoses, may have impaired assessment of accurate ORRs. Awareness of MetS comorbidities and inflammatory dermatoses have been growing, but more is required to improve screening, early detection and management of these patients. Patients with chronic inflammatory dermatoses can benefit from preventive screening, early onboarding onto HealthierSG and shared-care partnership between dermatology and primary care for holistic management.

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: SHBC Student Awards (Open Category)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SHBC-SA-06	Endocrinology	Basic Science / Translational Research
<p>Authors Z.X.TAY³, A.MOH², S.LOW², Y.SHAO², J.LIU², J.CHEN³, S.SIM³, T.SUBRAMANIAN¹, C.F.SUM¹, S.C.LIM²</p> <p>¹Admiralty Medical Centre (Singapore), ²Khoo Teck Puat Hospital (Singapore), ³Nanyang Polytechnic (Singapore)</p> <p>Title Association of skin autofluorescence with progressive kidney impairment in type 2 diabetes stratified by skin tones – A 2-year observational analysis</p> <p>Background & Hypothesis Advanced glycation end-products (AGEs) are proinflammatory glycated macromolecules formed in response to oxidative stress. Skin autofluorescence (SAF) is a non-invasive marker for AGEs, but its measurement can be influenced by skin color. This study examined the predictability of SAF for kidney function decline in type 2 diabetes (T2D), stratified by the skin tones of multi-ethnic Asians.</p> <p>Methods T2D patients were recruited by the DORIS study, of which 737 (age:56±12 years, 45.3% men) had follow-up data. Baseline SAF was assessed using the AGE reader. Skin color was graded using the von Luschan chromatic scale, and divided into light (score 1-20; n=382), brown (score 21-24; n=271), and dark (score 25-36; n=84) hues. Kidney function decline was defined as a relative ≥40% reduction in estimated glomerular filtration rate (eGFR) from baseline.</p> <p>Results Increased SAF was associated with reduced eGFR cross-sectionally (B:-3.14, 95% CI:-4.54--1.74, P<0.001), particularly in patients with light or brown skin tone. Longitudinal analysis revealed no significant association between SAF and kidney function deterioration, which had an 11.7% prevalence over 2 years. However, when stratified by skin tones, SAF predicted a higher risk for kidney function decline only in light-skinned individuals both in the unadjusted Cox model (hazard ratio:1.56, 95% CI:1.18–2.07, P=0.011) and after adjustment for baseline demographics, metabolic factors, eGFR and medications (hazard ratio:1.53, 95% CI:1.11–2.10, P=0.010).</p> <p>Discussion & Conclusion AGEs potentially increase the risk for progressive kidney impairment in T2D, but the usefulness of SAF as a predictor is primarily limited to patients with light skin tone.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: SHBC Student Awards (Open Category)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
SHBC-SA-07	Immunology	Basic Science / Translational Research
<p>Authors B.H.S.WONG¹, R.D.WEBSTER², V.G.SHELAT³, N.K.VERMA¹</p> <p>¹Lee Kong Chian School of Medicine (Singapore), ²Nanyang Technological University (Singapore) ³Tan Tock Seng Hospital (Singapore)</p> <p>Title High Extracellular K⁺ in the Tumor Microenvironment: A Key Barrier to T-cell Infiltration</p> <p>Background & Hypothesis Elevated extracellular K⁺ in the tumor microenvironment, often rises up to 50 mM (high-[K⁺]_e) as a result of dying necrotic cells, creates an immunosuppressive niche. We hypothesize that high-[K⁺]_e may also limit T-cell infiltration into and within tumors. An interaction between the T-cell integrin LFA-1 and the ligand ICAM-1 expressed on the tumor endothelium regulates T-cell migration. This study aims to investigate the effect of high-[K⁺]_e on T-cell motility and function.</p> <p>Methods Human primary peripheral blood T-cells were stimulated to migrate via LFA-1/ICAM-1 crosslinking. Effects of high-[K⁺]_e on T-cell motility-associated phenotypic and molecular changes were determined by automated imaging, impedance-based measurements, and Western immunoblotting.</p> <p>Results High content analysis of T-cells that were bathed in high-[K⁺]_e exhibited significant impairment in migratory phenotypes in response to stimulation via the integrin LFA-1. Moreover, exposure to high-[K⁺]_e inhibited the ability of T-cells to transmigrate through the ICAM-1-coated membranes towards the chemoattractant, SDF-1α. We demonstrate that high-[K⁺]_e inhibitory mechanisms involve decreased responsiveness of activated T-cells to signaling via downstream proteins Lck, ZAP70, LAT, STAT3, and GSK3β, which are key regulators of T-cell motility.</p> <p>Discussion & Conclusion Our findings suggest a broad immunosuppressive role for high-[K⁺]_e in the tumor microenvironment. Tackling inhibitory effects of high-[K⁺]_e is therefore an important determinant of the success of T-cell-based immunotherapies.</p>		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Primary Care Award (Oral)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
PCR-O-01	Family Medicine	Primary Care Research
Authors E.J.J.CHONG ³ , J.N.TAY ² , S.K.ONG ¹ , P.S.S.LEE ³ , E.S.LEE ³		
¹ Agency for Integrated Care (Singapore), ² MOH Holdings Pte Ltd (MOHH) (Singapore) ³ NHG Polyclinics (Singapore)		
Title A Systematic Review of the Factors Associated with Intrinsic Capacity in Community-Dwelling Adults		
Background & Hypothesis Population ageing and multimorbidity in the elderly are global issues. In 2015 the WHO, shifting from a disease-centred to function-centred approach, proposed the novel concept of intrinsic capacity (IC). IC comprises five domains (locomotor, vitality, psychosocial, sensory, cognitive) that can be applied throughout one's life. Understanding the factors associated with IC would facilitate development of clinical recommendations to optimize and prevent decline of IC in individuals. The objective of this systematic review was to identify the factors associated with IC in community-dwelling adults.		
Methods We conducted a systematic review according to PRISMA guidelines (PROSPERO CRD42022290006). We searched MEDLINE, EMBASE, Web of Science, CINAHL, Scopus electronic databases for studies published in English from 1 January 2016 to 11 November 2021. Grey literature databases OpenGrey and Science.gov were searched. We chose studies that included community-dwelling adults, measured IC as a composite of five domains and specifically described changes in IC. Two authors screened the titles, abstracts and full-texts independently. Disagreements were resolved by arbitration with the remaining study members. JBI Critical Appraisal Checklists were used for risk of bias assessment.		
Results Sixteen studies met the inclusion criteria and assessed to have low risk of bias. Fifty-five factors were identified. The factors could be categorised into sociodemographic, medically-related, Activities of Daily Living, biological markers, lifestyle, functional ability, adverse clinical outcomes and others.		
