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Clinical Practice

An Interdisciplinary Approach to Optimize Health Services in a Specialized Acute Care for Elders Unit

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Background: Acute care for elders (ACE) units can maintain or promote function of acutely ill, older hospitalized patients. Our goal was to optimize interdisciplinary health services for frail elderly patients in a Canadian ACE unit.

Methods: A co-management physician practice model was adopted, which encourages collaboration between primary care providers (internists and family physicians) and consultants (specialists in geriatric medicine and geriatric psychiatry). Nursing practice was redesigned to focus on the functional, environmental and cognitive requirements of older patients, in addition to addressing acute nursing needs. Clinical pharmacists routinely monitor all ACE patients for adverse drug reactions and educate patients and families. Automatic physiotherapy screening assessment, and intervention when indicated, has been provided to all patients immediately upon admission, to prevent functional decline. Mobilization is a team effort with participation of patients, families and staff. Occupational therapists provide proactive interventions by routinely screening patients and intervening early when indicated. This includes providing appropriate equipment and liaising with community therapists. Social workers apply systems theory and use the genogram when dealing with families and patients, to help with effective discharge planning. There is enhanced collaboration with continuing care workers from the community.

Results and Conclusion: Early, routine assessment and intervention by different health disciplines in an ACE unit can preserve independence and function of older patients.

Key words: Elderly, acute care, interdisciplinary team

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INTRODUCTION

Traditionally, acute care for older patients in most hospitals is undifferentiated from younger adults. Even when older patients with acute illnesses are placed geographically together in the same hospital ward, their care-plans are often extrapolated from the biomedical model used in younger adults, which focuses on the treatment of single system diseases that immediately precede hospitalization. However, many frail older persons present with multiple illnesses at hospital admission, which often marks the beginning of a downward trajectory characterized by further exacerbation of their underlying chronic diseases, significant functional loss, facility placement, and not uncommonly, death. Frailty refers to the vulnerability of older persons to adverse outcomes, such as cognitive impairment, polypharmacy, immobilization, and iatrogenesis, all of which are common complications that arise during hospitalization. These result in a vicious cycle of further physical, mental and functional decline, which in turn results in social dependency and higher institutionalization rates.[1]

In-hospital geriatric units are not new. Geriatric evaluation and management units (GEMU) have been successful in improving functional outcomes of older patients with multiple medical and functional problems. However, GEMUs target patients with sub-acute medical illnesses, or at least when patients' acute illnesses have stabilized. Many frail

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older patients start a vicious cycle of decline in the initial days of their acute illnesses, ie. at the time of admission. Recent studies showed that acute care for elders (ACE) units could improve the activities of daily living in older patients when discharged from an academic health sciences centre, as well as reduce admission to long-term care institutions.[2] The same kinds of benefit were reproduced in an ACE unit in a community hospital.[3]

Ideally, the ACE principles of care should set the benchmark for elder care in all hospitals that look after acutely ill older adults. Unfortunately, practical challenges such as limited human and/or financial resources often become barriers to implementation. So far, most of the published literature on ACE units has originated from the USA.[4,5] There is no published Canadian data on how existing interdisciplinary expertise and acute care resources can be modified and optimized to implement ACE principles. We report our experience in the planning and implementation of a new ACE unit. Specifically, we created our ACE unit within the constraints of existing resources at a health sciences center with minimal injection of new funding.

OPERATIONALIZING ACE PRINCIPLES

Before creation of our ACE unit, older patients with acute medical needs were admitted with their younger counterparts to three family practice (FP) and two internal medicine (IMD) patient-care units that were geographically separate. Patients in these units were of all ages and had a variety of medical diagnoses with different acuity and functional levels. It was difficult to target specialized services for frail, acutely ill, elderly patients. We therefore constructed an interdisciplinary team (ACE Committee) comprising representatives from medicine (FP, IMD, geriatric medicine), nursing, pharmacy, physiotherapy, occupational therapy, social work, and dietary service, to convert one of the FP units into an ACE unit. We intended to place older medical patients with common care requirements in a single geographic area where customized and specialized health services could be provided to improve access and the quality of clinical care, which in turn would minimize functional decline associated with hospitalization. The creation of our ACE unit is part of the hospital-wide patient aggregation initiative, and we were well supported by the hospital administration team.

