



About

Nursing Research and Knowledge Enterprise was established to enhance the rigour of nursing research, promote evidence-based nursing practice and encourage scholarly inquiry among nurses in SGH.

Nursing Research Focus Areas

- ▶ Nursing Care Quality and Outcomes
nursing sensitive indicators such as pressure injuries, falls, phlebitis and use of physical restraints
- ▶ Nursing Workforce
well-being and impact of nurses
- ▶ Care Environment
physical caregiving environment and nursing care processes
- ▶ Caregiver Well-being
education and support for caregivers
- ▶ Evidence Based Nursing
informing clinical queries using evidence from different sources

Nursing Care Quality and Outcomes

Pressure Injuries

Key Project: Evaluating the Effectiveness of an Anti-HAPI Program in Reducing the Incidence of Hospital-Acquired Pressure Injury (HAPI) among High-Risk Surgical Patients

In Phase one, a retrospective case-control study was conducted to determine *significant risk factors* among *known risk factors* in the development of hospital-acquired pressure injuries (HAPI) among our surgical adult patients. The findings identified 8 significant risk factors: (1) Age \geq 75yrs, (2) Female gender, (3) American Society of Anaesthesiologists (ASA) score \geq 3, (4) BMI $<$ 23, (5) Pre-operative Braden score \leq 14, (6) Anaemia, (7) Respiratory disease, and (8) Hypertension during surgery were significantly associated with HAPI. In Phase two, a pre and post historical cohort study will be conducted to evaluate the effectiveness of an anti-HAPI program in reducing the incidence of HAPI.

Poster Presentation: Aloweni FBA, Yong PYYL, Goh MM, Ang SY, Tucker-Kellogg L, Soh RC. Hospital-Acquired Pressure Injuries: Determining the *significant* risk factors from the *known* risk factors among surgical adult patients in an acute care hospital in Singapore. 19th European Pressure Ulcer Advisory Panel (EPUAP) Annual Meeting. 20-22 September 2017.

Key Project: Impact of Hospital-Acquired Pressure Injuries on Hospital Costs – Experience of a Tertiary Hospital in Singapore

This study provided an estimate of the costs of hospital-acquired pressure injuries in a tertiary teaching hospital in Singapore at the Year 2014 price. A retrospective case-control study was carried out using the economic perspective of the healthcare provider. 140 patients who acquired pressure injuries during their hospital stay in the Year 2014 were identified. Compared to those without any pressure injuries, patients who acquired pressure injuries experienced higher average hospitalisation cost and length of stay (\$35,936 vs \$6266, $p \leq 0.005$; 30 days vs 6 days, $p < 0.005$).

Publication: Lim ML, Ang SY (2017). Impact of hospital-acquired pressure injuries on hospital costs – experience of a tertiary hospital in Singapore. *Wound Practice and Research*. 25(1); pp. 42-47.

Wound Care

Key Project: Outcomes of Patients with Venous Leg Ulcer Treated with Compression Bandaging – Experience of a Medical Centre in Singapore

The aims of this study are to describe the characteristics of patients with venous leg ulcers, the duration of treatment, frequency of outpatient attendances and inpatient admissions, costs of treatment, to evaluate association between demographic and clinical factors with delayed wound healing (unhealed after 4-6 weeks). Medical records of patients with venous leg ulcer treated in SGH between 2011 and 2016 will be reviewed.



Results of this study will help us plan and design interventions that will increase the efficacy of the compression therapy.

Falls Prevention and Mobility

Key Project: Disparity between Perceived and Actual Physiological Risk of Falling among Older Patients in an Acute Care Hospital in Singapore

This study aimed to describe differences between perceived and actual physiological risk of falling among older adults and to explore factors associated with the differences. Three hundred patients were recruited. Patients' mean age was 75.3 (SD = ± 6.2). About one-third of the patients' (31.3%) perceived risk matched with their physiological fall risk (Aware). Half of the patients' perceived risks were higher than their physiological fall risk (50.7%) (Anxious), while the remaining patients' perceived risks were reported to be lower than their physiological fall risk (18%) (Risk-taking). Older patients are poor at recognising their fall risks. Both patients' perceived and actual fall risks should be evaluated in the inpatient setting in order to inform individualised fall prevention education and strategies.

Oral Presentation: Seow J, Lim ML, Chee SZ, Cheok PG, Sin I, Ang SY, Lopez V. Disparity between perceived and actual physiological risk of falling among older patients in an acute care hospital in Singapore. SGH Annual Scientific Meeting 2017. 7 & 8 April 2017.

Nursing Workforce

Key Project: A Descriptive Exploratory Study of the Role Transition Experiences of Assistant Nurse Clinicians in Singapore

A qualitative descriptive exploratory study design was adopted. This study aimed to explore the roles and experiences of Assistant Nurse Clinicians (ANC) as they transit from a direct care to a leadership roles. Results showed that 'greater clarity on roles and expectations', as well as the 'availability of peer support', 'designated mentors' and 'formal training programs', can facilitate the transition of nurses to leadership roles.

