PERIOPERATIVE GERIATRICS

Surgical Foundations 05.07.19
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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 perioperative geriatric models of care.
OBJECTIVES

GUIDELINES
ACS NSQIP/AGS guidelines on the optimal preoperative and perioperative care of the older adult.

FRAILTY
How to measure it. Why it matters.

THERAPEUTIC HARMONIZATION
The percentage of Canadians over age 75 is increasing.
OPTIMAL PERIOPERATIVE MANAGEMENT OF THE GERIATRIC PATIENT:
Best Practices Guideline from ACS NSQIP®/American Geriatrics Society
Postoperative Delirium in Older Adults:
Best Practice Statement from the
American Geriatrics Society

The American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults

Postoperative delirium is recognized as the most common surgical complication in older adults, occurring in 5% to 50% of older patients after an operation. With more than one-third of all inpatient operations in the United States being performed on patients 65 years or older, it is imperative that clinicians caring for surgical patients understand optimal delirium care.

Delirium is a serious complication for older adults because an episode of delirium can initiate a cascade of deleterious clinical events, including other major postoperative complications, prolonged hospitalization, loss of functional independence, reduced cognitive function, and death. The annual cost of delirium in the United States is estimated to be $150 billion. Delirium is particularly compelling as a quality improvement target, because it is preventable in up to 40% of patients, therefore, it is an ideal candidate for preventive interventions targeted to improve the outcomes of older adults in the perioperative setting.

Delirium diagnosis and treatment are essential components of geriatric evaluation and management. In order to develop comprehensive evidence-based recommendations, the panel was familiar with caring for brain dysfunction despite its increasing clinical impact. The purpose of this postoperative delirium in older adults best practices guideline is to equip the health care professional caring for older adults in the perioperative setting with a set of evidence-based recommendation statements regarding the optimal care of older adults with delirium. The specific topics addressed are listed in Table 1. This best practices document accompanies a postoperative clinical practice guideline simultaneously published by the same group.

POSTOPERATIVE DELIRIUM EXPERT PANEL
The postoperative delirium in older adults guideline project was initiated by selecting an interdisciplinary, multispecialty 23-member panel. The panel was chosen by the American Geriatrics Society’s Geriatrics-for-Specialists Initiative (AGS-GSI) council with additional input from the panel co-chairs, with the goal of selecting participants with special interest and expertise in postoperative delirium. Represented disciplines included the
chronic limb ischemia

hypertension, smoking, dyslipidemia, diabetes

falls

pain

hospital environment

Surgical revascularization (intra-op: fentanyl, midazolam)

acute limb ischemia

npo

malnutrition

urine retention

gabapentin, narcotics

narcotics

gabapentin

nausea

fentanyl

midazolam

Surgical revascularization

npo

narcotics

malnutrition

urine retention

gabapentin

narcotics

npo

narcotics

malnutrition

constipation

cripple stress

restraints

NG tube

mild vascular cognitive impairment

pressure ulcers

not going home POD#3

gravol

foley

caregiver stress

inyal

poor oral intake

immobility

atrovas

mild vascular cognitive impairment
“Why is it acceptable care if the physical therapist doesn’t come every day but not acceptable care if antibiotics are not given daily? Or acceptable to miss meals all day waiting for procedures that are often cancelled? Why do the alarms go off in the patient’s room if it is the nurse who should be notified? For debilitated patients, why can’t testing and procedures be done in the afternoon, so the mornings and evenings can be used for physical therapy, optimizing nutrition, self-care, rest, and time with family?

Why does medical treatment trump recovery?”
These were stunning results. If scientists came up with a device – call it an automatic defrailer – that wouldn’t extend your life but would slash the likelihood you’d end up in a nursing home or miserable with depression, we’d be clamouring for it …

We’d have pink ribbon campaigns to get one for every person over seventy-five …

Medical students would be jockeying to become defrailulation specialists …

Instead it was just geriatrics.

