

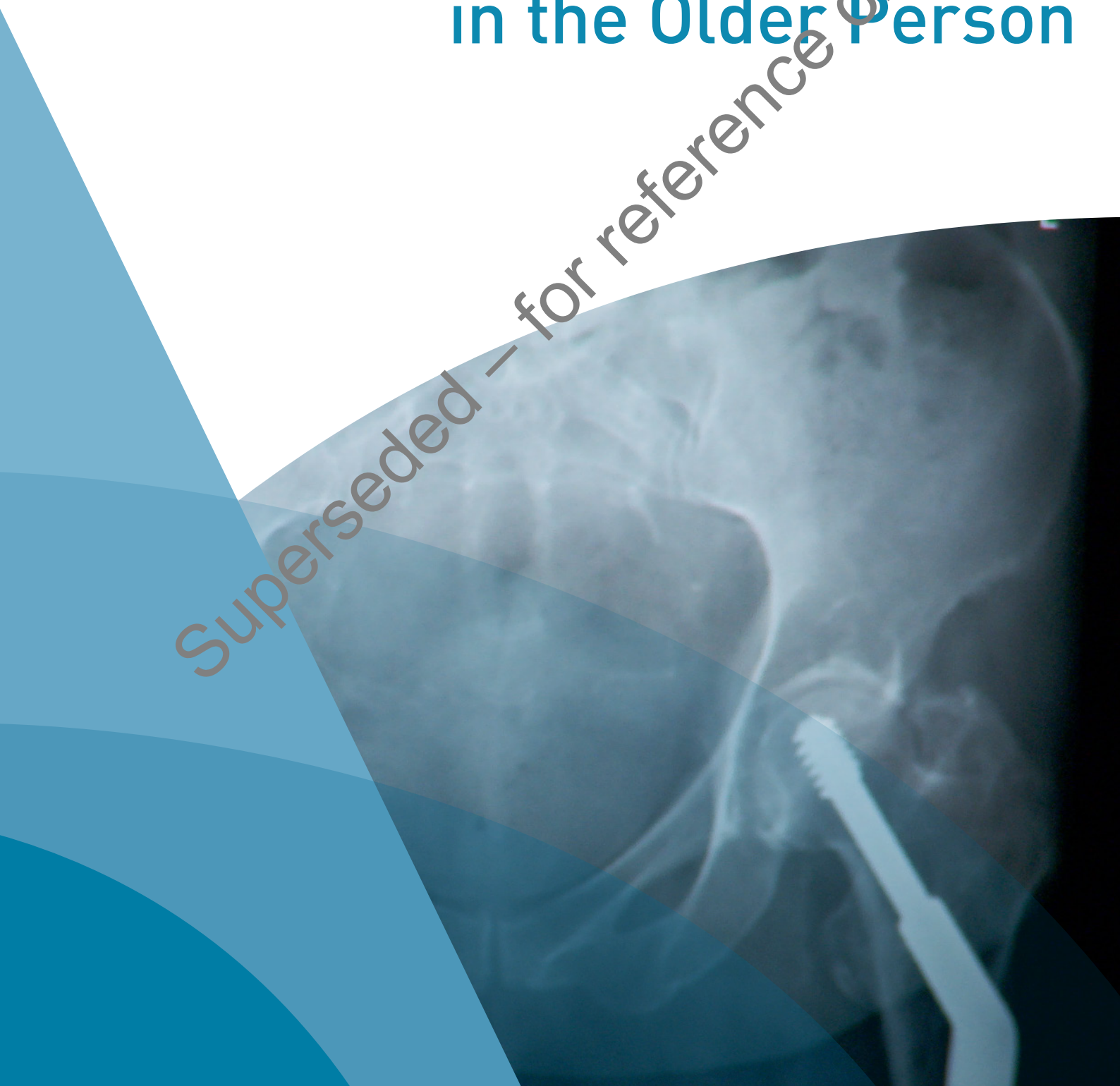


**ACI** NSW Agency  
for Clinical  
Innovation



# Minimum Standards for the Management of Hip Fracture in the Older Person

Superseded – for reference only



# ACKNOWLEDGEMENTS

The Agency for Clinical Innovation would like to thank the clinicians, managers and consumers who contributed to the development of the *Minimum Standards for the Management of Hip Fracture in the Older Person*.



