Cross-Specialty Collaboration: What, Why, and How

RGPEO 2019 Geriatric Refresher Day





I have received research grant funding from the Ministry of Health and Long Term Care of Ontario (MOHLTC) and the Canadian Orthopedic Foundation for work related to the development, implementation and evaluation of cross-specialty collaborative care models.

Objectives



WHAT.
To review the consequences of siloed health care for older adults.

WHY.
To discuss why frailty
necessitates crossspecialty collaborative
models of care.

HOW.
To apply the 10 essential elements of successful cross-specialty collaborative care models.



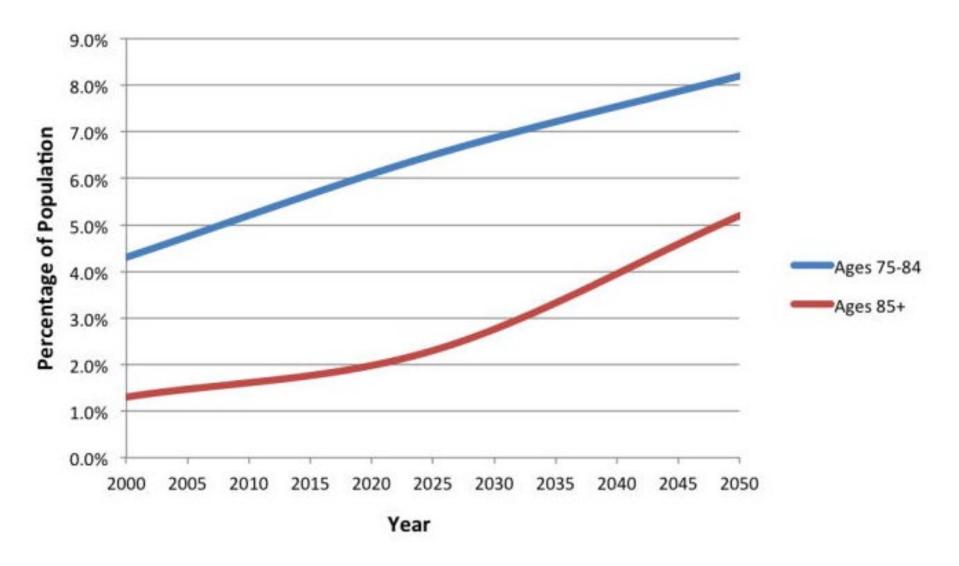
WHAT

siloed health care

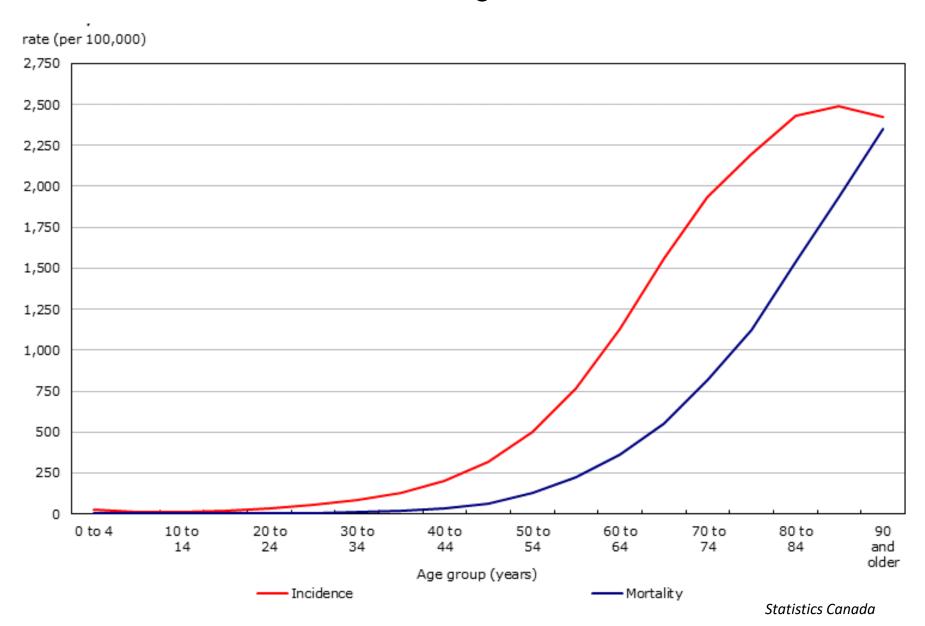


WHAT.
To review the consequences of siloed health care for older adults.

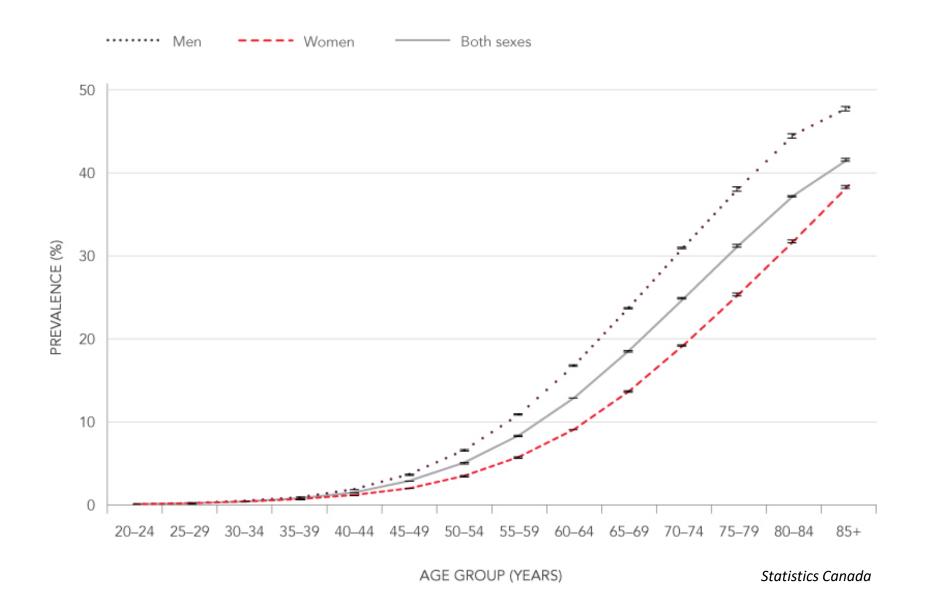
The percentage of Canadians over age 75 is increasing.



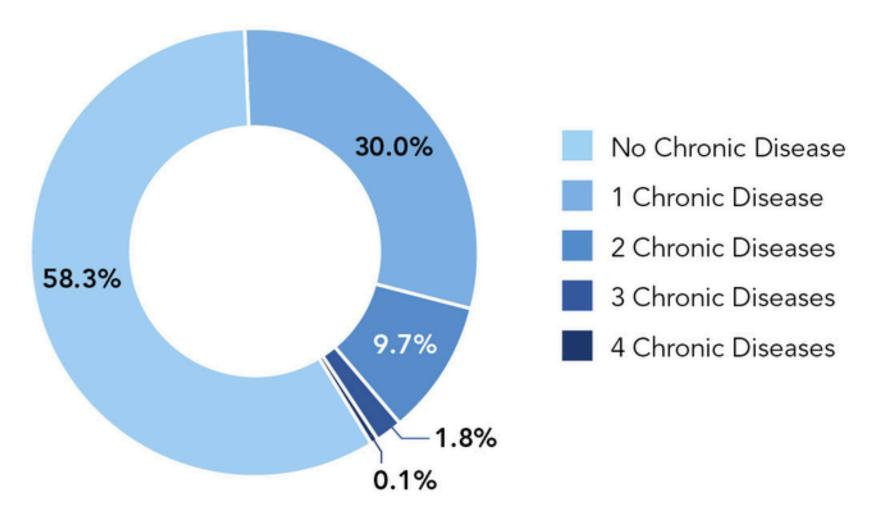
Cancer incidence rises with age.