BEING MORTAL
ATUL GAWANDE
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;39:8S-16S.
Caregivers

Physical Exam
- Vision and hearing
- Swallow, nutrition and hydration
- Bladder and bowel
- Injury
- Skin

Psychiatric Exam
- Cognitive screen
- Delirium
- Mood
- Pre-existing problems

Functional Assessment
- Gait and balance
- Activities of daily living

Home Environment
- Gait and falls
- Continence
- Sensory
- Medications

History
The 5 M’s
GA ≠ CGA

1. SCREENING
2. ASSESSMENT
3. GOAL-DIRECTED INTERVENTION
4. FOLLOW-THROUGH

} geriatric assessment

} CGA
NNT = 33

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

Cochrane Database Syst Rev. 2017; CD006211.
“older people who received CGA probably have lower risk of dying, and that after discharge, were more likely to return to the same location they lived in before hospital admission”
# PROACTIVE CGA

<table>
<thead>
<tr>
<th>Case Finding</th>
<th>Involvement is early -- before treatment decisions are made.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early</td>
<td>Focus on prevention of geriatric syndromes.</td>
</tr>
<tr>
<td>Prevention</td>
<td>Recommendations are implemented directly.</td>
</tr>
</tbody>
</table>
Preoperative Comprehensive Geriatric Assessment

Values-based assessment
Surgical risk assessment
Geriatric risk assessment

Pre-habilitation
Anesthesia
Perioperative Nausea

Pre-operative | Intra-operative | Post-operative | Discharge

Medical optimization | Geriatric optimization | Perioperative Analgesia | Care Transitions

Delirium, pain, falls, nutrition, function, catheter, pressure ulcer, pulmonary care bundles

PROACTIVE Comprehensive Geriatric Assessment
<table>
<thead>
<tr>
<th>Pre-operative</th>
<th>Intra-operative</th>
<th>Post-operative</th>
<th>Discharge</th>
</tr>
</thead>
</table>

**PROACTIVE Comprehensive Geriatric Assessment**
Determine goals and expectations.
Assess cognitive ability and capacity to understand anticipated surgery.
Screen for depression.
Identify and manage risk factors for delirium.
Screen for substance dependence.
Document functional status, mobility and falls.
Determine frailty.
Assess nutritional status and offer interventions.
Determine support system.
Order appropriate diagnostic tests.
Perform a preoperative cardiac evaluation.
Perform a preoperative pulmonary evaluation and implement optimization strategies.
Take a medication history and make any appropriate perioperative adjustments.
ASSESS CAPACITY
To Make Treatment Decisions

a) “understand” the information that is relevant to making a decision about the treatment, and
b) “appreciate” the reasonably foreseeable consequences of a decision or lack of decision.
01
Establish a substitute decision maker (SDM)

02
Discuss goals and preferences

03
Document code status and consider suspension of existing DNR orders for the perioperative period
Moving from “What is the matter?”

WHAT MATTERS TO YOU?
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?
Should I have surgery?

- What are my options?
- What is likely to happen if I do have surgery? If I don't have surgery?
- In your opinion, will surgery make me feel better?
- In your opinion, will surgery help me live longer? If so, how much longer?

What should I expect if everything goes well?

- How do you think my daily life will look after surgery? Right after surgery, three months later, one year later?
- Will I have any tubes or drains put in during or after surgery? Will I need them at home?
- In your opinion, how will this surgery affect my other health problems (such as diabetes or high blood pressure)?
- After I leave the hospital, what type of care do you think I will need?

What happens if things go wrong after surgery?

- Can you describe serious complications and explain what those might mean for me?
- If I'm too sick to speak for myself, how can I make sure you know my wishes?
- If I decide to appoint someone to make medical decisions for me, what do I need to do to make those arrangements official?
PRE-OPERATIVE HARMONIZATION

