GERIATRIC EMERGENCY MANAGEMENT

PROVINCIAL INTERIM REPORT
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1. Executive Summary

Seniors over the age of 75 have the highest Emergency Department (ED) visit rate of any segment of the population and this rate is rising. For ED staff, seniors present significant challenges. Their medical conditions are complex, their presentation is often atypical and the acute ED model is challenged to address their multiple and often sub-acute issues. To address the needs of both frail seniors and ED staff, the concept of Geriatric Emergency Management (GEM) has emerged as a promising model.

In 2004, the Ministry of Health and Long Term Care (MOHLTC) funded eight full time GEM nursing positions and asked the Regional Geriatric Programs of Ontario (RGPs) to implement the Program. Since that time, the GEM nurses have been deployed in the EDs at Kingston General Hospital, St. Joseph's Healthcare Hamilton, University Hospital at London Health Sciences Centre and in Toronto: at Humber River Regional Hospital, Rouge Valley Health System, The Credit Valley Hospital, St. Michael's Hospital, and York Central Hospital.

The goals of the GEM Program are:

1. Service Development
2. Improve Patient Outcomes
3. Build Capacity
4. Program Evaluation

In this interim report a common multi-site GEM practice model, in place across the eight sites, is described along with the local variations necessary to meet the needs of each unique community. The complex nature of clinical GEM work is brought to life in a series of illustrative case studies and an overview of the capacity building activities of the GEM nurses. The workload and activity data of the GEM nurses is summarized together along with profiles of GEM patients. In addition, a summary of the recent literature on GEM is summarized and the results of an interim program evaluation are provided. The evaluation results include stakeholder satisfaction data and preliminary clinical outcomes.

Evidence from the literature supports the value of GEM. Studies have shown that GEM results in improved linkages to community services, lower nursing home admission rates, shorter hospital length of stay, preservation of patient's functional abilities and improved patient satisfaction. In some studies both a reduction in hospital admission rates and ED recidivism were also noted.

Between April 1, 2005 to March 31, 2006, our GEM nurses were directly involved in 2,886 visits by high risk seniors in eight Ontario EDs. This represented 51% of the visits where seniors were identified as being high risk after screening. The majority of patients seen by GEM nurses were discharged back to their home, most with additional linkage to community or ambulatory services.

This report includes preliminary analysis of data collected from two Toronto EDs during the GEM Program's formative period 2004-2005. One hundred and nineteen GEM cases were compared to 476 matched controls of patients seen at the same hospitals in the previous year. There was an increase in contact with primary care physicians among GEM patients (an average of 6 physician visits within 30 days in GEM patients versus 4.6 visits in non-GEM patients) and a reduced length of hospital stay on subsequent hospital admissions (an average of 10.1 days for GEM patients versus 17.5 days for non-GEM patients when admitted within 7 days of ED visit). In one Toronto hospital (Rouge Valley), since the implementation of GEM, there has been a 6.5% reduction in hospital admissions from the ED for seniors over 69 years of age. Data from a Hamilton ED indicates that GEM is able to divert unnecessary admissions (38.2% admissions for GEM vs 59.8% for non-GEM cases).

These preliminary results are in keeping with the literature and with the results of a similar program presently being deployed across British Columbia. Over a 4-month period, the Geriatric Emergency Nursing Initiative saved 1,170 in-patient days in a Burnaby hospital.

Stakeholder surveys of health and administrative professionals within participating EDs, hospitals and in the surrounding communities indicate high levels of satisfaction with the GEM service and a desire to have the services made more generally available twenty-four hours a day, seven days a week.

As a result of Program development experiences and an interim analysis and evidence from the literature, we offer the following key messages and conclusions.

Key messages:

- Awareness of the program and the unique needs of frail seniors in the ED has been heightened, credibility established and relationships forged locally and regionally within ED and across the health care continuum.
- A common evidence-based GEM Practice Model that enables local variation is essential.
- GEM nurses have increased the capacity of health care providers both within the ED and the region to address the complex needs of the frail elderly.
- GEM nurses identify high-risk seniors and address unrecognized geriatric issues that increase the probability of adverse outcomes.
- GEM nurses enhance patient discharge processes and promote safe discharge.
- GEM intervention may divert unnecessary hospital admissions.
- GEM nurses identify and encourage appropriate admissions.
- GEM improves communication between health care providers and both patients and their family members.
- GEM enhances service linkages within the hospital and in the community.
- GEM principles can be adapted to suit local needs.
- Health professionals and key stakeholders are very satisfied with the GEM Program.
- Evidence from the literature supports the value of GEM in improving clinically relevant and important patient and system outcomes such as decreased hospital length of stay, increased linkage to community services, more appropriate admissions, decreased recidivism, preserved functional ability and patient satisfaction.

- Our preliminary data suggest that GEM can facilitate discharge from the ED and divert unnecessary admissions, reduce hospital length of stay during subsequent distinct hospital admissions and increase primary care contacts.

Conclusion:

The GEM Program is feasible to implement and highly valued by a wide range of stakeholders. Availability of a geriatric focused nurse in the ED results in improved quality of care and better patient outcomes. Established linkages with hospital and community partners have resulted in improved follow up and ongoing management of patients. GEM nurses increase the capacity of health care providers to appropriately manage the complex needs of the frail elderly across the health care continuum. As Ontario's senior population continues to grow, pressures in the ED and health care system increase. GEM services are an important part of the solution, and should be widely available in Ontario.

2. Program Development

2.1 Overview of Geriatric Emergency Management (GEM)

Seniors over the age of 75 now have the highest Emergency Department (ED) visit rate of any segment of the population (Hastings & Heflin, 2006) and this rate is rising (1). They are more likely to arrive at the ED by ambulance (2). Their medical conditions are more complex than younger ED users (3). Their length of stay in the ED is longer (4). Their rate of admission from the ED into the hospital may also be rising (3) and is already more than twice the rate of other age groups (5).

If discharged home from the ED as many as 30% are readmitted within 14 days(6). Aminzadeh & Dalziel noted that 24% are readmitted within three months and a further 10% will die within three months (5). Wilber & Gerson found that 44% are readmitted within six months (7). Despite this and notwithstanding systems issues such as the access to primary care physicians, and the availability of long term care beds, seniors, like ED users in other age groups, use the ED appropriately and will do so with increasing frequency as the baby boom demographic doubles the number of seniors between now and the year 2020(1).

For staff working within the ED seniors present a significant clinical challenge. In addition to clinical complexity, common diseases present atypically, co-morbidity is a confound to standard approaches, polypharmacy is ubiquitous, cognitive abilities must be considered, common diagnostic tests may have different normal values, depleted physiologic reserve must be anticipated, and social support systems may be compromised (8). Not surprisingly, there are significant knowledge gaps in the preparation of ED staff (9, 10) and many ED physicians find seniors more difficult and time-consuming to assess than younger adults (3, 9). Seniors and staff in our EDs need help and the concept of Geriatric Emergency Management (GEM) has emerged as a promising source of help.

In 2004, the Ministry of Health and Long Term Care (MOHLTC) funded eight full time GEM nursing positions and asked the Regional Geriatric Programs of Ontario (RGPs) to build on their earlier experiences with GEM by developing, implementing and evaluating the program. Since 2004, the GEM Program has been operational in the EDs at Kingston General Hospital, St. Joseph's Healthcare Hamilton, University Hospital at London Health Sciences Centre and in Toronto at: Humber River Regional Hospital, Rouge Valley Health System, The Credit Valley Hospital, St. Michael's Hospital, and York Central Hospital.

The goals of the GEM Program

The goals of the GEM Program are:

1. Service Development
   To support the development of a viable and effective GEM Practice Model that delivers clinical service, and provides staff with opportunities for professional development, peer support and networking.

2. Improve Patient Outcomes
   To reduce recidivism, decrease length of stay and divert hospital admissions.

3. Build Capacity
   To develop and document innovative evidence based models of service and facilitate knowledge transfer across the spectrum of care.

4. Program Evaluation
   To measure the impact of the GEM Program in terms of both volume and relevant clinical outcomes.

Formative evaluation of the program is summarized in the GEM Progress Report of 2004-2005. Ongoing summative evaluation of patient and system outcomes will be complete in 2007. The present report is an interim report to assist the Ministry of Health and Long Term Care to respond to emergent planning needs.

The GEM Practice Model

At the core of the GEM Program is an evidence-based practice model that was constructed during the program's formative period. The evidence informing the GEM Practice Model includes Mion et al's 'Signet' model of ED case finding and referral(11), McCusker et al's two-stage intervention model of risk screening and nursing assessment (12) and Caplan et al's 'DEED' model of comprehensive geriatric assessment and post ED discharge intervention(13). Guided by this research, the GEM Practice Model includes four main components:

1. Routine risk screening for all seniors 75 years of age or older presenting to the ED with a Canadian Triage and Acuity Scale (CTAS) >2;

2. A targeted geriatric nursing assessment in the ED guided by the Domain Management Model (14);

3. The initiation of a referral and follow-up process as part of ED disposition planning whether the patient is discharged home, back to long term care, or admitted into hospital; and

4. Multi-dimensional capacity building with GEM stakeholders

This GEM Practice Model is distinct from other models of service for seniors using emergency departments. These include the community case finding approaches such as Walker & Jamrozik's "Keep Well at Home (KWAH)" model(15) and age based models (16). In the latter, targeting all patients over 65 years of age resulted in assessment of mostly young seniors, (between 65 and 75 years of age), who are less likely to be at risk and who are, in most cases, adequately served by standard health services.

The GEM Practice Model: Referral and Assessment Flow diagram can be found in **Appendix 10.2**

A systemic perspective on risk screening

While adopting best practices in our GEM Practice Model and adapting them to meet local needs, a broader understanding of the impact of risk screening and its systemic impact became evident. The implementation of risk screening has system wide implications. The following list outlines these implications

1. Risk screens can trigger GEM nurse referrals
2. Risk screening guides the GEM nursing targeted assessment process
3. It creates awareness of seniors' issues amongst non-GEM ED staff
4. It alerts staff to risk factors in the event of a hospital admission
5. It can drive referrals to CCAC/home care for high-risk seniors
6. It can provide a simple alert to primary care physicians
7. Risk screening provides a focus for continuing education and capacity development

GEM Clinical Process Focuses Patient Assessment

Once a referral for GEM service is received, a targeted geriatric assessment is initiated guided by the Domain Management Model outlined by Siebens(14). The domains in this model are a) medical surgical, b) mental status/emotions/coping, c) physical function and d) living environment (physical, social and financial).

The GEM assessment is 'targeted' rather than a traditional comprehensive geriatric assessment. The assessment uses brief standardized, clinical interviews and the collection of prior level of function data that meet the ED's need for expediency. Still, in keeping with the approach of geriatric medicine, the GEM assessment remains holistic rather than focused solely on the presenting complaint. This approach enhances the care provided to seniors in the ED through value-adding referrals to community, primary and ambulatory care.

The holistic nature of the GEM practice is evident in the types of activities performed by the nurse as part of a typical assessment. These direct and indirect clinical activities include: history-taking that includes the determination of prior level of function; physical assessment; functional assessment; cognitive assessment; internal communications; patient and family communications; and ensuring continuity (external communications and linkages).

Collaboration is at the heart of successful GEM services

The GEM practice model requires high levels of collaboration within the ED and many common sites for referrals and/or recommendations within the hospital and in the community after ED discharge. In Table 1 the most common of these collaborations, referrals and recommendations are listed.

Table 1: GEM Collaboration

Within the ED	Within the Hospital	Outside ED/Hospital
ED physician ED nurses CCAC discharge planners ED Social Work Specialized Geriatric Services (SGS) Family/Power of Attorney	Social Work Geriatricians Physical therapists Occupational therapists Advanced practice nurses Clinical nurse therapists Geriatric Psychiatrists Other medical specialists Diagnostics and Labs Enterostomal and wound care Pharmacy Admissions	CCAC case managers Convalescent Care SGS Day Hospitals SGS Ambulatory Clinics SGS Outreach Geriatric Psychiatry Primary Care Providers Long Term Care Respite Care Specialists Family

GEM Practice Model is Adaptable

While the GEM practice model helps to eliminate unnecessary redundancy in program development, it is also essential that the model adapt itself to preserve practice diversity made necessary by the contextual elements unique to each site. Examples of these variations follow.