The ACE bed map (21 beds) was created based on utilization data from a year prior to implementation and the amount of pre-existing resources available (without any increase in the total bed number or staffing requirement). During the patient aggregation process, the remaining two former FP units were converted to a 42-bed sub-acute medical (SAM) unit to allow for prolonged convalescence, and the two former IMD units were converted to a 46-bed acute medical unit (AMU) for younger patients with acute medical illnesses.

The admission criteria of the ACE unit include: age ≥75, presence of acute medical illnesses, presence and/or potential of functional decline. We use the age cut-off of 75 years as a surrogate marker of frailty for convenience, although we recognize that there can be other equally good or superior criteria to define frailty clinically. In the absence of available beds, some ACE eligible patients are admitted to other wards as off-service patients. Details of patient flow into and out of the ACE unit are shown in Figure 1.

Previous studies have shown that the care processes in an ACE unit are different from the usual ward and are crucial for producing desirable clinical outcomes. These ACE principles include patient-centred care, frequent medical review, prepared environment, early rehabilitation, and enhanced discharge planning.[2,4] We adopt all these principles and translate them into specific ACE routines (Table 1). These routines are developed and implemented by all members of the inter-disciplinary team. Unfortunately, these principles are not universally applied in all hospital wards, and many barriers to geriatric care exist outside of ACE. For instance, rehabilitation and discharge planning are often started late and have lower priorities in the non-ACE setting. Although IMD patients are spread between ACE and AMU, only those located in ACE receive the full complement of services outlined in Table 1. The format of our twice weekly, inter-disciplinary rounds (unique to ACE as team rounds occurring only once per week in AMU) is summarized in Table 2. Staff members of the ACE unit receive special education on ACE principles and other pertinent areas of geriatric care (such as avoiding physical restraint use) to help implement the unit philosophy of elder-friendly care, which is unique to ACE. In addition, our ACE unit serves as a clinical teaching unit for the depart-

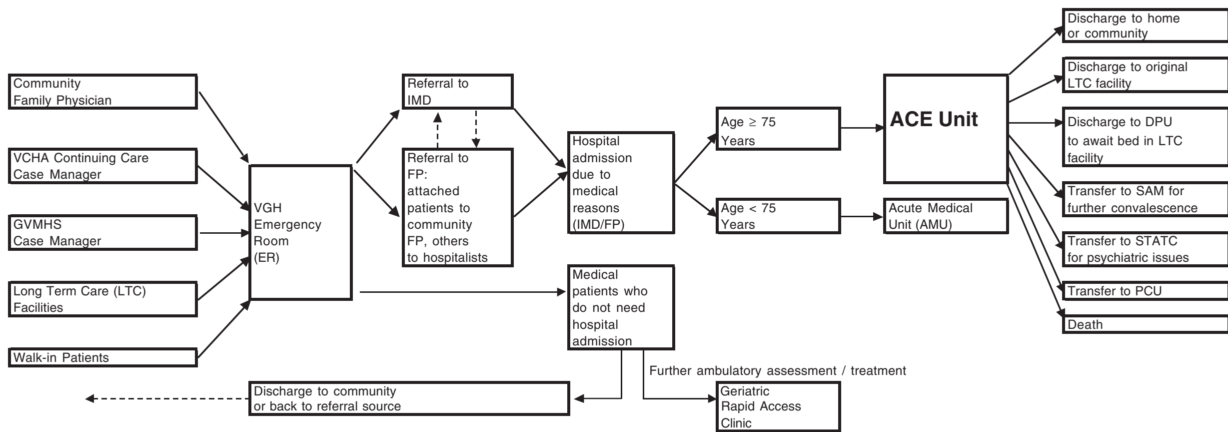

Figure 1. Patient flow diagram. VCHA = Vancouver coastal health authority, VGH = Vancouver general hospital, GVMHS = greater Vancouver mental health services, ER = emergency room, IMD = internal medicine physician service, FP = family practice service, LTC = long-term care, DPU = discharge planning unit, SAM = subacute medical unit, STATC = short stay assessment and treatment centre, PCU = palliative care unit.

ments of medicine, nursing and other allied health areas.

Table 3 shows a sample description of the patient make-up in the ACE unit. The utilization outcomes of our ACE unit have been reported previously.[6]

PHYSICIAN SERVICES IN ACE

A collaborative model of physician practice was implemented. ACE-eligible patients are admitted to our unit irrespective of their attending physician services. This means both family practitioners (FP) and internal medicine (IMD) specialist physicians can have patients in the unit, thus encouraging increased cooperation and collaboration. When ACE-eligible patients are referred from the emergency department, those with a higher degree of medical complexity and/or acuity are admitted to the IMD service (clinical teaching unit or CTU), whereas those with lower complexity and acuity are admitted to the FP service.