Discussion & Conclusion This review demonstrated 55 factors associated with IC in community-dwelling adults. Future research efforts can focus on identifying associated factors earlier in life and validate a uniform, harmonized method of measuring IC.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Primary Care Award (Oral)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
PCR-O-02	Family Medicine	Primary Care Research
Authors S.B.M.LEE ² , Y.XIE ¹ , S.K.W.WONG ²		
¹ IHH Healthcare (Singapore), ² NHG Polyclinics (Singapore)		
Title Identifying factors associated with rapid renal progression in a multiethnic Asian population.		
Background & Hypothesis There is lack of local information on how patients with normal eGFR at baseline progress over time, or why some have more rapid deterioration in renal function. We aimed to identify the prevalence of rapid renal progression among our patients with normal eGFR and the associated factors.		
Methods From our clinical database, we identified 75437 adult patients with normal baseline eGFR values (≥ 60 ml/min/1.73m ²) in 2015, measured their rate of eGFR decline over the next 6 years, and classified them into 3 groups: non-rapid progressors (eGFR decline ≤ 5 ml/min/1.73m ² /year), rapid progressors (eGFR decline >5 to 10 ml/min/1.73m ² /year) and more rapid progressors (eGFR decline >10 ml/min/1.73m ² /year). We used multinomial logistic regression to identify baseline variables that were independently associated with rapid or more rapid progression. We also did a subgroup analysis for patients with pre-existing diabetes mellitus at the time of entry.		
Results 95.3% were “non-rapid progressors”, 4.0% were “rapid progressors” and 0.7% were “more rapid progressors”. Risk factors for rapid progression included Malay ethnicity, suboptimal systolic BP, suboptimal LDL, diabetes mellitus, atrial fibrillation, heart failure, stroke, peripheral vascular disease and anaemia. Within the subgroup of diabetic patients, albuminuria, suboptimal glycaemic control and diabetic retinopathy were additional risk factors. We observed a paradoxical inverse association between body mass index and renal progression.		
Discussion & Conclusion Even with normal baseline eGFR, 4.7% of our patients had rapid renal progression. Patients with the risk factors associated with rapid progression may require special attention regarding their renal function.		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Primary Care Award (Oral)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
PCR-O-03	Family Medicine	Primary Care Research
<p>Authors S.Y.TAN², JEREMY.K.W.LEW², H.L.KOH, JASON.M.H.CHAN², VALERIE.H.Y.TEO, C.W.LIU, JACQUELINE.G.DE ROZA², C.L.LEE², E.CHEN, W.E.TANG²</p> <p>¹Alexandra Hospital (Singapore), ²NHG Polyclinics (Singapore)</p>		
<p>Title Effectiveness of asthma education: 3-arm randomised controlled trial</p>		
<p>Background & Hypothesis Inadequate knowledge and negative attitudes towards inhaled steroids are barriers to asthma self-management. We studied the effectiveness of 3 strategies to improve patients' asthma knowledge and attitudes towards inhaled steroids. i) scenario-based education (SBE), ii) topic-based education (TBE) and iii) patient information leaflet only (PIL).</p>		
<p>Methods A 3-arm randomised controlled trial was conducted from November 2021 to September 2022 at 6 polyclinics. 300 eligible adults aged 21-75 years with physician-diagnosed asthma were enrolled and randomised into 3 arms in 1:1:1 ratio. Two independent groups of nurses conducted SBE and TBE. PIL group only received a leaflet. Asthma knowledge and attitudes were measured at baseline and 10 weeks post-recruitment, using self-reported questionnaires. Intention-to-treat analysis with mixed linear model was used.</p>		
<p>Results 282 participants completed the study. Both SBE (+6.34 (95%CI 4.20–8.47)) and TBE (+4.13 (95%CI 2.01–6.26)) groups demonstrated improvements in asthma knowledge compared to PIL group. Improvement in asthma knowledge was greater in SBE group compared to TBE group (+2.20 (95%CI 0.07–4.33)). Attitudes towards inhaled steroids improved in both SBE (+1.61 (95%CI 0.67–2.56)) and TBE (+1.18 (95%CI 0.23–2.12)) groups compared to PIL group. There was no significant difference between the SBE and TBE group (+0.44 (95%CI -0.51-1.4)).</p>		
<p>Discussion & Conclusion SBE and TBE strategies are effective at improving asthma knowledge and attitudes towards inhaled steroids. SBE is more effective than TBE at improving asthma knowledge. Both strategies are equally effective at improving attitudes to inhaled steroids.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Primary Care Award (Oral)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
PCR-O-04	Family Medicine	Primary Care Research
<p>Authors K.W.S.WONG¹, LS YEO¹, W SOON¹, SCL FOO¹, CWF CHERN¹, BY TAN¹</p> <p>¹NHG Polyclinics (Singapore)</p> <p>Title The impact of care coaching in improving outcomes in patients with suboptimal diabetes control</p> <p>Background & Hypothesis The self-determination theory describes the importance of autonomy, self-efficacy and relatedness in developing intrinsic motivation to maintain healthy lifestyles. To support patients with suboptimal diabetes control, a 3-month patient activation programme conducted through care coaches was developed to improve self-care behaviours and diabetes outcomes.</p> <p>Methods A pre-post single-arm study was conducted on 213 patients recruited between February 2021 and September 2022. Patients received a 3-month intervention with care coaches which focused on goal setting, problem solving and provision of support. HbA1c, diabetes-related distress and self-care behaviours were assessed at baseline and 3-6 months after the programme.</p> <p>Results The mean age of participants was 56.8 (SD 8.2) years. There was significant improvement in HbA1c (-0.71%, SD 1.25; p<0.001), with greater improvements for patients with baseline HbA1c ≥8% (-0.90%, SD 1.31; p<0.001). Improvements were sustained from 6-12 months (-0.68%, SD 1.38; p<0.001). Diabetes distress had improved (-0.25, SD 1.42; p=0.053), with greater improvement for patients with moderate distress at baseline (-1.08, SD 1.29; p<0.001). Improvements were observed in lifestyle behaviours e.g. diet (0.49, SD 1.67, p=0.0001), exercise (0.87, SD 2.53; p=0.003) and sugar testing (1.07, SD 2.35; p=0.0001). Effect size (Cohen's D) of improvement were small to moderate, with combined effect likely contributing to improved HbA1c levels.</p> <p>Discussion & Conclusion The programme was more effective for patients with poorer readings at baseline, allowing for targeted recruitment in the future. Results also showed the effectiveness of having trained laypersons supporting the care team by assisting with goal setting and motivating patients towards lifestyle goals.</p>		