1. VALUES BASED ASSESSMENT
2. SURGICAL RISK ASSESSMENT
Are there other potential appropriate treatment options?  

**Please enter as much of the following information as you can to receive the best risk estimates.**
**A rough estimate will still be generated if you cannot provide all of the information below.**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Under 65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female</td>
</tr>
<tr>
<td>Functional Status</td>
<td>Independent</td>
</tr>
<tr>
<td>Emergency Case</td>
<td>No</td>
</tr>
<tr>
<td>ASA Class</td>
<td>Healthy patient</td>
</tr>
<tr>
<td>Steroid use for chronic condition</td>
<td>No</td>
</tr>
<tr>
<td>Ascites within 30 days prior to surgery</td>
<td>No</td>
</tr>
<tr>
<td>Systemic Sepsis within 48 hours prior to surgery</td>
<td>None</td>
</tr>
<tr>
<td>Ventilator Dependent</td>
<td>No</td>
</tr>
<tr>
<td>Disseminated Cancer</td>
<td>No</td>
</tr>
<tr>
<td>Diabetes</td>
<td>No</td>
</tr>
<tr>
<td>Hypertension requiring medication</td>
<td>No</td>
</tr>
<tr>
<td>Congestive Heart Failure in 30 days prior to surgery</td>
<td>No</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>No</td>
</tr>
<tr>
<td>Current Smoker within 1 Year</td>
<td>No</td>
</tr>
<tr>
<td>History of Severe COPD</td>
<td>No</td>
</tr>
<tr>
<td>Dialysis</td>
<td>No</td>
</tr>
<tr>
<td>Acute Renal Failure</td>
<td>No</td>
</tr>
<tr>
<td>BMI Calculation:</td>
<td></td>
</tr>
<tr>
<td>Height:</td>
<td>in / cm</td>
</tr>
<tr>
<td>Weight:</td>
<td>lb / kg</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Your Risk</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Serious Complication</td>
<td>27.3%</td>
</tr>
<tr>
<td>Any Complication</td>
<td>34.0%</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>6.3%</td>
</tr>
<tr>
<td>Cardiac Complication</td>
<td>2.9%</td>
</tr>
<tr>
<td>Surgical Site Infection</td>
<td>10.4%</td>
</tr>
<tr>
<td>Urinary Tract Infection</td>
<td>7.0%</td>
</tr>
<tr>
<td>Venous Thromboembolism</td>
<td>2.6%</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>1.5%</td>
</tr>
<tr>
<td>Ileus</td>
<td>21.3%</td>
</tr>
<tr>
<td>Anastomatic Leak</td>
<td>2.0%</td>
</tr>
<tr>
<td>Readmission</td>
<td>16.7%</td>
</tr>
<tr>
<td>Return to OR</td>
<td>6.3%</td>
</tr>
<tr>
<td>Death</td>
<td>8.6%</td>
</tr>
<tr>
<td>Discharge to Nursing or Rehab Facility</td>
<td>59.4%</td>
</tr>
</tbody>
</table>

Predicted Length of Hospital Stay: 10.5 days
PRE-OPERATIVE HARMONIZATION

1. VALUES BASED ASSESSMENT
2. SURGICAL RISK ASSESSMENT
3. GERIATRIC RISK ASSESSMENT
PRE-OP FRAILTY
A STATE WITH HIGH VULNERABILITY TO ADVERSE HEALTH CARE OUTCOMES
Mortality
Pre-op frailty is associated in increased 30-day mortality (OR 1.4 to 8.33) and 1-year mortality (OR 1.1 to 4.97).

Post-op Complications
Pre-op frailty is associated with increased postoperative complications (OR 1.5 to 4.8).

Adverse Discharge
Pre-op frailty is associated with longer length of stay and discharge to long term care.
Clinical Frailty Scale*

1. Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2. Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3. Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4. Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being “slowed up”, and/or being tired during the day.

5. Mildly Frail – These people often have more evident slowing, and need help in high order ADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6. Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.

7. Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

8. Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9. Terminally Ill - Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In severe dementia, they cannot do personal care without help.


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**Timed Up-and-Go**

10 Feet

180 degree turn

Start

End

---

**TIMED UP AND GO**

This single item surrogate to identify frailty correlates to both postoperative complications and 1-year mortality.

PRE-OPERATIVE HARMONIZATION

1. VALUES BASED ASSESSMENT
2. SURGICAL RISK ASSESSMENT
3. GERIATRIC RISK ASSESSMENT
PRE-OPERATIVE HARMONIZATION

1. VALUES BASED ASSESSMENT
2. SURGICAL RISK ASSESSMENT
3. GERIATRIC RISK ASSESSMENT
THERAPEUTIC HARMONIZATION

ALIGNING PROGNOSIS AND GOALS WITH CARE.
Values-based assessment

Surgical risk assessment

Geriatric risk assessment

Pre-operative | Intra-operative | Post-operative | Discharge

PROACTIVE Comprehensive Geriatric Assessment
MEDICAL OPTIMIZATION

- Antibiotic Prophylaxis
- Venous Thromboembolism Prophylaxis
- Glucose Control
- Smoking Cessation
- Cardiac and Pulmonary Optimization
- Medication Management
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

*Image is a cropped view of a larger document, featuring references and guidelines related to various medical specialties.*
Substance Dependence

Administer the CAGE Questionnaire.