Under the IMD service, there are four CTU teams that admit patients to ACE at any given time, each comprising one attending staff, one senior medical resident, one or two junior residents and two medical students. The attending staff consists of specialists in internal medicine and sub-specialists, and they rotate on a monthly basis, as do the residents. Most residents come from the core internal medicine training program, although there is a smaller number from other departments, such as physical medicine and rehabilitation, anesthesia, and orthopedics. Medical students rotate through ACE every 2 months. On-call coverage for ACE is shared with the AMU. Our model also stipulates the involvement of a designated group of hospital-based FPs who function as ‘hospitalists’’ to accept and manage primary care for patients who present without an assigned FP. There are two hospitalists who admit ACE patients at any time, and they provide separate call coverage.

The roles and responsibilities of physicians who practice in ACE are clearly defined, including the expected frequency of patient rounds and response time when called by the unit staff (Table 4). Clinical practice guidelines are developed to ensure specialty consultation with geriatric medicine (Table 5), and geriatric psychiatry (Table 6) is readily available and utilized appropriately.

The medical manager of the ACE unit is a geriatric medicine sub-specialist. In addition to the administrative duties (program planning, maintenance and evaluation), the geriatrician provides leadership to encourage collaboration of physicians who work in ACE with the rest of the interdisciplinary team. He is involved in the proactive screening of newly admitted ACE patients, eg. to identify those at risk of further functional and/or cognitive decline during the twice-weekly interdisciplinary rounds. There is ongoing informal and formal communication with attending physicians, to ensure the overall quality of medical care on the unit. The geriatrician also ensures a proper educational milieu for medical housestaff through close liaison with the department of medicine.

Table 1. Service-patient matrix for the ACE unit

		ACE-eligible	ACE-eligible	ACE-eligible	Off-service patients
Services	Service Components	IMD patients	Community FP patients	Hospitalist FP patients	
Patient-centred care	Admission nursing care assessment (database, Kardex)	X	X	X	X
	Screening for: dementia, delirium, depression	X	X	X	
	Screening for: incontinence, skin problems	X	X	X	X
	Elimination of physical restraint use	X	X	X	X
	Reduction of indwelling urinary catheter use	X	X	X	X
	Goals identification: patient's & team's	X	X	X	X
	Discussion of advance directives	X	X	X	
	Organization of family conferences	X	X	X	X
	Patient & family education	X	X	X	X
Frequent medical review	Twice weekly inter-disciplinary team rounds	X	X	X	X
	Comprehensive geriatric assessment & treatment (Geriatric Medicine)	X	X	X	
	Consultation with Geriatric Psychiatry	X	X	X	
	Reduction of high-risk medication use	X	X	X	X
Prepared environment	Continual removal of environmental clutter & hazards	X	X	X	X
Early rehabilitation	Admission PT & OT database within initial 24-48 hours in unit	X	X	X	X
	Screening for: mobility failure, impaired ADL, impaired IADL, dysphagia	X	X	X	
	PT & OT treatment	X	X	X	
	Provision of equipment & aids	X	X	X	X
	Liaison with community PT & OT	X	X	X	
Enhanced discharge planning	Admission SW database	X	X	X	X
	Liaison with / counseling patient & family regarding discharge expectations	X	X	X	X
	Liaison with: Continuing Care, GVMHS	X	X	X	
Academic & research	Support for CTU	X			
	Support for: nursing & allied health students	X	X	X	X
	Support for: health outcome research, clinical trials	X	X	X	

IMD = internal medicine, FP = family practice, PT =physical therapy, OT = occupational therapy, SW = social work, ADL = activities of daily living, IADL = instrumental activities of daily living, GVMHS = Greater Vancouver mental health services, CTU = clinical teaching unit.

Table 2. Reporting format of the twice weekly, ACE inter-disciplinary rounds for each patient. The primary discipline responsible for reporting each data field is included in parentheses.