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Primary Care Award (Oral)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
PCR-O-05	Behavioural Medicine	Primary Care Research
<p>Authors X.ZHU², E.S.LEE², F.H.F.CHAN¹, P.X.H.LIM, Y.C.CHEN², K.GRIVA¹</p> <p>¹Nanyang Technological University (Singapore), ²NHG Polyclinics (Singapore)</p>		
<p>Title Foot self-care behaviour in primary care patients with diabetic foot ulcer: a structural equation modelling analysis of cognitive and psychosocial predictors</p>		
<p>Background & Hypothesis Diabetic foot ulcers (DFU) are common, complex and costly. Foot specific self-care behaviours are the cornerstone of preventing or delaying DFU. Yet, patients' adherence to foot self-care recommendations is low. Underpinned by the Common Sense Model, the interrelationships among cognitive and psychosocial factors and diabetic foot self-care behaviours were evaluated.</p>		
<p>Methods Patients (N=186) with DFU from seven Polyclinics were assessed with the Brief Illness Perception Questionnaire, Diabetes Distress Scale, Foot Care Confidence Scale and Diabetes Foot Self-Care Behaviour Scale. Structural equation modelling analysis was used to test the hypothesised relationships and to explicate the mechanism underlying the effect of illness beliefs, diabetes distress and foot care confidence on foot self-care behaviours.</p>		
<p>Results The final model had good fit indices (CFI=0.935, TLI=0.918, RMSEA=0.047, SRMR=0.073, $\chi^2(95)=134.345$, $p=0.005$) and explained 50.5% of the variance of foot self-care behaviour. Threat perceptions ($\beta=0.22$) (i.e., consequence, timeline, identity, concerns and emotion) directly increased foot self-care behaviours, but also indirectly decreased foot self-care behaviour ($\beta=-0.36$) through increasing diabetes distress ($\beta=0.42$), suggesting diabetes distress as a suppressor mediator in the relationship between them. Control perceptions (i.e., personal control, treatment control and coherence) were found to indirectly either decrease foot self-care behaviour ($\beta =-0.36$) through decreasing diabetes distress ($\beta=-0.38$), or increase foot self-care behaviour ($\beta=0.58$) through increasing foot care confidence ($\beta=0.47$).</p>		
<p>Discussion & Conclusion Control and threat perceptions were associated with diabetic foot self-care behaviours through diabetes distress and foot care confidence. The findings could guide development of psychological interventions for improving foot self-care for patients with active DFU.</p>		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Basic Science / Translational Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-BSTR-01	Oral & maxillofacial surgery (dentistry)	Basic Science / Translational Research
Authors T.SNG ¹ , S.ZHANG ¹ , A.LIM ¹ , R.WONG ¹ , W.S.TOH ¹ ¹ National University of Singapore		
Title Intra-articular MSC exosome-hyaluronic acid therapy alleviate rabbit TMJ pain and degeneration		
Background & Hypothesis To evaluate the efficacy of mesenchymal stem cell (MSC) exosomes with hyaluronic acid (HA) against HA alone in the treatment of temporomandibular joint osteoarthritis (TMJ-OA) in a rabbit model.		
Methods MSC exosomes were prepared from an immortalized human MSC line. Nine rabbits were randomly assigned into three groups: OA-HA, OA-HA+Exo and Sham. TMJ-OA was induced by intra-articular injection of monoiodoacetate (MIA) into the six rabbits. Two weeks after, the animals received three weekly intra-articular injections of either HA for the OA-HA group or HA with exosomes for the OA-HA+Exo group. Sham rabbits received only needle pricks. TMJ-OA pain was assessed by weekly measurements of the head withdrawal threshold (HWT). At 8 weeks post-treatment, the rabbits were euthanized and dissected TMJs were evaluated by micro-computed tomography and histology.		
Results At 4 weeks post-treatment, OA-HA+Exo group showed improvements in HWT. Pain was reduced to baseline level of the shams. Conversely, OA-HA group showed minimal HWT improvement. Notably, OA-HA+Exo group showed significantly better outcomes in the macroscopic, OARSI histologic and synovial membrane inflammatory scores than that of the OA-HA group, and were comparable to that of the shams. OA-HA+Exo group also showed a higher ratio of bone volume over total volume (BV/TV) than that of OA-HA group, and was comparable in BV/TV and trabecular thickness as the shams.		
Discussion & Conclusion MSC exosomes and HA administered at three weekly intra-articular injections are efficacious in alleviating TMJ-OA pain and degeneration, while enhancing cartilage and subchondral bone repair.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Basic Science / Translational Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-BSTR-02	Infectious Diseases	Basic Science / Translational Research
Authors K.S.TAN ² , J.LIU, A.K.ANDIAPPAN ¹ , Z.Z.R.LEW ² , T.T.HE ² , H.H.ONG ² , T.YOGARAJAH ² , M.PRABAKARAN ³ , J.J.H.CHU ² , V.T.CHOW ² , D.Y.WANG ² ¹ A*STAR (Singapore), ² National University of Singapore, ³ TLL (Singapore)		
Title Differential host responses to H5N1 influenza infection at the upper airway nasal epithelium		
Background & Hypothesis Highly pathogenic avian influenzas (HPAI) such as H5N1 virus infects the lower airway causing severe infections and is a prime candidate for disease X emergence. The nasal epithelium is the primary portal of entry for respiratory pathogens serving as the airway's physical and immune barrier. While HPAs predominantly infects the lower airway, much is not known on its interaction with the upper airway nasal epithelium. Hence, we aim to elucidate the differential responses of HPAI infection with human influenza, in the nasal epithelium that may contribute to its pathology, and identify response markers or targets that may help prevent HPAI progression into the lower airway.		