Heart disease incidence also rises with age.

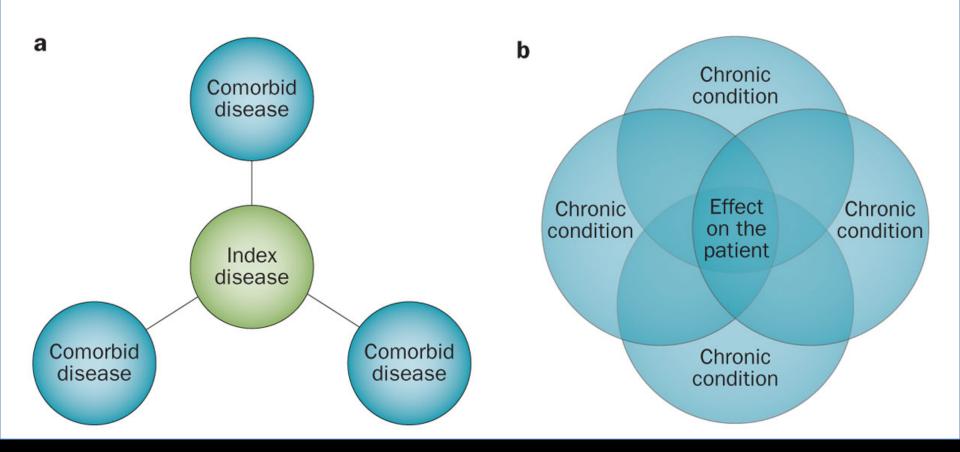


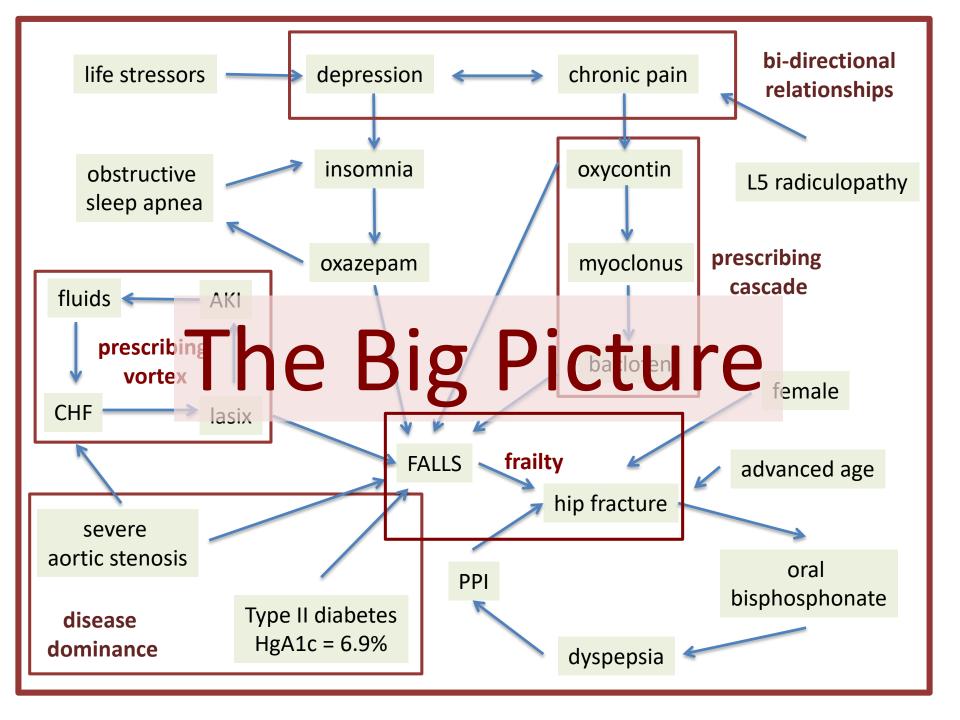
Proportion of Canadians aged 65 and older with zero to four self-reported major chronic diseases (cancer, cardiovascular disease, chronic respiratory disease, diabetes)



COMORBIDITY

MULTIMORBIDITY







CONCORDANT CONDITIONS

Similar pathophysiologic profile and disease management plans.



DISCORDANT CONDITIONS

Not directly related in either pathogenesis or management.

DOMINANT CONDITION

Identify and treat clinically dominant conditions that eclipse other less important conditions, which may be better left alone.

FRAILTY

A STATE WITH HIGH VULNERABILITY TO ADVERSE HEALTH CARE OUTCOMES

Lancet. 2013;381(9868):752-62.

66

The more individuals have wrong with them, the more likely they are to be FRAIL.

CUMULATIVE DEFICIT MODEL OF FRAILTY

Why

frailty necessitates cross-specialty collaboration



WHY.
To discuss why frailty
necessitates crossspecialty collaborative
models of care.

THE COMPREHENSIVE GERIATRIC ASSESSMENT

THE CGA

A comprehensive geriatric assessment (CGA) is a multidimensional, interdisciplinary diagnostic process to determine the medical, psychological, and functional capabilities of a frail elderly person in order to develop a coordinated and integrated plan for treatment and long-term follow-up

SOURCE: J AM GERIATR SOC 1991;39:85-16S.

PHYSICAL EXAM Caregivers Vision and hearing Swallow, nutrition and hydration Bladder and bowel Injury Skin **HISTORY PSYCHIATRIC EXAM** Cognitive screen Gait and falls Continence Delirium Mood Sensory Medications Pre-existing problems **FUNCTIONAL ASSESSMENT** Gait and balance Home Activities of daily living environment BMJ 2019;364:l13

GA ≠ CGA

- 1. SCREENING 2. ASSESSMENT
- 3. GOAL-DIRECTED INTERVENTION

geriatric assessment

4. FOLLOW-THROUGH



COMPREHENSIVE GERIATRIC ASSESSMENT

NNT = 33

to have one more older adult survive and return home at discharge.



Cochrane Database Syst Rev. 2017; CD006211.



THERAPEUTIC HARMONIZATION

ALIGNING PROGNOSIS AND GOALS WITH CARE.

FRAMEWORK FOR MULTIMORBIDITY



Recognize preference-sensitive decisions.



Number needed to treat, number needed to harm, time-to-benefit, clinical significance.



PROGNOSIS

Incorporate multimorbidity adjusted prognosis.



Consider the treatment complexity.



Balance the benefits and the harms.

FRAMEWORK FOR MULTIMORBIDITY



PREFERENCES

Recognize preference-sensitive decisions.



EVIDENCE

Number needed to treat, number needed to harm, time-to-benefit, clinical significance.



PROGNOSIS

Incorporate multimorbidity adjusted prognosis.



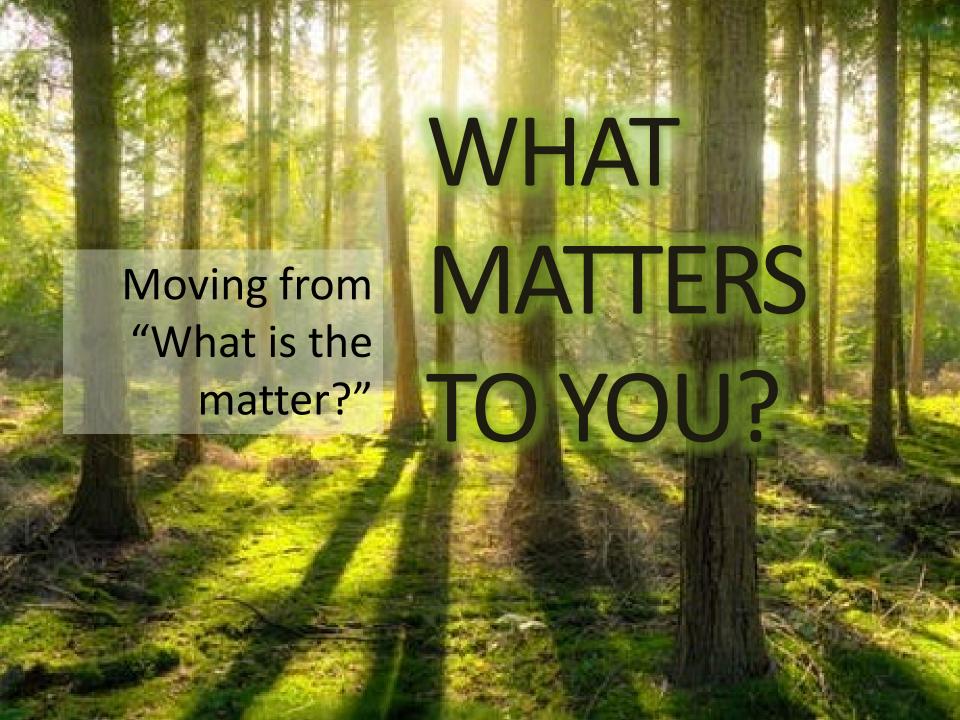
FEASIBILITY

Consider the treatment complexity.