Demographics: age, gender, primary language spoken (RN)
Medical data: admission diagnoses, relevant past medical history, synopsis of medical plans (RN)
Advanced directives: code status, level of intervention (RN)
List of current medications, with emphasis of high-risk medication use (RN, pharmacy)
General function: mobility and transfer, continence, skin integrity, cognition, behavioral disturbance, sleep, feeding (RN)
Specific basic and instrumental activities of daily living: baseline abilities, limiting factors, potential for improvement, functional goal setting (OT, PT)
Social data: pre-morbid living arrangement, health care decision maker, support system, level of care (SW)

RN = nursing, OT = occupational therapy, PT = physiotherapy, SW = social work.

NURSING PRACTICE IN ACE

Nurses, who are accessible to patients 24 hours daily, are an essential resource in a patient-centred care model for older adults and their families. However, the model of nursing care in traditional units places little emphasis on the specialized issues of acutely-ill older adults. In settings without geriatric knowledge, hospitalization can produce adverse outcomes by initiating a cascade of iatrogenic complications.[7] Issues associated with aging are then further compounded by the hospital environment, where high noise levels, light levels, overwhelming equipment, and the restrictions imposed by various procedures (such as intravenous and indwelling urinary catheters) limit function and mobility. For patients with cognitive impairment, a hospital environment that fails to provide orientation cues, such as large clocks and calendars, may promote disorientation and delirium. Patients with mobility impairments may decline in an environment that inhibits walking (such as side-rails on beds, hallway clutter or shining floors). Thus, nurses on the ACE unit play a crucial role in providing a therapeutic environment that limits dependence and promotes functional and cognitive abilities in hospitalized older adults.

Nursing services in the ACE unit are based on primary nursing and patient-centred models of care. In addition to the presenting health problem, assessment of baseline functional and cognitive abilities is a critical component of the admission process. In collaboration with the interdisciplinary team, nursing interventions are provided to prevent functional decline and to encourage self-care and independence. These nursing activities are as valued as the provision of treatments that address the patient's underlying medical condition. For example, from a traditional perspective, urinary catheters are often inserted to monitor fluid balance in congestive heart failure. However, in older adults, this approach can increase the risk of immobilization, infection and patient self-removal. To prevent the latter, restraints may be applied, which, in older adults, contribute significantly towards

Table 3. Patient segmentation matrix for the ACE unit. Data shown was obtained from 312 patients (479 consecutive visits) admitted to the ACE unit from January 5, 2001 to April 26, 2001. All values expressed as patient visits and percentages per row in parentheses

		ACE Patients			Off-service Patients	
		IMD Patients	Community FP Patients	Hospitalist FP Patients		Total
Age	≥75 years	169 (36.6)	110 (23.8)	180 (39.0)	3 (0.6)	462
	< 75 years	5 (29.4)	3 (17.6)	6 (35.3)	3 (17.6)	17
Gender	Female	103 (35.3)	76 (26.0)	111 (38.0)	2 (0.7)	292
	Male	71 (38.0)	37 (19.8)	75 (40.1)	4 (2.1)	187
Readmission	Yes	48 (28.7)	34 (20.4)	85 (50.9)	0 (0)	167
	No	126 (40.4)	79 (25.3)	101 (32.4)	6 (1.9)	312

IMD = internal medicine, FP = family practice.

Table 4. The roles and responsibilities of physicians who provide care in the ACE unit

ACE eligible patients who present to ED will be referred to the one of the following for admission to ACE: IMD specialist (CTU) on call for the day, the patient's family physician, or the hospitalist for unattached patients.
Patients admitted to ACE may involve geriatric medicine and/or geriatric psychiatry consultation.
All physicians caring for ACE patients will be expected to respond to ED or the ACE unit by telephone within 30 minutes, and when necessary, will be available to see patients within 1 hour.
All physicians will be expected to round on ACE patients daily.
In some cases, ACE patients will remain under IMD (CTU) during their entire stay in ACE. In other cases, patients will be transferred to the care of their family physician or the hospitalist (for unattached patients) when mutually agreed upon by the parties involved.

ED = emergency department, IMD = internal medicine, CTU = clinical teaching unit.

functional decline. Thus, traditional care can unintentionally precipitate a cascade of iatrogenesis, resulting in loss of mobility, longer lengths of stay, and facility placement. To reduce this cascade, nursing staff on ACE play an important role in maintaining a therapeutic elder-friendly environment, by questioning the need for invasive tubing through advocacy, collaboration with the interdisciplinary team, consultation with nursing experts, and seeking alternative methods of care.