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# FOREWORD

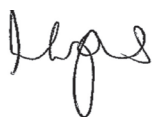
Hip fractures as a result of a fall are sadly a common occurrence for older Australians – some 17,000 cases present to emergency departments across the country each year. Surgery to repair the fracture, rehabilitation after surgery and the patient's discharge home from hospital can all be delayed if medical complications are not recognised and managed without delay. This can result in significant medical complications, ill health and even death.

The Agency for Clinical Innovation (ACI) has worked with expert clinicians in NSW to develop minimum standards to guide healthcare providers on the management and care of older patients with hip fracture across the NSW health system.

These standards emphasise the importance of treating the older person, not just the hip fracture, through a comprehensive multidisciplinary approach from presentation to subsequent follow-up, including the transition from hospital to community.

Healthcare providers who have implemented these standards are already demonstrating positive results. By taking a collaborative approach to care, effectively managing pain, optimising patients for surgery and not cancelling that surgery once scheduled, helping patients to mobilise early, screening for future fracture risk, and collecting local data to help drive continuous improvements in patient care – they are significantly reducing pain and complications for older patients while in hospital, and improving quality of life and outcomes after surgery.

On behalf of the ACI I would like to thank everyone involved for lending their time, expertise and commitment to the development of these standards, in particular, Professor Jacqui Close, Professor Ian Harris and Dr Laura Ahmad for their clinical leadership and commitment.



Dr Nigel Lyons

*Chief Executive, Agency for Clinical Innovation*

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# EXECUTIVE SUMMARY

A hip fracture is a significant injury in an older person and is associated with significant morbidity, mortality and loss of function.<sup>1</sup> Sub-optimal management of patients with a hip fracture can result in avoidable medical complications, prolonged hospitalisation and poorer patient outcomes.

The Agency for Clinical Innovation (ACI) has developed the *Minimum Standards for the Management of Hip Fracture* to assist hospitals in identifying key components of best practice management for hip fracture that will support optimal patient care and lead to better outcomes for patients across New South Wales (NSW).

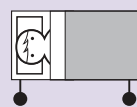
An agreed approach for the management of hip fracture patients by geriatricians, surgeons, anaesthetists and managers will be required to implement the minimum standards for the management of hip fracture in the older person.



**Standard 1:** Orthogeriatric clinical management of each patient



**Standard 2:** Optimal pain management



**Standard 3:** Surgery within 48 hours and in hours (regardless of inter-hospital transfers)



**Standard 4:** Patient's surgery is not cancelled



**Standard 5:** Commencement of mobilisation within 24 hours of surgery



**Standard 6:** Refracture prevention



**Standard 7:** Local ownership of data systems/ processes to drive improvements in care

# 1. INTRODUCTION

A hip fracture represents a significant injury for an older person, one that can result in significant medical complications, functional decline and potentially death.<sup>2</sup>

Hip fracture is a leading cause of morbidity, mortality and loss of function. Studies suggest that between 20 and 25% of patients will die within the first year after surgery for hip fracture.<sup>3</sup> Increasing age is associated with higher rates of mortality and comorbidities that can complicate treatment and increase the risk of developing serious medical complications after surgery.<sup>1,2,4</sup>

Surgery, post-operative rehabilitation and discharge from hospital can be delayed if medical complications arise and are not prevented, recognised or managed appropriately.<sup>2</sup>

The *Patient Safety Report Fractured Hip Surgery in the Elderly*, published by the *Clinical Excellence Commission (CEC)* in July 2011, identified significant issues in the management of elderly patients admitted with hip fractures in NSW. Deficiencies in optimal patient care were identified at multiple stages along the care pathway, from timely admission and surgery, to post-operative management and rehabilitation.

The Agency for Clinical Innovation (ACI) has developed the *Minimum Standards for the Management Hip Fracture* to assist hospitals in identifying key components for best practice management for fractured neck of femur that will support optimal patient care across New South Wales (NSW).

It is intended that these minimum standards be adopted by all hospitals in NSW caring for patients with hip fractures.

## Clinical Issues for the Management of Hip Fracture in the Older Person that are not covered in the Minimum Standards

The minimum standards focus on the older person who is suitable for surgery. The ACI acknowledges that some older people who suffer a hip fracture will not be suitable for surgery and appropriate non-surgical care should be provided.

# MINIMUM STANDARDS

The ACI believes that the implementation of and adherence to evidence-based standards will considerably improve the care and management of older patients with hip fractures in NSW hospitals. Improved care and management of these patients will result in better outcomes, including:

- reduction in morbidity and mortality
- better functional outcomes
- increased discharge rates to original place of residence
- increased value from the health dollar spent.