OPTIMIZATION

Balance the benefits and the harms.



WHAT DO YOU CARE ABOUT?

DOMINANT GOAL

Living as long as possible?
Keeping your ability to take care of yourself and to live independently? Keeping comfortable, with minimal symptoms? Something else?

LIFE MEANING

What makes life worth living for you?

STATES WORSE THAN DEATH

Can you imagine any way of living that, for you, would be worse than death? Can you imagine a situation in which you would want us to recognize that you have suffered enough or a situation in which you would prefer that we focus on keeping you comfortable?

FRAMEWORK FOR MULTIMORBIDITY



Recognize preference-sensitive decisions.



EVIDENCE

Number needed to treat, number needed to harm, time-to-benefit, clinical significance.



PROGNOSIS

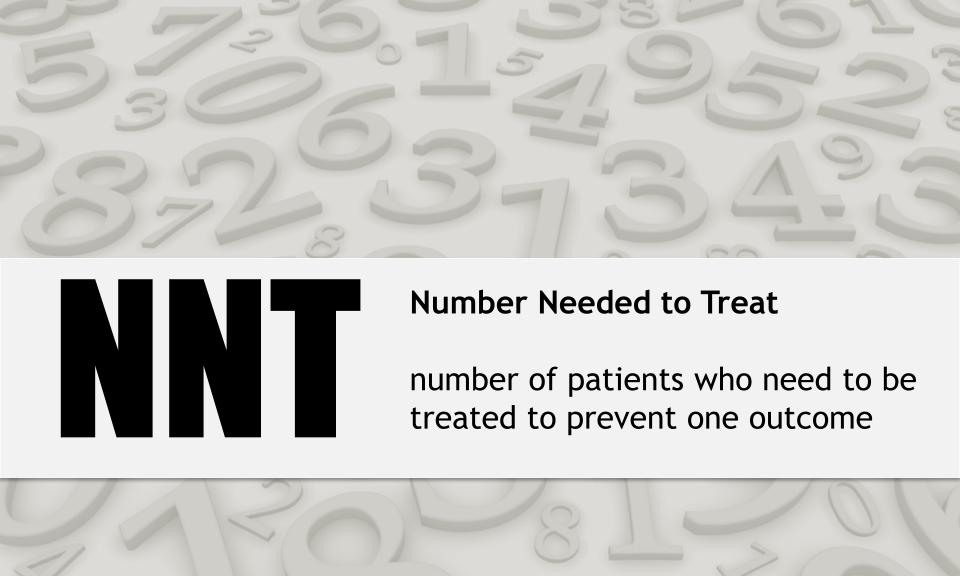
Incorporate multimorbidity adjusted prognosis.



Consider the treatment complexity.



Balance the benefits and the harms.





SURROGATE ENDPOINTS

may be associated with outcomes, but the intermediate end points may not be relevant in the bigger picture

Disease	Intervention	Surrogate Endpoint	Clinical Outcome (what matters)
Alzheimer's disease	Cholinesterase inhibitor	ADAS-Cog	Skilled nursing facility
Diabetes	DPP-4 inhibitors	Hemoglobin A1c	Microvascular/m acrovascular complications
Osteoporosis	Bisphosphonate	Bone mineral density score	Hip fracture
Diabetic nephropathy	ACE inhibitor	Microalbuminuria	Dialysis



TIME TO BENEFIT (TTB)

The time until a statistically significant benefit is observed in trials of people taking a therapy compared to a control group not taking the therapy.

Intervention	Time to Benefit	Outcome	NNT
Statin	5 years	Cardiovascular mortality in established disease	34
Indapamide and Perindopril	5 years	Death in diabetes	79
Alendronate	2-3 years	Secondary prevention hip/wrist fracture	100
Fecal occult testing	10 years	Colon cancer prevention	1000

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Balance the benefits and the harms.

WHERE IS YOUR PATIENT?









JAMA. 2012;307(2):182-192

eprognosis.org

EVIDENCE-BASED TOOLS FOR PROGNOSTICATION IN OLDER ADULTS WITH MULTIMORBIDITY

ePrognosis

HOME ABOUT CALCULATORS → CANCER SCREENING COMMUNICATION

Suemoto Index

- Population: Community dwelling adults aged 60 and older
- · Outcome: All cause 10 year mortality
- · Scroll to the bottom for more detailed information

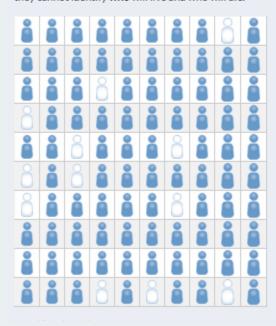
Risk Calculator	
1. How old is your patient?	75-79 +
2. What is the sex of your patient?	Male +
3. Does your patient have diabetes?	Yes +
4. Does your patient have heart disease?	No +
5. Does your patient have lung disease?	No *
6. Does your patient have cancer?	No +
7. What is your patient's smoking status?	Former smoker
8. Does your patient use alcohol?	Yes *

- · Population: Community dwelling adults aged 60 and older
- · Outcome: All cause 10 year mortality
- Scroll to the bottom for more detailed information

Suemoto all-cause 10 year mortality risk: 88%

As illustrated by the graphic below, out of 100 community dwelling adults aged 60 and older with similar answers, 88 will die (shaded) and 12 will survive (un-shaded) over the next 10 years.

Risk calculators cannot predict the future for any one individual. Risk calculators give an estimate of **how many** people with similar risk factors will live and die, but they cannot identify **who** will live and who will die.



- This 10 year-mortality prediction model was developed and validated using data from 5 longitudinal studies of community-dwelling adults: ELSA (English Longitudinal Study of Aging), HRS (Health and Retirement Study), MHAS (Mexican Health and Aging Study), SABE-Sao Paulo (The Health, Well-being and Aging), and SHARE (Survey on Health, Ageing and Retirement in Europe)
- The model was developed using an individual participant data meta-analysis in 23,615 participants from 16 countries (mean age 70 years old, 46% male, 51% white, 24% 10-year mortality). Model validation was performed in 11,752 participants.
- Discrimination: The mortality prediction model sorts participants who died from those who lived correctly 76% if the time (Harrell's C).

poor	moderate	good	very good	excellent
50%	60%	70%	80%	90%

- Calibration: The model had good calibration across all risk levels with less than 7% difference between estimated and observed mortality rates.
- Citation: Suemoto CK, Ueda P, Beltrán-Sánchez, Lebrão ML, Duarte YA, Wong R, Danaei G. Development and Validation of a 10-Year Mortality Prediction Model: Meta-Analysis of Individual Participant Data From Five Cohorts of Older Adults in Developed and Developing Countries. J Gerontol A Biol Sci Med Sci. 2016 Aug 13. pii: glw166. [Epub ahead of print]

FRAMEWORK FOR MULTIMORBIDITY



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Consider the treatment complexity.



Balance the benefits and the harms.