Table 5. Referral guidelines to geriatric medicine

Geriatric medicine consultations will be available to patients in ACE who present with, but not limited to, the following:
- Cognitive impairment: dementia, delirium or combination
- Recurrent falls, poor mobility and balance
- Polypharmacy
- Incontinence: urinary, fecal or combination
- Malnutrition and/or weight loss
- Pressure ulcer and skin breakdown
- Unexplained or acute functional decline
- "Failure to thrive"
- Multiple and/or complex medical illness with functional sequelae
- Management of acute pain (for instance, from severe osteoporosis)
- Issues arising from advanced directives (for instance, enteral feeding, do not resuscitate orders)
- Discharge planning and need for institutionalization

Table 6. Referral guidelines to geriatric psychiatry

Automatic referrals to geriatric psychiatry will be made for all patients who:
- have an attempted suicide
- are a danger to themselves, family, and/or staff (for instance, aggressive behavior)
- have activated a "code white" (behavioral disturbance requiring hospital security personnel)
- require financial competency assessment

Geriatric psychiatry consultations will be available to patients in ACE unit who present with, but not limited to, the following:
- Dementia with psychiatric features (such as delusions, paranoia)
- Dementia with behavioral features (such as agitation, self-neglect)
- Delirium
- Chemical dependency and/or withdrawal
- Active mental health issues (for instance, depression, schizophrenia)
- Chronic, stable psychiatric conditions where there is potential for decompensation due to medical condition
- Discharge planning for patients where psychiatric follow up is indicated (for instance, community mental health teams)
- Other competency assessments

In the ACE unit, the empowerment of the primary nurse is essential to improve functional and cognitive outcomes in acutely ill older adults and the success of the interdisciplinary team.[5] The nurse is in the best position to assess the patient's functional progress and response to the treatment of the health problem. Thus, the nurse is actively involved in interdisciplinary rounds, developing plans of care, initiating and implementing team recommendations, and communicating with a variety of physicians as well as the family and interdisciplinary team. In addition, the advocacy role of the primary nurse is optimized during "mini-rounds", where interventions are initiated for patients who are newly admitted or have developed a new problem overnight. Using the primary nurse in clinical management has provided a valuable opportunity to improve interdisciplinary team communication and patient outcomes such as reducing the length of stay.

With similar staffing to an acute medical unit, the ACE nursing staff consists of all registered nurses (RN) working 12-hour shifts. To operate at 21-bed capacity, there are six staff on days and four on

night shifts, thus providing nursing-to-patient ratios of 1-to-3.5 and 1-to-5.3 respectively. Nursing unit clerk coverage is available for 13.5 hours every weekday and 7.5 hours daily on weekends and holidays. There is usually one multi-skilled, patient-care aide present for 7.5 hours daily, to assist with patient-care activities such as bathing, feeding, and mobilization.

ROLE OF PHARMACY IN ACE

While older adults represent about 12% of the Canadian population, they consume 20-30% of all prescribed drugs.[8] Previous studies have shown that as frequently as one-quarter of all geriatric hospital admissions can be attributed to medication-related problems.[9] Moreover, patients who are admitted to the ACE unit often have multiple comorbid illnesses that require use of several prescription medications, which increase their risk of experiencing adverse drug effects. Clinical pharmacists who work on the ACE unit are in a unique position to collaborate with patients, their families, and the inter-disciplinary team to optimize drug-related outcomes.

At any time, there are one or two clinical pharmacists who rotate through the ACE unit to routinely review every patient's medications prescribed in the community prior to hospitalization. They also assess non-prescription drug use by conducting patient and family interviews. This information is then verified against the patient's medication profile on the provincial computerized drug database. These background reviews are essential to help pharmacists streamline drug therapy and avert complications associated with abrupt drug withdrawal, by ensuring that appropriate medications are continued on hospital admission.

Pharmacists frequently make recommendations to the prescribing physicians in ACE. They participate in the CTU physician ward rounds on a regular basis, and actively monitor the efficacy of drug therapy throughout the patient's stay in ACE. Common examples of pharmacy recommendations include appropriate medication use for secondary prevention of stroke, adjustment of anti-hypertensive therapy, reassessment of sedative hypnotic medication use, re-evaluation of pain control medications, and implementation of risk modifying therapy like calcium and vitamin D use in osteoporosis. These recommendations often include special consideration of the altered pharmacokinetics (absorption, distribution, metabolism, elimination) and pharmacodynamics (intensity of effect) of medications in older adults, therefore reducing the potential for drug toxicity.[10]

Clinical pharmacists in ACE proactively reduce the likelihood of adverse drug effects by close monitoring of possible drug-drug and drug-disease interactions. Specifically, medication-induced delirium and/or impaired function in the frail elderly may be overlooked and mistaken for symptoms associated with the natural history of pre-existing diseases such as dementia syndromes. The use of additional drugs to treat the symptoms of an underlying disease may produce additional problems. Clinical pharmacists in ACE are actively involved in recommending drug dosage adjustments, especially in the setting of renal or hepatic insufficiency.