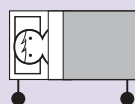
**The ACI considers the following to be the essential standards of care in older people being admitted with a hip fracture.**



**Standard 1:** Orthogeriatric clinical management of each patient



**Standard 2:** Optimal pain management



**Standard 3:** Surgery within 48 hours and in hours (regardless of inter-hospital transfers)



**Standard 4:** Patient's surgery is not cancelled



**Standard 5:** Commencement of mobilisation within 24 hours of surgery



**Standard 6:** Refracture prevention



**Standard 7:** Local ownership of data systems/ processes to drive improvements in care



# STANDARD 1: ORTHOGERIATRIC CLINICAL MANAGEMENT OF EACH PATIENT



**Older people with a hip fracture should be admitted under the joint responsibility of an orthopaedic surgeon and a geriatrician**

Orthogeriatric clinical management is a collaborative approach to the care of older patients with orthopaedic disorders involving orthopaedic and geriatric services.<sup>5</sup>

The orthogeriatric patient has complex needs, the management of which requires a collaborative, multidisciplinary approach, underpinned by effective team work, coordination of care and clear communication.

Joint responsibility for clinical management by an orthopaedic surgeon and geriatrician ensures that surgical and medical considerations are addressed concurrently from the time of admission to optimise patient care and outcomes.<sup>6</sup>

## 1.1 Applying the standard in practice

Orthogeriatric clinical management can take many forms. Local implementation will vary by hospital, depending on workforce and funding arrangements within the geriatric and orthopaedic departments.<sup>6</sup>

These minimum standards identify three models of orthogeriatric clinical management. Model one (1) is considered best-practice care according to available evidence.<sup>7</sup> In hospitals that do not have a geriatric service available, joint care should be undertaken by an orthopaedic surgeon and general physician.

### Model 1: Orthogeriatric liaison/collaborative Care

- The patient is admitted under the care of an orthopaedic surgeon and a geriatric registrar is integrated into the orthopaedic team to facilitate collaborative care.
- The registrar is supported by an orthogeriatrician and manages the patient's care collaboratively on a daily basis with the orthopaedic team. This will include participation in case conferencing, weekly to twice-weekly multidisciplinary ward rounds and daily ward rounds.<sup>5</sup>
- Collaborative care begins at admission and continues through the pre- and post-operative period onto identification and referral to rehabilitation, including secondary fracture prevention and discharge planning.

### Model 2: Shared orthogeriatric care

- The patient is admitted under the care of an orthopaedic surgeon and a geriatrician.
- Both services take responsibility for pre- and post-operative multidisciplinary care.<sup>6</sup>

### Model 3: Consultative orthogeriatric care

- The patient is admitted under the care of the orthopaedic team.
- When issues arise, timely input should be provided by a geriatrician or a general physician / general practitioner VMO where a geriatric service is unavailable.

📌 The ACI Orthogeriatric *Model of Care: Clinical Practice Guidelines 2010* provides a clear and practical guide to the implementation of orthogeriatric care of frail, older orthopaedic patients.

## Anaesthetic Management

Anaesthetists have an integral role in the perioperative, operative and postoperative management of hip fracture patients. Their role may be fundamental to the management of the hip fracture patients in hospitals where geriatric involvement is absent.

### 1.2 Evidence base

Orthogeriatric management of a patient with a hip fracture has been shown to optimise pre-operative preparation, decrease post-operative complications, improve rehabilitation outcomes and reduce mortality rates.<sup>1-4</sup>

- A retrospective cohort study investigating the impact of regular pre- and post-operative geriatric input into the management of geriatric patients with hip fracture in Hong Kong demonstrated **decreases in: (i) length of stay; (ii) medical complications in hospital; (iii) mortality; and reduced readmission to operation time by 17%.**<sup>4</sup>
- A randomised controlled trial of the collaborative orthogeriatric model of care in Ireland demonstrated a **45% decrease in probability of major complications** (delirium, comprehensive classification of fractures (CCF), pneumonia, deep vein thrombosis (DVT), pulmonary embolism (PE), pressure ulcers, arrhythmias or myocardial infarction) and mortality.<sup>8</sup>
- A prospective cohort study of a multidisciplinary approach for treatment of hip fractures in older patients in The Netherlands, compared with a historical control group, found a **significant (11%) reduction in the number of re-admissions within 30 days of discharge**.<sup>1</sup>
- A prospective trial of the collaborative orthogeriatric model, compared with a historical control population in Australia, demonstrated a **21% reduction in medical complications, 3% reduction in mortality and 20% reduction in re-admissions at six months** for medical reasons.<sup>2</sup>

