



Transforming Dementia Care in an Acute Teaching Hospital to a Dementia Aware Hospital: The 3 Tier Model of Dementia Care

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Abstract

The elderly patients occupy most of the beds in an acute hospital and will likely increase in the years to come. Providing dignified care to the vulnerable elderly patients living with dementia is challenging for most healthcare professionals due to constraints in resources and a lack of training. This paper discusses processes involved in ensuring that any elderly patients with cognitive issues are cared for with compassion and dignity anywhere in the hospital, regardless of their medical/surgical problems and the teams which they are admitted under.

Keywords: Dementia care; Acute hospital; Dementia ward; Delirium care

Introduction

Singapore is rapidly ageing, the elderly defined as aged 65 and above, currently make up 13% of the population, and will reach 25% by 2030 [1]. The elderly account for 1/3 of the total hospital admissions and this figure is on the rising trend. The elderly inpatients tend to stay longer in the hospitals once they are admitted and this may contribute to the higher proportion of bed occupancy by the elderly inpatients. New hospitals are being built to increase the bed number but the acute beds are expensive to run. The cheaper alternatives are to decant the hospital inpatients to community step-down beds since most of the elderly inpatients require a short period of rehabilitation prior to going home. Community sectors include community hospitals which accommodate patients for up to a month for slow stream rehabilitation, sub acute care, wound care, caregiver training and respite care [2]. The elderly will continue to be the main user of the healthcare resources due to complex interactions of their multiple comorbidities, functional dependency and social issues.

The elderly with dementia are more likely to develop complications during their hospital stay, leading to longer length of stay, higher mortality, nursing home placement, functional and cognitive decline [3,4]. Discharge planning is also more challenging for the elderly with dementia because of their complex and interlinking medical, nursing and psychosocial needs. They often require inputs from multiple service providers to promote independent living in the community. Due to the complexity of care coordination, there is often poor communication and coordination between the various service providers and post hospital care often fall through leaving the caregivers feeling helpless and may end up with unplanned hospital readmissions [5,6].

The medical, nursing and allied healthcare staffs working in a busy acute hospital are overworked and are all working on a tight schedule to get their chores done. Hence, they often focus more on the patients' physical needs and neglect the psychosocial needs. The elderly inpatients with dementia are vulnerable in the new hospital environment, with risks of exhibiting challenging behaviors like agitation, restlessness and are often restrained in order to reduce their fall risk [7].

This paper introduces the steps taken to improve the elderly journey in a busy acute hospital, beginning with better awareness of the elderly with cognitive impairment, early identification of delirium and putting in place strategies to improve patient care in order to prevent physical restraint usage which may result in further cognitive and functional decline.

Aims of the Project

The author decided to embark on this arduous journey with the main goal of reducing usage of physical restraints especially among the frail elderly in patients with cognitive issues. In order to

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better manage patients with behavioral issues, the authors' aims were:

- Early identification of the elderly with cognitive issues at the accident and emergency.
- Visibility of the inpatients with cognitive issues, only to the hospital staff.
- Early identification of new changes in cognition/ behavior leading to diagnosis and work up of delirium.
- Better understanding of behavioral symptoms of dementia and put in appropriate care.

Materials and Methods

The author's hospital is one of the biggest state owned hospitals in Singapore, with 1066 beds. A point prevalence showed that the elderly inpatients >65 occupy 60% of the total bed number and among these elderly, 40% to 50% have cognitive issues depending on which department they were admitted under.

All the admissions into the hospital *via* the Accident and Emergency (A&E) department undergo a fall risk assessment and the first question asks if the patient is confused. Prior to the initiation of this project, the assessment of a confused state was subjective depending on the nurses' interpretation of the patients' accuracy in answering their questions. This give rise to potential biases. For instance, the A&E department is heavily staffed with foreign nurses and most of these foreign nurses have difficulties communicating with the elderly patients due to language barrier.

