

# Post Fracture Protocols: Are They Different in the Elderly?

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# Overview

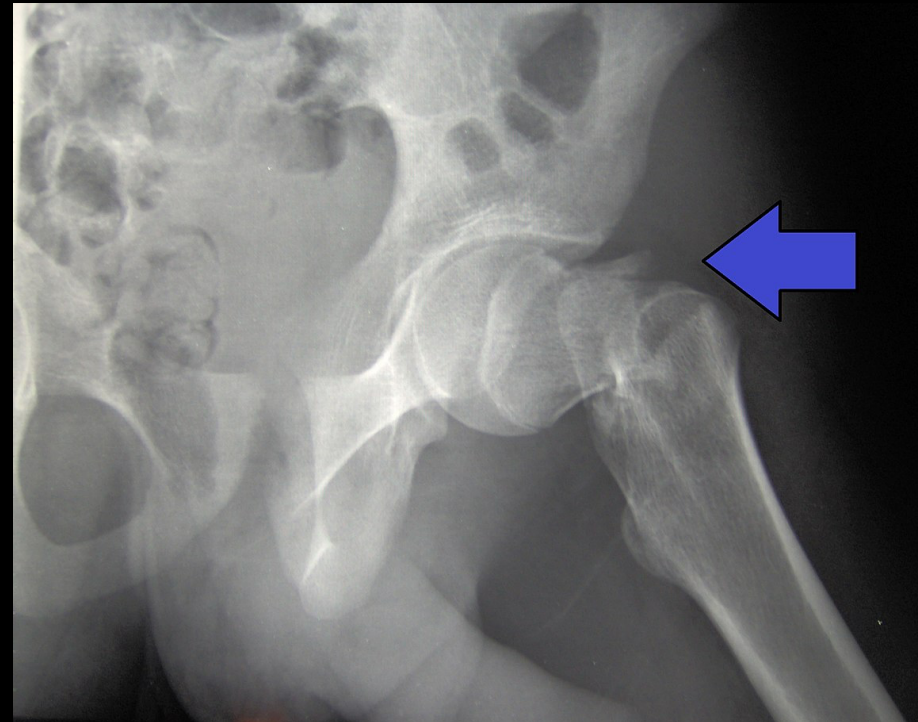
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- Fracture protocols for the elderly: Extent of Literature
- Epidemiology of hip fractures
- The Geriatric Fracture Center / Accelerated Care / Enhanced Care Model
- Early Surgery: Is it better?
- Summary

# Where is the Literature?

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- Rib fractures
- Upper extremity Fractures
- Cervical spine fractures



**HIP FRACTURES**

# Epidemiology

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- Incidence 350,000 hip fractures per year
- Incidence has decreased, but prevalence is expected to grow to over 500,000
- Worldwide: will exceed 6 million by 2050
- Reduces life expectancy by 25%
- Cost in US by 2040: \$37,000,000,000



# Challenges

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- Multiple comorbidities (medical illnesses)
- High risk of developing:
  - Delirium
  - Infection
  - Hospital-related issues
    - Pneumonia
    - Pressure ulcers
    - Blood clots
    - Bleeding



# Key Elements of a Geriatric Fracture Center

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- Multidisciplinary team based approach
- Leadership from Orthopaedic Surgery and Geriatrics → Medical Co-Management
- Standardized Order sets and protocol
- Early Surgical Intervention
- Continuous quality improvement

# Teamwork and Co-management

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- Orthopaedic Surgeon ← → Geriatrician
- Emergency department staff
- Radiologist
- Anesthesiologist
- Nursing staff
- Social workers
- Rehab staff (OT, PT, Physiatrist)

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# Protocols

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- Rapid hospital admission
  - Standard order sets

# Protocols

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- Order sets for Pain control
  - Prevent Delerium
  - Minimize use of opioids
- Use of Nerve blockade: can reduce opioid use