Methods We infected human nasal epithelial cells (hNECs) cultured in air-liquid interface (ALI) culture with representatives of major human influenzas – H1N1, H3N2 and influenza B, and compare it with a H5N1 infection. Following infection, we harvested the infected cells for virologic, transcriptomic and secretory protein analysis.		
Results We found that H5N1, while indeed less adapted to infecting the nasal epithelium, causes unique host responses unlike human influenzas. H5N1 infection showed subdued antiviral responses such as IFN β expression, and lack of inflammasome mediator, IL-1 α and IL-1 β expression when infecting the upper airway. Interestingly, we identified increase in transmembrane solute and ion carrier genes from SLC and SCN gene families, which may be activated to aid infection in the nasal epithelium.		
Discussion & Conclusion These unique factors against H5N1 infection may present as potential targets for avian influenza therapeutics to prevent the infection from progressing into severe lower airway infections.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Basic Science / Translational Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-BSTR-03	Basic Science/Translational Research	Basic Science / Translational Research
Authors K.Y.W.TEO ² , S.K.LIM ¹ , J.H.P.HUI ² , W.S.TOH ² ¹ Institute of Molecular and Cell Biology (Singapore), ² National University of Singapore		
Title MSC exosomes promote joint repair by modulating macrophage polarization and reactivity		
Background & Hypothesis To investigate the effects of mesenchymal stromal cell (MSC) exosomes on macrophage polarization in a rat model of temporomandibular joint osteoarthritis (TMJOA).		
Methods Forty-seven rats were divided into four groups: OA-Exo, OA-PBS, Sham, and Naïve. OA-Exo rats received three intra-articular injections of MSC exosomes, whereas OA-PBS rats received phosphate-buffered saline (PBS) injections. Sham rats received needle pricks, while naïve rats were controls. At 1 and 8 weeks post-treatment, animals were harvested for analyses. Using rat primary macrophages, mechanism of macrophage modulation by MSC exosomes was investigated.		
Results At 1 week, OA-Exo rats exhibited preferential synovium infiltration of CD206 M2 over CD86 M1 macrophages that culminated in reduced synovial inflammation. Transcriptomic analysis of the synovium further showed preferential expression of M2 signature genes. Relative to OA-PBS group, OA-Exo rats showed early suppression of systemic inflammation, indicated by reduced levels of circulating neutrophils and classical monocytes, and suppressed plasma levels of pro-inflammatory cytokines. By 8 weeks, OA-Exo rats displayed pain recovery with augmented head withdrawal threshold, and demonstrated enhanced cartilage and subchondral bone restoration with improved Mankin scores and bone structural parameters that were comparable to that of sham and naïve rats. Using specific inhibitors of CD73, adenosine receptors A2A/A2B and AKT/ERK, M2-like macrophage polarization by MSC exosomes was found to be mediated through CD73 adenosine receptors A2A/A2B activation of AKT/ERK signalling pathways.		
Discussion & Conclusion MSC exosomes suppressed inflammation and promoted joint repair, possibly through M2-like macrophage polarization. This study highlights the immunomodulatory potential of MSC exosomes for joint repair.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Clinical Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-CR-01	General Surgery	Clinical Research
Authors D.Y.S CHAN ¹ , T.Y. TANG ¹ , T.G. HO ¹ , C.J. Q. YAP ² , S.W.Y. CHAN ¹ , H.Y. YAP ² , C.R. LEONG ¹ ¹ Khoo Teck Puat Hospital (Singapore), ² Singapore General Hospital (Singapore)		
Title USE of IMplanting the Biotronik PassEo-18 Lux drug coated balloon to treat failing haemodialysis arteRiovenous Fistulas and grafts (SEMPER FI Study)		
Background & Hypothesis Plain old balloon angioplasty has been the mainstay of treatment for arteriovenous fistula (AVF) stenoses. Recent studies suggest that drug coated balloons (DCB) may significantly reduce re-intervention rates on native and recurrent lesions The hypothesis is that its use provides better target lesion primary patency (TLPP), primary assisted patency (PP), secondary patency (SP) rates and reduce the number of visits for re-intervention in a cohort of end stage renal failure patients with stenotic AVF and arteriovenous grafts (AVGs).		
Methods This was a prospective double-centre, multi-investigator, non-consecutive, non-blinded single-arm study investigating the efficacy and safety of the Passeo-18 Lux DCB in patients with stenotic AVF/AVG lesions between January 2021 and January 2022. Patient demographics, clinical characteristics, vascular access history, operative indications, details and outcomes were collected prospectively. TLPP, circuit access primary patency (CAP), PP, SP and deaths 6-months and 12-months post-intervention were studied.		
Results 91 patients with 110 lesions were recruited. 62.6% (n=57) were male with a median age of 63.5 years (SD=10.5). 62.6% (n=57) were taking anti-platelets. 85 AVFs and 6 AVGs were treated. 60% (n=54) of AVFs intervened were radiocephalic. 52.7% (n=58) of targeted lesions were juxta-anastomotic stenosis (JAS) and one-third (n=33) at the AVF/AVG outflow. 70.9% (n=78) of lesions were recurrent. 78% of target lesions (n=85) and circuits (n=70) were patent at 6-months, of which 96.7% (n=87) of those requiring assisted intervention were patent.		