An inner city ED has a higher probability of seeing patients that are from various ethnic minorities, marginalized, or homeless. In some cases, patients present with signs of 'early aging' and high rates of both psychogeriatric and geriatric problems. In this context, the GEM Practice Model would expand to age 65 or older as an appropriate trigger for routine risk assessment together with an increased focus on psychogeriatric assessment, liaison and capacity building.

In a second ED context, where a Quick Response Team and a delirium risk screening process was in place, the GEM Nurse has focused on an often-overlooked ED client; those admitted from and returning to long-term care settings.

Beyond the ED, each community has distinct features that impact GEM processes. These include the organization of CCACs and access to home care, the availability of Long Term Care beds, access to convalescent care beds, the capacity to admit directly to acute geriatric units from the ED, and the availability of Geriatric Day Hospitals, Clinics and Outreach Teams to support safe discharges.

Finally, the GEM partners have adopted different approaches to the deployment of risk screening. These sources of variation include the availability of electronic data management systems, site-specific personalization of risk screening forms, forms committee protocols and processes, the capacity to audit risk screening procedures and diverse interpretations of PHIPA legislation.

> The GEM initiative has been recognized as a valuable addition to our community health care as evidenced by the favourable media coverage in our region.
> *– Medical Director, Emergency Program*

2.2 Brief Local Reports

The following short local reports highlight GEM Program developments, which have been tailored to meet the needs of the local health care system and population served. The reports describe the GEM Nurse's qualifications and local innovation and variation in the delivery of the GEM Practice Models.

2.2.1 Hamilton

The GEM Nurse at St. Joseph's Healthcare Hamilton (SJHH) brings both Emergency and Gerontological nursing preparation together with her Registered Nurse Extended Class, RN(EC)) designation to the GEM role. In accordance with her standing with the College of Nurses in Ontario her scope of practice includes the capacity to assess, diagnose, and prescribe a range of medications in consultation with the ED physician. She has recently obtained certification with the Canadian Nurses Association in Gerontological Nursing GNC(C) and she has initiated studies towards a Masters degree in Nursing. In place since February 2005, the GEM Program has been fully operational since July 2005.

In addition to the deployment of the GEM Practice Model at St. Joseph's Health Care Hamilton, case finding and direct referrals from the ED physicians and nursing staff also supplement risk screening. Presently, the Triage Risk Screening Tool (TRST) is paper based and is utilized as a referral tool. The goal is to utilize the TRST as a screening tool to enable greater impact on the elderly that present to the ED.

In 2005, organizational statistics indicate that 21% of ED visits were over the age of 65 and 13% of ED visits were over the age of 75 years. From the ED, GEM referrals are made to Regional Geriatric Programs, outpatient Geriatric/Psychogeriatric Assessment, Lifeline, Day Programs and the Community Care Access Centre for occupational therapy, physiotherapy, social work, home care services, and/or nursing assistance with medication administration.

Future planning in the ED, based on referrals from the GEM Nurse, includes a Day Therapy Centre located at St. Joseph's Healthcare to improve access to ambulatory therapeutic services. Goals include providing an alternative to admission for community based seniors or decreasing the length of an inpatient stay.

2.2.2 Kingston

The GEM Nurse at the Kingston General Hospital (KGH) brings many years of Emergency Nursing experience. Adding to this ED and knowledge base of KGH clinical operations, the GEM RN was engaged in mentorship through the Southeastern Ontario Regional Geriatric Program (SERGP), and through successful completion of the RNAO Gerontological Nursing Certificate (GNC). The incumbent is currently a graduate candidate in nursing.

The GEM Practice Model and position was introduced in Fall 2004 with fulltime implementation in January 2005. During this time, the GEM RN was involved in process and project development (e.g., assessment tools), in-services and education of ED staff, and introductions to other ED care partners (e.g., CCAC). These introductions and activities ran parallel to the GEM RN's personal orientation, self-learning and commencement of clinical ED assessments.

Prior to and during the implementation, a GEM liaison committee structure was created with representation of key stakeholder groups including: SERGP, Geriatric Psychiatry, CCAC, ED clinical and administrative leadership and the local MOHLTC Regional Office. This committee served as a forum for ongoing monitoring and advice regarding the project.

The GEM Practice Model principles for the KGH site attempted to incorporate a two-tiered case-finding approach. Level I included the screening of elderly ≥75 years of age by the KGH ED primary care nurse using the GEM Practice Model criteria and Triage Risk Screening Tool (TRST). Level II focused on Geriatric Assessment and follow-up whereby the GEM RN would review Level 1 screening forms and determines whether patients met the criteria for "at risk" via the TRST. Face-to-face or telephone assessment would begin if the criteria and/or clinical judgment supported such follow-up.

The TRST screening tool was initially requested and included as a formal part of the clinical record. Over the course of time, it became apparent that the TRST was not being completed as intended; and that it had reverted to an "as needed referral form" and not a risk-screening tool that is consistently applied to patients ≥75 years.

The GEM RN has developed linkages with other specialized care providers both within KGH and across the continuum. Close day-to-day working ties have been made with CCAC case managers assigned to KGH. Continued collaboration is maintained with the Southeastern Regional Geriatric Program where strategies have been trialed to respond to GEM referrals, including prioritized access to clinics, Day Hospital and Outreach services. The GEM RN liaises very closely with the community-based geriatric psychiatry case managers for ongoing care coordination. Consistent communication with primary care physicians continues to be challenging and efficiencies in this area are a focus of ongoing discussions.

GEM development, implementation and clinical activities have occurred while KGH and the Kingston health care community experienced system challenges related to shortages of inpatient critical and long-term care beds and high rates of alternate level of care occupancy.

In this situation of restricted capacity, the demands on the ED were intensified and the GEM nurse's role had to adapt to also include follow-up assessment over days and direct care intervention. Many of these GEM patients experienced unusually long lengths of stay in the ED and there were increased numbers of "crisis placements" coming from the community.

2.2.3 London

In London, there is one GEM Nurse located in the ED at London Health Sciences Centre (LHSC) University Hospital location. She is RN BScN prepared and holds a Canadian Nurses Association Certification in Gerontology GNC (c). She is currently working towards a Masters in Nursing degree.

London has two hospital organizations - LHSC and St. Joseph's Health Care (SJHC). LHSC operates two acute sites, which have the only two EDs in the city (only one of which has a GEM nurse.) SJHC operates urgent care, ambulatory, rehabilitation, mental health, complex care, and long-term care facilities. Most of the Specialized Geriatric Services provided in London, including the RGP and related services, reside within SJHC.

The GEM Practice Model within LHSC University Hospital has been fully operational since April 2004. Daily, the GEM Nurse assesses individuals that are 75 years of age and older that present to the ED and score positive on the TRST. In London, the TRST is primarily used as a screening tool (TRST positive patients receive a GEM assessment). When the GEM Nurse is not available (nights or weekends) to assess a TRST-positive patient, the GEM Nurse follows up with a telephone assessment. Case finding and direct referrals from ED staff also lead to a GEM assessment when appropriate. The objective is that all patients 75 years of age and older will be screened for risk. An onsite

CCAC case manager provides the opportunity for close case-based CCAC/GEM collaboration.

The GEM Nurse links patients with other health care providers in the system, and facilitates a feed-forward, feedback process of patient information with LTC homes in the surrounding areas.

The addition of the GEM Nurse in LHSC has assisted the development of collaborative planning opportunities between LHSC and SJHC that have resulted in development of new Specialized Geriatric Services within LHSC, including a Geriatric Consultation Liaison team and an Acute Care of the Elderly Unit. All referrals for citywide Specialized Geriatric Services are made to a centralized intake and triage team.

The GEM Program is also part of a citywide approach to build a senior-friendly hospital strategy. One of the goals of the strategy is to build capacity of health care providers and their facilities to practice evidence-based care of the elderly through the implementation of senior-friendly principles (i.e., physical environment and processes of care) in multiple health care settings (i.e., hospitals, community, long-term care homes). The GEM Program assists in building infrastructure to support the navigation of frail elderly in our complex health system.

2.2.4 Toronto

2.2.4.1 Humber River Regional Hospital

The GEM Nurse role at Humber River Regional Hospital (HRRH) is developing into a unique Advanced Practice Nursing Role combining both Emergency and Gerontology Nursing. Certification in Geriatrics through the Canadian Nurses Association (GNC(C)) was achieved in April 2005. The GEM Nurse completed her Master of Nursing degree in December 2005 and continues to work towards her certification in Health Care Quality Management.

The GEM Practice Model has been deployed at the HRRH Finch site since the inception of the program. Compliance with TRST has improved with the support of the ED Director. Follow up care referrals to the community often include the use of the Rapid Response Program in addition to Crisis Placement, mental health crisis team, outpatient diabetic education program, CCAC, the Psychogeriatric Consultants and Advanced Practice Nurses in long-term care homes. There are frequent consultations between the ED social worker and the CCAC case manager on an almost daily basis.

The GEM Nurse, ED social worker and onsite CCAC case manager collaborate closely. An initial hope that the GEM Nurse would be able to provide services across HRRH's two ED sites has proven difficult due to patient volumes, but capacity building at the second site continues to be an important focus of program development.

2.2.4.2 Rouge Valley Health System

The GEM nurse at Rouge Valley Health System (RVHS) holds a BA, BScN, MN, Nurse Practitioner RN(EC) and a Canadian Nurses Association Gerontology Nursing Certificate. She has experience in emergency medicine, acute care and long-term care geriatrics. The nurse's scope of practice as a nurse practitioner was approved in March 2005, though the GEM Program has been operational since October 2004. RVHS has two ED sites and originally it was thought that the GEM Nurse could serve both but volumes of ED visits required a focusing of GEM service at one site.

The GEM Practice Model is deployed with an adaptation of the risk-screening tool entitled GEM Referral Tool (GRT). The GRT is a part of the clinical record that follows the patient along with the GEM domains assessment/consultation form whether the patient is discharged to the community or admitted to the hospital.

The GEM Nurse at RVHS has placed a particularly strong focus on GEM/LTC collaboration and process improvement.

A hypodermoclysis, intravenous infusion and gastrostomy/jejunostomy tube de-clogging process reviews have been completed and in collaboration with the hospital's Digestive Disease Unit team a flow chart to fast track services for LTC residents with feeding tube problems has been implemented. The care-map is designed to expedite Digestive Disease Unit admissions from the ED, reduce ED wait times and hospital length of stay. The local CCAC is working toward a deployment of the care-map across its region. Building on the GEM initiative, RVHS has formed a Geriatric Consultation Team at the Centenary site. Information materials for clients have been prepared and are now widely distributed. Fact sheets distributed to staff have increased ED staff awareness of geriatrics issues. Improvements to patient flow are reported along with enhanced continuity of care arising from CCAC/GEM telephone collaboration and follow-up.

2.2.4.3 St. Michael's Hospital

The credentials of the GEM nurse at St. Michael's Hospital (SMH) include a Master's in Nursing/Acute Care Nurse Practitioner and a Canadian Nurses Association Gerontology Nursing Certificate. She replaced the program's initial CNS in January 2006 who moved into a newly created role of corporate Clinical Nurse Specialist (CNS) in Gerontology. The GEM Program has been operational since November 2004.

The GEM Practice Model is deployed at SMH and the TRST is used to screen elderly patients and generate referrals to the GEM CNS. Adaptation of the GEM Practice Model at SMH reflects its inner city population base with enhanced liaison with psychiatric services and enhanced focus on younger seniors whose lifestyles have been marginalized. The GEM CNS assesses patients with a positive TRST screen in the ED and follows up on those identified as being a risk after hours via a telephone assessment.

