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Short Running Title: Brunei Geriatrics Services during pandemic

YEE HUI LIM & *SHYH POH TEO,

Geriatrics and Palliative Unit, Department of Internal Medicine, RIPAS Hospital, Brunei Darussalam

*Corresponding Author: shyhpoh.teo@moh.gov.bn

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ABSTRACT:
This paper describes the Geriatrics services in the hospital and community in Brunei and the impact of the COVID-19 pandemic. Due to the need for clinical staff to assess and manage COVID-19 cases at the national isolation centre and to assist with contact tracing, outpatient services were suspended. Patients had to be contacted regarding clinic cancellations and ensure they had adequate medications. There was an increase in phone-call consultations and virtual clinics were introduced. Home based nursing patients had the interval of routine nasogastric and indwelling urinary catheter changes extended. Data on the pandemic effects on Geriatric services including outpatient clinics, home visits, phone-call and virtual consultations, admissions to hospital and the home-based nursing case load after the pandemic are shown. After the pandemic, there is a need to strengthen measures to prevent pressure injuries and delirium, improve patient self-management of chronic conditions and manage the physical and mental health sequalae of the pandemic such as frailty and depression.

Keywords: Community health nursing, COVID-19, Geriatrics, Older people

INTRODUCTION:

Brunei is a small country in Southeast Asia with a rapid rate of ageing. In the Western Pacific Region, the developed countries such as Australia and New Zealand took at least 60 years to transition from an ageing to aged society (percentage of population aged 65 years and older to increase from 7% to 14%). For Japan, the transition took 24 years, while in Brunei, it will only take 13 years to move from an aging to aged society [1].

In 2015, a retrospective review of patients admitted under Geriatric Medicine in the main tertiary hospital in Brunei found a median age of 85 years, two-thirds of the patients with severe functional impairment with more than half being bed-bound or transfers only and more than a third with dementia [2]. There was also an increase in the prevalence of pressure injuries, with an audit of medical inpatients in 2015 showing up to 20.4% had pressure injuries [3].

These concerns highlighted the need for a consistent approach for the assessment and management of older people and services for ongoing continued care for dependent older people after discharge from hospital. For pressure injuries, a standardised tool for assessment and documentation was developed, with an integration of care from hospital to the community, and strengthening of community nursing follow-up [4]. Home-based nursing (HBN) services were originally community-based nurses mainly tasked for managing and replacing nasogastric tubes and indwelling catheters for dependent older people. They were upskilled to assess and manage wounds, as well as comprehensive geriatric assessment, which includes screening for common geriatric conditions, such as malnutrition, delirium and falls [5]. An evaluation of patients' and families' feedback with HBN services in Brunei in 2019 showed a high satisfaction rate with these community nursing services provided [6].

COVID-19 pandemic in Brunei:

The first COVID-19 case in Brunei was reported on 9 March 2020. The measures implemented for a zero-COVID strategy contained the community spread, with the last case from this first wave reported on 6 May 2020. There were 457 days without community cases of COVID-19 in Brunei until 7 August 2021 when the second wave started in Brunei due to the Delta strain of SARS-CoV-2. Despite best efforts to contain these infections again, this became less likely as the new variants were more infectious and transmissible, thus the strategy was changed towards living with COVID-19 [7].

Public health measures included movement restriction orders and quarantine measures, using a national mobile health application for contact tracing and symptom reporting and improving vaccination uptake [8]. Antigen-rapid tests (ARTs) are preferentially used for earlier detection of COVID-19 infections rather than the gold standard of SARS-COV-2 detection of polymerase chain reaction (PCR) tests [9]. There is a current move to reduce community restrictions, entrusting the public to take more responsibility for their health and self-isolate if they have symptoms of influenza-like illnesses and transition towards a 'new normal' way of living.

Geriatric Medicine Services before and during the pandemic**:**

Before the pandemic:

Geriatric Medicine specialty services are mainly provided in the Raja Isteri Pengiran Anak Saleha (RIPAS) hospital, the main tertiary hospital in Brunei. Patients are admitted under Geriatric Medicine from Internal Medicine acute admissions, elective admissions or transfer of care from other specialties. The Ortho-geriatrics service provides twice weekly consultations for hip fracture patients admitted under Orthopaedics. Weekly multidisciplinary case conferences with allied health professionals are

held to discuss progress and discharge planning. Outpatient Geriatrics clinics review referrals for Geriatric conditions, such as cognitive impairment, falls, multimorbidity, frailty, and for post-discharge follow-up. The Geriatrics team also oversees patients under HBN, with weekly case conferences and contacted by nurses as required if there are any queries or concerns with the patients.