# Protocols

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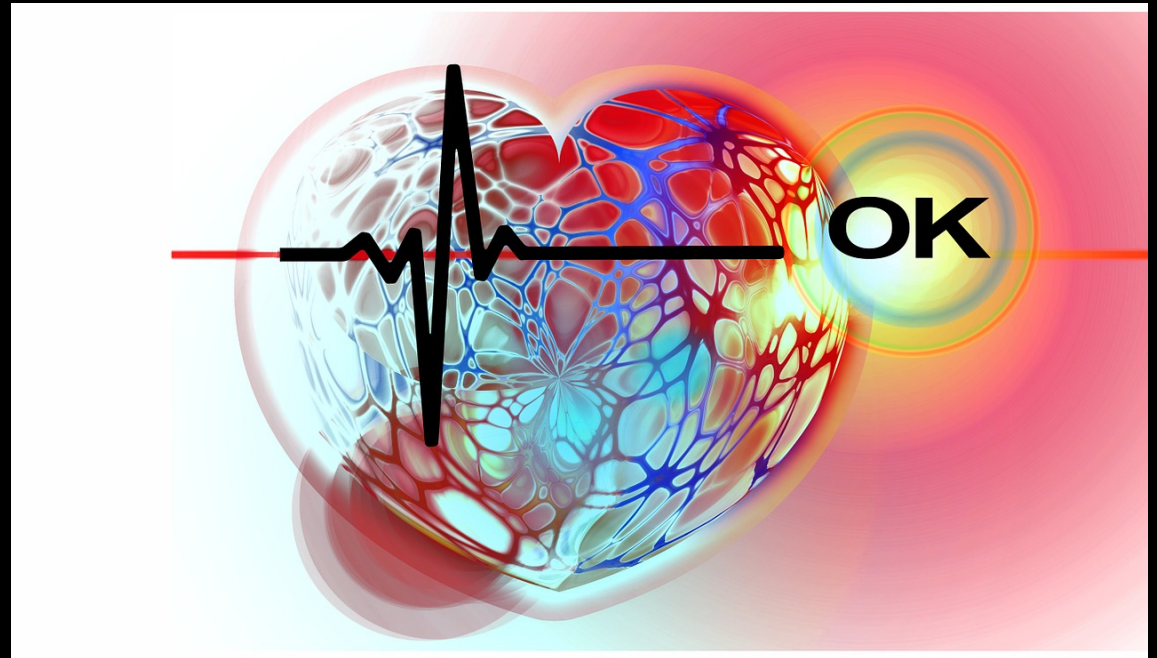
- Comprehensive Laboratory Workup:
  - Assess for dehydration
  - Screen for Urinary Tract Infection



# Protocols

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- Medical Clearance
  - Expeditious clearance of patient for surgery
    - Cardiology consultation
    - Cardiac imaging/evaluation







# Protocols

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- Early mobilization
  - Standard rehabilitation orders
    - WBAT first post operative day



# Community Relationships

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- Social Services:
  - Discharge planning from time of admission
    - Effective transition to skilled nursing or to assistive living communities for rehab



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# Why Should We Do This?

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- Facilitate early surgery
- Affect early mobilization
- Reduce morbidity and mortality
- Reduce hospital length of stay
- Reduce costs of care
- Reduce readmission rates

# Why Don't We Do This?

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- Lack of team leadership / “champions”
  - Need clinical and administrative support
- Lack of resources:
  - Limited number of geriatricians
  - Limited access to timely medical clearance
  - Limited OR availability

**Does this really work?**

# Outcomes

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## Impact of a Comanaged Geriatric Fracture Center on Short-term Hip Fracture Outcomes

*Susan M. Friedman, MD, MPH; Daniel A. Mendelson, MD, MS;  
Karilee W. Bingham, RN, BS; Stephen L. Kates, MD*

*Arch Intern Med. 2009;169(18):1712-1717*

- 193 patients Geriatric Fracture Care patients (GFC) vs. Usual Care patients (UC)
- Compared GFC pts with proximal hip fractures to UC treated at an outside hospital



# Outcomes

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- Time to Surgery (24.1 vs. 37.4 hours)
- Post Operative Infections (2.3% to 19.8%)
- Complications (30.6% vs. 46.3%)
- Physical Restraint (0% vs. 14.2%)

# Outcomes

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Sounds Good....?