While it is difficult to identify the optimal model of orthogeriatric management in the literature, the orthogeriatric liaison collaborative care model (Tier 1) comprises all of the positive aspects reported in the evidence, including integration of the geriatrician from admission, care by a multidisciplinary team (MDT), and development of criteria for patient treatment.<sup>3</sup>

### 1.3 Quality measures

<b>System measurements</b>	<ul style="list-style-type: none"><li>• Time from admission to surgery</li><li>• 30-day mortality</li><li>• Average length of stay (acute phase)</li><li>• Cancellation rate on day of surgery</li></ul>
<b>Patient measurements</b>	<ul style="list-style-type: none"><li>• Medical complications, such as delirium, pneumonia, DVT, pressure ulcers, arrhythmias or myocardial infarction</li><li>• Time to mobilisation</li><li>• Assessment and treatment for falls, where required</li><li>• Treatment for osteoporosis, where required</li><li>• Assessment for rehabilitation</li></ul>

# STANDARD 2: PAIN MANAGEMENT



## Optimal pain management including the use of multimodal pharmacological agents.

Pain should be presumed to be severe and ongoing following hip fracture.<sup>10</sup> Effective pain management is a primary goal for patients with a hip fracture.

Immobility caused by pain following hip fracture has been associated with increased risk of pressure ulcers, pneumonia and venous thromboembolism (VTE). Patients who experience greater pain are also at higher risk of delirium, depression and sleep disturbance and have a decreased response to interventions for other comorbidities.<sup>11 12</sup>

Pain is often undertreated or poorly controlled in orthogeriatric patients due to:

- reluctance or inability of an older patients to request analgesia
- reluctance of medical staff to prescribe analgesia in older frail patients
- cognitive impairment in patients, making assessment of pain levels difficult.

Pain management techniques for patients with hip fracture include pharmacological approaches such as paracetamol and opioids and use of femoral nerve blocks.

These standards recommend the use of multimodal pharmacological pain management.

## 2.1 Applying the standard in practice

Older frail patients may not tolerate opioids. Multimodal analgesia should be considered to allow the use of lower doses of opioids.<sup>11</sup> Providing a combination of two or more analgesic medications with differing mechanisms is considered best practice.

### ASSESSMENT

Patient pain should be assessed

- immediately upon presentation at hospital
- within 30 minutes of administering initial analgesia
- hourly until settled on the ward
- regularly as part of routine nursing observations throughout admission.

Patient self-report of pain is the gold standard for evaluating the nature and intensity of pain.

In cognitively impaired patients, non-verbal cues signifying pain levels should be assessed.

### PRE-OPERATIVE

A pain regimen should commence in the emergency department and be regular rather than as required by the patient.

Pain relief should be sufficient to allow movement for pre-operative investigation, such as passive external rotation of the leg.

Pain regimen may include:

- paracetamol every six hours pre-operatively
- additional opioids if required
- femoral nerve blocks if paracetamol and other opioids do not provide sufficient pre-operative pain relief.

Non-steroidal anti-inflammatory drugs (NSAIDs) are not recommended. Older patients are more prone to adverse effects making prescription and management difficult.<sup>13</sup>

All pain regimens should be documented in clinical notes and communicated clearly to:

- the MDT to support continued pain management post-operatively
- the GP to support pain management post-discharge.

## 2.2 Evidence base

*Evidence-based guidelines for the management of hip fractures in older persons: an update* recommends provision of adequate pain relief before and after surgery.<sup>13</sup> Use of multimodal analgesia has been shown to maximise the positive effect of medication.<sup>14</sup>

### POST-OPERATIVE

Pain relief should be sufficient to allow mobilisation within 24 hours of surgery.

Pain regimen may include:

- paracetamol every 6 hours
- additional opioids if paracetamol is insufficient in pain relief.

Pain relief should continued and be monitored post - discharge.