Discussion & Conclusion This study showed the effectiveness and safety of the Passeo-18 Lux DCB in treating failing haemodialysis AVFs/AVGs.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Clinical Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-CR-02	General Surgery	Clinical Research
Authors K.S.CHAN ¹ , Y.D.KOK, W.W.CHEN, X.C.LIM, L.TAN ¹ , P.NG ¹ , B.W.K.IP ¹ , S.K.MANTOO ¹ , J.FENG ¹ , Y.Z.LEE, G.K.E.HENG ¹ , K.Y.TAN ¹ , D.J.K.LEE ¹		
¹Khoo Teck Puat Hospital (Singapore), ²National University of Singapore		
Title Good quality surgery and prehabilitation are key drivers of success for our geriatric surgical service in colorectal surgery: a 10-year cumulative sum (CUSUM) analysis		
Background & Hypothesis Older age and frailty are associated with worse post-operative outcomes and prolonged length of stay (LOS). This study aims to analyse the sustainability of our geriatric surgical service (GSS).		
Methods This was a single-center retrospective study from July 2010-December 2021 on patients aged ≥ 75 years or aged ≥ 65 years with frailty. Our GSS include multidisciplinary assessment by specialised nurse, physiotherapist, anaesthetist, dietician and geriatrician. Cumulative sum (CUSUM) analysis was used to assess sustainability of our GSS in terms of failure. Failure was defined as presence of 30-day mortality, prolonged LOS ≥ 14 days and/or $>10\%$ decrease in modified Barthel's index (MBI) at 6 weeks. Downsloping CUSUM curve implies consecutive cases of success.		
Results There were 233 patients with mean age of 79.0 ± 4.9 years; 73 patients (31.3%) were frail. CUSUM analysis identified three time periods: the exploration period (cases 1-79 with downsloping curve), the plateau period (cases 80-153) and the re-adjustment period (cases 154-233 with downsloping curve). The plateau phase may be attributed to the increase in uptake of laparoscopic surgery (44.6% vs 24.1%, adjusted $p=0.031$) and more patients with more co-morbidities (Weighted Charlson Comorbidity index score ≥ 4 64.9% vs 38.0%, adjusted $p=0.002$) in the second period. Major morbidity was an independent predictor of failure (Odds Ratio 22.12, 95% Confidence interval: 7.50, 65.20, $p<0.001$). Tumour stage ≥ 3 and presence of primary anastomosis did not predict failure.		
Discussion & Conclusion Our GSS showed sustained performance over the past decade. Good quality surgery and well-optimised patients are paramount for good post-operative outcomes.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Clinical Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-CR-03	Endocrinology	Clinical Research
Authors J.HOE ¹ , S.L.T.PEK ⁴ , S.DISSANAYAKE ⁴ , J.I.TANG ⁴ , J.L.TAN ⁶ , T.S.J.CHUA ⁶ , E.T.S.LIM ⁶ , F.YAP ⁵ , R.F.VASANWALA ⁵ , D.E.J.SEAH ⁹ , W.E.TANG ⁹ , I.J.M.KOH ⁹ , N.S.Y.KOH ¹¹ , M.W.J.CHUA ¹¹ , W.J.LOH ³ , Y.S.TIONG ¹⁰ , H.C.TAN ¹² , R.DALAN ¹³ , C.DRUM ⁷ , E.S.TAI ⁷ , K.R.SIAU ⁸ , A.NASTAR ² , S.TAVINTHARAN ¹ ¹ Admiralty Medical Centre (Singapore), ² Alexandra Hospital (Singapore), ³ Changi General Hospital (Singapore), ⁴ Khoo Teck Puat Hospital (Singapore), ⁵ KK Women's & Children's Hospital (Singapore), ⁶ National Heart Centre Singapore (Singapore), ⁷ National University Hospital (Singapore), ⁸ National University Polyclinics (Singapore), ⁹ NHG Polyclinics (Singapore), ¹⁰ Ng Teng Fong General Hospital, (Singapore), ¹¹ Sengkang General Hospital (Singapore), ¹² Singapore General Hospital (Singapore), ¹³ Tan Tock Seng Hospital (Singapore)		
Title A Descriptive Study on patients with Definite or Probable Clinical Familial Hypercholesterolemia with No Detected Causative Pathogenic Mutation		
Background & Hypothesis We previously described a modified Dutch Lipid Clinic Network criteria (DLCN) for Familial Hypercholesterolemia (FH) that excludes clinical signs, includes weightage for TG, HDL and response to lipid lowering therapy (LLT), with improved specificity and PPV in diagnosis of FH. In patients with Definite/Probable FH (using modified-criteria), characteristics of patients without pathogenic mutations is unknown. We hypothesised mutation-negative patients have lower cholesterol and coronary artery disease compared to mutation-positive patients and have other contributing factors towards hypercholesterolemia. We aimed to study patients with Definite/Probable FH without a causative genetic mutation.		
Methods Lipid profiles, DLCN score, genetic analysis and response to LLT at 12 months was studied for 381 patients with clinical FH. Patients were classified Definite, Probable, Possible FH by modified-criteria. Clinical characteristics were compared between mutation positive and negative patients.		
Results Mean age was 39.0 years, baseline LDL-C at enrolment: 5.12 mmol/L (53.5% on statins). By modified criteria, 23 (6.3%) were Definite FH, 59 (16.3%) Probable FH and 191 (50.1%) Possible FH. ABCG5/8 variant was present in 4 of 5 (80%) patients who were Definite FH clinically but mutation negative. Mutation negative patients had lower TC (8.00±2.83 mmol/L vs 5.73±2.36 mmol/L; p=0.37), LDL-C (6.42±2.68 mmol/L vs 4.10±2.34 mmol/L; p=0.45), lower coronary artery disease (41.2% vs 20%; p=0.45), and higher prevalence of Diabetes Mellitus (DM) (3.1% vs 25%; p=0.03) and Hypertension (3.1% vs 20.8%; p=0.07) compared with mutation positive patients.		
Discussion & Conclusion Hypercholesterolemia in Mutation negative FH could be contributed by ABCG5/8 and dyslipidaemia associated with DM.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Clinical Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-CR-04	General Surgery	Clinical Research