During the pandemic:

For Geriatrics services, the inevitability of the pandemic affecting Brunei led to initially bringing forward urgent referrals with a slight increase in clinic appointments in February 2020. When the first COVID-19 wave hit Brunei in March 2020, clinical staff (including doctors, nurses and allied health professionals) were pulled from all services to assess and manage COVID-19 cases in the national isolation centre and to assist with contact tracing.

Outpatient services were suspended to provide staffing for these acute and COVID-19 related services. Staff who were primary contacts with people positive for SARS-CoV-2 infections had to self-isolate as well.

The remaining clinical staff contacted patients to inform regarding clinic cancellations and ensured the patients had sufficient medications prescribed online using the national electronic health records, Brunei Health Information Management System (Bru-HIMS). There was an increase in phone-call consultations provided by Geriatric Medicine doctors for patients under Geriatric Medicine, focusing on patients who were due follow-up and were at risk of admission to hospital based on their comorbidities. Patients were also able to contact the team via the Geriatrics Helpline. A list of routine questions for the common medical conditions was drafted to ensure available doctors and nurses could obtain the relevant clinical information and facilitate self-management (see Appendix).

The number of patients seen in clinic and nursing home visits fluctuated depending on staffing levels which were affected by the pandemic. The outpatient clinic capacity has returned to the pre-pandemic numbers towards the end of 2022. Virtual consultations using the zoom platform started during the second wave, with an ongoing need for this service for dependent older people during the endemic phase.

The pandemic effects on Geriatrics outpatient and community services are shown in Figure 1.

Figure 1: Pandemic effects on Geriatrics services: Clinic, Home Visits, Phone Calls and Virtual Consultations.