Prior to discharge from the ACE unit, clinical pharmacists screen all patients for sensory or cognitive deficits, to determine whether they require additional supportive intervention (for instance, home nursing care for medication management, blister packaging of medications, written drug administration calendars, pill boxes, etc.) Complicated drug regimens are simplified to help improve medication adherence.

Finally, clinical pharmacists are active in staff education on issues of geriatric drug therapy. They are involved in original research, including characterizing sedative hypnotic use among ACE patients and a pilot project to enhance medication discharge counseling activities.

PHYSIOTHERAPY SERVICES IN ACE

Time is precious in the functional preservation of acutely ill older adults. There are many negative effects of immobilization. The less amount of time spent immobilized or in bed, the better the overall functional outcomes at the time of discharge.[11] In the ACE unit, most of the physician orders include an order for activity as tolerated. A bed-rest order is written in only exceptional circumstances when medically indicated.

There is 1.0 full-time-equivalent (FTE) physiotherapy coverage for 21 beds, with some augmentation from another part-time physiotherapist who also covers the hospital-wide geriatric consultation team. Referral to physiotherapy in the ACE unit is

automatic (ie. a “blanket referral” policy.) The ACE physiotherapist conducts proactive screening of all newly admitted patients daily. Common indications for physiotherapy assessment and interventions include: history of falls, fractures, osteoporosis, generalized weakness, mobility failure, unsteady gait patterns and other musculoskeletal conditions, as well as cardiopulmonary compromise and neurological problems. The physiotherapist contributes during the twice-weekly interdisciplinary team conferences and participates actively in the discharge planning process including making referrals to community resources and arranging necessary equipment such as walking aids.

The physiotherapy standard of practice in the ACE unit is to initiate assessment and treatment, when indicated, within 24 to 48 hours of hospital admission. For the acutely ill, frail, older adult whose premorbid function is borderline, there is a narrow window of opportunity to prevent further loss of muscle strength as well as general deconditioning, both of which can result in further functional decline. The overall rehabilitative philosophy in the ACE unit is to enable the older patient to use what functional ability they have at admission and to progress or optimize their functional capacity as is medically feasible. Physiotherapy interventions in the ACE unit have a strong focus on mobility and function. Special attention is given to improving muscle strength, exercise tolerance, dynamic balance and safety strategies including the use of appropriate walking aids. While mobilization is designated as a team effort with participation of the patient, family and all ACE staff, the physiotherapist often makes recommendations about how a patient mobilizes, the equipment or amount of assistance that is required, activity tolerance, how to progress mobility and overall prognosis.

The physiotherapy-staff work regularly with patients in the ACE unit and are well positioned to look for subtle changes in terms of their exercise tolerance, balance coordination, risk of falling, as well as overall cognitive status and level of pain. These observations often represent indications for adjustment to medical interventions. Therefore, communication between physiotherapy staff and other health disciplines in ACE is an integral part of patient-centered care.

There is a small physiotherapy treatment room located within the ACE unit. It is equipped with a Bobath plinth and a set of parallel bars. This is especially useful with patients who may be anxious and fearful of moving. The space is quiet and allows for discussions of patients’ or families’ concerns. These discussions are especially helpful in gaining more insight into the patients’ premorbid level of functioning at their prior domecile.

OCCUPATIONAL THERAPY SERVICES IN ACE

The types of intervention delivered by occupational therapy within the ACE unit focus on addressing function and potential limitations of frail older patients. This mandate is congruent with the theory and practice of the occupational performance process model.[12,13] All patients admitted to the ACE unit are screened for possible occupational performance issues within 24 to 48 hours of hospital admission. A blanket referral system is again adopted, which means all patients receive proactive occupational therapy screening without the necessity of a physician order being written.