Authors

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Title

Lower preoperative serum phosphate predicts significant weight loss within 6 months after bariatric surgery.

Background & Hypothesis

Weight loss following bariatric surgery is the most pronounced within the first 6 months. Serum phosphate has been previously reported to be inversely associated with body mass index (BMI), although conflicting findings exist. This prospective study assessed the relationship between baseline serum phosphate levels and significant BMI loss within 6 months after bariatric surgery.

Methods

Patients undergoing bariatric surgery were recruited into the OMICS cohort from 2007 to 2023. Data required for analysis were available for 225 patients (baseline age:42±10 years, 36% men, BMI:42.6±8.0 kg/m²). Significant percentage BMI loss was defined as at least 20% decrease in BMI at 6 months post-surgery from preoperative (baseline) BMI. Biochemical tests were performed according to standard methods as part of bariatric surgery work-up.

Results

Overall, BMI decreased by 20.4% (interquartile range:-24.0 to -16.3) at 6 months post-surgery. Significant BMI loss was observed in 52% (n=117) of patients, who displayed younger age, lower levels of glucose and phosphate, and higher levels of total cholesterol and low-density lipoprotein-cholesterol than those with lesser BMI reduction (all P<0.05). Baseline BMI was similar between the two groups. Lower preoperative phosphate concentrations were associated with significant BMI loss in the unadjusted modified Poisson regression model (relative risk: 0.34, 95% CI:0.17–0.68, P=0.002). The association persisted after adjustment for age, sex, race, BMI, glucose, total cholesterol and surgical procedures (relative risk: 0.34, 95% CI:0.17–0.67, P=0.002).

Discussion & Conclusion

Lower preoperative serum phosphate levels that commonly accompany obesity predict significant weight loss after bariatric surgery.