Through a partnership with the CCAC the TRST score serves as a service trigger for patients discharged from the ED after hours or on weekends. The GEM CNS works closely with the ED social worker and RGP rehabilitation staff to provide consultation on complex patients. Patients with ongoing geriatric issues are also fast-tracked into the GEM Elder's Clinic (Geriatric Clinic) and are seen there within two weeks of discharge from the ED. Collaborative relationships with family practice, internal medicine, psychiatry, local long term care homes and other community agencies have also improved communication across the sectors and enhanced transfer processes within the health and community care system and diverted hospital admissions. Recognizing the needs of frail seniors presenting to the ED with falls, or high risk for falls, to receive evidence-based care, the GEM Program is developing a partnership with Toronto Public Health and other community agencies to implement a home-based falls prevention program for elderly patients discharged from the emergency department.

2.2.4.4 The Credit Valley Hospital

The GEM Nurse at the Credit Valley Hospital (CVH) credentials in RN, BScN and MN(c) and is seen as a valuable resource in the ED and within the entire hospital where she has been involved in all new nursing hires for the ED. The corporate support for this role has been further enhanced by the formation of a Senior Friendly Task Force initiative in which the GEM nurse is very involved.

The GEM Practice Model is deployed at CVH. The risk screening tool used the TRST as the foundation, but has been expanded to also serve as a tool to identify other geriatric risks e.g. delirium, falls. The GEM Nurse has a close partnership with the coordinating nurse staff and is aware of events occurring within the ED thus serving as a critical part of the ED team. Through this close relationship and ongoing dialogue, opportunities for referrals, informal education at the bedside, and consultation to the ED nursing staff are increased.

The ED staff has recognized GEM as a valuable resource in their day-to-day operations in the management of the frail elderly patient. The GEM nurse has participated in the Physical, Intellectual, and Emotional Health, Capabilities, Environment and Social (PIECES) Program for Emergency and Acute Care and has provided several workshops to educate the ED staff on delirium, dementia and depression. GEM has continued to collaborate on patient care with the Quick Response Program and CCAC discharge planners in order to ensure the safe discharge of patients from the ED. GEM continues to be actively involved on the restraint minimization committee and acts as a resource to the ED staff in troubleshooting strategies to manage the challenging confused patient. She is now chair of the hospital wide Delirium Committee and has developed a partnership with the CNS for Geriatric Psychiatry in order to educate nursing and allied staff from across the hospital on confusion in the elderly. GEM participated in a Ministry of Health Initiative in the Halton-Peel Region by assisting in the development and implementation of a 3-day educational program for registered staff in long-term care facilities within the region. Plans are in place for similar events in the future.

2.2.4.5 York Central Hospital

An advanced practice nurse with BScN, MScN credentials, initially filled the GEM position at York Central Hospital (YCH). Subsequently the role has been taken over by a nurse with a BScN who is currently enrolled in the Masters of Nursing - Advanced Nursing Practice program. Despite these changes, the GEM Program at YCH has been operational, with only a brief hiatus, since October 2004.

The GEM Practice Model is deployed at YCH. YCH participated in an initial pilot study of the TRST, and the risk screen is being integrated within the hospital Electronic Medical Record. The GEM RN has assisted in the development of a cluster of Acute Care of the Elderly beds and the implementation of a hospital-wide delirium protocol.

YCH has a dedicated CCAC nurse to facilitate timely discharge and the GEM RN has formalized relationships with all community partners. She works closely with the LTC CNS and provides monthly "Lunch and Learn" sessions in acute and chronic care areas of YCH, the CCAC and other community partners. Through a partnership with local retirement homes, GEM has access to short term crisis placement beds for patients who need immediate care or caregiver relief on a short-term basis. In partnership with public health the GEM RN is deploying a Falls Intervention Team (FIT) and is developing wound care improvement partnership in LTC. The community feels that the GEM position has been very successful at York Central Hospital and a valuable addition to the ED.

2.2.5 Ottawa

The RGP of Eastern Ontario is an important partner in the provincial GEM initiative because they were an early adopter of the GEM concept and because of a seminal GEM publication (5). Although not funded by the GEM Program, the RGP in Ottawa have contributed their expertise to the GEM evaluation initiative and have provided a GEM service at The Ottawa Hospital (TOH) and more recently at the Queensway-Carleton Hospital (QCH). A local report on the GEM services in Ottawa is therefore provided.

In the absence of dedicated funding, the current GEM model in Ottawa has integrated screening functions into existing roles within the ED. At present Social Workers operating within the ED (at both TOH and QCH) have assumed this role while the planning, co-ordination, education and evaluation is provided through the Regional Geriatric Program of Eastern Ontario. While this solution has limited the impact of the GEM Program in Ottawa, the Regional ALC Strategy for Champlain Region has recognized GEM nurses as key to alleviating ALC pressures throughout the region.

The model in place at The Ottawa Hospital and the Queensway-Carleton Hospital focuses on screening and discharge planning for at risk elderly patients whose 75 years of age and older and who are targeted for discharge home from the ED. An automated administrative screening mechanism is integrated into the ED information system, flagging seniors 75 years of age or more and who have had at least two ED visits in the previous 6 months. A CTAS score of greater than 2 will also be flagged in the QCH process. High-risk patients are identified using the Identification of Seniors at Risk (ISAR) screening tool.

Based upon the clinical judgment of the GEM Assessor and the results of an abbreviated geriatric assessment, patients who are discharged home are referred to one of many geriatric clinical resources including the Geriatric Assessment Outreach Teams, to be seen on an urgent basis (within 24 to 48 hours during weekdays), in their own homes. Beginning in November 2006, the Queensway-Carleton Hospital will include the Abbreviated Nursing Assessment developed by Dr. J. McCusker as part of their GEM model.

GEM education and capacity building activities have been developed in consultation with emergency staff, and the content emphasizes the physiology and pathologies of aging, confusion in the ED patient, depression, pain assessment and specific diagnostic difficulties, as well as community resources and referral protocols including the GEM screening and assessment. RGP Advanced Practice Nurses, Geriatricians, Allied Health Specialists, and other partners serve as faculty.

In 2005-2006 there were close to 300 patients seen by the GEM Assessor with 87 GEM referrals requiring further intervention most of which were directed to specialized geriatric services. It is important to note that during this same period over 2,300 patients who would have benefited form further assessment were identified through the administrative process. These patients were not seen because of staff resource limitations.

Clearly the GEM Program has resulted in improved patient care, admission avoidance, and the establishment of successful alliances.
– CEO of GEM Hospital

2.3 Experiences from the Field

The following case reports describe actual clinical encounters between GEM Nurses and frail seniors. The cases bring to life the sensitive and complicated nature of the GEM Nurse's clinical work, as well as the outcomes of a GEM intervention.

Case #1: By clarifying pre-admission level of function, GEM helps identify delirium and divert a hospital admission and long-term care placement

A visibly frightened elderly woman stands in the hallway outside her husband's ED room. As we enter his room, her grip on my arm tightens. We see a frail, 94-year old man difficult to rouse, unable to move in bed or answer questions, unaware of his surroundings. His face grimaced, he clenches his hands. His wife's tears flow as she says, "Please, help us." Staff has asked social work to initiate placement.

The wife reported that until two weeks ago, her husband's routine included an early morning cold shower followed by a two-kilometer walk for coffee with his friends. He loved to read and was an active gardener. Two weeks ago, while in his garden, he tripped and fell to the ground. He began to experience pain in his ribs. Gradually, he took to his bed and his wife provided care for him, while attempting to protect her family by not "bothering them." Over that two-week period, he began to hallucinate, became immobile, incontinent and unable to eat. While lying on his back and resisting pain medication, a pressure wound had emerged on his coccyx.

Diagnostic testing revealed fractured ribs, pneumonia, and an electrolyte imbalance. Staff now felt that admission to hospital with subsequent placement was required. We called the patient's daughter who, unaware of the current situation, hurried to the hospital. As the day progressed, it became clear that this patient was suffering from a delirium rather than a dementing illness, as ED staff had thought. The family wanted to care for the patient at home, and in an interdisciplinary team meeting that included the patient and his family, a CCAC Case Manager, Social Worker and Registered Nurse, a discharge plan was developed.

The family physician, unaware of the patient's current status, agreed to follow him closely at home. Pain management was initiated. Appropriate equipment was ordered and sent to the patient's home. A wound care Nurse Practitioner assessed his Stage 2 wound and recommended treatment for CCAC nursing to follow-up. Antibiotics were ordered. We provided teaching for the family in regard to transferring, positioning, pain management, and signs and symptoms of delirium with preventative strategies. Throughout the day he had been re-hydrated and given analgesia.

As he was discharged from the ED the same day in a wheelchair, with his family, he reached out to me, squeezed my hand and said "Thank you." His wife said, "Thank you for not giving up on us." Two weeks later, I received an envelope in the mail with a note and a photograph of this patient and his wife sitting in the garden. Community supports remain in place, delirium has almost disappeared and he was once again meeting his friends for coffee.

This case study illustrates:

- ✓ Clarification of patient's previous level of function allowed the ED medical staff to fully appreciate the acuity of the patient's decline and urgency of the current situation
- ✓ Identification of delirium and removal of misdiagnosis of dementia
- ✓ Care recommendations to support recovery from delirium
- ✓ Solicited additional support for caregiver, advocated for patient and family
- ✓ Education and support to family
- ✓ A hospital admission was diverted
- ✓ An inappropriate long-term care admission was diverted

Case #2: GEM identifies sub-acute problems of underlying chronic disease that are easily missed and threaten admission or loss of community tenure

An 82-year old male came to the ED with a history of worsening confusion and a fall upon rising from a chair at home. The patient's wife tearfully reported that her husband was increasingly irritable, angry, stubborn and had a loss of concern for others. She described increasing memory difficulties, wandering and becoming lost, and apparent hallucinations.

Past medical history included stroke, Parkinson's Disease, vascular dementia, sleep apnea, atrial fibrillation, gout, and diabetes. He was non-compliant with the nighttime positive pressure-breathing machine for his sleep apnea, sleep-disturbed and occasionally incontinent of stool.

The patient lived with his wife in a townhouse with 42 stairs without the assistance of veterans or CCAC services, despite needing assistance with all of the activities of daily living.

On examination, the patient was alert but scored 15/30 on the mini-mental status examination and showed significant impairment in word fluency. Gait and balance were impaired despite good upper- and lower-body strength. There were multiple abrasions on his limbs.

Several referrals were made, including: CCAC for bathing and personal care assistance, occupational therapy for home safety and functional assessment, physiotherapy for gait and falls safety assessment, and specialized geriatric services for an assessment of remediation potential. The family was also informed of the methods of accessing Department of Veteran's Affairs (DVA) services and a future planning discussion was initiated. With these services in place, the patient was discharged home.

This case illustrates:

- ✓ Traditional ED service is not well-equipped to manage emergent issues associated with an underlying dementing illness
- ✓ GEM supported discharge home by linking patient with necessary services
- ✓ GEM identified functional issues which were precipitating caregiver stress and made appropriate referrals
- ✓ By enhancing support in the community and linking to outpatient services for further management, GEM may have prevented repeat ED visits and premature institutionalization

Case #3: GEM identifies previously unrecognized problems and stops a cycle of ED recidivism

A 75-year old woman came to the ED with right-sided chest pain of five days' duration. During the five days she had made visits to two EDs without GEM services. Because she had no evidence of recent injury or cardiac event, Tylenol No. 2 (acetaminophen with codeine) was prescribed and she was sent home.

Her third ED visit was to a GEM-enhanced ED. A GEM assessment revealed several important issues. The patient lived alone, having been disengaged from her family for many years. She had recently refused home support services. Medications were poorly managed. Consultation with the patient's community pharmacist revealed that the patient received medications in a dosette that she typically returned empty at the end of each week. Recently, however, when the dosette was returned to the pharmacy two days late, the 'daily' medications appeared to have been taken only on three irregular occasions. The patient reported feeling "fuzzy-headed" after taking the Tylenol No. 2 and was reluctant to take the medication as prescribed. She was unable to read her medication instructions and had no recent eye examination. She reported poor appetite and weight loss. Fluid intake consisted primarily of caffeinated beverages and meals consisted of toast and frozen dinners. On a cognitive screen the patient scored 22/30. Investigations revealed an untreated urinary tract infection. A diagnostic formulation included delirium associated with urinary tract infection and pain secondary to fibromyalgia.