Polypharmacy

- Altered hemodynamics.
- Drug-drug interactions.
- Adverse drug events.
- Withdrawal.
- Cost.
- Adherence.



Time	Medication	Non-pharmacologic	All Day	Periodic
7:00	Ipratropium MDI Alendronate weekly	Check feet Sit upright 30 mins Accuchek	Appropriate foot wear Limit alcohol Avoid COPD	Pneumonia and influenzae vaccine BP, foot, glucose monitoring
8:00	Breakfast HCTZ, Lisinopril, Glicazide, ASA, Metformin, Naproxen, Omeprazole, Vitamin D	2 g sodium, 90 mmol K, diabetic diet, low cholesterol and saturated fat, DASH diet	environmental exacerbation exposures Energy conservation Joint protection Exercise (non-weight	HgA1c q3months Creatinine, lytes, cholesteral, microalbumin yearly
12:00	Lunch Metformin, Ipratropium MDI	Diet as above	bearing if foot disease, weight bearing for osteoporosis), ROM,	Physical therapy, pulmonary rehab
17:00	Dinner	Diet as above	aerobic.	Eye exam q1yr DEXA scan q2yr
19:00	Metformin, Ipratropium MDI, Naproxen, Atorvastatin		Albuterol MDI prn	Education on diabetes, foot care, inhalers
23:00	Ipratropium MDI		J	AMA. 2005;294:716-724

FRAMEWORK FOR MULTIMORBIDITY



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Definition

"As Collaborators, physicians work effectively with other health care professionals to provide safe, high-quality, patient-centred care."

-- CanMEDS 2015 Framework



col·lab·o·ra·tor

The risk of death is lower among older patients treated at trauma centres than among those treated at non-trauma centres, but this is only a trend.

- death in hospital RR 0.94 (0.56-1.61)
- death at 365 days RR 0.92 (0.67–1.28)

SPECIAL ARTICLE

A National Evaluation of the Effect of Trauma-Center Care on Mortality

Ellen J. MacKenzie, Ph.D., Frederick P. Rivara, M.D., M.P.H., Gregory J. Jurkovich, M.D., Avery B. Nathens, M.D., Ph.D., Katherine P. Frey, M.P.H., Brian L. Egleston, M.P.P., David S. Salkever, Ph.D., and Daniel O. Scharfstein, Sc.D.

ABSTRACT

BACKGROUND

Hospitals have difficulty justifying the expense of maintaining trauma centers without strong evidence of their effectiveness. To address this gap, we examined differences in mortality between level 1 trauma centers and hospitals without a trauma center (non-trauma centers).

METHODS

Mortality outcomes were compared among patients treated in 18 hospitals with a level 1 trauma center and 51 hospitals non-trauma centers located in 14 states. Patients 18 to 84 years old with a moderate-to-severe injury were eligible. Complete data were obtained for 1104 patients who died in the hospital and 4087 patients who were discharged alive. We used propensity-score weighting to adjust for observable differences between patients treated at trauma centers and those treated at non-trauma centers.

N Engl J Med 2006;354:366-78.

ORIGINAL SCIENTIFIC ARTICLE

Canadian Study of Health and Aging Clinical Frailty Scale: Does It Predict Adverse Outcomes among Geriatric Trauma Patients?

Annie Cheung, BHSc, Barbara Haas, MD, PhD, FRCSC, Thom J Ringer, MD, JD, MPhil, Amanda McFarlan, RN, Camilla L Wong, MD, MHSc, FRCPC

BACKGROUND:

The Canadian Study of Health and Aging Clinical Frailty Scale (CFS) and the laboratory Frailty Index (FI-lab) are validated tools based on clinical and laboratory data, respectively. Their utility as predictors of geriatric trauma outcomes is unknown. Our primary objective was to determine whether pre-admission CFS is associated with adverse discharge destination. Secondary objectives were to evaluate the relationships between CFS and in-hospital complications and between admission FI-lab and discharge destination.

STUDY DESIGN: We performed a 4-year (2011 to 2014) retrospective cohort study with patients 65 years and older admitted to a level I trauma center. Admission FI-lab was calculated using 23 variables collected within 48 hours of presentation. The primary outcome was discharge destination, either adverse (death or discharge to a long-term, chronic, or acute care facility) or favorable (home or rehabilitation). The secondary outcome was in-hospital complications. Multivariable logistic regression was used to evaluate the relationship between CFS or FI-lab and outcomes.



THE COMPREHENSIVE GERIATRIC ASSESSMENT

THE CGA

A comprehensive geriatric assessment (CGA) is a multidimensional, interdisciplinary diagnostic process to determine the medical, psychological, and functional capabilities of a frail elderly person in order to develop a coordinated and integrated plan for treatment and long-term follow-up

SOURCE: J AM GERIATR SOC 1991;39:85-16S.

PROACTIVE CGA



Case finding is done SYSTEMATICALLY based on pre-defined criteria and processes.



EARLY

Involvement is early -- before treatment decisions are made.



PREVENTION

Focus on prevention of geriatric syndromes.



DIRECT

Recommendations are implemented directly.

crystalloids subdural resuscitation extrication hematoma log roll precautions anxiety facial fractures REBOA traumatic brain injury ischemia vasopressors transexamic sedation acid RA liver laceration transfusion agitation splenic laceration third degree burns oxygenation reperfusion injury severity score Octaplex cardiac subarachnoid hemorrhage arrest gun shot wound Aspen collar retroperitoneal bleeding falls protocolsnpo shock intubation Glascow coma scale (GCS)

chronic kidney disease polypharmacy depression chronic kidney disease cataracts anxiety stroke unctional decline hip fracture depression

functional decline hip fracture

incontinence morbidity constipation diabetes mellitus hypothyroidism colon cancer

macular myelodysplastic syndrome OSteoporosis glaucoma degeneration osteoarthritis

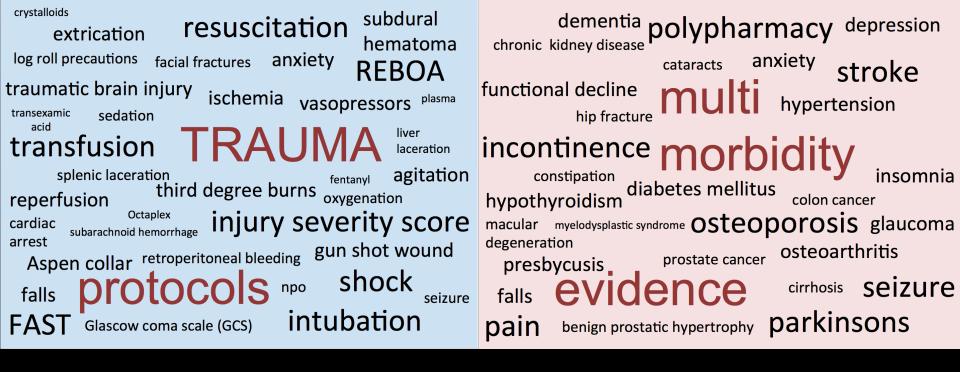
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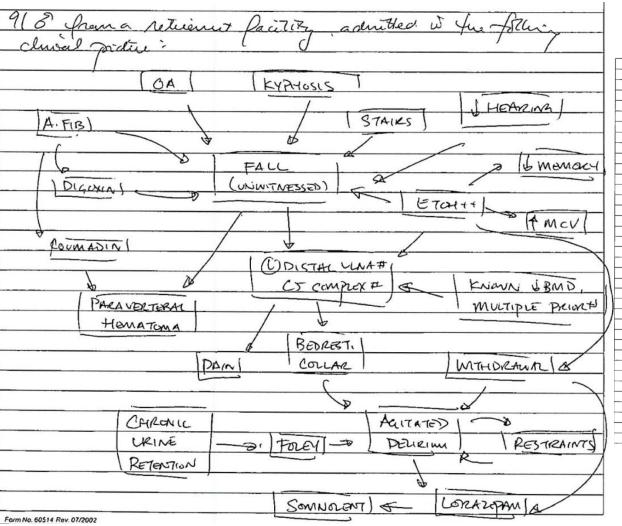
cirrhosis Seizure