Poster Presentation: Choo PJ, Tan YTJ, Ong LT, Tan MLM, Teo LW, Lee KK, Aw AT, Azizah BMY, Ang SY. Transition from Staff Nurses to Assistant Nurse Clinicians: An explorative descriptive study in Singapore. SGH Annual Scientific Meeting 2017. 7 & 8 April 2017.

Care Environment

Key Project: A Time-Motion Observation Study to Measure and Analyse Clinical Nursing Workload in an Acute Care Hospital in Singapore

This study aimed to determine the amount of time nurses spend on specific activities as well as identify processes that could be streamlined and non-value adding tasks. A time and motion direct observation methodology was adopted. Observers shadowed 18 nurses during their morning duties, using a time-motion app to record the nurses' activities. Results showed that nurses (in-charge role; n=4) from medical unit spent most time on documentation (18%) and medication administration (18%); only 12% of their time were allocated to direct patient care. For the nurses (in-charge role, n=4) from surgical unit, most of their time was given to documentation (21%) and patient care (20%). Nurses

Awards

First Runner-up

Aloweni FAB. Intra-Layer Bandage Pressure Monitoring Device (iLP-BPM). Singapore Health Innovation Technology (HIT) Challenge 2017.

Best Oral Presentation

Loh JH. Preliminary Report: The Singapore General Hospital Fluid Resuscitation Protocol. 11th Asia Pacific Burn Congress.

Best Abstract Winner

Teo TP. A Pilot Study on the Prevalence and Severity of Iatrogenic Anemia among Intensive Care Patients with an Invasive Arterial Line. SingHealth Duke-NUS Surgical & Anaesthesia Congress 2017.

Best Poster Nursing

Aloweni FAB. The Caregiving Experience among Older Spouses in Singapore. SGH Annual Scientific Meeting 2017.

Best Oral Presentation

Lim ML. Informational, structural and interactional issues in shift-to-shift nursing handovers. SGH Annual Scientific Meeting 2017.

Best Oral Presentation

Chotphoksap U. Sleep Disturbances and Quality of Life in People with Parkinson's Disease. SGH Annual Scientific Meeting 2017.

(supportive role, n=10) from both the medical and surgical units spent more than half of their time on direct patient care.

Key Project: Caring for Patients on Home Enteral Nutrition: Reported Complications by Home Carers and Perspectives of Community Nurses

This study aimed to explore the experiences of community nurses and home carers, in caring for patients on home enteral nutrition (HEN). Ninety-nine carers were surveyed. Most patients they cared for were bed bound (90%) and required full assistance with their feeding (99%). Most were not on follow-up with dietitians (91%) and dentists (96%). For the focus group interviews, 20 community nurses were recruited. Four main themes emerged from the analysis: (1) Challenge of accessing allied health services in the community; (2) Shorter length of stay in the acute care setting lead to challenges in carers' learning and adaptation; (3) Transition gaps between hospital and home care services; and (4) Managing expectations of family. To facilitate a better transition of care for patients, adequate training for carers, standardising clinical practice in managing patients with HEN and improving communication between home care services and the acute care hospitals are needed.

Poster Presentations at the SGH Annual Scientific Meeting 2017, 7 & 8 April 2017:

(1) Mar MQM, Lim ML, Lam RMB, Chan MM, Lopez V, Ang SY. Caring for patients on home enteral nutrition –The perspectives of community home care nurses. (2) Yong BYP, Lim ML, Lam RBM, Chan MM, Lopez V, Ang SY. Enteral tube feeding in the community: survey on patients and carers in Singapore.

Caregiver Well-being

Key Project: Understanding the Experience and the Support Needs of the First Degree Relatives of Women with Breast Cancer

This qualitative study aimed to understand the concern and needs of first degree relatives of women with breast cancer. First-degree relative (FDR) includes the individual's parents, full siblings, or children. 15 FDRs participated in this study, majority of FDRs were daughters (n=13). Their mean age was 34 years old (range 23 to 41) and most were Chinese (n=9). An individual, semi-structured interview was conducted and analysed using thematic analysis. This study identified two main themes: (1) Confronting diagnosis and emotions; and (2) Needing someone to talk to.

The concerns of FDRs are multidimensional and are not limited to, the prognosis, treatment or management of the cancer. Although the FDRs felt a swarmed of emotions, most of them prioritise their loved ones' needs before their own. Thus they will neglect their own feelings in order to support their loved ones. Lack of knowledge about the treatment and management of breast cancer was cited as one of the critical concerns which led them to proactively seek second opinion or sought advice from friends who had similar experience. The FDRs also shared that they need someone to talk to throughout the disease trajectory and not only after the operation hence they recommended to have access to support group via other channels such as online or hotline.