A treatment plan included antibiotics for the urinary tract infection and discontinuation of the Tylenol No. 2 in favour of regularly scheduled Tylenol plain (acetaminophen without codeine). The patient was discharged home with nursing visits provided by CCAC to monitor medication adherence. Family members were found and agreed to assist.

In consultation with the patient's family physician, referrals were initiated for an outpatient geriatric assessment and an eye examination. The GEM Nurse provided telephone follow-up and the cycle of ED readmissions appeared to have stopped.

This case study illustrates:

- ✓ The value of GEM intervention in identifying previously unrecognized problems
- ✓ Through the GEM medication review, inappropriate narcotics were replaced with safer, better tolerated medication to control pain
- ✓ A cycle of ED recidivism was stopped
- ✓ Appropriate community services were re-instated
- ✓ Longer-term case management resources were put in place

Case #4: GEM identifies critical medical conditions presenting with vague symptoms

A frail elderly woman with an early-stage dementing illness living at home with her daughter was found having fallen in her bathtub. Her daughter brought her to the ED to make sure that she had not been injured in the fall. No injury was evident, but a positive risk screen prompted a GEM referral.

During the targeted GEM assessment, it became evident that the patient's behaviour had been unusual all day and that she had been experiencing mild shortness of breath. These vague and atypical findings were discussed with the ED physician, prompting further testing and the confirmation of a recent myocardial infarction. Following a brief hospital admission, her cardiac status was optimized and she was discharged home.

This case study illustrates:

- ✓ GEM assessment facilitated diagnosis of critical medical condition in patient with nonspecific symptoms
- ✓ Frail seniors often present atypical symptoms when acutely ill (fall and behavioural change)
- ✓ GEM assessment enhanced ED assessment, as information was solicited from other sources and enabled better understanding of baseline functional status

Case #5: Sometimes GEM nurses advocate for a patient to be admitted

A 79-year old female was involved in a serious motor vehicle accident. While driving her subcompact car, she hit a tow truck head-on. The patient was wearing a shoulder belt restraint and the air bag was deployed. She was noted to be disoriented immediately following the crash and was transported to ED. However, the Trauma team was not activated.

The patient had sustained a fracture of the right arm and a lung contusion (RUL). The orthopedics service discharged the patient from the ED as no surgery was required. The ED physician, however, felt the patient was unsafe to go home, and consulted Internal Medicine. Internal Medicine did not feel that the patient had any acute medical issues which warranted admission.

The following morning, the GEM nurse was paged by the RN caring for this patient. The patient had a TRST score of 3 (polypharmacy, mobility concern, professional concern). She was also nauseated and vomiting. She could not tolerate postural changes due to weakness and dizziness, and minimal activity was accompanied by hypoxia. The GEM nurse completed her assessment. Past medical history included urinary incontinence, chronic benzodiazepine use along with other over-the-counter sleep aids. She was widowed, lived alone in a large home. Prior to this event, she was physically active, entirely independent and shoveled her own snow.

The patient's injuries involved multiple systems (pulmonary and orthopedic). The GEM nurse consulted the Advanced Practice Nurse for Trauma to assist in advocating for the patient's admission to a Trauma-related Service. Since the patient was unable to maintain oxygenation with any activity nor able to maintain hydration due to nausea, acute care admission was appropriate.

After review of the GEM nurse's finding, the trauma team admitted the patient to hospital. She improved quickly and was discharged after four days.

This case study illustrates:

- ✓ The effects of trauma in the elderly may present atypically
- ✓ Comprehensive assessment includes review of pre-morbid level of function and capabilities
- ✓ Ageism can cause premature decisions that a patient will become a bed blocker
- ✓ Advocating for admission to hospital is sometimes the most appropriate action

These case studies illustrate many of the contributions that GEM staff provide to seniors and ED staff. Vague and atypical symptoms are clarified, treatable conditions are identified, sudden declines in function are identified, delirium is identified and loss of community tenure is averted. Through the process of targeted assessment, the cause of multiple ED admissions is identified and hospital admissions are diverted. Sometimes, however, GEM staff advocate for admission with the expectation that future admissions can be diverted.

2.4 Capacity Building

The presence of eight new clinical positions stretched across the province cannot be expected to achieve great impact through clinical service alone. From the GEM Program's beginning, capacity building has been an essential knowledge-to-practice counterpoint to the GEM clinical service. During the program's development phase, a framework identifying key targets for capacity building was identified. The targets were: a) staff within the ED; b) the host hospital; c) long-term care homes; d) community: CCACs, public health and primary care; e) seniors and their families; and f) the academic community. Appendix 10.3 provides a listing of the GEM nurse's capacity building activities in each of these target areas.

Capacity Building within the ED

Building the capacity to better manage seniors by all staff within the ED is an important focus in the early stages of GEM Program development. Initially, ED staff need to understand what the GEM Program is, come to understand and respect the specialized knowledge and skills of GEM staff and experience the way that GEM adds value rather than hinders their work. Capacity building in this area included such activities as the "GEMalicious Breakfast" GEM orientation program, presentations at rounds and in-services, and the preparation of posters and newsletters. A GEM Program Poster is now available for any ED room considering the development of GEM services.

A second fundamental step in building capacity within the ED supports the implementation of GEM clinical procedures such as orientation and training on risk screening, delirium prevention protocols, and long-term care transfer protocols. Implementation of risk screening is perhaps the most difficult of these. A third element of GEM capacity building within the ED is to engage ED staff in reflection on their skills and knowledge about seniors care and build upon these skills through direct training and participation in quality improvement initiatives.

Implementation of the PIECES™ –ED curriculum on psychogeriatrics is becoming an important form of capacity building in this regard. Evaluations conducted by the GEM nurses reveal that this training is highly valued and prompted such comments from participants as:

> "Great for front line ER staff"
> "I'm looking at the elderly in a much different light"
> "This program hopefully will allow us all to think outside the box and potentially find the underlying problems"
> "very practical and will change my practice".

Building GEM capacity across the host hospital

As is the case in many complex organizations, hospital staff working in one service area often have limited interaction with those in other parts of the organization. The ED is no exception.

The value of a GEM Program can be enhanced through building relationships across the hospital, by creating awareness of the program, sharing work in hospital-wide initiatives and understanding the complications that arise in transfers between the ED and hospital services. Hospital-wide poster campaigns and educational blitzes, together with GEM participation in speciality rounds are some of the capacity building activities in this setting. In addition, linking the ED with hospital-wide quality improvement initiatives such as delirium, falls and pressure ulcer awareness programs and inserting the 'GEM voice' in appropriate committees, and task forces have been highly valued in hospitals.

Capacity Building in Long-Term Care Homes

There are opportunities to enhance the relationship between LTC homes and EDs by building capacity. GEM staff help LTC staff manage issues that commonly prompt transfer to the ED. These issues include feeding tube management, hypodermoclysis and antibiotic infusions issues. As well, GEM staff have facilitated process improvements within the ED for patients transferred from LTC. The development of a caremap to expedite admissions of LTC patients from the ED to a Digestive Disease Unit is one example of these capacity building opportunities.

Capacity Building in the Community

Linking ED patients with CCACs and primary care providers is a key element in achieving a durable ED discharge. GEM staff have developed capacity in this area by providing GEM in-services for CCAC staff and family practice networks. Process improvement has also been a focus of capacity building in the community and has included such initiatives as automated risk communications, coordinated discharge planning and the development of shared care protocols. GEM staff have also partnered with Departments of Public Health, Falls Interventions Teams and "Stepping out Safely" programs to build GEM capacity through falls prevention.

Building GEM capacity through knowledge transfer with seniors and their families.

GEM nurses have developed individualized patient-focused education initiated in the ED on such topics as falls, wound and skin care, pain, delirium, incontinence, osteoporosis and health system navigation. One to one knowledge transfer has been supplemented by making reading materials available in ED waiting rooms and by making presentations at Elder Care Workshops and seniors associations within ED catchment areas.

Capacity Building through knowledge transfer using academic forums

Finally, GEM staff have presented posters, made presentations and prepared publications in the more traditional academic forums. Not the least of these activities include the planning and delivery of an annual conference on GEM issues. The first conference provided the broader academic and practice community with an overview of the issue of seniors in EDs. The second conference focused on providing practical tools and approaches to starting GEM Programs. Evaluations of these conferences have been very positive and included comments such as:

> "this has helped me see how poorly we intervene with our geriatric population",
> "the ED can be a dangerous place for frail seniors",
> "this has given me something I can apply every day",
> "we are in the midst of developing a GEM service . . . and this has really helped" and,
> "can't wait to get back to CCAC and suggest a similar tool/role in our ED".

Through our GEM Program's capacity building activities, we have helped build GEM capacity in other parts of the province including the Erie-St. Clair LHIN, the Chatham-Kent Health Alliance, Leamington District Memorial Hospital, Lakeridge Health Corporation, Cambridge Memorial Hospital, Cornwall Community Hospital and Brant Community Health Care System.

From Brant Community Health Care System, Brantford General Site, discharge planner, Carrie Wozny RN, wrote:

> "it was a pleasure to be part of the (GEM) conference. So much so that we have been trying to develop something at our hospital. On a much smaller scale of course but it is a start. What a stroke of luck that your email has been received at this time. I was going to be in touch with your organization for helpful hints, strategies etc to help us to develop a GEM type program here at the Brant Community Healthcare System, Brantford General Site."

And, Maria Boyes from the new Geriatric Emergency Management Program at Cambridge Memorial Hospital, wrote to say that:

> "The care and welfare of older people in our community is considered a priority in the framework of our Seniors' Health Services at CMH. The integration of the Geriatric Emergency Management Program in our service model for geriatric care in the emergency department became an important focus of our work to meet the needs of the elderly population especially seniors at risk. The Provincial GEM Program has been an invaluable source of support and inspiration that has confirmed the value of geriatric services in the emergency department in our community. The Program provides a cohesive, coordinated and effective model of delivering geriatric emergency care. It allows professional practitioners to gain insight into the varying needs of the elderly, and acquire specialized knowledge and skills. The service model for geriatric care in our emergency department stems from the GEM framework developed by the Regional Geriatric Program. Their support and capacity building initiatives have enhanced the integration of emergency, inpatient and community services in our community.

The GEM Program is a very positive investment and capacity building resource with importance province-wide."

Many elderly clients who come to the ED may arrive with one symptom but they actually have an entire host of needs that the GEM nurse addresses. The GEM nurse is concerned with the entire health of the client and their family – *CCAC Case Manager*

3. Aggregate Nursing Activity Summary

The GEM Program was developed to improve the care of elderly patients accessing EDs who are at risk of having adverse outcomes. One of the main goals of this initiative was to ensure that the flow of this vulnerable population through the acute care system was efficient, that care was client-centred, and that patient needs were addressed through linkage with partners across the health care continuum (acute care, long-term care, community and primary care.) The second priority of GEM was to build capacity, minimize service gaps and increase the awareness of the services and resources relevant to improved care strategies for frail seniors.

Aggregate GEM volume and activity data from the eight ED sites in Hamilton, Kingston, London and Toronto for the fiscal year 2005-2006, indicate that 48,593 ED visits were made by those 75 years of age and older. Of these, 5,703 (12%) visits were identified as having a profile suggestive of being "at risk". GEM staff saw 2,886 (51%) of these "at risk" seniors. An additional 461 (8%) of "at risk" patients who were not seen by GEM during their ED visit received a telephone follow-up contact from GEM staff.

The majority of patients seen by GEM were discharged back to their home. Thirty-four percent of patient encounters seen by GEM were linked with CCAC services. Five hundred and forty one (18.7%) GEM patient encounters were linked to specialized geriatric services. Other linkages were initiated in 527 (18%) patient visits. Only 49% of patient visits involving GEM were subsequently admitted to hospital from the ED (minimum 22%, maximum 54% depending on the site).