benign prostatic hypertrophy

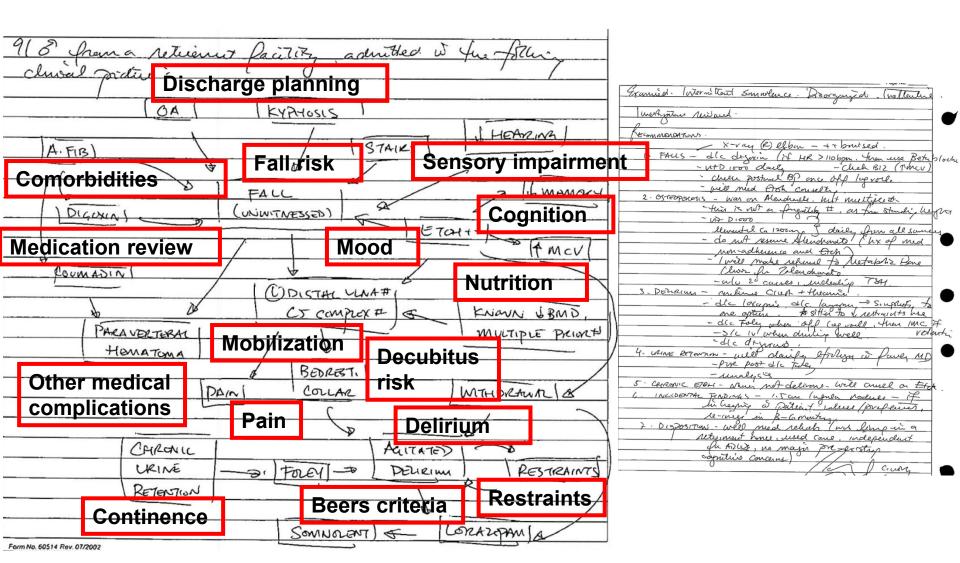
parkinsons

GERIATRIC TRAUMA





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HOW

10 essential elements



To apply the 10 essential elements of successful cross-specialty collaborative care models.

Johanna Reimann, 76, recovering from a car accident, is grateful she was taken her to the first hospital in Canada with a geriatrician on its trauma tear

New ways to mend seniors

A project at St. Michael's Hospital is improving how the most fragile recover from bad accidents

THERESA BOYLE

HEALTH REPORTER

From her bed at St. Michael's Hospital, Johanna Reimann recounts with remarkable clarity the events that landed her here in late June.

The Etobicoke woman hit a rock face on the side of the highway while driving home from her Parry Sound cottage. Emergency service workers, who used the Jaws of Life to extricate her from her crumpled ear, told her while she was lying on a

stretcher, staring up into the sky, to be on the lookout for a medevac helicopter. If it was orange, they said, she would be airlifted to St. Mikes; if it was white, she would be taken to a local hospital.

Two weeks later, Reimann, 76, is counting her blessings it was an orange helicopter on the horizon that fateful day. In being transported to St. Mike's, she ended up at the only hospital in Canada with a geriatrician on its trauma team.

Every patient over the age of 60 who comes into the trauma unit is seen by a geriatrician who works alongside the typical team of surgeons, anesthesiologists, intensivists and trauma nurses.

The Geriatric Trauma Consultation Service was introduced in 2007 at the urging of Dr. Avery Nathens, director of the hospital's trauma unit.

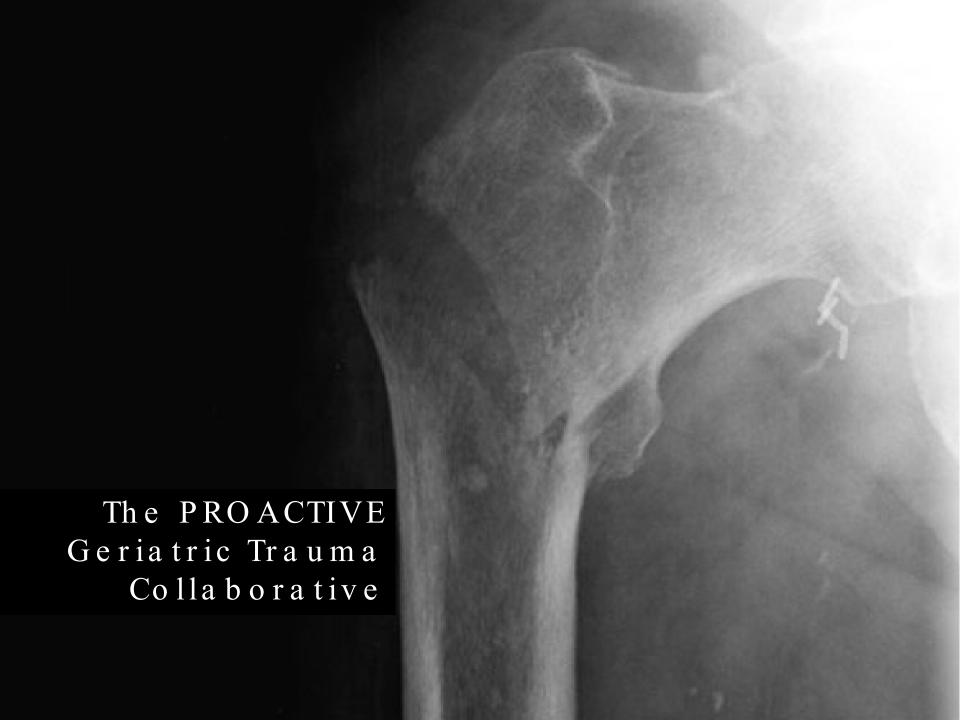
A year earlier, the New England Journal of Medicine published a study, on which Nathens worked, which found trauma centres performed better than community hospitals in treating all patients -

except seniors.

Nathans says that study, and oth ers he has worked on since, high light the fact that trauma units need to do a better job of meeting the needs of elderly patients.

Reimann suffered 11 broken bones including both legs and her left arm She also sustained some damage to her kidneys and spleen, as well as numerous lacerations. She underwent five hours of emergency surgery and now has a long pin sticking through her right foot, holding the bones together.

SENIORS continued on GT4





St. Michael's

Inspired Care.
Inspiring Science.

- downtown Toronto's designated Level 1 adult trauma centre
- academic hospital fully affiliated with the University of Toronto
- 455 inpatient beds
- 1082 trauma team activations (214 were 65+ years)
- member of ACS TQIP



Camilla L. Wong MD, MHSc, FRCPC

Staff Physician, Division of Geriatric Medicine, St. Michael's Hospital Project Investigator, Li Ka Shing Knowledge Institute Assistant Professor, Faculty of Medicine, University of Toronto

Maia von Maltzahn MD, FRCPC

Resident, Division of Geriatric Medicine, University of Toronto

Amanda McFarlan BA

Trauma Program Registry Manager, Division of Trauma, St. Michael's Hospital

Allen Huang MDCM, FRCPC

Head, Division of Geriatric Medicine, Ottawa Hospital Associate Professor, Faculty of Medicine, University of Ottawa

Linda Lee MD, MCISc (FM) Schlegel Chair in Primary Care for

LEADING BEST PRACTICES: EMERGING CROSS-SPECIALTY COLLABORATIVE CARE MODELS

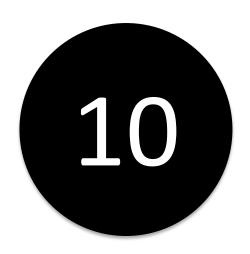
Abstract

The intersection of multiple co-morbidities necessitates cross-specialty collaboration to achieve therapeutic harmonization. Using the geriatric trauma collaborative care model as an example, we illustrate the elements for developing and sustaining cross-specialty collaboration. We also introduce other examples of promising collaborative care models at earlier stages of development to make a case for cross-specialty collaboration as an essential competency within the Royal College Collaborator role for physicians.