The project started with educating the A&E nurses on the basics of dementia and delirium plus the various validated tools used in assessing cognition for dementia. The author's team settled with using orientation to time, place and person, since it is quick to perform, does not require special training and is a recognized test for mental status assessment. Any wrong answer to the orientation check prompts the nurse to put on a purple wrist tag (Figure 1) for the patient. The purple color wrist tag serves an operational purpose to improve visibility of patients with cognitive issues to the internal staff. The tag does not serve as a diagnostic purpose. The A&E department is one of the busiest in the country, cramped with patients, equipment and trolleys with suboptimal supervision. Over the years, there were reports of the vulnerable elderly eloping from the department while they wait to receive medical care. Elopement of patients with dementia from a secure environment carries risks of accidents, falls, injuries and even death [8]. The purple wrist tag has an additional purpose of carrying with it a RFID chip which triggers alarms at various exit points and hence prevents elopement from the hospital.

Once the elderly patients have been identified as disoriented and tagged with a purple wrist tag, the tag remains until their discharge from the hospital. The purple wrist tag is the starting point of this 3 tier care model (Figure 2) for patients with dementia. At the ward level, the author has worked with the nurses to include mental state assessment as the 6th vital sign. The vital signs are checked at least once per shift. Similar to the A&E assessment, the patients are checked on orientation to time, place and person. There is a prompt to check if the change in mental status is a new one. Should the change in mental state be a new change, the nurses will be directed to do a screening question to identify delirium. In the author's hospital, the screening question used to screen for delirium is the validated 4AT, once the patient is screened positive for delirium, the team doctors

will be informed to work up for underlying causes of delirium [9,10].

Tier 1 of the dementia care model

The goal for tier 1 is to achieve a hospital wide awareness of delirium and dementia, for the general ward nurses such that care provision to the confused elderly is more appropriate to their needs. The hospital has about five thousand nurses to train up.

Step 1- education: The hospital wide initiatives to improve care of the elderly with dementia began with identification of elderly with cognitive impairment with the purple wrist tag. The journey started with a series of didactic lectures. The lectures' contents are structured to meet different levels of competency (Table 1). The hospital's nursing staff is all encouraged to attend level 1 lecture for basic knowledge in dementia and person centered care.

Step 2- pilot in general surgery geriatric service: Delirium education was piloted in the general surgical wards at the start, in parallel with the startup of the general surgery geriatric medicine service (GS-G). Prior to starting GS-G service, educating the nurses was of paramount importance. The education initiative also included weekly bedside teaching where the bedside tutorials were led by the surgical ward nurses focusing on management of patients with postoperative delirium and patients exhibiting challenging behavioral symptoms. The pilot project ended after 6 months and feedback from the surgical ward nurses felt the learning journey was fruitful.

Step 3- Bedside teaching on management of BPSD hospital-wide: The GS-G pilot project was later expanded to include all the wards in the hospital. All the ward nurses in the hospital therefore have to go through level 1 lecture, supplemented by weekly bedside tutorials on management of elderly patients with cognitive issues, focusing on the patients exhibiting challenging behavioral symptoms. The topics covered during bedside tutorials include methods for pain assessment especially among elderly with dementia, management of urinary incontinence, delirium, nutritional assessment and intervention. The most frequently discussed topics include the dilemma of physical restraint usage in fall prevention and its role in behavioral management. This is considered Tier 1 of the 3 tier dementia care in the hospital.

Tier 2 of the dementia care model

In addition to tier one which involves ongoing education, tier 2 consists of an inter-departmental referral system. The interdepartmental referral system consists of 3 services. The first is a psychiatry liaison service with the old age psychiatrists providing a consultation service in the acute general geriatric wards. The General Surgery-Geriatric Medicine (GS-G) service is the second consultation service where the designated geriatrician sees all the referrals from the department of general surgery. The third system involves referrals from departments like orthopedic surgery, internal medicine, etc. The third system has the highest load and the referrals are seen by the other geriatricians. The patients who are referred through the inter-departmental referral system are in patients who are not well managed by the primary team and the decision was made to refer patients' care to the geriatricians for better geriatric assessment and care.