The portion of time GEM nurses spent in direct clinical care ranged from 36% to 63% of a full time equivalent (FTE). Time spent in capacity building activities that are outlined in **Appendix 10.3** ranged from 29% to 60% per FTE. Aggregate GEM activity is available in **Appendix 10.4**

"Having the GEM nurse available to our service has been invaluable….GEM helps to humanize our experience of the elderly in the ED; often they are seen as complicated cases which involve turf battles and words like 'dump'. The GEM nurse has often come into the situation and offered support and solutions. It has been wonderful" – *Staff Psychiatrist*

4. GEM Program Evaluation

4.1 Evidence for GEM from the literature

Seniors who have attended EDs are at significant risk of adverse outcomes, including repeated ED usage, hospitalization, functional decline and death (5). The possibility of improving upon these adverse outcomes through interventions such as geriatric emergency management has been evaluated in the literature and other jurisdictions.

A review of the recent literature identified 13 studies that examined the value of a GEM Program. In these studies the model of GEM service delivery has been variable and the study design has ranged from randomized controlled trials to observational reports.

There are three evaluations based on randomized controlled trials. McCusker and her colleagues in Montreal investigated the effects of a two-stage GEM intervention on the process of care at, and during the month after, the ED visit. The intervention comprised screening and a brief standardized nursing assessment and referral, for ED patients aged 65 years and over. The intervention group were more likely to have a referral to their local community health centre and their primary physician, and to have received home care services one month after the ED visit. But they were also more likely to return to the ED (17). The investigators also determined that the cost-effectiveness of a 2-stage emergency department intervention in addition to usual ED care compared with that of usual care alone. They conclude that the intervention is preferred over usual care because beneficial functional outcomes were observed, and overall societal costs were no higher than if only usual care was given(17).

In Mion's randomized clinical trial, patients 65 years or older who were discharged home from the ED, received a comprehensive geriatric assessment by an advanced practice nurse and subsequent referral to a community or social agency, primary care provider, and/or geriatric clinic for unmet health, social, and medical needs. The control group received usual ED care. The intervention was effective in lowering nursing home admissions at 30 days, and in increasing patient satisfaction. Overall service utilization was unchanged at 30 and 120 days, however when patients were admitted to hospital, their length of stay was shorter(18).

In the DEED II study, Caplan et al randomized 739 patients who were designated to be discharged from the ED to undergo comprehensive geriatric assessment by a nurse or usual care(13). The intervention resulted in a 25% reduction in all hospital admission at 30 days (16.5% vs. 22%). The number needed to treat to prevent one admission was 18. Emergency hospital admissions were reduced by 18% at 18 months (44.4% vs. 54.3%) and the number of treated patients required to prevent one admission was 10.

Several other studies using less rigorous methodologies and with varying models of GEM service delivery have demonstrated improved functional status(13, 19), perceived well being (20), increased linkage with community health resources (19) (17) and fewer falls(21).

In a study of 1724 patients, Guttman et al compared GEM intervention patients with a historical control group(20). The GEM patients had a 20% reduction in repeat ED visits at 14 days (12.9% vs. 16.1%) compared to the historical controls. After controlling for disease severity and functional status, the risk of repeat ED visits was even further reduced to 26%.

In a review by Hastings & Heflan of ED-based geriatric intervention models, those which focus on the needs of high risk (i.e. older) seniors, providing geriatric nursing assessment together with community service and primary care linkage seem to be the most effective(22).

British Columbia's Fraser Health Authority piloted the use of a geriatric emergency nurse clinician to assess seniors presenting in the ED. They also developed a workshop to train other emergency department staff in geriatric health issues. The training, combined with the use of a geriatric emergency nurse clinician, has had a dramatic effect, according to the Executive Director of Burnaby Hospital. In four months they saved 1,170 patient-days, and they were able to reduce the length of the hospital stay for older patients by an average of four days, because the care plan was started right away in the emergency department (23). In addition, nurses and other ED staff can more quickly recognize unique symptoms in seniors and identify underlying chronic health issues. Patients and their families were also more satisfied with the quality of care. As a result of this success, the geriatric educational component of the Burnaby project is being rolled out across British Columbia through the Geriatric Emergency Network Initiative (GENI).

4.2 Patient Profiles

The following tables provide a preliminary demographic profile of GEM encounters in the ED in 2005-2006 in five Toronto area hospitals (York Central Hospital, St. Michael's Hospital, The Credit Valley Hospital, Rouge Valley Health System, and Humber River Regional Hospital), at St. Joseph's Healthcare Hamilton, at University Hospital, London Health Sciences Centre, and the Kingston General Hospital.

The majority of patients seen by the GEM nurses are female, live at home, are brought in by ground ambulance, and triaged with a CTAS (Canadian ED Triage and Acuity Scale) score of 2 to 4. Over 70% of patients seen by the GEM nurse are considered semi-urgent or urgent (i.e., CTAS = 4 or 3, respectively).

Table 2: Patient Characteristics (%)

	Toronto	Hamilton	London	Kingston
GENDER	n=1747*	n=442*	n=519*	n=199*
Male	36.9	39.1	38.7	33.7
Female	63.1	60.9	61.3	66.3
LIVING ARRANGEMENT	n = 798	n=446	n=519	
Home (alone or with others)	64.5	91.7	91.0	Not available
LTC home	28.9	5.8	3.9	Not available
Retirement home	6.6	2.5	5.2	Not available
MODE OF ARRIVAL	n=50	n=30	n=30	n=199
Self	18.0	0	23.3	16.1
Ambulance	82.0	100	76.7	83.9**
CTAS	n=114	n=417	n/a	n-=175
1 (resuscitation)	0.9	0	n/a	1.1
2 (emergent)	28.9	3.6	n/a	4.6
3 (urgent)	57.9	12.5	n/a	69.7
4 (semi-urgent)	12.3	81.3	n/a	24.0
5 (non urgent)	0	2.6	n/a	0.6

* n=encounters
** Kingston data includes "Police" as mode of arrival for 0.5% of sample.

Between January 1, 2006 and March 31, 2006, the GEM nurses collected comorbidities on all patients seen using the Charlson Comorbidity Index (24) . The Charlson Comorbidity Index measures the presence of 19 co-morbid conditions. The most common comorbidities reported across the eight sites are shown in Table 3. Hypertension and musculoskeletal disease were the most frequent comorbidities identified by the GEM nurses.

Table 3: 10 Most Common Comorbidities in 8 GEM Sites

COMORBIDITY (collected between January 1, 2006 – March 31, 2006)
Hypertension
Musculoskeletal disease
Diabetes-mild to moderate
Dementia
Cerebrovascular disease
Myocardial infarction
Congestive heart failure
Chronic obstructive pulmonary disease (COPD)
Any tumor
Psychiatric illness

At discharge from the ED, the majority of GEM patients are discharged home (Table 4) and many are referred on to other geriatric or community services (Table 5).

Table 4: Discharge Disposition (%)

	Toronto	Hamilton	London	Kingston
DISCHARGE DISPOSITION	n=1728	n=436	n=266	n=199
Discharged Home	56.9	60.3	54.1	57.8* 18.1**
Admitted to hospital bed	39.6	39.7	34.2	24.1
Admitted to geriatric unit	0	0	n/a	n/a
Admitted to geriatric rehabilitation unit	0.2	0	n/a	n/a
Return to LTC home	3.0	0	5.6	n/a
Discharged to retirement home	0.1	0	n/a	n/a
Death	0.1	0	0	n/a
Other	0	0	6.0	0

* Discharged home without support

** Discharged home with supports or to institution (Nursing home, retirement dwelling, or jail)

Table 5: Linkages with other services (%)*

	Toronto	Hamilton	London	Kingston
LINKAGES	n=1952	n=447	n=118	n=259
Referred to geriatric services	16.5	15.9	16.9	32.8
Referred to psychogeriatric services	1.2	1.6	0.8	6.2
Additional community supports	9.1	24.4	38.1	43.0
Referred to other hospital or clinical service	12.2	18.8	5.9	32.4
Other (e.g. respite care)	0.1	0.2	1.7	0
Crisis placement	1.1	2.5	n/a	2.3
None	0	0	36.4	0

* Totals may be greater than 100% as a patient may be linked to more than one service.

4.3 Preliminary Outcome Data

In response to the MOHLTC's request for interim evaluation data, we are able to provide preliminary evidence in support of GEM from two Toronto sources and Hamilton.

Reduction in Hospital Admissions from the ED
At the Rouge Valley Health System there are two EDs at separate sites. Since the implementation of GEM at one of its ED sites, there has been a 6.5% reduction in the rate of hospital admissions from the ED among patients over 69 years (from 35% to 28.5%). At the second ED, where there are no GEM services, the rate of hospital admissions for seniors has remained constant over the same period (Table 6).

Table 6: Hospital admission rates from ED for patients over 69 years

	Centenary site (GEM)	Ajax site (No GEM)
2003-2004	35%	27.5%
2004-2005	32%	28.6%
2005-2006	28.5%	27.5%

Toronto: Comparison of GEM cases and historical controls
We compared cases of patients seen by GEM in two Toronto GEM EDs (St. Michael's Hospital & Rouge Valley Health System) between September and December 2004 with controls selected from patients seen in the same hospital in 2003, prior to the implementation of the GEM Program. Controls were matched for age, gender, CTAS score, and mode of arrival to the ED. Patients who were admitted to hospital directly after the ED visit were excluded from the analysis.

In any observational study design, there is a potential for confounding factors to influence results. In an effort to control for these confounding variables, we performed a multivariate regression analysis. The model took into consideration the presence of co-morbid illness using the Charlson Index and hospital discharge diagnoses for the year prior to the index date. Concomitant medications used by cases and controls in the year prior to the ED visits were included as covariates in the model.

Information on the cases and controls was linked through administrative datasets (Canadian Institute for Health Information, Ontario Drug Benefit, National Ambulatory Care Reporting System) at the Institute for Clinical Evaluative Studies (ICES). The protocol was approved by the Research Ethics Board at Sunnybrook Health Sciences Centre and at the local hospitals.

Three hundred and thirteen patients were seen by the GEM nurse at two sites between September and December 2004. One hundred and ninety-four patients were excluded from the analysis either because they were admitted directly to hospital after the ED encounter or there were incomplete data. The remaining 119 GEM patients were

included in this interim analysis. Four control patients were matched for each GEM patient.

The results of this preliminary analysis indicate that when hospital admission occurred distinct (within 7 days or 30 days) from the ED visit, there was a reduction in the hospital length of stay (LOS) in GEM patients compared to controls (Table 7).

Table 7: Length of stay of subsequent hospital admissions distinct from GEM encounter (2 Toronto sites; Sept-Dec 2004)

Mean LOS of admissions	GEM	Control
within 7 days of ED visit	10.13 days (n=16)	17.45 days (n=29)
within 30 days of ED visit	15.11 days (n=28)	17.44 days (n=44)

After having a GEM contact, patients had more follow up visits with their physician than control patients who did not see a GEM nurse. This finding suggests good compliance with recommendations made by the GEM nurse regarding family physician follow-up. In this regard, enhanced follow up with community-based services is a positive outcome.

Table 8: Physician follow- up contacts after GEM encounter (2 Toronto sites; Sept-Dec 2004)

Mean number of physician visits	GEM	Control
within 7 days of ED visit	2.34 (n=80)	1.88 (n=317)
within 30 days of ED visit	6 (n=105)	4.6 (n=419)
within 180 days of ED visit	20.74 (n=119)	18.09 (n=448)

In this data set and interim analysis, there were no reductions in the ED recidivism, hospital or long-term care admission rates.

Hamilton: Comparison of GEM patients and non-GEM ED patients

In Hamilton, the GEM nurse is employed at St. Joseph's Healthcare Hamilton (SJHH) comprised of over 700 beds on two campuses (there is a third campus for ambulatory care, including Urgent Care only). The ED is one of four in the city. While all EDs provide a full range of services, each is functionally specialized so that SJHH focuses on nephrology and psychiatric care. SJHH has a small geriatric assessment unit, a geriatric consult team, and, at the other campus, an inpatient geriatric psychiatry unit.