This article has been peer reviewed.

Conflict of Interest: Dr. Camilla L. Wong is the clinical lead for the geriatric trauma consultation service at St. Michael's Hospital. Her related research in geriatric trauma has been funded by the Department of Medicine at the University of Toronto and through the AFP Innovation Funds from the Ontario Ministry of Health and Long Term Care.

This article was published in July 2017.



ESSENTIAL ELEMENTS OF

cross-specialty collaborative care models

1	
	Partnership

- 2 Shared Vision
- 3 Engagement
- Policy
- 5 Symmetrical Representation
- 6 Communication
- Setting
- 8 Trust
- 9 Consistency
- 10 Evaluation Strategy

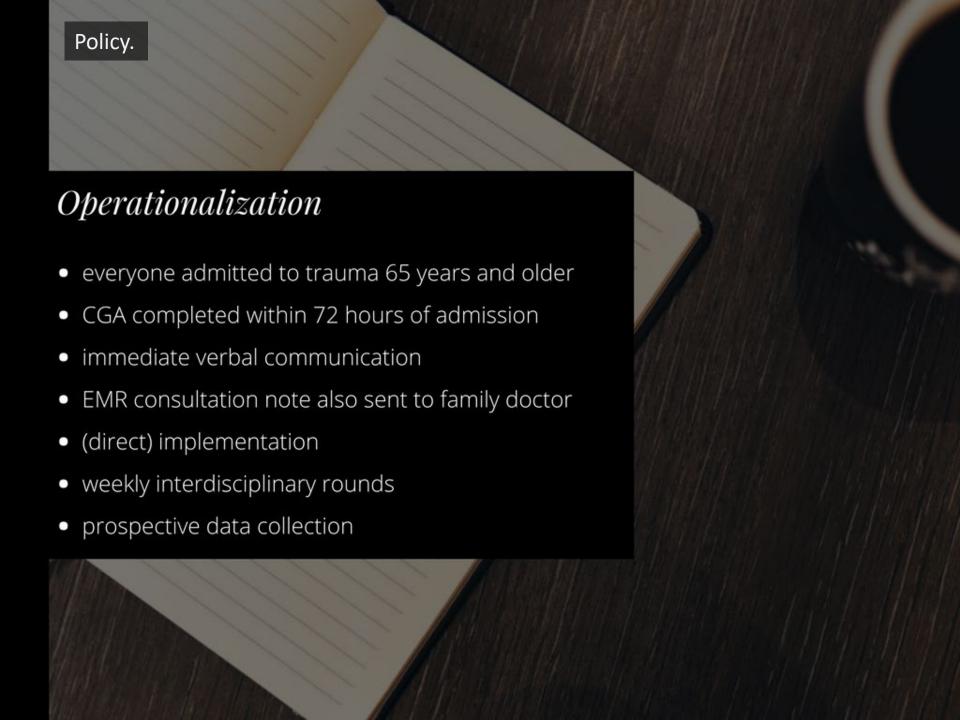


Shared Vision.



To be a <u>L E A D E R</u> in the care of older adults with traumatic injury.





Symmetrical Representation.



Trauma: surgeon, two nurse practitioners, quality assurance specialist **Geriatrics**: geriatrician, clinical nurse specialist, research trainees

Communication.

COMMUNICATION, COMMUNICATION, COMMUNICATION.

- Electronic consultation notes and orders
- Verbal communication
- Weekly interdisciplinary rounds

Setting.

Co-Location

MAKE IT EASY TO COLLABORATE





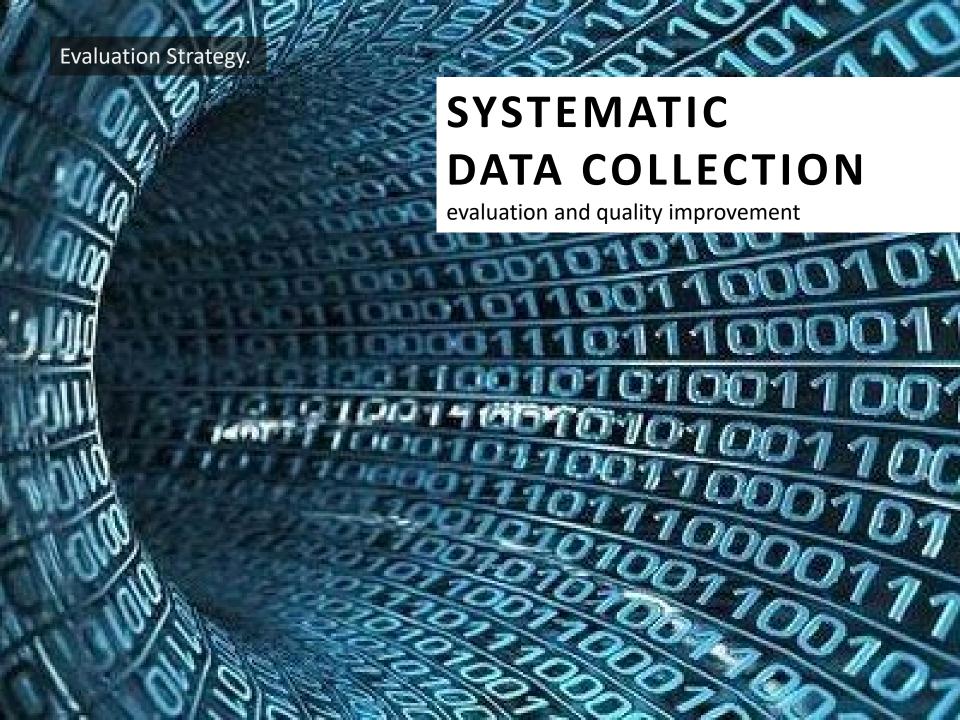
There must be mutual respect for one another's domain of expertise.

Consistency.

CONSISTENCY for CONTINUITY

same clinical nurse specialist (geriatrics)
same nurse practitioner (trauma)





ORIGINAL ARTICLE

An Evaluation of a Proactive Geriatric Trauma Consultation Service

Magda Lenartowicz, MD,* Meredith Parkovnick, MSc,† Amanda McFarlan, BA,† Barbara Haas, MD,‡ Sharon E. Straus, MD, MSc,§ Avery B. Nathens, MD, PhD, MPH,|| and Camilla L. Wong, MD, MHSc§

Objective: To describe and evaluate an inpatient geriatric trauma consultation service (GTCS).

Background: Delays in recognizing the special needs of older trauma patients may result in suboptimal care. The GTCS is a proactive geriatric consultation model aimed at preventing and managing age-specific complications and discharge planning for all patients 60 years or older admitted to the St Michael's Hospital Trauma Service.

Methods: This was a before and after case series of patients admitted pre-GTCS (March 2005–August 2007) and post-GTCS (September 2007–March 2010). Study data were derived from a review of the medical records and

Delays in recognizing the special needs of older trauma patients may result in suboptimal care.³ Postinjury complications in the elderly trauma patient negatively impact survival and contribute to longer lengths of stay in survivors and nonsurvivors than in younger trauma patients.⁴ Management of geriatric trauma patients is challenging because the validity of standard injury scores such as the Injury Severity Score is uncertain^{5–8} and the elderly have more comorbidities resulting in more in-hospital complications and medical consultations.⁹ The optimal management of these patients remains unclear. A comprehensive geriatric assessment is a multidimensional, interdisciplinary diagnostic process to determine the medical, psy-

GERIATRIC ISSUES ADDRESSED

Sensory impairment 40.7%

Pain 30.1%

Discharge planning 17.1%

Nutrition 15.0%

Med review 29.7%

Mobilization 26.9%

Mood disorder 14.6%

Other medical 8.9%

Delirium/dementia 26.8%

Continence 26.4%

Restraints 4.9%

Decubitus ulcer

Ann Surg 2012;256: 1098-1101.