# Study Limitations

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- Retrospective review of medical records from two different hospitals
- Unblinded review which may have led to bias
- The presence of delirium as a complication was difficult to determine
- Outcomes measured were short term
- Need more **prospective** studies to evaluate efficacy

# Outcomes

## Comprehensive geriatric care for patients with hip fractures: a prospective, randomised, controlled trial

Anders Prestmo\*, Gunhild Hagen\*, Olav Sletvold, Jorunn L Helbostad, Pernille Thingstad, Kristin Taraldsen, Stian Lydersen, Vidar Halsteinli, Turi Saltnes, Sarah E Lamb, Lars G Johnsen, Ingvild Saltvedt

Lancet 2015; 385: 1623-33

- Prospective, Randomised, controlled trial
- 198 accelerated care / 199 usual care
- Patients receiving accelerated care had improved mobility, ADLs and QOL vs. usual care patients

# Outcomes

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Sounds Good....?

# Study Limitations

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- Staff and assessors could tell which pt was in which cohort (bias may be present)
- It is not clear which component/s of the program made it effective in improving outcomes
- However, this study builds on current evidence that supports an interdisciplinary and comprehensive program for geriatric care

# Early Surgery

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- What is Early Surgery?
- Current recommendations: 24 or 48 hours?
- Surgery within 48 hours
  - Many hospitals have difficulty meeting this benchmark

# Surgical Timing

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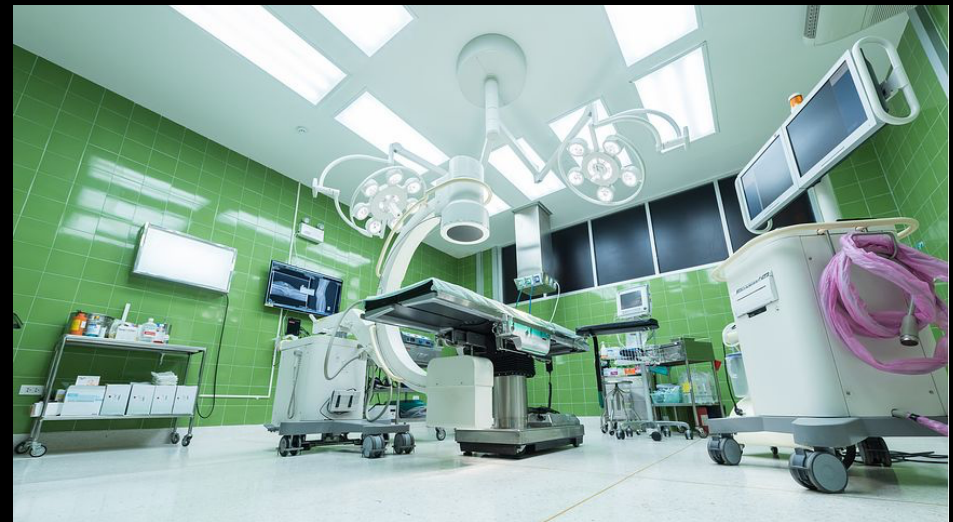
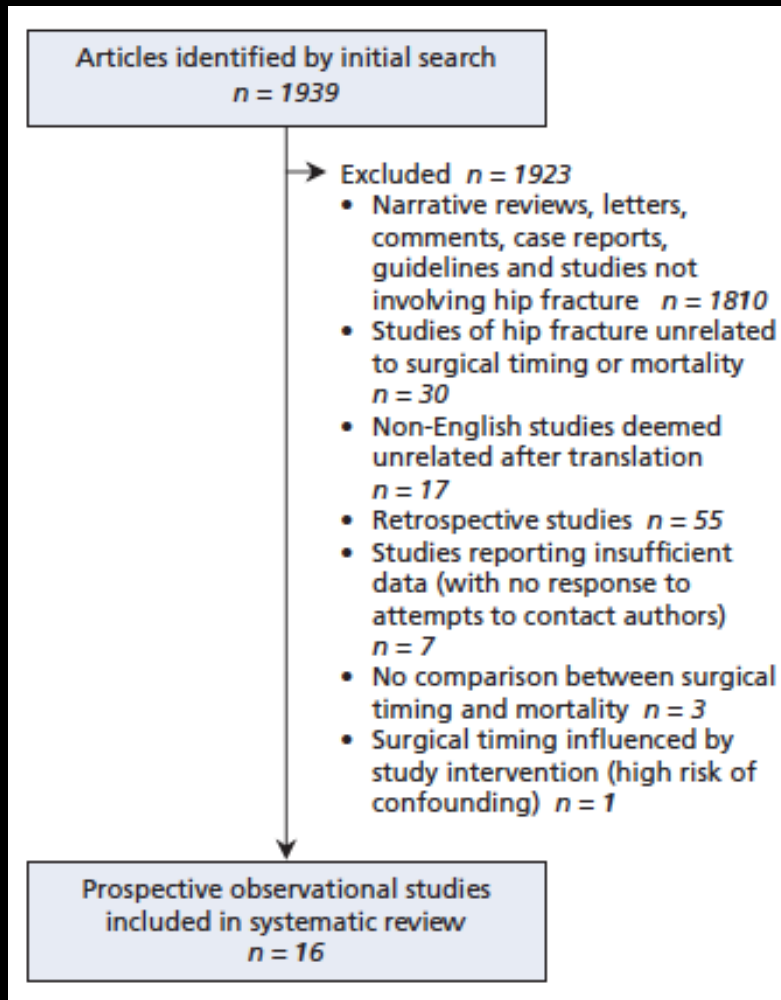
## Effect of early surgery after hip fracture on mortality and complications: systematic review and meta-analysis