The following data is a comparison of GEM patients seen at SJHH in 2005-2006 and non-GEM ED patients over 75 years with CTAS score between 3 and 5 seen during the same period. In this dataset, the GEM patients are those that are identified as being at highest risk (positive TRST) and differ significantly from the other older patients who were not seen by GEM. The GEM patients were significantly older, more likely to be female, and arrive by ambulance (Table 9). This profile suggests greater complexity and frailty amongst the GEM patients.

Table 9: Patient Characteristics (SJHH 2005-2006)

	GEM n=325 visits	Non-GEM n=9125 visits	P value
Age	83.5 years	81.8 years	P<.001
Gender (female)	64.8%	58.2%	P<.001
Arrival by ambulance	48.4%	35.8 %	P<.001

Despite the likelihood that patients seen by GEM are more complex and more frail, GEM patients were more likely to be discharged home following GEM assessment than non-GEM patients (Table 10). Hence, GEM assessment may have diverted unnecessary hospital admissions.

Table 10: Rate of hospital admission (SJHH 2005-2006)

	GEM n=325 visits	Non-GEM n=9125 visits	P value
Admitted from ED	38.2%	59.8%	P<.001

However, both overall average length of stay and length of stay for those who were admitted was about 30% longer for GEM patients (Table 11). This may suggest that those who were admitted following a GEM assessment had higher complexity and severity of illness which warranted hospital admission.

Table 11: Length of Stay (SJHH 2005-2006)

	GEM n=325 visits	Non-GEM n=9125 visits	P value
Overall average LOS (includes admitted and non-admitted patients)	3.3	2.4	P<.01
Average LOS for admitted patients	19.3	14.9	P<.05

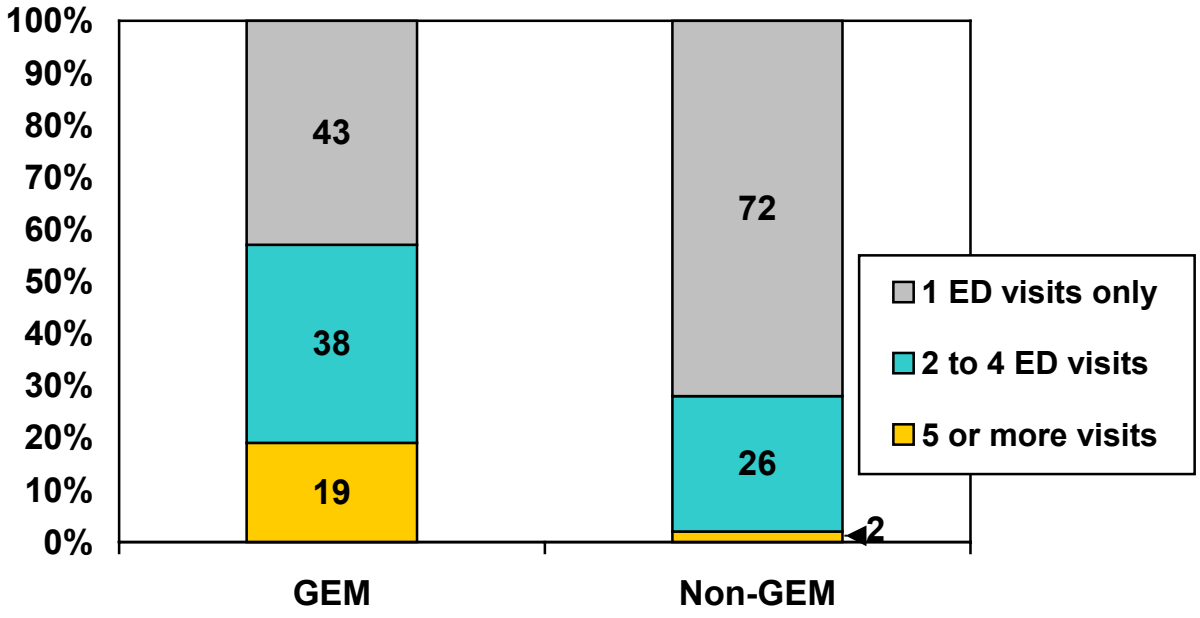
In contrast to the Toronto data presented earlier in this section, this LOS refers to an admission to hospital directly from the ED following GEM assessment. The Toronto analysis which demonstrated reduced hospital LOS refers to admissions to hospital at a point distinct from the sentinel ED presentation (i.e. patients who were discharged home

from the ED and subsequently experience a hospital admission at a later date). These data suggest that the GEM nurses are able to identify those complex patients that require admission and the value of GEM assessment in facilitating more efficient health care encounters in the future.

The Hamilton data also demonstrates a considerable difference in visit history between patients seen by the GEM nurse and those not seen by the GEM nurse (Figure 1). At SJHH, the GEM nurse saw more of the patients with a history of multiple ED visits. This is partly due to the nature of the screening tool employed, which includes previous hospitalization and previous ED visit as a risk criteria.

Almost 20% of individuals seen by the GEM nurse during the 2005-2006 year had 5 or more ED visits in the same year, compared to only 2% of those not seen by GEM. One patient presented to the ED 184 times, until that patient was referred to the GEM nurse, at which time the recurring visits ceased as the GEM nurse recommended appropriate intervention.

Figure 1: Frequency of multiple ED visits in 2005-2006 (SJHH)



Methodological and conceptual considerations
Interpretation of the results of this interim report must be qualified by several methodological, conceptual and contextual issues. The sample sizes in these analyses are small and limit our power to detect differences. Some of the data for this interim report is drawn from two Toronto sites during the formative period of GEM program development (2004). Data for the final GEM evaluation report will draw upon the results of GEM services in all sites during the mature, summative period of program deployment.

Since these are not randomized trials, there may be selection bias. The most complex and challenging cases may be selected for referral to the GEM nurse and matching methods and regression modeling used in the Toronto analysis may not be sufficient to address fundamental differences between the cases and controls. For example, results may have been confounded by differences in acuity, level of risk, severity of illness as well as potential differences in such issues as cognitive impairment, falls, continence, alcohol use, socio-economic factors and family supports. The presence of selection bias is apparent in the Hamilton data as there are significant differences in the baseline characteristics of the GEM and non-GEM cases.

In the Toronto analysis, GEM patients seen in the ED and directly admitted to hospital from the ED were censored from this analysis. By excluding these patients from the present analysis the impact of GEM may be underestimated. In fact in the Hamilton analysis, GEM assessment was associated with a decreased rate of admission to hospital immediately following the initial ED encounter.

Even though there was no reduction in the rate of ED recidivism in the Toronto data, it may be that these visits are handled more quickly in the GEM group because of their earlier GEM intervention thereby increasing ED efficiency. This may be analogous to the reduction in LOS seen upon subsequent hospital admissions in Toronto's GEM group.

Finally, at this time, we are unable to determine whether the GEM service had a positive systemic impact on care throughout the ED. If GEM nurses take care of seniors at risk, for example, this may increase the capacity of the ED to see other patients. Similarly, we are unable to determine whether the GEM Program's capacity building activities prompted enhanced awareness of frailty issues among non-GEM ED staff thereby producing general improvement to the care of seniors whether or not they were seen by GEM. Many of these methodological, conceptual and contextual limitations will be clarified in the final GEM evaluation report and in subsequent research.

4.4 Stakeholder survey results

Each GEM nurse was asked to consult with their ED administrator and RGP evaluator to identify 10 health professionals whom they considered stakeholders in the GEM process. Each identified stakeholder received an explanatory email providing access to an online survey comprised of rating scales and open-ended queries. RGP evaluators, in collaboration with the Program's GEM nurses, created the survey.

Of the 80 potential respondents, 58 surveys were completed representing a 72.5% response rate.

Table 12 presents the positions held by the group of respondents. When asked to indicate their level of awareness of the GEM Program, 72% indicated that "quite a few of their patients had been seen by GEM", 16% indicated that "a few patients had been seen", 2% had been made aware of the program through a GEM conference and 8.2% became aware of the program through conversation with a GEM nurse.

Table 12: Positions held by stakeholder survey respondents

Position	Number of respondents
CCAC case manager	8
Not specified	7
ED Manager	4
Clinical Leader	4
CNS geriatrics	4
ED Physician	4
Nurse Practitioner Acute Care	3
ED social worker	3
Other hospital social worker	3
ED RN	3
LTC Director	2
SGS staff	2
Geriatrician	2
Geriatric Psychiatrist	2
LTC Advanced Practice Nurse, Corporate Discharge Planner, Other Hospital Manager, Nurse Educator, RN case manager, Physician Manager, Pharmacist	1 of each

Respondents were asked to rate the quality of referrals or recommendations that they had received from the GEM nurse in their community and these ratings are presented in Table 13. Stakeholders rated the GEM nurses' referrals and recommendations as clinically appropriate and practical, fitting well into their own practice.

Table 13: Respondent ratings of the quality of referrals or recommendations received from the GEM nurse (where 1= not at all, 5= fair and 10 = excellent)

Item	N	Mean	Std. Deviation
How clinically appropriate were the referrals recommendations?	56	8.5	2.2
How practically achievable were the referrals recommendations?	56	8.1	2.2
How well would the recommendations fit in your practice?	56	8.3	2.2

The stakeholder survey included a series of rating scales asking stakeholders to provide more focused perceptions of elements of the GEM Program. From the mean ratings for each item outlined in Table 14, it seems that stakeholders agreed that GEM identifies seniors at risk, improves the chances of patient recovery, enhances knowledge and the ability to identify seniors at risk, improves the quality of patient care after ED discharge, increases overall satisfaction with ED care, and improves communication of patient needs and follow-up.

They disagreed with the statement that GEM has little or no effect on patients and felt that GEM did not delay or hamper patient care in the ED.

Table 14: Based on your experiences with the GEM Program how would you rate GEM on each of the following items? (Where 1= strongly agree and 5= strongly disagree)

Item	N	Mean	Std. Deviation
GEM identifies seniors at risk	58	1.7	1.3
GEM enhances my knowledge and ability to identify seniors at risk	56	2.2	1.3
GEM improves chances of patient/client recovery	56	2.1	1.3
GEM improves the quality of patient care if they are admitted	58	2.5	1.4
GEM improves the quality of patient care after ED discharge	58	2.0	1.3
GEM increases overall satisfaction with care provided to patients in the ED	56	1.9	1.2
GEM provides recommendations that are easy to implement	56	2.1	1.2
GEM improves communication of patient needs and follow-up	57	1.8	1.3
GEM has little or no effect on patients	57	4.3	1.2
GEM delays or hampers patient care	57	4.4	1.3

As can be seen in Table 15, when asked about he impact of GEM on their own practice, 52% of respondents indicated that they were more likely to refer to specialized geriatric services and an additional 20% said that they would make such referrals if specialized geriatric services were available. Only 2% said that they would be less likely to refer to specialized services if they were available.

Table 15: The impact of GEM experiences on stakeholder's future referrals to specialized geriatric services?

Item	Endorsement percentage (n=50)
I am more likely to refer to specialized geriatric services	52%
I would make more referrals to specialized geriatric services if they were available	20%
I am less likely to refer to specialized geriatric services	2%
My referrals to specialized geriatric services have remained about the same	26%

As seen in Table 16, respondent stakeholders were satisfied with the patient information received and the ease and speed with which they could reach the GEM nurse.

Table 16: Please rate your satisfaction with the following elements of GEM services Where 1= very satisfied, 2= somewhat satisfied and 3= not satisfied)

Item	N	Mean	Std. Deviation
Were you satisfied with the patient information you received from the GEM nurse?	55	1.3	0.6
Were you satisfied with the feedback you received after the patients ED discharge?	37	1.6	0.8
Were you satisfied with the ease and speed with which you could reach the GEM nurse?	57	1.4	0.7

While the stakeholder feedback is very positive, there were three concerns expressed in the survey's open-ended questions. The limited availability of GEM nurses on night shifts and over weekends and the volumes of seniors at risk were issues for several stakeholders and the need to focus each GEM nurse on providing service in one ED was a concern for several hospital based stakeholders whose multi-site organizations had two or more EDs. Finally, there is a need to clarify the role relationships between GEM nurses and discharge planners. Despite these perceived barriers, 93% of the respondent stakeholders stated that they would use the GEM service again. In addition, strong letters of support from ED Directors and hospital executives speak to the value and positive impact of the GEM Program in host organizations (**See Appendix 10.1).**

5. Implementation Challenges

The presence of contextual diversity in the implementation of the GEM Practice Model adds value to this initiative. Variations in the health care system across the eight sites have helped us to understand the necessity of adapting this model to local contexts, demographics and infrastructures.