Tier 2 began in 2016 with a pilot project set up by the author with the department of general surgery. The aim of this niche service in the author's hospital was to identify the presence of perioperative delirium and intervene early before complications set in. The pilot

Table 1: Didactic lectures in the hospital for nursing staff.

	Lecture/ Workshop Content	Staff suitability
Level 1 Essential level 3 h	Introduction to dementia and delirium, clinical features, diagnostic criteria, dementia works up. Introduction to person centred care (PCC)	All nursing staff in the hospital.
Level 2 Enhanced level 2 full day workshop	-Overview of dementia, symptoms of dementia and longer term features of dementia like BPSD, ADL dependency and cognitive symptoms. -Introduction to delirium, signs and symptoms of delirium, screening tests and management of delirium. -Advanced care plan, end of life care for dementia. -Teaching methods include role play, case based teaching, with breakout sessions for group discussion and case presentation	Experienced ward nurses nominated by the respective ward sisters. The nurses who completed level 2 are expected to continue teaching their colleagues in the wards.
Level 3 Expert level Half day seminar	-Delirium- application of knowledge gained from level 2 workshop in the form of case studies. -Advanced coaching for managing elderly in patients with dementia focusing on: cognitive activities, deliver care with PCC model of care, creating meaningful activities for the elderly in patients with dementia.	Nominated by the ward sisters. Experienced nurses who have attended levels 1 and 2. Likely will hold the post of delirium and dementia champions.

service was well received by the surgeons and the surgical ward nurses. The surgeons were also educated on the features of delirium and cases were correctly identified for referrals and 70% of the referred cases were taken over by the geriatricians for further management. Within 6 months, this service expanded to include all referrals from the department of general surgery. All the referrals were seen by the author only, both for management and stabilization of all medical problems and provision of some rehabilitation of the patients in the postoperative period.

The psychiatry-geriatric medicine liaison service is a twice weekly service where the difficult to manage behavioral symptoms are seen by the psychiatrists who specialize in old age psychiatry. The third, larger inter-departmental referrals are patients referred by the various specialties from the rest of the hospital. The biggest load is from internal medicine. These referrals are seen within 24 h with recommendations for management plans. The eventual takeover of patients care under the geriatric department usually follows with transfer of care to one of the acute geriatric wards. The decision for taking over the patients' care is dependent on the individual geriatrician's assessment and discretion.

Tier 3 of the dementia care model

Tier 3 is considered as a niche service. In the author's hospital, the dementia ward has 20 beds, 10 beds for each gender. The main goal for the dementia ward is provision of Person Centered Care (PCC) with a strong advocacy for no or minimal physical or chemical restraint use.

The physical environment in the dementia ward is different from the other general wards in the hospital, with a home like setting, pictures on the walls, corridors with grab bars to encourage walking and rest benches strategically placed to allow for rest periods. There is also a reminiscence corner stored with artefacts from the past, which are all familiar to the patients. Prior to the initiation of hospital wide education programme on dementia, the usage of restraints was rampant in an attempt to reduce falls and injuries, particularly among the elderly with challenging behaviors who were unable to comply with instructions.

The patients in the dementia ward are either admitted directly from the A&E with delirium, background dementia admitted with acute medical problems plus behavioral symptoms or takeover *via* interdepartmental referrals.

The nurses in the dementia ward have all attended the levels 1 and 2 training course with selected ones having being sent to tier 3. In

addition, they have been trained on the principles and application of PCC for the patients with challenging behaviors.