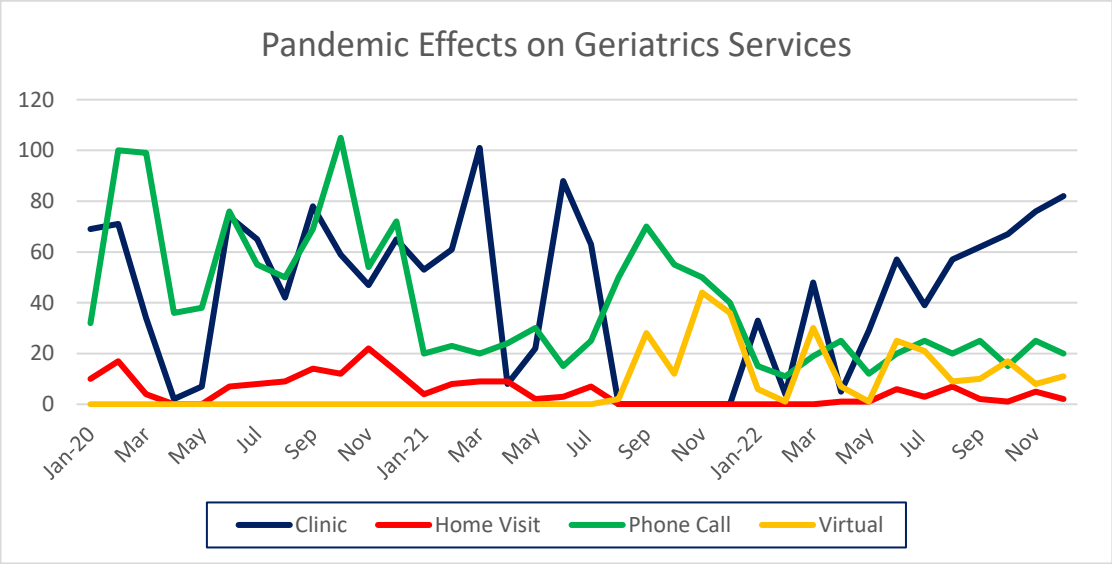


Figure 2: Admissions for Geriatrics and Palliative Services in RIPAS Hospital

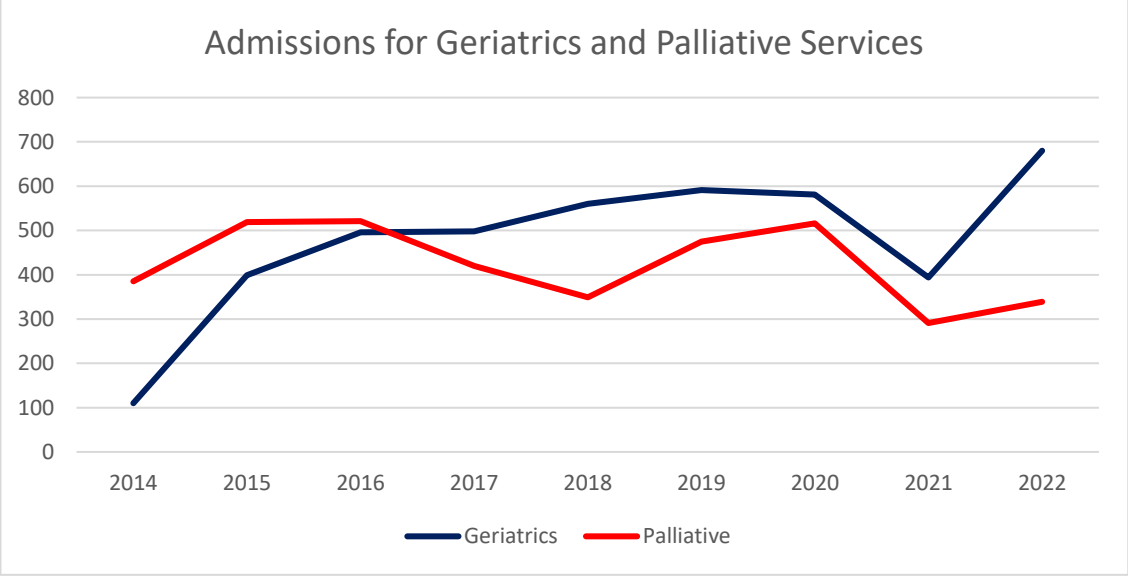


Figure 2 shows the admissions for Geriatrics and Palliative Services from 2014 to 2022. During the first wave in 2020, the Geriatrics and Palliative admissions and inpatient consultations remained unchanged despite significantly reduced staffing. During the second wave in August 2021, there was a temporary move to ward-based teams rather than specialty-based teams for the Internal Medicine department. This is reflected in the significant decrease in admission rates for both specialties that year. Geriatrics consultations for the ward-based teams were provided, but this was not captured in routinely collected statistics.

From 2022, there was a continuation in the general trend towards an increasing number of Geriatrics admissions annually over time. The palliative service generally would have between 400 to 500 admissions annually; the decrease in admissions under the service in 2018 was due to the temporary unavailability of a Palliative Consultant. The regular Orthogeriatric Liaison Service was suspended since the first wave in 2020, requiring hip fractures to be referred by the Orthopaedics team before the patients were seen by the Geriatrics team; this was subsequently reimplemented in January 2023.

Home Based Nursing (HBN):

During the first wave of COVID-19 in Brunei, the home-based nurses had inadequate access to appropriate personal protective equipment (PPE) and mask fitting sessions to ensure they were adequately protected when using N95 (FFP2) masks. A protocol requiring patients and family members to have negative antigen rapid tests (ARTs) results before the home visit was developed. Patients were previously recommended a change of indwelling catheters and nasogastric tubes every four weeks. However, due to reduced staffing, home visits for routine reviews or general checks were deferred with tube change intervals being extended to six weeks. Patients who contacted HBN for issues with their tracheostomy or PEG tubes were required to directly contact the relevant specialty nurses based in the tertiary hospital to reduce unnecessary contact.

A review of the status of HBN patients was carried out in December 2022. There were 123 male patients (Median age 66 years, range 4 to 94 years) and 131 female patients (Median age 77 years, range 30 to 100 years). Generally, HBN services are provided for adults but referrals for paediatric patients may have occurred out of necessity to provide services to community paediatric patients. The age distribution and interventions required by HBN services are shown in Figures 3 and 4 respectively.