If motivated, delay surgery for abstinence or detoxification.

If at risk, give perioperative prophylaxis for withdrawal syndromes.

In alcohol use disorder, give perioperative daily multivitamin and high-dose thiamine.

MEDICATION MANAGEMENT

1. STOP NON-ESSENTIALS
   - drug interactions with anesthesia
   - herbal remedies

2. CONTINUE ESSENTIALS
   - potential for withdrawal
   - potential for disease progression with interruption

3. PLAN FOR RESUMPTION
   - consider polypharmacy
   - adjust for renal function
Preoperative

Intra-operative

Post-operative

Discharge

Values-based assessment

Surgical risk assessment

Geriatric risk assessment

Medical optimization

PROACTIVE Comprehensive Geriatric Assessment
**COGNITIVE IMPAIRMENT**

1. **INQUIRE.**
   Ask informants about any cognitive decline.

2. **TEST.**
   Perform an assessment such as the Mini-Cog. If abnormal, then further evaluation.

3. **DOCUMENT.**
   Documentation of preoperative cognitive status helps to quantify postoperative cognitive dysfunction.

Mini-Cog ©
Screening for Cognitive Impairment in Older Adults

IDENTIFY POST-OP DELIRIUM RISK

Age > 65, cognitive impairment, severe illness, hearing or vision impairment, presence of infection, inadequately controlled pain, depression, alcohol use, sleep deprivation or disturbance, renal insufficiency, anemia, hypoxia or hypercarbia, poor nutrition, dehydration, electrolyte abnormalities, poor functional status, limited mobility, use of psychotropic medications, risk of urinary retention of constipation, presence of urinary catheter, aortic procedures.

DELABRUM PREVENTION TIP

Counsel and empower the patient and family on evidence-based delirium prevention measures.

NNT = 13
DELIRIUM PREVENTION

- Sensory enhancement
- Cognitive stimulation/orientation
- Fluid and nutrition
- Simple communication
- Mobility enhancement
- Sleep promotion
- Medication review
- Pain control

In the past 12 months, have you ever had a time when you felt sad, blue, depressed, or down for most of the time for at least 2 weeks?

In the past 12 months, have you ever had a time, lasting at least 2 weeks, when you didn’t care about the things that you usually cared about or when you didn’t enjoy the things that you usually enjoyed?

Depression

IF SCREEN IS POSITIVE, THEN FURTHER EVALUATION IS RECOMMENDED.

PHQ-2

PERFORMANCE STATUS
DEFICITS SHOULD PROMPT PROACTIVE DISCHARGE PLANNING AND REFERRALS TO ALLIED HEALTH

- Function
- Management of ADLs and IADLS
- Sensory
- Vision, hearing, swallowing
- Falls
- History of falls
- Mobility
- Gait and balance assessment

Pre-operative

Intra-operative

Post-operative

Discharge

Values-based assessment

Surgical risk assessment

Geriatric risk assessment

Medical optimization

Geriatric optimization

PROACTIVE Comprehensive Geriatric Assessment
Prehabilitation

increase functional capacity in anticipation of an upcoming stress
preoperative physical therapy in cardiac surgery

decreases pneumonia
RR 0.45, 95% CI 0.24-0.83

decreases length of stay
3.21 days, p=0.01

Cochrane Database of Systematic Reviews 2012 (11): CD010118.
PREOPERATIVE inspiratory muscle training

Reduces atelectasis and pneumonia
RR 0.53, 95% CI 0.34 to 0.82

PREHABILITATION
A 1-month trimodal program improves post-op functional recovery.

NUTRITIONAL SUPPORT  EXERCISE TRAINING  ANXIETY SUPPORT

PROACTIVE Comprehensive Geriatric Assessment

Values-based assessment

Surgical risk assessment

Geriatric risk assessment

Pre-habilitation

Pre-operative | Intra-operative | Post-operative | Discharge

Medical optimization

Geriatric optimization
"Definitive evidence does not exist establishing the superiority of regional anesthesia compared with general anesthesia when used as a primary modality for surgical anesthesia in older adults."

NNT=16

using the processed EEG to help deliver the optimal depth of anaesthesia could reduce the incidence of delirium (21.3% to 15.2%)

PROACTIVE Comprehensive Geriatric Assessment

Values-based assessment
Surgical risk assessment
Geriatric risk assessment

Medical optimization
Geriatric optimization

Pre-operative
Intra-operative
Post-operative
Discharge

Anesthesia
Pre-habilitation
OPIOID-SPARING

Use preoperative, intraoperative, and/or scheduled postoperative acetaminophen and/or addition of regional techniques such as neuraxial blockade or peripheral nerve block.