There is 1.2 FTE occupational therapy coverage for 21 beds, with some augmentation from another part-time occupational therapist who also covers the hospital-wide geriatric consultation team. Together, the occupational therapy staff performs baseline assessments on specific issues and difficulties in occupational performance. All ACE patients are requested to indicate functional areas that are of the most concern and/or with the most important implication from their own perspectives. Function in frail older adults can be significantly reduced even in a short length of time. Therefore, if these functional deficits are not reversed at least to the level prior to hospital admission, they commonly become the main limiting factors for older patients to return to their living situation.

Having identified the functional deficits, occupational therapists in ACE specifically assess which occupational performance component and environmental conditions require modifications to improve functional independence. Data from the functional assessment is then communicated to other members of the interdisciplinary team during twice-weekly inter-disciplinary conferences when care-plans are established and implemented. Specifically, implementation can involve continual occupation (doing daily activities), maintenance of activity tolerance, and re-establishment of self-

confidence. These aspects help to prevent further functional decline of patients while in the ACE unit.

In addition to optimizing function, the ACE occupational therapists participate in the discharge planning process. This involves respecting the expectations of patients, families and friends. Referral to community occupational therapy for follow-up is common, which can also implement adaptations of the home environment.

The physical environment of the ACE unit provides a therapeutic milieu that allows for establishment of function-focused routines. The occupational therapy staff is involved in deciding on many aspects of preparing the environment in ACE. Some examples are listed in Table 7, and many of these are implemented in close collaboration with nursing and physiotherapy. Whereas the full complement of these adaptations is implemented in ACE, the same is not true for other units in the hospital. In addition, the occupational therapists provide the necessary adaptive equipment, such as wheelchairs and cushions, for patients during their stay in ACE.

Table 7. Interventions that contribute to the elder-friendly environment in the ACE unit

Placement of elevated toilet seats in all washrooms
Installation of safety grab bars in all washrooms
Placement of commodes by bedside when indicated
Placement of gait aids by bedside when indicated
Use of electronic beds with split side rails
Use of appropriate mattresses to prevent skin breakdown
Removal of hallway clutter
Removal of chairs with wheels
Reduction of ambient noise
Re-painting of walls (non-glare)
Matte finish of flooring
Installation of handrail in hallways
Enlargement of all signage
Large fonts in all signage
Placement of signage at appropriate eye level
Location of main desk in centre
Location of social work office across from main desk to emphasize enhanced discharge planning
Creation of in-unit physiotherapy treatment room (with equipment)
Creation of in-unit clinical teaching room
Creation of activity/dining room
Creation of patient and family lounge
Creation of telephone room
Creation of patient & family quiet room
Placement of bulletin board for ACE educational display
All disciplines to remove clutter
Housekeeping to maintain environmental cleanliness

SOCIAL WORK INTERVENTIONS IN ACE

In order to optimize the possibility of re-integrating ACE patients into the community after hospitalization, discharge planning in the ACE unit is enhanced with early social work intervention that begins immediately at the time of admission to the unit. There is 1.0 FTE social work coverage for the 21 ACE beds. This is a relatively low ratio and we have requested additional coverage (up to a total of 1.2-1.4 FTE) from time to time.

The ACE social work staff uses systems theory and genograms to provide a framework of systematic thinking about how events and relationships in the patients' lives are related to patterns of health and illness.[14] Families of ACE patients are viewed as systems consisting of many other smaller systems that are interconnected and interdependent to each other. When changes occur in one system, a ripple effect occurs and affects the rest of the systems. In situations of problems or crises within the family, this can be a reflection of the family system trying to adapt to its overall contacts.[15] This approach can be helpful for the social worker to revisit with ACE patients their painful experiences in an attempt to reframe, detoxify and/or normalize emotion-laden issues. Because ACE patients typically stay for a relatively brief period of time in the unit, it is important for the social worker to quickly identify the component within the family systems that is the most likely to benefit from intervention within a short time-frame and can bring about the maximal change in overall functioning of the patient and family.

Patients in the ACE unit often experience numerous psychosocial difficulties during their acute medical illnesses. Common examples include issues of losses (health, function, independence), advanced directives, goals of care, end of life issues, relocation stress, etc. To address these issues, the ACE social work staff uses the systems theory to identify and assess power systems within the patients' families, so that appropriate interventions can be devised. Communication with the interdisciplinary team is important, so that all team members can understand the relationships within the family system as well as their interaction with

the hospital environment. This allows the health-team to interact with the ACE patients and families, using the systems' own players, rules, norms and values.