### Paracetamol and other analgesics

- The UK National Institute for Clinical Excellence (NICE) National Clinical Guidelines Centre (NCGC) recommends administration of paracetamol every 6 hours, unless contraindicated. If paracetamol does not provide sufficient pain relief, additional opioids should be recommended. NSAIDs are not recommended.<sup>15</sup>
- Older patients with delirium or patients with dementia who are resistant to taking oral medications may benefit from a low-dose analgesic patch.<sup>15</sup>

### Use of nerve blocks

- The NHMRC Guidelines recognise that a nerve block is an effective method of pain relief for hip fractures in the emergency department and is useful for post-operative pain.
- The NCGC recommends the use of nerve blocks preoperatively.<sup>16</sup>
- A Cochrane Review of the use of nerve blocks in hip fracture concluded that nerve blocks do reduce pre- and post-operative pain in hip fracture.<sup>16</sup>

### Other forms of pain relief

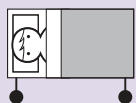
- A Cochrane Review identified no benefits for the use of pre-operative traction for hip fracture and concluded that the use of skin traction prior to surgery is not recommended.<sup>17</sup>

## 2.3 Quality measures

### Patient measurements

- Measurement of patient pain levels using pain scoring systems, taking into consideration visual and hearing impairments.
- Behavioural assessments for patients with significant cognitive impairment, noting aggression, agitation, guarding etc.

# STANDARD 3: TIMING OF SURGERY



## Surgery within 48 hours and in hours (regardless of inter-hospital transfers)

Patients should undergo surgery for hip fracture as soon as they have been assessed as medically stable.

Surgery should occur within 48 hours. The time should start at the initial presentation to hospital irrespective of inter-hospital transfer.

Some hip fracture patients will have co-morbidities that can and should be optimised prior to surgery. This includes management of heart failure, diabetes, uncontrolled arrhythmias, anaemia, anticoagulation, electrolyte imbalance and acute chest infection.<sup>16</sup>

Patients should be assessed regarding their peri-operative risk. This risk should be documented, communicated, managed and, where possible, minimised. Hospitals should identify a local process for the post-operative management of high risk patients

Optimising time to surgery for patients with a hip fracture requires multidisciplinary coordination between the emergency department, orthopaedic, anaesthetic and geriatric services.<sup>16</sup> Available theatre space and appropriately trained staff to perform the operation are required.<sup>16</sup>

## 3.1 Applying the standard in practice

<b>Assessment</b>	<p>Patients should be assessed for the presence of correctable comorbidities so that surgery is not delayed. Comorbidities may include:</p> <ul style="list-style-type: none"><li>• anaemia</li><li>• anticoagulation</li><li>• volume depletion</li><li>• electrolyte imbalance</li><li>• uncontrolled diabetes</li><li>• uncontrolled heart failure</li><li>• correctable cardiac arrhythmia or ischaemia.</li></ul>
<b>Surgery</b>	<p>Patients deemed medically stable should undergo surgery <b>no more than 48 hours after admission</b>.</p> <p>Surgery should be conducted within standard daytime working hours, where possible.</p>

**Surgery should only be delayed beyond 48 hours of admission in exceptional circumstances.**

## 3.2 Evidence base

The literature offers conflicting evidence regarding the optimal time for surgery, however early surgery, within 48 hours of admission, is widely recommended for most patients once a medical assessment has been conducted.<sup>13</sup>

A review of evidence conducted by the UK NICE NCGC to inform the development of the NICE *Clinical guidelines for the management of hip fracture in adults* indicates that **early surgery (within 48 hours of admission) is associated with a statistically significant and clinically significant reduction in mortality, increased return to independent living, reduced pressure ulcers and reduced major and minor complications** compared with late surgery (beyond 48 hours of admission).<sup>16</sup>

It should be acknowledged that studies concluding better results from patients who undergo early surgery may be biased, as patients for whom surgery is delayed may have higher rates of comorbidities.

## 3.3 Quality measures

<b>System measurements</b>	<ul style="list-style-type: none"><li>• Time to surgery (measured from time of initial presentation to a hospital with a hip fracture to the start of surgery).</li></ul>
<b>Patient measurements</b>	<ul style="list-style-type: none"><li>• Patient outcome data:<ul style="list-style-type: none"><li>o early (30 days) and late (12 months) mortality</li><li>o length of hospital stay</li><li>o return to pre-morbid function/mobility</li><li>o complications, including chest infections and pressure ulcers</li><li>o other surgical complications.</li></ul></li></ul>

# STANDARD 4: PATIENT'S SURGERY IS NOT CANCELLED



## Patient's planned surgery is not cancelled

Once a planned date and time have been identified for repair of a hip fracture, surgery should not be cancelled, unless there are exceptional circumstances. This is the responsibility of all members of the team to ensure that a patient's planned surgery is not unnecessarily cancelled.