AVOID THESE

Common analgesics and anxiolytics to avoid include: barbiturates, benzodiazepines, non-benzodiazepine hypnotics, meperidine, skeletal muscle relaxants, non-Cox NSAIDs.
BOWEL ROUTINE

Include a prophylactic pharmacologic bowel regimen such as a stimulant laxative, when appropriate.
Colace: looks like a jelly bean, works like a jelly bean.
ANTI-EMETICS

AVOID
corticosteroids, scopolamine, metoclopramide, promethazine, dimenhydrinate, prochlorperazine

USE
5-HT3 receptor antagonists (e.g. ondansetron)
PROACTIVE Comprehensive Geriatric Assessment

- Values-based assessment
- Surgical risk assessment
- Geriatric risk assessment

Pre-operative
- Medical optimization
- Geriatric optimization

Intra-operative
- Anesthesia
- Perioperative Analgesia

Post-operative
- Perioperative Nausea

Discharge

Pre-habilitation
POST-OP

CHECKLIST

1. Delirium prevention strategies
2. Multimodal, individualized acute pain control
3. Minimize pulmonary complications
4. Fall risk reduction
5. Maintain adequate nutrition
6. Urinary tract infection prevention
7. Prevent functional decline
8. Reduce pressure ulcers

<table>
<thead>
<tr>
<th>Orientation Strategies</th>
<th>Vision and Hearing Aids</th>
<th>Sleep Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family Participation</td>
<td>Uncluttered Hallways</td>
<td>Multimodal Pain Control</td>
</tr>
<tr>
<td>Remove Urinary Catheters and Other Tethers</td>
<td>Wound Care: Minimize Pressure, Friction, Humidity, Shear Force</td>
<td></td>
</tr>
<tr>
<td>Avoid Potentially Inappropriate Medications</td>
<td>Resume Diet Early and Provide Dentures, If Needed</td>
<td></td>
</tr>
<tr>
<td>Chest Physiotherapy and Incentive Spirometry</td>
<td>Early Multidisciplinary Involvement</td>
<td></td>
</tr>
<tr>
<td>Early Mobilization, Using Walking Aids If Needed</td>
<td>Scheduled Toileting</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aspiration Precautions</td>
</tr>
</tbody>
</table>

**What Is Good For Delirium, Is Good For Falls, Is Good For Functional Decline.**
Antipsychotics do NOT shorten the duration or reduce the severity.

PROACTIVE Comprehensive Geriatric Assessment

Values-based assessment
Surgical risk assessment
Geriatric risk assessment

Pre-operative
Anesthesia
Perioperative Analgesia

Intra-operative

Post-operative

Delirium, pain, falls, nutrition, function, catheter, pressure ulcer, pulmonary care bundles

Medical optimization
Geriatric optimization
Perioperative Nausea

Discharge
DISCHARGE: ALL HANDS ON DECK

COMMON COMPONENTS OF TRANSITION CARE MODELS
• Coordinated care with primary care physician
• Engagement of patient, family, and/or caregiver
• Patient-centered medical record
• Post-discharge follow up plan
• Medication management
• Knowledge of important signs and symptoms

PROACTIVE Comprehensive Geriatric Assessment

Values-based assessment
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Geriatric risk assessment

Pre-operative
Intra-operative
Post-operative
Discharge

Medical optimization
Geriatric optimization
Perioperative Analgesia
Care Transitions

Anesthesia
Perioperative Nausea
Delirium, pain, falls, nutrition, function, catheter, pressure ulcer, pulmonary care bundles
PROACTIVE Comprehensive Geriatric Assessment

Preoperative

Intraoperative

Postoperative

Discharge

Values-based assessment
Surgical risk assessment
Geriatric risk assessment
Prehabilitation
Anesthesia
Nursing
Perioperative Nausea
OT
SLP
SW

Palliative Care

Surgery

PT

Pharmacy

RD

Pain Service

Geriatric optimization

Perioperative Analgesia

Care Transitions

Medical optimization

Geriatrics

Internist

Pain Service

Anesthesia

Nursing

Delirium, pain, falls, nutrition, function, catheter, pressure ulcer, pulmonary care bundles