Infrastructure and Process:

- Introducing new paper work and documentation (i.e., screening tool) in a busy ED requires culture change, lead time, follow-up and support.
- Existing, 'in-place' risk identification procedures, research projects and local priorities may compete with or take precedence over new protocols.
- 'In-place' clinical processes such as the presence of discharge/care managers can cause interdisciplinary rivalries despite efforts to avoid them.
- Risk managers are reluctant to formally screen and identify risk without the guarantee of and capacity to respond.
- There may be infrastructure issues which are beyond the scope and mandate of the GEM practitioner to influence or change.
- A hospital admission can be clinically necessary, in the patient's best interest and may proactively prevent future adverse outcomes.
- There is limited availability of GEM nurses on nights shifts, weekends, during sick leaves and holidays.
- ED staff turnover requires ongoing orientation to the GEM role.

Perceptions

- If it is perceived that the risk screen identifies too many seniors over the age of 75, the risk screening may be viewed as unnecessary (i.e., not specific enough).
- Even with mandated and audited implementation the use of risk screening often depends on individual priorities of the ED staff themselves and personal experiences or relationships with GEM staff.

Other challenges to GEM Program delivery

- The volumes of seniors at risk.
- GEM nurse providing service to one ED is a source of dissatisfaction for hospital based stakeholders whose multi-site organizations have two or more EDs.
- There is a need to clearly define and build upon the complementary roles of the GEM nurse, social workers, CCAC case managers and other health professionals in the ED.
- The traditional focus on emergency acute care may be at odds with the model of care required to address the full spectrum of emergency and subacute urgent geriatric issues seen in frail older patients.

Yet despite these challenges, GEM was successfully implemented in each setting. New infrastructure and processes were put in place, staff were able to deal with the many changes and staff changes over time. These successes were a function of stakeholder support, establishing strong lines of communication, and common values and goals for a more integrated health care system for seniors.

6. Key Messages and Conclusions

Key messages:

- Awareness of the program and the unique needs of frail seniors in the ED has been heightened, credibility established and relationships forged locally and regionally within ED and across the health care continuum.
- A common evidence-based GEM Practice Model that allows for local variation is essential.
- GEM nurses have increased the capacity of health care providers both within the ED and the region to address the complex needs of the frail elderly.
- GEM nurses identify high-risk seniors and address unrecognized geriatric issues that increase the probability of adverse outcomes.
- GEM nurses enhance patient discharge processes and promote safe discharge.
- GEM intervention may divert unnecessary hospital admissions.
- GEM nurses identify and encourage appropriate admissions.
- GEM improves communication between health care providers and both patients and their family members.
- GEM enhances service linkages within the hospital and in the community.
- GEM principles can be adapted to suit local needs.
- Health professionals and key stakeholders are very satisfied with the GEM Program.
- Evidence from the literature supports the value of GEM in improving clinically relevant and important patient and system outcomes such as decreased hospital length of stay, increased linkage to community services, more appropriate admissions, decreased recidivism, preserved functional ability and patient satisfaction.
- Our preliminary data suggest that GEM can facilitate discharge from the ED and divert unnecessary admissions, reduce hospital length of stay during subsequent distinct hospital admissions and increase primary care contacts.

Conclusion:

The GEM Program is feasible to implement and highly valued by a wide range of stakeholders. Availability of a geriatric focused nurse in the ED results in improved quality of care and better patient outcomes. Established linkages with hospital and community partners have resulted in improved follow up and ongoing management of patients. GEM nurses increase the capacity of health care providers to appropriately manage the complex needs of the frail elderly across the health care continuum. As Ontario's senior population continues to grow, pressures in the ED and health care system increase. GEM services are an important part of the solution, and should be widely available in Ontario.

Next steps:

- Continue to build the network of GEM nurses across the province.
- Provide a more complete analysis of GEM patient data in 2007.
- Continue to develop our educational materials, curricula and conferences supporting the deployment of GEM.
- Continue to identify best practices for frail seniors in the ED.
- Make recommendations for broader GEM deployment for health care planners based on population and system variables.

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8. Glossary of Terms

CCAC	Community Care Access Centre
CNS	Clinical Nurse Specialist
CTAS	Canadian Triage and Acuity Scale
DVA	Department of Veteran's Affairs
DVT	Deep Vein Thrombosis
ED	Emergency Department
FIT	Falls Intervention Team
GEM	Geriatric Emergency Management
GENI	Geriatric Emergency Network Initiative
GNC	Gerontological Nursing Certificate
HRRH	Humber River Regional Hospital
ISAR	Identification of Seniors at Risk
KGH	Kingston General Hospital
LHSC	London Health Sciences Centre
LOS	Length of stay
LTC	Long-term care
LTCH	Long Term Care Homes
MOHLTC	Ministry of Health and Long-term Care
NACRS	National Ambulatory Care Reporting System
PHIPA	Personal Health Information Protection Act
PIECES	Physical, Intellectual & Emotional Health, Capabilities, Environment and Social
QCH	Queensway-Carleton Hospital
RGP	Regional Geriatric Program
RN	Registered Nurse
RVHS	Rouge Valley Health System
SERGP	Southeastern Ontario Regional Geriatric Program
SGS	Specialized Geriatric Services
SJHC	St. Joseph's Health Care (London)
SJHH	St. Joseph's Healthcare Hamilton
TOH	The Ottawa Hospital
TRST	Triage Risk Screening Tool
YCH	York Central Hospital

9. Acknowledgments

The RGPs of Ontario would like to acknowledge Michael Schull, Alexander Kopp and Brandon Zagorski, ICES for their contribution to the evaluation and data analysis.

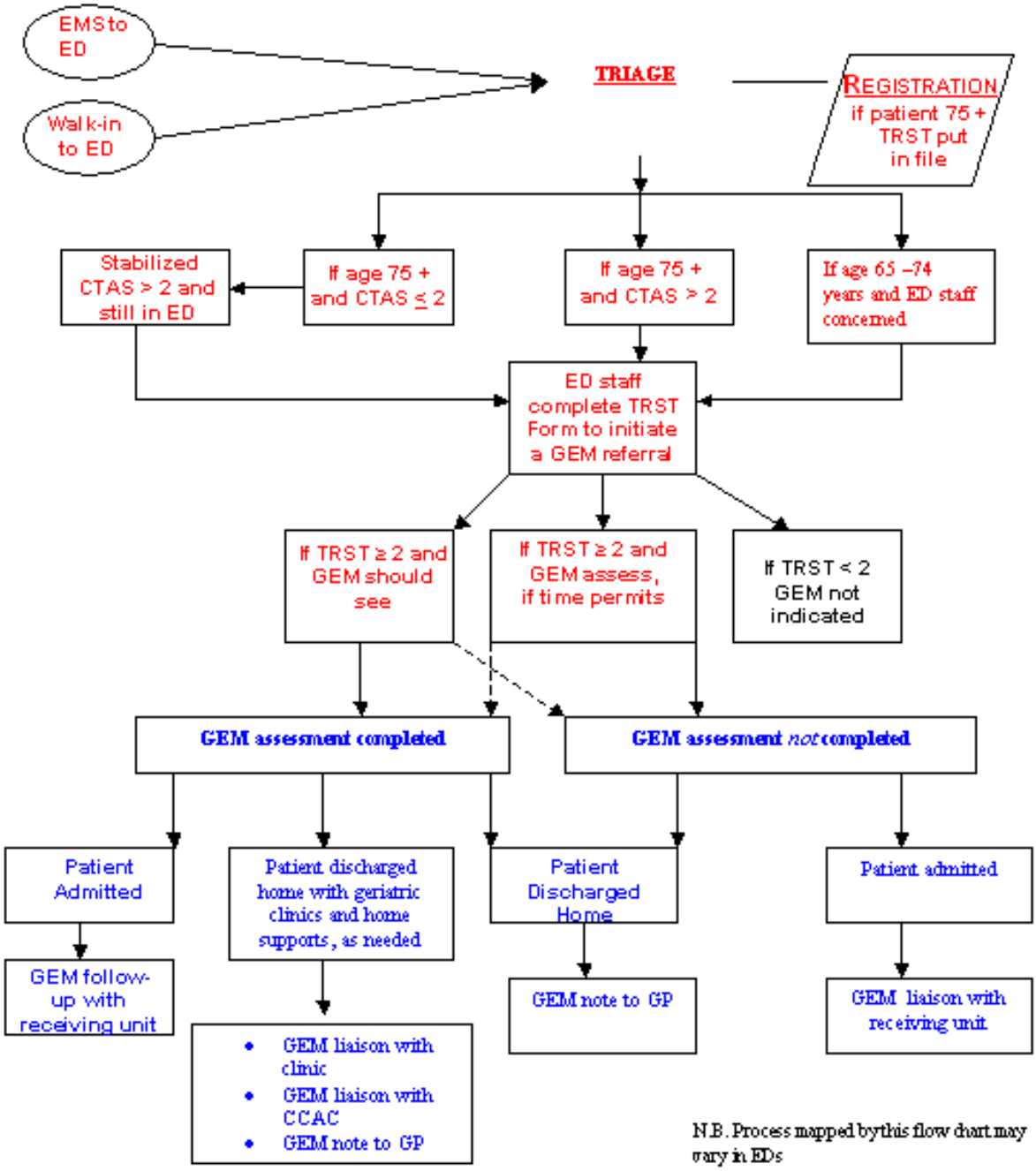
10. Appendices

10.1 GEM Letters of Support

To read the letters of support, please click on the following link.

http://rgp.toronto.on.ca/PDFfiles/gemsupportletters.pdf

10.2 GEM Practice Model: Referral and Assessment Flow Diagram



GLOSSARY
EMS = EMERGENCY MEDICAL SERVICES **CTAS** = Canadian E.D. Triage and Acuity Scale **TRST** = Triage Risk Screen Tool
GEM = Geriatric Emergency Management nurse

10.3 Capacity Building Activities

INTERNAL

The Emergency Department is the most important focus when GEM services are starting up

Education and Training

- P.I.E.C.E.S.™ Emergency Department curriculum. Sixteen sessions for health care professionals
- P.I.E.C.E.S.™ Emergency Department curriculum modified (2.0 hours sessions) for Security Officers and Adult Volunteers who work within the ED and hospital. Excellent attendance and evaluations.
- Multi-dimensional staff education –during National Senior's Safety Week in collaboration with APN (Advanced Practice Nurse), Trauma Program
- GEM orientation with all new ED RN staff
- ED staff learning needs assessments on geriatrics and aging
- Workshops on delirium, osteoporosis, least restraints, delirium/dementia/depression, normal aging, elder abuse, gastrostomy and jejenostomy tube care, polypharmacy
- RN "point of care" case based education and bedside coaching related to patients identified by the TRST
- ER nursing skills days targeting delirium, least restraints, wound prevention/management
- Geriatric Nursing Assessment training on the Domains of Care model
- The "GEMalicious Breakfast" GEM orientation program

Newsletters/rounds/presentations and posters in the ED

- GEM Newsletters – "Seniors in Canada" "Seniors Health Focus", "Focus on Seniors Care"
- Monthly columns in ED newsletters
- Regular Case Studies, "Challenges and Opportunities" – interdisciplinary problem-based learning
- Regular GEM updates at ER staff meetings
- ER nursing rounds – geriatric cases or topics
- "Caring for the Elderly in ER" bulletin board to provide interdisciplinary information
- "You Can Prevent Falls – poster"
- Geriatric Emergency Management Program Poster displayed internally

Quality improvement initiatives

- Risk screening training and implementation
- Procedure for telephone follow-up with discharged client with positive GEM referral screening
- New LTC Transfer Record education to all ED staff