Postponement of surgery can:

- prolong pain<sup>16</sup>
- increase the risk of medical complications, such as delirium, pressure sores, DVT and urinary tract infections<sup>18</sup>
- result in repeated and/or prolonged preoperative fasting.<sup>16</sup>

## 4.1 Applying the standard in practice

### SCHEDULING SURGERY

The Emergency Surgery Guidelines (NSW Health 2009) encourage hospitals to plan for their predictable surgical workload and to allocate the necessary operating theatre time.

The guidelines provide principles for the redesign of emergency surgery including:

- Measuring the generally predictable emergency surgery workload
- Allocation of operating theatre resources that are matched to the emergency workload
- Consultant surgeon-led models of emergency surgery care
- Standard-hours scheduling where clinically appropriate
- Load balancing of standard hours operating theatre sessions with emergency surgery demand

The most important aspect of scheduling is to ensure once a patient has been allocated a time for surgery the patient's surgery is not cancelled.

### FASTING AND NUTRITION

Prolonged pain, opioid administration and long periods of preoperative fasting or repeated fasting due to delay or cancellation of surgery can place patients at high-risk of malnutrition.<sup>7</sup>

The period of oral fasting should be minimised to that recommended for patients undergoing a procedure requiring anaesthesia. Periods of repeated fasting should be avoided.

- Fasting from midnight is unnecessary with most patients.<sup>19</sup>
- Patients with no specific risk of aspiration may drink clear fluids up to two hours before anaesthesia and avoid solids up to six hours before.<sup>20</sup>
- The maximum period of oral fasting should be no greater than 12 hours under any circumstances.<sup>20</sup>

All efforts should be made to avoid periods of repeated or prolonged fasting for patients with hip fracture. A ‘hunger clock’ is an effective tool for nursing teams to measure periods of fasting. Staff can be authorised to commence re-feeding if the period of fasting is greater than 12 hours and surgery not imminent.

## 4.2 Evidence base

An updated systematic review of evidenced based guidelines for the management of hip fractures in older persons concluded that undue delay to surgery (greater than 48 hours) is associated with higher rates of morbidity and may indirectly affect mortality.<sup>13</sup>

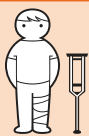
- A large systematic review of 16 prospective and retrospective studies on surgical timing and mortality in hip fracture showed **increased 30-day all-cause mortality and 1-year all-cause mortality** in patients whose surgery was delayed beyond 48 hours.<sup>20</sup>
- A meta-analysis of 35 independent studies investigating the timing of surgery for hip fracture found that surgical delay was associated with **increased risk of mortality and pressure ulcers**. The authors recommend that surgery be conducted within one to two days.<sup>21</sup>
- An analysis of inpatient hospital data from multiple centres in the United States concluded that delay in hip surgery is associated with a significant increase in risk of mortality, even when controlling for patient characteristics. The **increased mortality extends beyond the hospital phase**.<sup>22</sup>

## 4.3 Quality measures

System measurements	<ul style="list-style-type: none"><li>• Cancellation rate</li></ul>
Patient measurements	<ul style="list-style-type: none"><li>• Patient outcome data:<ul style="list-style-type: none"><li>o early and late mortality</li><li>o length of hospital stay</li><li>o return to mobility</li><li>o complications, including chest infections and pressure sores</li><li>o change of residence</li><li>o other surgical complications.</li></ul></li></ul>



# STANDARD 5: EARLY MOBILISATION



## Commencement of mobilisation within 24 hours of surgery

Mobilisation is the process of **re-establishing movement and function** following injury, with the aim of returning the patient to their pre-injury function.<sup>16</sup>

Mobilisation can include re-establishing:<sup>16</sup>

- movement between postures (e.g. sit to stand)
- the ability to maintain upright posture
- ambulation with increasing levels of complexity (e.g. speed, direction change and multi-tasking).

Early restoration of mobility has been associated with **improved quality of life, reduced risk of falling and improved capacity for patient self-care.**

Unless medically or surgically contraindicated, patients should be encouraged and supported to sit out of bed and **begin mobilising within 24 hours.**

## 5.1 Applying the standard in practice

Good clinical care and effective pain management are essential components of early mobilisation.