Surgery

Anesthesia

Medical optimization

Geriatric optimization

Perioperative Analgesia

Care Transitions

PROACTIVE Comprehensive Geriatric Assessment
chronic limb ischemia

hypertension, smoking, dyslipidemia, diabetes

falls

pain

hospital environment

acute limb ischemia

Surgical revascularization (intra-op: fentanyl, midazolam)

npo

malnutrition

narcotics

gabapentin, narcotics

nausea

graval

urine retention

foley

constipation

colace

pressure ulcers

not going home POD#3

HYPOACTIVE DELIRIUM

poor oral intake

NG tube

caregiver stress

restraints

mild vascular cognitive impairment

immobility

ativan
chronic limb ischemia, hypertension, smoking, dyslipidemia, diabetes

acute limb ischemia

falls

pain

hospital environment

Surgical revascularization (intra-op: fentanyl, midazolam)

nausea

gabapentin, narcotics

urine retention

constipation

use better medications

gabapentin, narcotics

use better medications

use multimodal analgesia

use better medications

urinary retention

use better medications

intermittent catheterization

intermittent catheterization

ng tube

malnutrition

restraints

advanced care planning

protein supplementation

hydrocortisone

counsel and empower caregivers

avoid bad medications

early mobilization

mild vascular cognitive impairment

use better surfaces

presssor ulcer

not going home POD#3

 HYPOACTIVE DELIRIUM

avoid bad medications

bispectral index to guide sedation

caregiver stress

constipation

use better medications

hospital environment

HYPOACTIVE DELIRIUM

imobility

use better surfaces

use better medications

advancement care planning

use better medications
CROSS SPECIALTY COLLABORATION

One-stop shop.
ENHANCED RECOVERY PROGRAMS

“THE IMMEDIATE CHALLENGE TO IMPROVING THE QUALITY OF SURGICAL CARE IS NOT DISCOVERING NEW KNOWLEDGE, BUT RATHER HOW TO INTEGRATE WHAT WE ALREADY KNOW INTO PRACTICE.”

17 systematic reviews and 12 additional showed Enhanced Recovery After Surgery (ERAS) programs may reduce hospital stays by 0.5–3.5 days compared with conventional care.

BMJ Open 2014;4:e005015.
Proactive care of older people undergoing surgery (‘POPS’): Designing, embedding, evaluating and funding a comprehensive geriatric assessment service for older elective surgical patients

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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 = 0.006]) 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 10-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 3.12 days in the intervention group (ratio of geometric means 0.60, 65 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: ISRCTN23442588 (http://www.controlled-trials.com).

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Introduction

As the population ages the number of older people undergoing surgical procedures is increasing.1 Despite improved mortality and symptomatic benefits of surgery for older people,2–4 there continues to be an excess of adverse postoperative outcomes in older patients.5–9 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.10–12 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)
↓ delirium (11% vs 24%, P=.018)
↓ cardiac complications (8% vs 27%, P=.001)
↓ 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 team-working 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.

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 long-term 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 in in-hospital mortality (relative risk 0.60, 95% confidence interval 0.54–0.65) and long-term mortality (relative risk 0.83; 95% CI 0.74–0.94). Length of stay (standardized mean difference −2.5, 95% CI −4.4 to −0.6) was significantly reduced, particularly in the shared care model (standardized mean difference −6.1; 95% CI −9.5 to −0.28), but heterogeneity limited this interpretation. Other variables such as time to surgery, delirium, and functional status were measured in frequently.

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. Homeostasis, 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 geriatric syndromes associated with poor survival. 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 well-being of older persons. With the decline in physiology and

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HIP FRACTURE—ORTHOGERIATRICS

- Meta-analysis (N=242)
- LOS (SMD -0.25)
- in-hospital mortality (RR 0.60, 95% CI 0.42–0.84)
- 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
An Evaluation of a Proactive Geriatric Trauma Consultation Service

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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 from the St Michael's Hospital trauma registry. Abstracted data included demographics, type of geriatric issues addressed, rate of adherence to recommendations made by the GTCS, geriatric-specific clinical outcomes, trauma quality indicators, consultation requests, and discharge destinations.