Results

Delirium/Dementia education

Currently, 1872 participants have received dementia/delirium essential level 1 training; 221 were trained at enhanced level 2; and 142 dementia/delirium care champions were developed at expert level 3. At the beginning of this service development, the team did a survey for nurses who enrolled for tier 2 course. The survey questionnaire was given out for the nurses to fill prior to the course. Result of the survey showed that less than 20% of the nurses received training for delirium management and the nurses lacked knowledge in recognizing and management of delirium.

At second level of training evaluation, the degree to which participants acquire the intended knowledge and skills was measured using the pre- and post-training questionnaire, while attitude and level of confidence were evaluated using a self-confidence scale. At the end of level 2 training, 68% of the nurse's demonstrated improvement in their knowledge and skill level and 83.5% of nurses found the training has equipped them with self-confidence and demonstrated higher commitment in providing dementia and delirium care.

Among the different teaching and learning methodologies used from level 1 to level 3, workplace based case discussion was felt to be the most relevant among 95% of the nurses. More importantly, this training program highlighted a transformation of nursing practice to produce a noticeable impact on patient outcome. The authors measured the rate of delirium recognition by nurses and the falls rate in the pilot wards. From year 2017 to year 2018, there was a significant improvement in delirium recognition by nurses from a median of 12% to 88%. The fall rate was reduced remarkably, and one of the pilot wards achieved zero fall in 2018.

Since the main objective of the project was to reduce usage of physical restraints, the authors felt that it was useful to know about the hospital's nurses' attitudes towards usage of physical restraints. Survey forms were given out to the nurses in all the general wards to collect data on nurses' attitude towards restraint usage. It was a one day activity, with 229 forms returned to the authors. Most of the nurses surveyed (87.4%) believed restraints were designed to improve patient safety, with 78% who believed that restraints reduce falls. Only 27% of the nurses were aware of other methods to manage the behavioral symptoms.



Figure 1: The purple colour wrist tag, with RFID chip.

Weekly bedside teaching

In addition to classroom learning, the authors form 4 teams of geriatricians with an Advanced Practice Nurse (APN) in geriatrics to conduct weekly bedside teaching round in the general wards in the hospital. The cases chosen for discussion were mainly the confused elderly exhibiting behavioral symptoms. The ward nurses had full autonomy for case selection and the geriatrician and APN teach round the patients' problems, which included medical problems, pain management, differential diagnoses of a confused elderly, causes and management of delirium, evaluation and management of urinary incontinence, evaluation and management of behavioral symptoms and early interventions for elderly at risk of under nutrition. Also included in the teaching is to encourage early and active mobilization to reduce risk of functional decline during hospital stay.

General surgery-geriatric medicine collaboration

For the tier 2 general surgery-geriatric medicine service, an anonymous survey form was handed out to the nurses in the general surgical wards to collect feedback on the 2 series of lectures they have attended, for level 1 education, which included an extra module on postoperative delirium and management of behavioral symptoms among the surgical patients. It was a point prevalence data collection on one full working day. There were 137 survey forms filled and returned.

The working experience of these nurses ranges from 4 months to 51 years, with a mean of 6 years. Majority of the nurses (88%) found the information given was relevant to their day to day work. Having attended the series of tutorials, 57% felt more confident handling elderly with challenging behavior. Most of the nurses (81%) learned that there are causes like pain, hunger, thirst, fatigue, boredom etc., which can give rise to challenging behavior, and 89% of nurses will look for these possible causes when they have an agitated patient under their care. Even though majority of nurse (69%) believed restraints because less falls and only 8% believed the contrary, 79% of nurses will avoid putting on a physical restraint as the first line of management after the lectures.