Poster Presentation: Aloweni FAB, Nagalingam S, Yong B, Wu L, Lee ZMS, Norasyikin H, Yong PLT, Yong WS, Lopez V. First Degree Relatives of Women with Breast Cancer in Singapore: Exploring their Informational and Support Needs. 2nd TTSH Nursing Conference and 22nd Joint Singapore-Malaysia Nursing Conference 2017. 5 & 6 October 2017.

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Nursing Research in the News

SGH nursing research is collaborating with NUS Biomedical Engineering to develop and test the application of a smart, ultra-thin microfibre sensor to measure bandage pressure in the treatment of patients with venous ulcers. This collaboration was featured in various media platforms including ChannelNewsAsia and FM 95.8.

"The standard of care is currently compression bandaging, but the application is blinded in the sense that the amount of pressure being exerted depends very much on the experience and expertise of the nurse involved," said Ms Ang Shin Yuh, Assistant Director, Nursing at SGH.

"Using the smart sensor takes the guesswork out of the equation, allowing medical specialists to accurately measure in real-time the pressure that is being delivered by weaving the discreet sensor into the bandage. This could potentially improve the effectiveness of the therapy and reduce the treatment period. In future, patients may even be able to monitor the bandage pressure through an application (Ref: <http://news.nus.edu.sg/highlights/microfibre-sensor-health-monitoring>)".

Publications (names of SGH nurses are in bold)

Ang SY, Ayoob SBM, Hussain NBS, Uthaman T, Adenan H, Chiang P, Ong LT, Fong MK, Ostbye T (2017). Challenges faced by older nurses in Singapore: a mixed methods study. *International Nursing Review*. 64(4); pp. 502-510. DOI: 10.1111/inr.12348.

Chuah PF, Lim ML, Choo SL, Woo GY, To HK, Lau KY, Chen J, Lian SB (2017). A qualitative study on oncology nurses' experiences of providing palliative care in the acute care setting. *Proceedings of Singapore Healthcare*. 26(1); pp. 17-25. DOI: 10.1177/2010105816660322.

Aloweni FAB, Teh AHM, Tan SB, Ang SY (2017). Promoting research competence: introduction of the nursing research immersion program in Singapore General Hospital. *Proceedings of Singapore Healthcare*. 26(4); pp. 267-269. DOI: 10.1177/2010105817697734.

Aloweni FAB, Lim ML, Chua TL, Tan SB, Lian SB, Ang SY (2017). A randomised controlled trial to evaluate the incremental effectiveness of a prophylactic dressing and fatty acids oil in the prevention of pressure injuries. *Wound Practice and Research*. 25(1); pp. 24-34.

Lim ML, Ang SY (2017). Impact of hospital-acquired pressure injuries on hospital costs – experience of a tertiary hospital in Singapore. *Wound Practice and Research*. 25(1); pp. 42-47.

Low LL, Tan SY, Ng MJM, Tay WY, Ng LB, Balasubramaniam K, **Towle RM**, Lee KH (2017). Applying the Integrated Practice Unit Concept to a Modified Virtual Ward Model of Care for Patients at Highest Risk of Readmission: A Randomized Controlled Trial. *Public Library of Science (PLOS) One*. 12(1). DOI:10.1371/journal.pone.0168757.

Voon ST, Tay JSL, San WTW, Shorey S, Lin SKS (2017). Comparison of midwife-led care and obstetrician-led care on maternal and neonatal outcomes in Singapore: A retrospective cohort study. *Midwifery*. 53; pp.71-79. DOI: 10.1016/j.midw.2017.07.010.

Zhang Y, Alyass A, Vanniyasingam T, Sadeghirad B, Flórez ID, Pichika SC, Kennedy SA, Abdulkarimova U, Zhang Y, Iljon T, Morgano GP, Colunga Lozano LE, **Aloweni FAB et al.** (2017). A systematic survey of the methods literature on the reporting quality and optimal methods of handling participants with missing outcome data for continuous outcomes in randomized controlled trials. *Journal of Clinical Epidemiology*. 88; pp. 67-80. DOI: 10.1016/j.jclinepi.2017.05.016.

Zhang Y, Flórez ID, Colunga Lozano LE, **Aloweni FAB, Kennedy SA et al.** (2017). A systematic survey on reporting and methods for handling missing participant data for continuous outcomes in randomized controlled trials. *Journal of Clinical Epidemiology*. 88; pp. 57-66. DOI: 10.1016/j.jclinepi.2017.05.017.

Mohd Razali MR, Chong YC, Mustapha NZ, Xu Y, Ayoob SM, Lim ML, Aloweni FAB (2017). Identifying patients with high risk of readmission from the patient navigators' perspectives: a descriptive qualitative study. *Proceedings of Singapore Healthcare*. 26 (3); pp. 166-171. DOI: 10.1177/2010105816685340.

Roslan S, Lim ML (2017). Nurses' perceptions of bedside clinical handover in a medical-surgical unit: An interpretive descriptive study. *Proceedings of Singapore Healthcare*. 26 (3); pp. 150-157. DOI: 10.1177/2010105816678423.