Nicole Simunovic MSc, P.J. Devereaux MD, Sheila Sprague MSc, Gordon H. Guyatt MSc MD, Emil Schemitsch MD, Justin DeBeer MD, Mohit Bhandari PhD MD

CMAJ • OCTOBER 19, 2010 • 182(15)



# Surgical Timing



# Surgical Timing

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- Meta-analysis suggested that early surgery (within 24-72 hours) resulted in:
  - Decreased mortality
  - Reduced risk of pneumonia
  - Reduced risk of pressure ulcers

# Outcomes

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Sounds Good...?

# Study Limitations

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- Analysis of complications was limited to studies that included mortality rates
- Patients who had delays tended to be the “sicker patients” and with potential for higher complications and mortality
- Studies reviewed were observational studies which can be prone to bias

# Hip Attack

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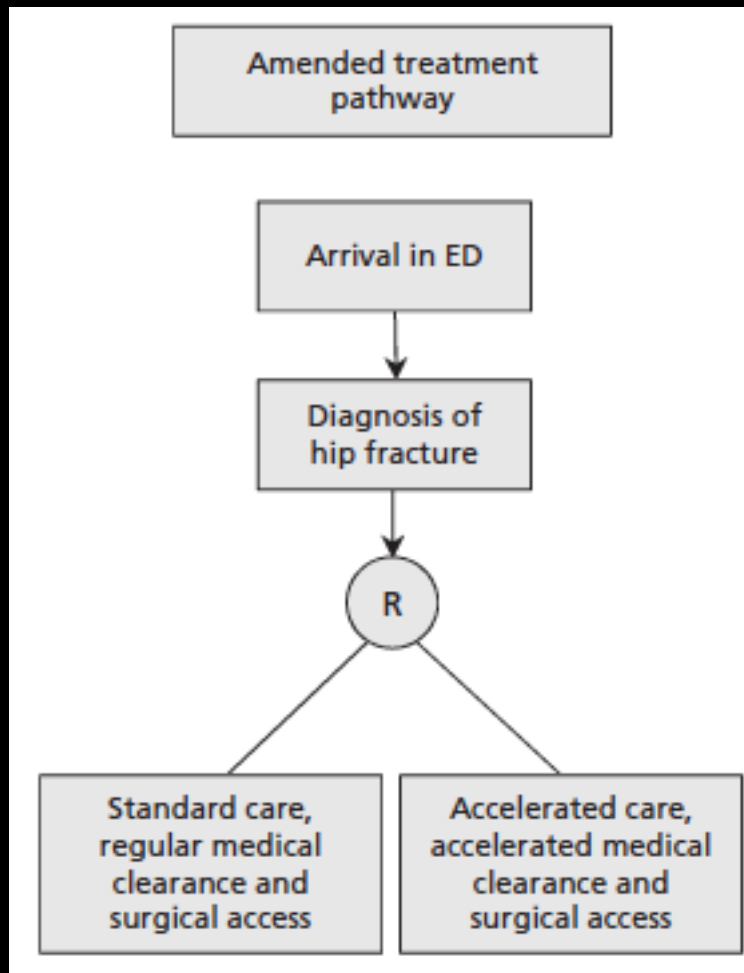
## Accelerated care versus standard care among patients with hip fracture: the HIP ATTACK pilot trial