A total of 76 patients were referred to the Geriatricians in the last 6 months of 2016. There were 36 male and 39 female patients. The mean age was 81 (range 66 to 97). The mean length of stay was 24 days (range 3 days to 138 days). The commonest reasons for referrals by the surgeons included physical function decline, multiple medical problems needing stabilization, poor feeding, postoperative or new onset delirium and social issues. Half of the patients (51%) had a background history of dementia. The geriatricians took over (68%) of the referrals to their inpatient beds for further management. Feeding issues were common among the elderly surgical patients (46%) with

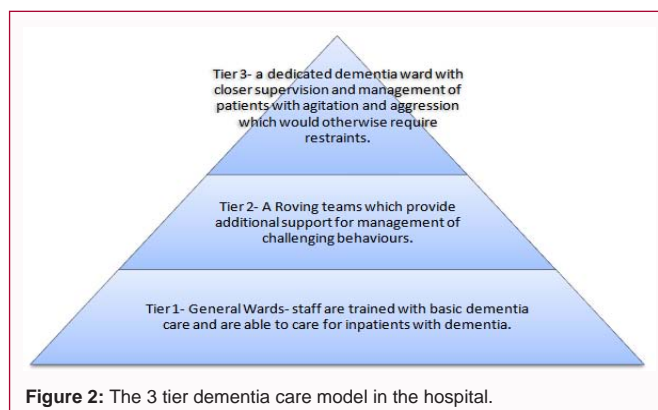


Figure 2: The 3 tier dementia care model in the hospital.

risks of under nutrition during their stay and were all referred to the dietitians for oral nutritional supplements, with extra side dishes for their meals.

The majority of patients (58%) were discharged back to their own home. There were patients (29%) who needed a longer period to optimize their function and were discharged to community step down care facilities. There were 7 patients discharged to nursing homes and 4 deaths.

The dementia ward

The dementia ward opened in December 2015. Data collection over 4 months on 80 patients showed 2/3 of the patients exhibited difficult to manage behavioral symptoms. The average length of stay was 11 days. None of them were restrained physically in the dementia ward and 80% of the patients were discharged without any decline in their physical function. The family members receive individualized education and training on management of BPSD with 80% of the patients being successfully discharged back to their own home. There were 5 patients who were planned for nursing home initially but were eventually discharged home. Over 90% of the family members expressed satisfaction with the care model and thought the nursing staffs were well trained and passionate in their care for the elderly with dementia. The data was encouraging, even though the sample size was small and the duration of study was short.

From patients' experience, the author reviewed the feedback forms from the dementia ward discharges. For the whole of 2018, there were 594 discharges and feedback forms were filled by 98.7% of the discharged patients. The 94% of the patients would recommend the dementia ward to their relatives and loved ones, which was the highest score among all the wards in the hospital. Among scores collected for effective communication between family/next of kin with the wards' medical, nursing and allied health professionals, the ward scored the highest among all the wards in the hospital, with 97% expressing above average satisfaction with the ward staff's communication in terms of active listening and giving clear explanations to questions raised. Even the feedback on food served scored 91% expressing always satisfied with the taste of the food in the ward. There were no special diets being prepared for the patients in the dementia ward. The exception was in the extra care provided by the staff in flavoring the hospital food with seasoning according to the patients' preference before being served to the patients.

Discussion

It is increasingly recognized that the elderly patients in an acute hospital do not do well, with high risks of falls, under nutrition,

longer Length of Stay (LOS) and readmission. In the six dementia care: hospital report from the UK, a survey showed that patients with dementia were not treated with dignity or understanding while in hospital, 92% said hospital environment was frightening for the persons with dementia, with the elderly becoming more confused in the hospital and only 2% of the hospital staff surveyed understood the needs of persons with dementia. In terms of serious reportable events in hospital, the NHS surveyed showed there were more than 6800 reports of persons with dementia falling in the hospital [11].