Patients with very poor mobility, functional impairments and multiple comorbidities should be assessed for multidisciplinary rehabilitation. Rehabilitation, whether inpatient or outpatient, generally increases the likelihood of the patient returning to their original residence and may be effective in reducing the costs of residential care.<sup>13</sup>

### COMMENCE WITHIN 24 HOURS

Mobilisation should occur within 24 hours of surgery, unless contraindicated, and be repeated at least once per day.

### REHABILITATION

Early assessment by a clinician with expertise in rehabilitation should be undertaken to determine the patient's rehabilitation requirements, including appropriate intensity and care setting, based on patient need and service availability

## 5.2 Evidence base

Rehabilitation following early mobilisation has been shown to improve quality of life, physical outcomes and capacity for self-care and to reduce depression and readmission rates. Falls risk and associated costs may also be reduced.

The NSW Health *Model of Care for Rehabilitation Services* provides recommendations for the provision of optimal levels of rehabilitation services in NSW. The model supports equitable access and early intervention to rehabilitation, a multidisciplinary approach and patient centred care.<sup>23</sup>

A review of evidence conducted by the UK NICE NCGC to inform the development of the NICE *Clinical guidelines for the management of hip fracture in adults* highlights a significant **increase in independence to transfer and walking distance** at day 7 for patients with early mobilisation, compared with those for whom mobilisation is delayed.<sup>16</sup>

Accelerated rehabilitation has been shown in a randomised controlled trial to **decrease average length of in-hospital stay by 20%**.<sup>24</sup>

## 5.3 Clinical roles

Rehabilitation programs should have multidisciplinary input to facilitate and optimise the discharge process. Nursing, medicine, physiotherapy, occupational therapy, dietetics, speech therapy and pharmacy are all important members of the MDT.<sup>25</sup>

## 5.4 Quality measures

<b>System measurements</b>	Measurements of successful mobilisation may include: <ul style="list-style-type: none"><li>• length of stay</li><li>• discharge destination.</li></ul>
<b>Patient measurements</b>	Simple indicators of mobility may include: <ul style="list-style-type: none"><li>• ability to transfer independently (can be taken between a bed and a chair)</li><li>• chair rise ability and time to complete chair rises</li><li>• timed walking assessments</li><li>• balance assessments</li><li>• muscle strength</li><li>• independence in activities of daily living (such as washing, bathing).</li></ul>

# STANDARD 6: REFRACTURE PREVENTION



## Refracture prevention

Many older people presenting with hip fracture will have osteoporosis. Osteoporosis is a chronic reduction in bone density and strength that predisposes patients to minimal trauma fractures.<sup>26</sup> If left untreated, osteoporotic patients are two to three times more likely to be affected by a secondary fracture.<sup>28</sup>

Preventing future fractures by recognising and commencing treatment for osteoporosis is an essential component of the management of patients with hip fracture.

## 6.1 Applying the standard in practice

The ACI recommends compliance with the ACI Musculoskeletal Network *Osteoporotic Re-fracture Prevention Model of Care*.<sup>27</sup>

### PATIENT IDENTIFICATION

At-risk patient is identified at entry to health system or other intervention points such as outpatient, community and primary care settings.

### CARE COORDINATION

Patient is referred for care coordination/case management through Fracture Liaison Coordinators to support access to appropriate investigation and medical care.

### ACCESS TO INVESTIGATIONS AND MEDICAL CARE

All patients who have a minimal trauma fracture should be assessed for appropriate medical therapy to decrease further risk of fractures.

### CARE PATHWAYS

Patients should then progress through care pathways that address: (i) follow-up medical checks; (ii) chronic care interventions (including disease management); (iii) behaviour changes; and (iv) access to community services, including falls prevention, aged care services and allied health.

At a service level, compliance with the model of care requires:

- development, implementation and regular evaluation of care pathways
- development of service directories in local areas
- recruitment and engagement of community resources in order to have multiple opportunities for appropriate interventions for those requiring care
- reporting of key performance indicators (KPI) and a core set of clinical indicators (CI).

## 6.2 Evidence base

Evidence-based guidelines highlight the need to intervene at the time of first fracture to prevent secondary fractures in patients with evidence of osteoporosis.