In the ACE unit, the social work staff also arranges for family conferences and provides counseling for families and staff when indicated. Our staff coordinates with long-term care facilities in the community to facilitate transfers of those patients to the most appropriate care setting. This often involves re-assessment of the care level that is originally designated by the community teams. Together with community liaison nurses, the ACE social work staff organizes community services (such as home-making) that support ACE patients in the immediate post-discharge period.

FUTURE DIRECTIONS

Our model of the ACE unit involves re-deployment of existing resources and enhanced collaboration among different health disciplines. A pilot study of our ACE unit revealed that the average length-of-stay of our ACE patients was short, with most of the discharged patients returning home.[6] In the same study, patients' age, gender and attending physician service did not independently or significantly predict their length of hospitalization. A more comprehensive study is now underway to investigate the various clinical outcomes in our ACE patients.

With only 21 beds available, our ACE unit constantly operates at its full capacity. However, the number of ACE-eligible patients far outnumbers the available ACE beds. This results in a significant number of off-service elderly patients in other wards. We recently increased the number of beds to 24, and will likely soon implement a further increase in capacity to handle the tremendous demand for our service. This has implications on our interdisciplinary staff workload and resource utilization as a whole, both of which require close monitoring.

Our ACE unit is currently located in a building that is physically separate from the other hospital buildings that house the emergency department and other acute diagnostic and clinical support services. The increased geographic distance presents a challenge to staff who work elsewhere in the hospital, especially the medical consultants and housestaff. We are now in the process of re-locating the ACE unit into the same physical area as the other acute medical services within the hospital premise.

In conclusion, increased collaboration among various health disciplines in the ACE unit is essential to deliver patient-centred care with an emphasis on preserving independence and function. Interdisciplinary involvement in pooling expertise and resources is crucial in the implementation of a successful ACE unit.

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REFERENCES

1. Margitic SE, Inouye SK, Thomas JL et al. Hospital outcomes project for the elderly (HOPE): rationale and design for a prospective pooled analysis. J Am Geriatr Soc 1993; 41: 258-67.
2. Landefeld CS, Palmer RM, Kresevic DM et al. A randomized trial of care in the hospital medical unit especially designed to improve the functional outcomes of acutely ill older patients. N Engl J Med 1995; 332: 1338-44.
3. Counsell SR, Holder CM, Liebenauer LL et al. Effects of a multicomponent intervention on functional outcomes and process of care in hospitalized older patients: a randomized controlled trial of acute care for elders (ACE) in a community hospital. J Am Geriatr Soc 2000; 48: 1572-81.
4. Palmer RM, Landefeld CS, Kresevic DM et al. A medical unit for the acute care of the elderly. J Am Geriatr Soc 1994; 42: 545-52.
5. Covinsky KE, Palmer RM, Kresevic DM et al. Improving functional outcomes in older patients: lessons from an acute care for elders unit. J Quality Improvement 1998; 24(2): 63-76.
6. Wong RYM. Patients' length of stay, discharge outcome, and readmission rate in a specialized acute care for elders unit. Ann R Coll Phys Surg Can 2002; 35: 579-85.
7. Jacelon CS. Preventing cascade iatrogenesis in hospitalized elders: an important role for nurses. J Gerontol Nurs 1999; 25 (1): 27-33.
8. Tuominen JD. Prescription drugs and the elderly in British Columbia. Can J Aging 1988; 7: 174-82.
9. Mannesse CK, Derkx FH, de Ridder MA et al. Adverse drug reactions in elderly patients as a contributing factor for hospital admissions: cross sectional study. Br Med J 1997; 315: 1057-8.
10. Chutka DS, Evans JM, Fleming KC et al. Drug prescribing for elderly patients. Mayo Clin Proc 1995; 70: 685-93.
11. Hirsch CH, Sommers L, Olsen A et al. The natural history of functional mobility in hospitalized older patients. J Am Geriatr Soc 1990; 38: 1296-303.
12. Fearing VG, Clark J. Individuals in Context: a Practical Guide to Client Centered Practice. Ottawa: CAOT Publications 2000.
13. Townshend E, ed. Enabling Occupation: an Occupational Therapy Perspective. Ottawa: CAOT Publications 1997.
14. McGoldrick M, Gerbon R, Shellenberger S. Genograms: Assessment and Intervention. New York: WW Norton 1999.
15. Freeman D. Multigenerational Family Therapy. New York: Haworth Press 1992.