The authors set out to initiate this long project in order to reduce the usage of physical restraints among the elderly patients with dementia. There were no data collected on the prevalence of physical restraint usage prior to the initiation of this project, but the impression was the elderly were commonly restrained for their own safety. Physical restraints are still widely practiced in the Asian countries, especially in institutions like hospitals and nursing homes [12,13]. Most of the indications were for management of behavioral symptoms (agitation, restlessness and violence towards nursing staff), fall prevention and dislodgement of medical equipment like the feeding tubes. Physical restraints enforces immobility and thus carries with it complications associated with prolonged immobility like physical deconditioning, depression, UTI, delirium, etc., and it is not uncommon for the elderly once put on restraints, to remain on restraints for many days. There was no requirement for restraints to be tried off intermittently on a regular basis [14]. In order for the nurses to manage the confused elderly patients with agitation without restraints, the nurses need to be educated on delirium, dementia and management of behavioral symptoms non-pharmacologically. Understanding the underlying causes of behavioral symptoms was a challenge for most nurses.

The nurses' knowledge on delirium/dementia and confidence levels in managing the elderly with challenging behavior arising from delirium/dementia has both improved with levels 1 and 2 education programs. Realistically, the classroom knowledge need to be supplemented by case based discussion or live bedside teaching. Weekly bedside teaching across all the general wards in the hospital was initiated. The weekly bedside teaching was nurse led, with no fixed syllabus and these provided the best opportunities to assess the knowledge gained at classroom teaching and putting their knowledge to practical use. Gradually over the span of 2 years to 3 years, the usage of physical restraints in the hospital has reduced. The inpatient falls have also reduced with better management of the confused elderly. However, it is not realistic to expect a hospital without any incidents of falls because there are often multiple factors which led to a fall, with delirium and dementia being the leading causes [11].

In the setting of an acute hospital, the average nurses in a general ward have a tight schedule to keep for each shift, with suboptimal manpower support. In the acute hospital setting, nurses often have to leave the wards to accompany patients for procedures leaving the wards with low staffing levels. Under stressful working condition, where time is the essence, the patients are often left in bed, with no activities planned. The care provided is impersonal, with no greetings or introductions prior to performing the tasks. Patients' needs are often ignored or deflected until such time when patients exhibit impatience with anger, frustrations and eventually aggression [15,16]. The persons with dementia often have language deficits which result in inability to communicate their needs clearly to their caregivers. Unmet needs result in emergence of challenging behaviors. In order to reduce behavioral symptoms, Person Centered Care (PCC) focuses

on individualized care plans, taking into account the individual's preference and usual routines [17]. The dementia ward acts as a training platform for the hospital's nursing and allied health professionals in a different care model for the elderly patients with dementia [18]. The focus is on the process of getting a task done, rather than the outcome or results. The focus is on patients enjoying the activities, rather than completing the task given or doing the activities incorrectly. PCC therefore focuses more on the patients' psychosocial and emotional needs, rather than the physical needs. Data on this care model is impressive with patients being managed without restraint usage and highly satisfied patients' family, as evidenced by the positive feedback. However, PCC is time consuming and require creation of meaningful and fun activities for the patients, taking into account their previous interests and their current cognitive abilities. Providing PCC is more challenging in an acute hospital setting because the patient turnover is fast and there is often no time to get to know the patients' routines likes and dislikes well. In the long term institution settings like long stay wards or nursing homes, the staff have more contact time with their residents and hence, easier to predict residents' behavioral symptoms. Providing PCC requires closer supervision of the patients and allowing patients' autonomy. This is a dilemma in a busy ward where there is time and manpower constraints, and hence has to be balanced against fall risks and patient safety.

Conclusion

The provision of comprehensive and dignified care for the elderly patients with dementia in an acute hospital setting is extremely challenging. The staffs working in a large busy acute care setting is heavily snowed under with endless tasks and is working against a tight schedule. The elderly with dementia have complex needs which are often unmet giving rise to challenging behavioral symptoms. Putting in place a multiple tiered system of care competency allows an even distribution of knowledge and competence hospital wide and this at least ensures every patient receives specialized care, even if they are not directly under the care of a specialist.

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