- Elder Care work group established in order to improve processes in care of seniors in emergency. This is a formal sub-committee of the Emergency Program Council. Broad membership of nurses, physicians, patient care assistant, management, GEM nurse, unit clerk and a volunteer
- Wound and skin education and support
- Development of a cognition box (activity box for seniors while waiting in the ER)
- GEM Elder's Clinics for patients assessed by the GEM nurse
- Discharge Planning from the ED for the Elderly – supervised MN student project
- Regular contact to staff with updates from referrals
- Delirium prevention Protocol and tool kit development. Point prevalence study in ED and surgical unit. Focus group for tools in both areas for staff feedback on tools

GEM nurses contribute to their hospital's capacity for senior friendly care beyond the ED

Education and training

- 2 week "educational blitz" for clerical staff; clinical assistants; social workers; ED physicians; Rotary Transition staff; Emergency Psychiatry and CCAC staff on risk assessment
- Best Practices Open House Presentations on GEM
- General Internal Medicine Rounds on the GEM role
- Liaison activity with inpatient unit case managers
- Workshops on topics such as nutrition, wound care, traditional Chinese medicine,
- Mentor to Clinical Clerks as part of their Eldercare rotation
- GEM Presentation to "patient flow" group
- In services for surgical nurses on delirium prevention identification and management
- Hospital wide poster campaigns – GEM, You Can Prevent Falls, Seniors safety, Elder abuse, Senior friendly hospital
- Seniors Care Newsletters

Quality management and innovation

- Accreditation team - member.
- Development of Acute care of the Elderly beds—Beds using the Yale HELP program to prevent delirium and stop the cascade of dependency
- Systems Wide admission and discharge process improvement for seniors admitted from the ED
- Pressure Ulcer Awareness Program
- PIECES implementation task force
- Development of "Stay on Your Feet" Brochure for falls prevention
- Quality Management Committee and Quality Health Care, Values and Catholic Identity Committee – ED/GEM Presentation

The GEM nurses help to build capacity for seniors care through participation in committees, task forces and working groups within their hospital and in the community at large.

- Pain management committee
- Emergency Program Councils and committees
- Patient flow task force
- Geriatric consultation team
- Falls Initiative
- Hospital Accreditation committees
- Hospital Accessibility Sub-Committee
- Local GEM Liaison Committee
- Geriatric Emergency Management Nurse Group meetings
- Medical program meetings
- Medical and ER RAI development task forces
- Elder Abuse Committee
- LTC/CCAC Joint Executive Committee
- Advanced Practice Nursing Council
- Least restraint committees and task forces
- Delirium committee's, working groups and task forces
- Heal Ulcer Prevention Task Force
- Wound and Skin care committees and working groups
- Senior care committee
- Nursing Administration Partnership
- Nursing Education Team (NET)– ER
- ER Partnership Council
- Inter-Professional Pain Council (IPC)
- Professional Care Delivery Model (PCDM) Committee
- Senior/Elder Care Working Group (ECWG)– building senior friendly hospitals
- Clinical Documentation Committee (CDC)
- Geriatric Psychiatry meetings
- Falls Intervention Training (FIT) Committee

EXTERNAL

Long Term Care homes are an important focus for GEM capacity building. GEM nurses find ways to help homes manage issues without an ED transfer. Some of these activities include:

Education and training

- Workshops/presentation on Management of feeding tube problem, hypodermoclysis, osteoporosis workshop, osteoporosis and breast cancer, TIA management

Quality management and innovation

- De-clogging feeding tube – policy and procedure
- IV infusion of antibiotic in long-term care homes – policy and procedure
- Re-insertion of feeding tube – policy and procedure
- Management of feeding tube problem – flow chart
- Regular liaison with LTCHs regarding patients transferred to the ED
- Facilitated Performance Improvement Fund application for a wound and skin- pain management in the elderly program.

System linkage

- Joint site visits with Psychogeriatric Resource Consultant to local LTC Homes and 4 community agencies to increase awareness and uptake of GEM role
- Community partner focus group member
- In-services for ED staff by retirement homes regarding services available
- CCAC /LTC meetings to address patient care issues
- Regional LTC Wound Care Committee
- Community Geriatric Services Group – member (LTC, CCAC, ED and specialized geriatric services
- Development of a process to audit LTC/ED transfers with an Emergency Services Network and LTC agencies

CCAC, Public Health and Primary Care are a focus for GEM capacity building and some of these activities are listed below:

Education and training

- CCAC in-services

Quality Management and innovation

- GEM/CCAC partnership for all discharged patients with a positive TRST score (2 or more risk factors) – coordinated discharge plan for patients requiring CCAC and geriatric follow-up
- Development of automated risk communications
- DVT protocol in LTCHs – support from CCAC
- Developing the GEM-FIT partnership

Linkage

- In-services for ED staff to review CCAC services available and referral process
- Liaison with ED and community care case managers.
- Community Geriatric Services Groups
- Collaborative and shared care initiatives
- Community Falls Prevention Coalition – Acute Care – member
- Falls Intervention Team with Public Health
- Meetings with Osteoporosis Society local representation regarding falls and osteoporosis
- Liaison/presentations regarding GEM role for the 4 Family Practice Units connected to the hospital
- The "Stepping out Safely" group

Participation in Regional Networks provide an opportunity to build GEM capacity across Ontario

- Core competencies for frailty focused service task force member
- Building physician education strategies within dementia networks
- RGP Elder Abuse Network Training Manual
- Member of MOHLTC Best Practice Guideline – 3D's implementation steering committee
- Member of MOHLTC Mental Health Initiative Steering Committee
- Community Geriatric Services group – member
- Dementia Care Network membership and participation
- Gerontological Operations Group – an Emergency Services Subcommittee
- Best Practice Guidelines / LTC Nurse Practitioner Working Group

- PIECES network
- ”Understanding the Role of Nurse Practitioner: Challenges and opportunities” – presentation at Gerontological Nurses Association Durham Chapter meeting
- “Ontario’s Roundtable on Future Planning for People with Alzheimer’s Disease and Related Dementias”: MOH Ontario’s Seniors’ Secretariat: Alzheimer Strategy Transitional Plan – member, quarterly

Seniors and their families who are informed about the giants of geriatrics can build GEM capacity themselves

- Guest speaker services for seniors associations
- individualized education is initiated in the ED on such topics as - falls, wound and skin, pain, delirium, incontinence, osteoporosis and community resources
- Reading materials on geriatrics issues are made available in ED waiting rooms
- GEM nurses organize Elder Care Workshops in the community

Conference presentations and posters provide an important opportunity to transfer GEM knowledge into practice as well as facilitating the professional development of the nurses themselves

Posters

- “Implementation of Advanced Practice Nurse in community hospital”, and “Geriatric Emergency Management: Quality Improvement Initiative” at NPAO Nurse Practitioners Association of Ontario) conference 2005 - Toronto.
- “Ontario’s Geriatric Emergency Management (GEM) Program: A Novel Interdisciplinary Model of Emergency Care for Seniors” - International Interdisciplinary Conference on Emergencies (IICE 2005), Montreal, Quebec
- “Geriatric Emergency Management: An Innovative Care Model” at GNAO conference 2005, and A focus on ER Nursing Excellence conference
- “Acute Hospital for Sick Seniors”, and “Geriatric Emergency Management” at Ontario Gerontology Association Conference
- Poster Presentation CNA (Canadian Nurses’ Association) meeting 2006 - Saskatoon.
- The Geriatric Emergency Management Program in Ontario – Health Care Innovations Expo, Toronto Ontario
- “Implementation of Advanced Practice Nurse in community hospital”, and “Geriatric Emergency Management: Quality Improvement Initiative” poster presentation at NPAO (Nurse Practitioners Association of Ontario) conference, Toronto
- “Acute Hospital for Sick Seniors”, and “Geriatric Emergency Management” - Ontario Gerontology Association Conference

Presentations

- Geriatric Emergency Management Annual Conferences 2005 and 2006, Toronto
- ”Understanding the Role of Nurse Practitioner: Challenges and opportunities” – Gerontological Nurses Association Durham Chapter
- “GEM: Quality improvement model” RNAO: Older People Deserve the Best conference, Toronto, 2005
- “Confused or not so confused” ,Durham Region EMS
- “Geriatric Emergency Management Update: Achieving Better Outcomes in Dementia Care – Assessment, Advocacy and Action” - Ontario Psychogeriatric Association (OPGA) Conference
- “Making our departments more elder-friendly”,” two consecutive workshops at the ICEM (International Conference of Emergency Medicine) 2006 – Halifax
- “Acute care of the elder in emergency: A call to the challenge”, IICE (International Interdisciplinary Conference on Emergencies) 2005 – Montreal
- NHSRU (National Health Services Research Unit) Conference, Practice to Policy: Global Perspectives in Nursing, Hamilton – October 2006
- “Enabling Environments for the Elderly” – GNAO - Geriatric Nurses Association of Ontario, Kingston – November 2006
- Guest Speaker, Gerontological Nurses Association – Local Chapter
- “Geriatric Emergency Management”, Southeastern Ontario Discharge Planners Annual Meeting, 2006
- “Assessment of High Risk Elders: Putting the PIECES Together” - SMH ER Nursing Excellence Conference
- “From Frontier to Foothills: a systematic approach to Elder Care” - SMH Advanced Nursing Practice Conference
- “Geriatric Emergency Management: Compassionate ER Elder Care” – 20th Annual Refresher Day in Geriatric Medicine, University of Western Ontario, Division of Geriatric Medicine and the Schulich School of Medicine and Dentistry

GEM nurses help to build future capacity by participating in the training of new health professionals in academic settings

- Emergency residency core rounds - Geriatrics
- RN mentorship and preceptorship in GEM (undergraduate and graduate programs)
- Mentor to (4th year Medicine students) as part of their Eldercare rotation
- Development and delivery of the Gerontology content for the RN Critical Care Course at Seneca College; lecturer for full day curriculum
- Guest lecturer/panelist at York University - NURS 2900 Course: York University Undergraduate Nursing Program
- Guest Lecturer, School of Medicine, Queen's University, MSK (Musculoskeletal) Program
- Guest Lecturer, Loyola Community Learning Centre, PSW (Personal Support Worker) Program
- Development and delivery of Dementia curriculum for RPN Course at George Brown College; guest lecturer
- RGP Elder Abuse "Train the Trainer" Workshop Facilitation

10.4 GEM Aggregate Activity Information

(Kingston, London, Hamilton, Toronto)

Direct Patient Care Activity Data	2005-2006 April 1 - March 31
Total # of ED Encounters where:	
Patient is identified as appropriate for GEM (by a positive TRST/ISAR or by other clinical means)	5703
GEM nurse performs assessment	2886
GEM nurse performs follow up assessments (subset of Total # of assessments)	289
Patient identified as appropriate for GEM, but who was later deemed inappropriate by GEM Nurse. (false positives)	41
Patient admitted to hospital (post GEM assessment)	1413
Patient discharged home/community (post GEM assessment)	1473
Patient referred to/recommended for Geriatric services, CCAC, geriatric psychiatry or other (specify)	
Geriatric Services	541
CCAC	978
Geriatric Psychiatry	68
Other	527
Patient is ≥ 75 years of age	48,593
Patient is ≥ *75* and admitted from ED to hospital	17,744
Patient is ≥ 75 and discharged home/community from ED	28,145

Indirect Patient Care Activity Data	2005-2006 April 1 - March 31
Total # of indirect clinical consultations conducted by GEM Nurse	39
Total hours spent consulting	94
Total # of telephone assessments completed by GEM nurse (for patients NOT seen by GEM)	461
Total # of telephone assessments completed by GEM nurse (for patients seen by GEM)	97
Total # of patients identified as appropriate for GEM, but who refused GEM assessment	20

GEM NURSING STATISTICS	
	2005-2006 April 1 - March 31
% of FTE spent in patient care	36% - 63%
% of FTE spent in capacity building (attach topics, qualitative description)	29% - 60%
Other activities consuming more than 10% GEM Nurses' time (specify activity and % of time in an attachment)	0% - 14%