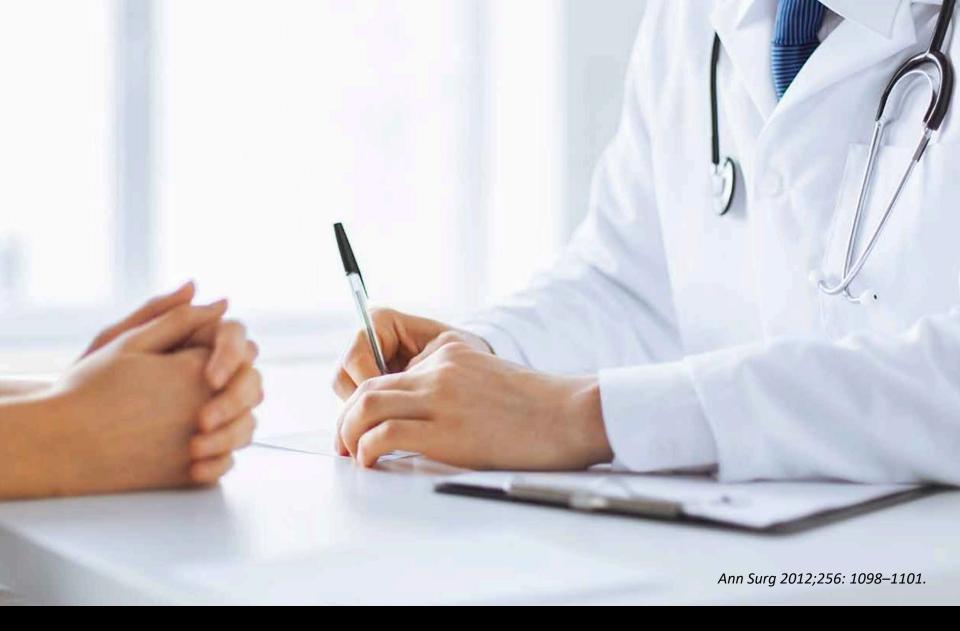


Reduction in delirium



Reduction in nursing home discharge

6.5% vs 1.7%, p=.03



Reduction in other consultations

Internal Medicine p=.04; Psychiatry p=.02



Reduction in length of stay

19.4 vs 15.4 days, p=.13



Sustainability of a proactive geriatric trauma consultation service

Camilla L. Wong Raghda Al Atia Amanda McFarlan Holly Y. Lee Christina Valiaveettil Barbara Haas

This meeting was presented at the Scientific Meeting of the Canadian Geriatrics Society in Edmonton, Alberta in April 2014, and at the Trauma Association of Canada meeting, Halifax, Nova Scotia. May 2016.

Accepted for publication July 18, 2016

Correspondence to:

C..L Wong St. Michael's Hospital **Background:** Proactive geriatric trauma consultation service (GTCS) models have been associated with better delivery of geriatric care and functional outcomes. Whether such collaborative models can be improved and sustained remains uncertain. We describe the sustainability and process improvements of an inpatient GTCS.

Methods: We assessed workflow using interviews and surveys to identify opportunities to optimize the referral process for the GTCS. Sustainability of the service was assessed via a prospective case series (July 2012 and December 2013). Study data were derived from a review of the medical record and trauma registry database. Metrics to determine sustainability included volume of cases seen, staffing levels, rate of adherence to recommendations, geriatric-specific clinical outcomes, trauma quality indicators, consultation requests and discharge destination.

Results: Through process changes, we were able to ensure every eligible patient was referred for a comprehensive geriatric assessment. Compared with the implementation phase, volume of assessments increased and recommendation adherence rates were maintained. Delirium and/or dementia were the most common geriatric issue addressed. The rate of adherence to recommendations made by the GTCS team was 88.2%. Only 1.4% of patients were discharged to a nursing home.

Conclusion: Workflow assessment is a useful means to optimize the referral process for comprehensive geriatric assessment. Sustainability of a GTCS was demonstrated by volume, staffing and recommendation adherence.



ACS TQIP GERIATRIC TRAUMA MANAGEMENT GUIDELINES

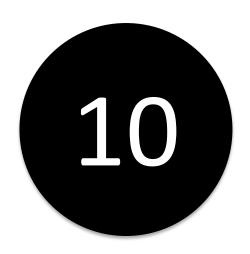






London Major Trauma System: Management of elderly major trauma patients – Second Edition





ESSENTIAL ELEMENTS OF

cross-specialty collaborative care models

1	
	Partnership

- 2 Shared Vision
- 3 Engagement
- Policy
- 5 Symmetrical Representation
- 6 Communication
- Setting
- 8 Trust
- 9 Consistency
- 10 Evaluation Strategy

Age and Ageing 2007; 36: 190–196 doi:10.1093/ageing/af163 Published electronically 27 January 2007

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Proactive care of older people undergoing surgery ('POPS'): Designing, embedding, evaluating and funding a comprehensive geriatric assessment service for older elective surgical patients

Danielle Harari, Adrian Hopper, Jugdeep Dhesi, Gordana Babic-Illman, Linda Lockwood, Finbarr Martin

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Abstract

Background: older people undergoing elective surgery have significant post-operative problems prolonging hospitalisation.

Objective: to design, embed, and evaluate an evidence-based comprehensive geriatric assessment (CGA) service for at-risk older patients undergoing elective surgery.

Setting: urban teaching hospital.

Subjects: elective surgical patients aged 65+.

Intervention: multidisciplinary preoperative CGA service with post-operative follow-through (proactive care of older people undergoing surgery ['POPS']).

Methods: observational cohort study and multilevel surveys (development and modelling phase). Prospective 'before and after' comparison (exploratory evaluation).

Results: findings from the development phase showed high levels of preoperative co-morbidity, no multidisciplinary preoperative input, and multiple potentially preventable post-operative problems delaying discharge in older elective surgery patients. Comparison of 2 cohorts of elective orthopaedic patients (pre-POPS vs POPS, N = 54) showed the POPS group had fewer post-operative medical complications including pneumonia (20% vs 4% [p = 0.008]) and delirium (19% vs 6% [p = 0.036]), and significant improvements in areas reflecting multidisciplinary practice including pressure sores (19% vs 4% [p = 0.028)), poor pain control (30% vs 2% [p < 0.001]), delayed mobilisation (28% vs 9% [p = 0.012]) and inappropriate catheter use (20% vs 7% [p = 0.046]). Length of stay was reduced by 4.5 days. There were fewer delayed discharges relating to medical complications (37% vs 13%) or waits for OT assessment or equipment (20% vs 4%).

'POPS' IN ORTHOPEDICS

- elective orthopedic surgery
- 65 years +
- before-and-after study (N=54)
- **↓** LOS (4.9 vs 4.0 days, P=0.01)
- ✓ delirium (19% vs 6%, P=0.036)
- ✓ pneumonia (20% vs 4%, P=0.008)
- ✓ urinary catheter use (20% vs 7%, P=0.046)

Randomized clinical trial of comprehensive geriatric assessment and optimization in vascular surgery

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Background: Increasing numbers of older patients are undergoing vascular surgery. Inadequate preoperative assessment and optimization may contribute to increased postoperative morbidity and mortality. Methods: Patients aged at least 65 years scheduled for elective aortic aneurysm repair or lower-limb arterial surgery were enrolled in an RCT of standard preoperative assessment or preoperative comprehensive geriatric assessment and optimization. Randomization was stratified by sex and surgical site (aorta/lower limb). Primary outcome was length of hospital stay. Secondary outcome measures included new medical co-morbidities, postoperative medical or surgical complications, discharge to a higher level of dependency and 30-day readmission rate.