SHBC 2023 SCIENTIFIC COMPETITION
Finalist
AWARD CATEGORY: Singapore Young Investigator Award (Clinical Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-CR-05	General Surgery	Clinical Research
<p>Authors J.SU¹</p> <p>¹Tan Tock Seng Hospital (Singapore)</p> <p>Title Malignancy upgrade risk in B3 lesions: do they all require excision biopsy?</p> <p>Background & Hypothesis Breast B3 lesions have a heterogenous biological behaviour with varying risks of upgrade to malignancy and most lesions undergo open excision after initial biopsy due to this. We hypothesized that some of these lesions have low malignancy upgrade risk and can be managed with surveillance or vacuum assisted excision.</p> <p>Methods We collected data from our prospective database and identified patients who underwent radiologically guided breast biopsy showing B3 lesions from 1st January 2016 to 1st March 2023. Demographic data, clinical and pathological data were obtained for these patients.</p> <p>Results 545 patients with a mean age of 52 years (23-87) underwent breast biopsy with 470 of them diagnosed with B3 lesions. Majority of them were Chinese (85.9%) with atypical ductal hyperplasia (ADH) being the most common lesion (54.9%). The rest of the B3 lesions included flat epithelial atypia (FEA - 31.5%), intraductal papilloma (IDP - 21.3%), radial scar (11.9%), lobular neoplasia (6.2%) and papillary lesions (6%) Highest upgrade rates were noted in papillary lesions (53.6%), radial scars (30.4%) and ADH (27.5%). Majority of papillary lesions which had upgrade were diagnosed to have ductal carcinoma-in-situ (DCIS - 28.6%) and invasive ductal carcinoma (14.3%). Low upgrade rates were noted in FEA (7.4%) and IDP (3%) with DCIS being the most associated with them (6.8% for FEA and 2% for IDP).</p> <p>Discussion & Conclusion Most B3 lesions have significant risk of malignancy upgrade. However, in select patients with FEA and IDP, this risk is low and they may benefit from vacuum assisted excision or surveillance instead of open excision.</p>		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Health Services Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-HSR-01	Pharmacy	Health Services Research
Authors S.L.A.CHAN ¹ , H.M.SOH ¹ , T.M.NG ¹ , R.Y.A.TAN ¹ , B.S.GAN ¹ , C.S.M.CHEN ¹		
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Title Impact of Patient-Reported Outcome Measures on Medication Adherence and Drug-Related Problems		
Background & Hypothesis A Population-based approach to Medication Management (PopMed) service was developed to provide person-centred care to address drug-related problems (DRPs) in a multi-disciplinary collaboration. Patient Reported Outcome Measure (PROM) was adapted and used to assess adherence (DOSE) and patients' concerns and beliefs on medications (BMQ). This study aims to describe domains of DOSE and BMQ on medication adherence-DRPs (MA-DRPs) resolution.		
Methods Patients who were followed up by a team of pharmacists between December 2020 to December 2022 as an outpatient for at least twice in a 6-month period were included. They were encouraged to self-administer the PROM prior to each session. Each question was scored as a 5-point Likert scale, with score above 4.0 arbitrarily defined as good adherence and minimal concerns on medications. MA-DRPs were collected and analysed.		
Results Seventy-seven patients completed at least 2 PROMs over a mean of 90±38 days. Mean score in both DOSE (4.31±0.90 vs. 4.61±0.63, P <0.05) and BMQ (3.87±1.02 vs. 4.34±0.75, p < 0.05) domains have shown improvement. The question with the greatest score improvement was "I do not understand what my medicine is for", from 3.84 to 4.27 (+ 0.43). Patients with good adherence had lower MA-DRPs compared to those with poor adherence (0.74±0.70 vs. 1.44±0.49, p <0.05).		
Discussion & Conclusion PROMs support person-centred care models as demonstrated by the improvements in medication adherence and concerns about medications. The association of poor adherence and number of MA-DRPs can be further explored as a screening tool to identify patients for PopMed.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Health Services Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-HSR-02	Respiratory Medicine	Health Services Research
Authors J.W.Y.HA ¹ , R.R.J.ONG ¹ , M.J.PEREIRA ¹ , J.A.MOLINA, G.P.TAN ² , A.K.H.TAN ² , A.C.KOR ² , L.H.Y.SOON ² , T.SUN ² , Y.CHAN ² ¹ National Healthcare Group Corporate Office (Singapore), ² Tan Tock Seng Hospital (Singapore)		
Title Survival analysis of home ventilation patients enabled by timeline visualisation		
Background & Hypothesis The multi-disciplinary Home Ventilation and Respiratory Support Service (HVRSS) provides home care services and end-of-life support to patients with chronic ventilatory failure. Through the selection of counterfactual controls and probable enrolment date facilitated by timeline visualisation, we aimed to evaluate the differences in survival outcomes between deceased ventilator-assisted patients with and without HVRSS follow-up.		
Methods A retrospective case-control study was conducted using patient episodic data from administrative and HVRSS databases up to 3 years prior to death. Admission information and services rendered to patients with respiratory-related admissions and ventilation use, were presented chronologically using the web-based R Shiny application. This provided visual indication of patient trajectories and the inclusion criteria on respiratory episodes and critical ward stay. Survival analysis was performed using the Cox-proportional hazards model, adjusting for demographics, comorbidities, primary diagnosis, and ventilation type. We derived the proportion of hospital-free survival over the enrolment period and evaluated between-group differences using multivariate linear regression.		
Results Using the visualisation approach, 106 controls were selected, and their probable treatment start date was indicated by a HVRSS physician based on clinical judgement. Comparing with 57 HVRSS patients, there were no significant differences in the survival analysis. The proportion of days out-of-hospital was 18% greater for HVRSS patients than controls (18.80 [95% CI: 6.61, 30.99]).		
Discussion & Conclusion Despite similar survival between-groups, the HVRSS has allowed patients to spend more survival days outside hospital. The adjusted comparisons in survival outcomes were enabled by the timeline visualiser which would prove useful for clinicians to understand the history of each patient.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Health Services Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-HSR-03	NIL	Health Services Research
Authors Y.S.HENG ¹ , X.J.ZHANG ¹ , K.H.LEO ¹ , A.CHOW ¹ , B.Y.THONG ¹ , Y.L.CHONG ¹ , P.C.M.CHAN ¹ , B.K.CHONG ¹ ¹ Tan Tock Seng Hospital		
Title Identification of factors associated with nursing home and community hospital referrals using association rule mining		
Background & Hypothesis Inpatients referred to nursing homes (NH) and/or community hospitals (CH) typically experience longer stays on average compared to others. This study aims to identify factors associated with NH/CH referrals to guide timely identification of such patients.		
Methods The Apriori algorithm was applied on annual inpatient discharges between 1 January 2016 and 29 July 2022 (n=398,219) from Tan Tock Seng Hospital to mine association rules, with referral to NH (or CH) as the consequent and up to a combination of two factors as the antecedent. The rules were post-processed by pruning rules where the antecedent and consequent were statistically independent, and redundant rules.		
Results In total, 59 rules for referrals to NH and 79 for referrals to CH were identified. For each consequent, the top 10 rules in each year having the highest degree of statistical significance were extracted and further narrowed down to top 5 by their confidence level. It was found that inpatients having psychiatric problems and staying in rental flats were consistently associated with referrals to NH (7-12% likelihood over the years). Inpatients who had a primary diagnosis of accident/poisoning/violence (ICD10AM: S00-T98) and touchpoint(s) with Orthopedic Surgery were 34%-39% likely to be referred to CH for each year except 2019.		
Discussion & Conclusion Association rule mining enabled the discovery of patterns from data using unsupervised learning. The extracted rules would be able to facilitate decision-making and resource preparation for NH/CH referrals, and possibly reducing unnecessary days of stay in the hospital due to waiting time.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Health Services Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-HSR-04	Geriatric Medicine	Health Services Research
Authors G.SUM ¹ , RWM.CHOO ¹ , ZL.NAI ¹ , SF.GOH ¹ , WS.LIM ³ , YY.DING ¹ , WS.TAN ² ¹Geriatric Education and Research Institute (Singapore), ²National Healthcare Group HQ (Singapore), ³Tan Tock Seng Hospital (Singapore),		
Title Healthcare utilisation and cost outcomes of the Geriatric Services Hub for frail community-dwelling older adults: A retrospective propensity score-matched study in Singapore		
Background & Hypothesis Healthcare systems need to address the high healthcare use and out-of-pocket expenditures of frail older adults. The Geriatric Services Hub (GSH) is an integrated frailty management programme that delivers coordinated care after comprehensive geriatric assessment of community-dwelling older persons with bio-psycho-social needs. We aimed to evaluate the effects of the GSH on healthcare use and cost.		
Methods We compared healthcare utilisation and cost of 633 GSH participants with 633 unique propensity score-matched non-GSH community-dwelling older adults, from 12-months before GSH enrolment to one-year post-enrolment. Baseline matching covariates included demographics, socioeconomic status, disease burden, calendar quarter of enrolment, and past healthcare utilisation. We did exact matching on frailty categories (CFS score 4, 5, 6-7). The difference-in-differences (DiD) technique was used to derive effect estimates.		
Results Baseline covariates were balanced for the pooled sample. The GSH programme was not associated with significant changes in mean number of acute hospital admissions, emergency department visits, polyclinic visits, and nursing home admissions. Mean total healthcare cost and patient payable amount increased by \$2,737 and \$836, respectively, which were marginally insignificant. We found a statistically significant increase in mean number of specialist outpatient clinic visits in the pooled sample and CFS 6-7 group. There was a significant increase in mean cumulative LOS and hospitalisation cost in the CFS 6-7 group. Mortality rate was comparable in both arms.		
Discussion & Conclusion Our findings suggest that reduction of healthcare use and cost may require more time in the GSH and refinement of strategies for frailer older adults.		