Results: A total of 228 pre-GTCS patients and 248 post-GTCS patients were identified. The rate of adherence to recommendations made by the GTCS team was 93.2%. There were fewer consultation requests made to Internal Medicine and Psychiatry in the post-GTCS group (N = 31 vs N = 18, P = 0.04; and N = 33 vs N = 18, P = 0.02; respectively). There were no differences in any of the prespecified complications except delirium (50.5% pre-GTCS vs 40.9% post-GTCS, P = 0.05). Among patients admitted from home, fewer were discharged to long-term care facilities among the post-GTCS group (65.4% pre-GTCS vs 17.7% post-GTCS, P = 0.03).

Conclusions: A proactive geriatric consultation model for elderly trauma patients may decrease delirium and discharges to long-term care facilities. Future studies should include a multicenter randomized trial of this model of care.

Keywords: geriatrics, models of care, trauma

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Delays in recognizing the special needs of older trauma patients may result in suboptimal care. 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. Management of geriatric trauma patients is challenging because the validity of standard injury scores such as the Injury Severity Score is uncertain and the elderly have more comorbidities resulting in more in-hospital complications and medical consultations. The optimal management of these patients remains unclear.

A comprehensive geriatric assessment is a multidimensional, interdisciplinary diagnostic process to determine the medical, psychological, and functional capabilities of a frail elderly person to develop a coordinated and integrated plan for management and longitudinal follow-up. A systematic review of randomized trials comparing comprehensive geriatric assessment to usual care for hospitalized patients concluded that comprehensive geriatric assessment increases a patient’s likelihood of being alive and in their own home at up to 6 months (odds ratio: 1.25, 95% confidence interval: 1.11–1.42, P = 0.0002). There is some evidence from randomized trials of proactive geriatric consultation or geriatric case management showing enhanced clinical outcomes.

We identified one study that described a comprehensive geriatric consultation service for trauma patients. Fallon et al. demonstrated the adaptation of the principles of the comprehensive geriatric assessment in the trauma environment in a prospective, descriptive study. Patients aged 65 years or older admitted to the trauma service were seen by a specialist in geriatrics within 24 hours of admission. In this descriptive study, geriatricians assisted with advanced care planning (15%), disposition decisions to promote function (40%), medication changes (65%), and pain management (42%). Trauma surgeons followed one or more recommendations 91% of the time.

We were unable to identify any randomized trials of a proactive geriatric trauma consultation service (GTCS).

The GTCS at St Michael’s Hospital was started in September 2007 with the goals of preventing/managing age-specific complications related to comorbidities/conditions and assisting in discharge planning. This study describes the initial evaluation of this model of care.

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ELDER-FRIENDLY APPROACHES TO THE SURGICAL ENVIRONMENT

Feb. 4, 2015
By Connie Bryson and AIHS staff

As our population ages, there is a larger number of elderly people who get sick and require surgery. Seniors experience twice as many damaging health problems as younger patients when admitted to hospital, including surgical complications. As Canada’s population ages and seniors live longer, it’s expected that one in four Canadians will be 65 or older by 2040. Alberta researchers have begun a three-year project called the Elder-Friendly Approaches to the Surgical Environment (EASE). The project aims to help the healthcare system adapt to our aging population, with the focus on surgery.

“It’s not the actual surgery that’s the issue—older people tend to be more complex patients because they’re frail or have other illnesses such as diabetes or cardiovascular disease. These factors can set them up for poor outcomes,” explains surgeon Dr. Rachel Khadaroo, surgeon, EASE project lead and assistant professor, Department of Surgery at the University of Alberta.
“If you want to go fast, go alone; if you want to go far go TOGETHER”

-- African Proverb
WHICH OF THE FOLLOWING IS FALSE ABOUT POSTOPERATIVE DELIRIUM?

1. Use encephalographic monitors to measure the depth of sedation.
2. Counsel family on non-pharmacologic prevention strategies.
3. Use peripheral nerve blocks adjunctively, if suitable.
4. There are delirium risk stratification tools.
5. Choose demerol for pain management.
PREHABILITATION SHOULD INCLUDE WHICH OF THE FOLLOWING?

1. Aerobic exercise and resistance training.
2. Anxiety support.
3. Incentive spirometry
4. Protein optimization
5. All of the above.
FRAILTY IS ASSOCIATED WITH WHICH OF THE FOLLOWING?

1. 30-day mortality.
2. Postoperative complications.
3. Longer lengths of stay.
4. Discharge to long-term care.
5. All of the above.
Thank you.