Figure 3: Age of patients receiving HBN services

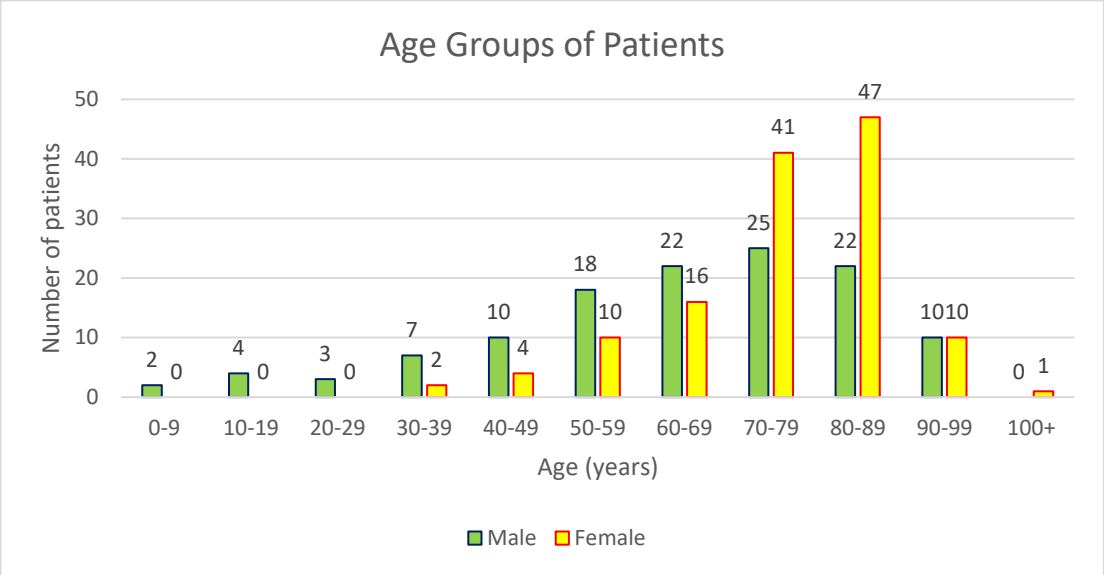
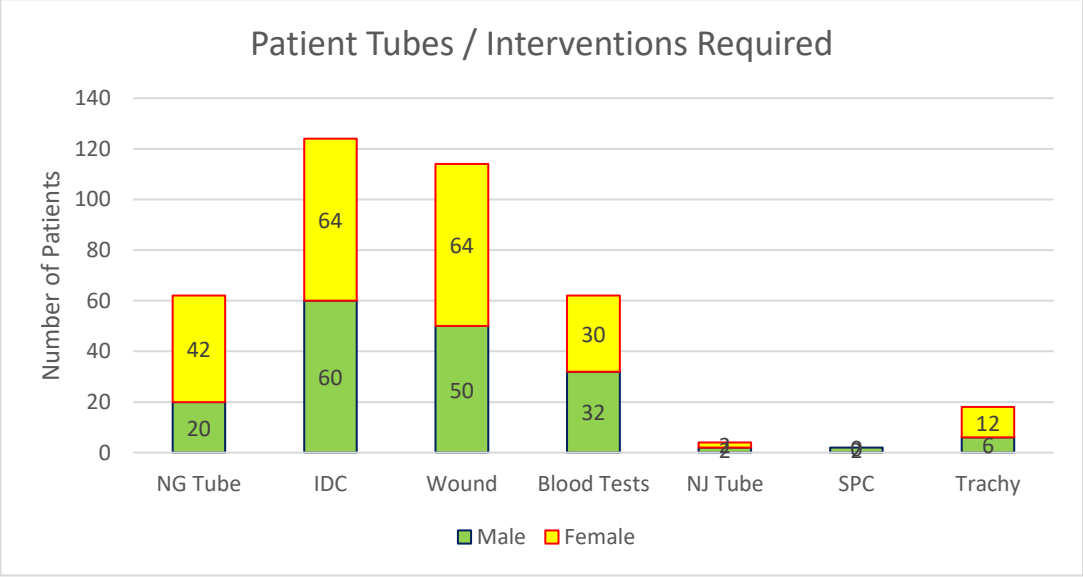


Figure 4: Interventions provided by HBN services



Lessons learnt regarding managing Geriatrics patients during the pandemic**:**

When COVID-19 movement restrictions were implemented, there was an associated reduction in cares provided for fully dependent patients. There was an observed increase in pressure injuries, including multiple Stage 4 sacral pressure injuries complicated by osteomyelitis admitted to hospital shortly after the first COVID-19 wave in Brunei [10,11]. The inpatients had to be isolated on admission to ensure they did not have SARS-CoV-2 infections before being transferred to general medical wards. There was also an observed increase in delirium for older patients during the admission [11]. During the endemic phase, there is a need to strengthen measures to prevent pressure injuries and delirium through educational sessions and quality improvement projects [12, 13].