SHBC 2023 SCIENTIFIC COMPETITION

Finalist

AWARD CATEGORY: Singapore Young Investigator Award (Health Services Research)

Abstract Details		
Finalist ID	Clinical Specialty	Abstract Category
YIA-HSR-05	Public Health / Clinical Epidemiology	Health Services Research
Authors H.ZHENG ¹ , C.U..UBEYNARAYANA ¹ , S.K.M.LOW ¹ , A.M.C.MOH ¹ , J.K.C.KHOO ¹ , B.PANDIAN ¹ , S.F.WONG ¹ , B.IRWAN ¹ , Y.B.SOH ¹ , S.C.LIM ¹ ¹ Khoo Teck Puat Hospital (Singapore)		
Title Sub-clustering obese individuals in the general population to inform future risk of diabetes		
Background & Hypothesis Risk stratification of obese general population to inform future risk of diabetes is essential in right siting of care for the low-risk group and in providing targeted intervention for the high-risk group. We aim to identify obese individuals with differential risk for incident diabetes using readily available proxy measurements of adiposopathy that drive diabetes, i.e. excess fat, unhealthy fat distribution and metabolic distress.		
Methods Using body mass index (BMI), waist circumference, ratio of triglyceride is to high-density lipoprotein, fasting blood glucose and mean arterial pressure, we classified 8825 individuals (BMI \geq 23.5 kg/m ² , fasting glucose $<$ 7.0 mmol/L, no history of diabetes) who attended community health screening organized by Yishun Health between September 2013 and December 2017 into healthier (low-risk) and unhealthier (high-risk) groups. The classification was done using 2-step clustering stratified by age ($<$ 65 or \geq 65 years) to mitigate age-mediated change in body composition.		
Results Among those aged $<$ 65 years, 68% were classified as healthier obese with less burden of adiposopathy at baseline. After a median follow-up of about 4.3 years, 0.2% of the healthier obese developed diabetes, compared to 0.7% of the unhealthier obese (risk ratio: 3.0, 95% confidence interval: 1.4-6.2, p-value: 0.004). Among those aged \geq 65 years, 75% were classified as healthier obese. Notably, 0.3% of the healthier obese developed diabetes, compared to 3.0% of the unhealthier obese (risk ratio: 9.0, 95% confidence interval: 2.9-27.7, p-value: $<$ 0.001).		
Discussion & Conclusion Proxy measurements of adiposopathy can risk-stratify obese individuals with differential risk of diabetes. This may guide health resource allocation in primary care.		