The Hip Fracture Accelerated Surgical Treatment and Care Track (HIP ATTACK) Investigators



CMAJ, January 7, 2014, 186(1)

# Surgical Timing



- Feasibility of accelerated care:
  - Rapid Medical Clearance
  - Early surgery

# Surgical Timing

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- Feasibility of accelerated care
  - Feasible with multidisciplinary collaboration
    - It is possible to significantly decrease time to surgery (median time to surgery: 6 hours)
- Although the number of study subjects is not high enough to statistically confirm efficacy, preliminary findings reveal that a major complication occurred within 30 days in almost half of the standard care pts
- A prospective study was started in 2014 to further assess efficacy and timing (completion Dec 2018)

# So What is Early Surgery.....?

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- Current recommendations: 24 or 48 hours?
- surgery within 48 hours
  - Many hospitals have difficulty meeting this benchmark



# Is that too long?

JAMA | Original Investigation

## Association Between Wait Time and 30-Day Mortality in Adults Undergoing Hip Fracture Surgery

Daniel Pincus, MD; Bheeshma Ravi, MD, PhD; David Wasserstein, MD, MSc; Anjie Huang, MSc; J. Michael Paterson, MSc; Avery B. Nathens, MD, MPH, PhD; Hans J. Kreder, MD, MPH; Richard J. Jenkinson, MD, MSc; Walter P. Wodchis, PhD

JAMA. 2017;318(20):1994-2003. doi:10.1001/jama.2017.7606

- Use population based data to determine the optimal time window for surgery to minimize risk of complications

# Surgery Wait Time

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- >40,000 cases of patients with hip fracture in Canada
- Looked for the outcome of mortality within 30 days

# Findings

JAMA | Original Investigation

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JAMA. 2017;318(20):1994-2003. doi:10.1001/jama.2017.7606

- Increased wait time was associated with greater risk of 30 day mortality and other complications
- A wait time of 24 hours may represent a threshold defining higher risk

# Study Limitations

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- Medically complex patients are predisposed to complications – complications related to medical complexity vs. delay to surgery may have confounded results
- Patients who did not receive surgery could not be distinguished in the data from those who died waiting for surgery to those for whom surgery was not recommended

# Early Surgery

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However, these studies add to the body of evidence that suggests that early surgery, perhaps within 24 hours, may decrease risk of complications and mortality.

# Take home points:

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- Undertaking a CGC-like model of care is a resource rich endeavor that requires clinical champions and hospital support
- A team approach can heighten awareness to the prevention of complications
- A team approach can greatly reduce time to surgery
- Timing of surgery appears important – what that time frame is, weighed with the complexity of the patient population, has yet to be determined

# Take home points:

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- There is a growing body of evidence that GFC-like care may decrease complications and mortality, but the quality of evidence for this is limited
- The impact on GFC-like care on long term outcomes, such as function and quality of life, have yet to be determined
- Prospective studies are in the works to better determine what factors in care might be the most important to consider.



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**Thank You**