Telemedicine or virtual consultations were introduced out of necessity during the second wave of the COVID-19 pandemic in Brunei. Although there was initial hesitation by doctors, patients and family members regarding this medium, there is now general acceptance of seeing a doctor virtually, with ongoing requests by patients and family members for virtual consultations during the endemic phase [14].

There was a move towards using each clinical interaction for education to ensure self-management of chronic diseases by patients and their family members. This included checking whether they were able to check their blood pressure, glucose for those with diabetes, inhaler use for those with lung diseases, weights for those with cardiac failure. It was also important to emphasise the compliance with medications. For those with advanced diseases such as dementia, there was an opportunity to carry out advanced care planning, particularly the relevant question of 'Would they want to come into hospital if they were unwell with COVID-19 infections?' [15]. Given that older people are vulnerable to complications and adverse outcomes from COVID-19 infections, these clinical encounters were also an opportunity to counsel patients regarding the benefits of vaccination and ensure they are updated with their COVID-19 vaccine doses [16].

Finally, it was also observed that there was a general deterioration in cognition and functional status among older people seen in clinic and hospitals [17]. Older people should be screened for physical and mental health sequalae such as frailty and depression. Proactive rehabilitation and referral for allied health professional input to ameliorate these effects from the pandemic should be considered [18].

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Appendix: List of relevant questions for common medical conditions during phone consultations

Common conditions	Questions
Chronic heart failure	1. Any chest pain? If yes, duration and characteristics. 2. Any symptoms of cardiac failure? Breathlessness (at rest and on exertion), waking up at night breathless (Paroxysmal nocturnal dyspnoea), number of pillows are used at night (Orthopnoea), leg swelling 3. How much water or fluid intake daily? 4. Do you weigh yourself at home? (compare with previous weight) 5. Do you check your blood pressure? What are the usual readings?
Asthma/COPD	1. Any breathlessness (at rest and on exertion)? 2. Associated symptoms: Phlegm colour / volume, fever, sick contacts, exposures (dust, smoke) 3. Types of inhalers and whether a spacer is used 4. Frequency of salbutamol inhaler use 5. Are the inhalers (preventers) taken daily? (Compliance) 6. How often do you require the salbutamol inhaler?
Diabetes	1. Any symptoms of hyperglycaemia – urinary frequency, thirst? 2. Any symptoms of hypoglycemia- sweating, dizziness, hungry, tired/sleepy? Frequency (in a week / month)? 3. Do you check your sugar levels at home? Frequency? What are the highest and lowest values?
Osteoarthritis	1. Any joint pain? Location, characteristics 2. Analgesia required – type, amount 3. Is it affecting mobility or activities of daily living e.g. dressing?
Falls	1. Any recent falls? • When and where? • How many falls this year? • Circumstances around fall? • Witnessed or unwitnessed? 2. Any symptoms prior to fall? Limb weakness/headache/dizziness/chest pain/breathlessness/palpitations/tinnitus • Any loss of consciousness? Duration. Any seizure like symptoms? 3. Any injuries sustained from fall? Did you seek medical attention?
Dementia (Questions for family members)	1. How is their memory? Compared to the last appointment, is it better, the same or worsening? 2. Any other symptoms? (Repetitive speech, change in behaviour or personality, easily upset or anxious, disorientation to place and time) 3. Any impact on activities of daily living? (including praying) 4. Safety: Cooking, Driving, Finances, Medications, Wandering
General Questions	1. Appetite and weight changes? 2. Bowel and bladder function? 3. Any sleep difficulties? 4. Any concerns regarding cognition and mobility? 5. Compliance to medications: taken daily, how often missed per week? 6. COVID-19 vaccination status