High-quality evidence from international literature confirms that implementation of appropriate models of care for people with, or suspected of having, osteoporosis can reduce in-hospital bed days and other health system usage and improve quality of life for patients and families.<sup>27</sup>

- A structured osteoporosis investigation and treatment intervention was found to be two to five times more effective in **improving osteoporosis management** when compared with a historical information based intervention.<sup>28</sup>
- A randomised trial of patients with hip fractures showed that **intervention from a case manager increased rates of osteoporosis treatment** compared with usual care. Analysis suggested that implementing a case manager intervention may result in a **reduction of fractures, gains in life expectancy and substantial cost savings**.<sup>29</sup>
- A comparative study of two groups of fracture patients at two orthopaedic centres in the UK found that the presence of a formal fracture liaison service for patients resulted in a **higher proportion of patients receiving investigation and treatment for osteoporosis following a hip fracture**.<sup>30</sup>
- A randomised controlled trial conducted among elderly patients who were recovering from a hip fracture found that osteoporosis medication reduced the risk of the next fracture and was associated with improved mortality.
- The appropriate model of care to achieve access to osteoporosis refracture prevention has been determined through meta-analysis of international data and has revealed the need for appointment of Fracture Liaison Coordinators to ensure achievement of the outcomes noted here.

## 6.3 Quality measures

<b>System measurements</b>	Compliance with the recommended model of care can be measured through reporting of: <ul style="list-style-type: none"><li>• number of patients tested for vitamin D deficiency</li><li>• number of patients for whom treatment was initiated</li><li>• adherence to therapy at 6 and 12 months post initiation.</li></ul>
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# STANDARD 7: LOCAL OWNERSHIP OF DATA SYSTEMS



## Local ownership of data systems/processes to drive improvements in care

Collection of data at a local level allows multi-disciplinary teams (MDTs) to monitor their current service delivery and performance against Local Health District (LHD) and Statewide standards.

Local data collection enables MDTs to implement locally driven solutions to develop and improve their services for older people admitted with a hip fracture. Understanding of current services and clinical variation in the care of older patients with a hip fracture at a hospital, LHD and State level will support LHD and Statewide initiatives to reduce inappropriate variation in the care of the older people in hospital.

Central to standardised data collection is **local ownership of audit, data and monitoring systems** to enable MDTs to collect, review and understand current performance and drive performance to improve patient care.

## 7.1 Applying the standard in practice

### BUILDING A CASE FOR LOCAL DATA SYSTEMS

Two investigations will be undertaken by ACI for dissemination to LHDs, hospital teams and their executives to support a case for implementation of local data systems.

- A **system benefit analysis** will outline the implications of continuing current practice over a 10-year period in relation to the demand and utilisation of services.
- An **economic analysis** will illustrate the major outcomes of a system-wide implementation of local data systems.

### IMPLEMENTING DATA SYSTEMS AT A HOSPITAL LEVEL

**Audit tools and metrics** will enable local MDTs to understand their current practice in relation to the minimum standards so that areas for improvement can be identified and the impact of these improvements can be measured.

Tools and metrics could include **baseline audit**, **process mapping** and **value stream mapping** to:

- provide an understanding of the impact of current practice on the patient journey
- measure improvements and understand what is not working.

## 7.2 Quality measures

<b>Minimum standards</b>	Achievement of minimum standards 1-7
<b>System measurements</b>	<p>System measures will include but not be limited to:</p> <ul style="list-style-type: none"><li>• admitted patient cost, National Weighted Activity Units (NWAUs) bed days, average length of stay (ALOS) and separations</li><li>• re-admissions</li><li>• discharge destination.</li></ul>
<b>Patient measurements</b>	<ul style="list-style-type: none"><li>• 30-day mortality for hip fracture patients in NSW</li><li>• critical incidents</li><li>• patient experience.</li></ul>

Hip fracture networks will be developed to share best practice, learning and to provide support.

A formative evaluation will be undertaken to examine the:

- clinical effectiveness of the model
- patient outcomes
- systems effectiveness of participating sites
- sustainability of the model.

# FURTHER INFORMATION

## Australian and New Zealand Hip Fracture Registry

The seven minimum standards of care are aligned with the current work of the **The Australian and New Zealand Hip Fracture Registry** initiative, which aims to develop national guidelines and quality standards for care of patients with hip fracture.

As part of the Australian and New Zealand Hip Fracture Registry initiative, a registry will be established that will enable clinical teams to benchmark their practice against their peers and share best practice. Visit [www.anzhfr.org/](http://www.anzhfr.org/) for more information.

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