Results: A total of 176 patients were included in the final analysis (control 91, intervention 85). Geometric mean length of stay was 5.53 days in the control group and 3.32 days in the intervention group (ratio of geometric means 0.60, 95 per cent c.i. 0.46 to 0.79; P < 0.001). There was a lower incidence of delirium (11 versus 24 per cent; P = 0.018), cardiac complications (8 versus 27 per cent; P = 0.001) and bladder/bowel complications (33 versus 55 per cent; P = 0.003) in the intervention group compared with the control group. Patients in the intervention group were less likely to require discharge to a higher level of dependency (4 of 85 versus 12 of 91; P = 0.051).

Conclusion: In this study of patients aged 65 years or older undergoing vascular surgery, preoperative comprehensive geriatric assessment was associated with a shorter length of hospital stay. Patients undergoing assessment and optimization had a lower incidence of complications and were less likely to be discharged to a higher level of dependency. Registration number: ISRCTN23142588 (http://www.controlled-trials.com).

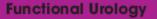
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Introduction

As the population ages the number of older people undergoing surgical procedures is increasing¹. Despite improved mortality and symptomatic benefits of surgery for older people²⁻⁴, there continues to be an excess of adverse postoperative outcomes in older patients⁵⁻⁹. This smoking, hypertension and hypercholesterolaemia, which are common in patients undergoing vascular surgery, are also independent risk factors for cognitive impairment, postoperative delirium and frailty^{12–15}. Furthermore, vascular risk factors increase the risk of postoperative morbidity. Such postoperative complications can contribute to increased mortality, poorer patient experience, prolonged

PREOPERATIVE GERIATRIC ASSESSMENT IN VASCULAR SURGERY

- elective aortic aneurysm repair or lower-limb arterial surgery
- 65 years +
- RCT, N=176
- ◆ LOS (5.5 vs 3.3 d, P<.001)
 </p>
- ◆ delirium (11% vs 24%, P=.018)
- ✓ bowel/bladder complications (33% vs 55%, P=.003)





Evaluation and establishment of a ward-based geriatric liaison service for older urological surgical patients: Proactive care of Older People undergoing Surgery (POPS)-Urology

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Objective

To assess the impact of introducing and embedding a structured geriatric liaison service, Proactive care of Older People undergoing Surgery (POPS)-Urology, using comprehensive geriatric assessment methodology, on an inpatient urology ward.

Patients and Methods

A phased quality improvement project was undertaken using stepwise interventions. Phase 1 was a before-and-after study with initiation of a daily board round, weekly multidisciplinary meeting, and targeted geriatrician-led ward rounds for elective and emergency urology patients aged ≥65 years admitted over two 1-month periods. Outcomes were recorded from medical records and discharge documentation, including length of inpatient stay, medical and surgical complications, and 30-day readmission and mortality rates. Phase 2 was a quality improvement project involving Plan-Do-Study-Act cycles and qualitative staff surveys in order to create a Geriatric Surgical Checklist (GSCL) to standardize the intervention in Phase 1, improve equity of care by extending it to all ages, improve teamworking and streamline handovers for multidisciplinary staff.

postoperative complications were lower (risk ratio 0.24 [95% confidence interval 0.10, 0.54]; P=0.001). A non-significant trend was seen towards fewer cancellations of surgery (10 vs 5%; P=0.12) and 30-day readmissions (8 vs 3%; P=0.07). In Phase 2, the GSCL was created and incrementally improved. Questionnaires repeated at intervals showed that the GSCL helped staff to understand their role better in multidisciplinary meetings, improved their confidence to raise issues, reduced duplication of handovers and standardized identification of geriatric issues. Equity of care was improved by providing the intervention to patients of all ages, despite which the time taken for the daily board round did not lengthen.

Conclusion

This is the first known paper describing the benefits of daily proactive geriatric intervention in elective and emergency urological surgery. The results suggest that using a multidisciplinary team board round helps to facilitate collaborative working between surgical and geriatric medicine teams. The GSCL enables systematic identification of patients who require a focused comprehensive geriatric assessment. There is potential to transfer the GSCL package to other surgical specialties and hospitals to improve postoperative outcomes.

UROLOGY-GERIATRICS LIAISON

- elective and emergency urology patients
- 65 years +
- before-and-after study (N=242)
- **↓** LOS (4.9 vs 4.0 days, P=0.01)
- postoperative complications (RR 0.24, 95% CI 0.10-0.54, P=.001)

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Orthogeriatric Care Models and Outcomes in Hip Fracture Patients: A Systematic Review and Meta-Analysis

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Objectives: Hip fractures are common, morbid, and costly health events that threaten independence and function of older patients. The purpose of this systematic review and meta-analysis was to determine if orthogeriatric collaboration models improve outcomes.

Data sources: Articles in English and Spanish languages were searched in the electronic databases including MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), EMBASE, and the Cochrane Registry from 1992 to 2012.

Study selection: Studies were included if they described an inpatient multidisciplinary approach to hip fracture management involving an orthopaedic surgeon and a geriatrician. Studies were grouped into 3 following categories: routine geriatric consultation, geriatric ward with orthopaedic consultation, and shared care. After independent review of 1480 citations by 2 authors, 18 studies (9094 patients) were identified as meeting the inclusion criteria.

Data extraction: In-hospital mortality, length of stay, and longterm mortality outcomes were collected.

Data synthesis: A random effects model meta-analysis determined whether orthogeriatric collaboration was associated with improved outcomes. The overall meta-analysis found that orthogeriatric collaboration was associated with a significant reduction of in-hospital mortality [relative risk 0.60; 95% confidence interval (95% CI), 0.43–0.84) and long-term mortality (relative risk 0.83; 95% CI, 0.74–0.94). Length of stay (standardized mean difference -0.25; 95% CI, -0.44 to -0.05) was significantly reduced, particularly in the shared care model (standardized mean difference -0.61; 95% CI, -0.95 to -0.28), but heterogeneity limited this interpretation. Other variables such as time to surgery, delirium, and functional status were measured infrequently.

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Conclusions: This meta-analysis supports orthogeriatric collaboration to improve mortality after hip repair. Further study is needed to determine the best model of orthogeriatric collaboration and if these partnerships improve functional outcomes.

Key Words: hip fracture, geriatrics, orthopaedic surgery, aged, mortality, meta-analysis

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INTRODUCTION

Hip fractures are a serious and common consequence of orthopaedic trauma in elderly patients. Worldwide hip fracture rates are expected to increase to approximately 21 million per year by 2050. In the United States, the incidence of hip fractures is 309,500 per year. Because of the growing elderly population, this number is projected to increase to more than 500,000 per year by 2040. Health care system adaptations are necessary to accommodate such a large number of patients. Hip fracture prognosis is quite poor, with the 1-year mortality rate estimated to range from 20% to 30%. Among those patients who were independent before fracture, 1 year after hip fracture, 25% remained in nursing homes and 60% required assistance in 1 or more activities of daily living. With such critical consequences, much research is being conducted to improve these outcomes.

Older adults are typically high-risk candidates for surgery because of several factors. Many are afflicted with serious comorbidities. A large proportion has pre-existing functional deficits that not only contribute to sustaining a fall but also limit recovery after surgery. Homeostenosis, a decreased ability to compensate and maintain homeostasis when the body is stressed, might contribute to complications that can arise when an elderly patient undergoes surgery. Some complications are specific to older patients and can result in genatic syndromes associated with poor survival.8 Involvement of geriatricians may improve care of the older complex patients with a hip fracture.

Geriatrics medicine is the knowledge base, and clinical skills needed to improve the health, functioning, and wellbeing of older persons. With the decline in physiology and

HIP FRACTURE-ORTHOGERIATRICS

- Meta-analysis (N=242)
- **↓** LOS (SMD -0.25)
- ✓ long term mortality (RR 0.83, 95% CI 0.74–0.94).
- Systematic review (4 studies)
- delirium RR 0.81, 95%CI 0.69-0.94

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Thank you.