

Aged Care Network

Orthogeriatric Model of Care



Government of **Western Australia**
Department of **Health**



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Foreword

This document outlines the proposed Western Australian ‘orthogeriatric’ Model of Care. The model has been developed as part of an overarching Model of (health) Care for the Older Person in Western Australia.

The orthogeriatric model addresses gaps in current service delivery, whilst also incorporating planned infrastructure changes for metropolitan health services as well as heeding the demographic predictions and other challenges.

The focus of the model is the care of older people presenting with fragility fractures to the tertiary care environment. However, primary and secondary care for the ‘at risk’ older person and younger person is included, and the importance of these aspects of care should not be understated.

Similarly, there may be a focus on hip fractures as the most significant of the fragility fracture group in terms of associated debility and resource use. However, other fractures are not neglected, as they should also receive specialised attention from orthogeriatric services.

The crux of the model is a collaborative approach between orthopaedic and aged care services in the care of older people with fractures. This is essential to ensure optimal outcomes both for the patient and for the healthcare system. The patterns and levels of orthogeriatric care should, ideally, be consistent across WA health services to ensure that high quality care is accessible for all Western Australians.

This model has been based on available ‘best practice’ evidence in relation to orthogeriatric care, including both the scientific literature and expert opinion from the Aged Care Network orthogeriatric subgroup. However, there has been mindfulness to limitations on infrastructure and resources and, as such, the model aims to be practicable and sustainable.



Executive Summary

The Service Delivery Model of Care for Orthogeriatric Care in Western Australia has sought to:

- Outline a best practice approach in the care of older people who present with fragility fractures to the acute care sector, with important elements being:
 - collaboration between orthopaedics and aged care services
 - an increased and consistent role for orthogeriatricians in assessment and liaison
 - an increased role for geriatricians in the primary management of older patients with non-surgical fractures
 - the multidisciplinary rehabilitation approach provided in rehabilitation settings that are 'close to home' for patients
- Emphasise the need for a more systematic and coordinated approach to the secondary prevention services, recognising the strong potential for:
 - prevention of further fractures in this group, and
 - prevention of 'any' fracture in the 'at risk' elderly as well as the general population
- Describe the configuration of orthogeriatric services that are practicable in the WA context, and consistent with the realignment of metropolitan health services over the next decade
- Promote equity to orthogeriatric services through:
 - application of a consistent service model across the metropolitan area
 - optimisation of services in rural regions, whilst recognising some current practical constraints
- Promote the expansion and use of transitional care services for orthogeriatric patients, as appropriate
- Emphasise the importance of linkages between the care sectors and between metropolitan and rural environments to ensure smooth pathways for older people with fragility fractures
- Emphasise the need for appropriate infrastructure support and workforce development to enable the application of this model



Acknowledgements

The Aged Care Network sub-group for orthogeriatric care has provided input to this model. Subgroup members were Dr Peter Goldswain, Dr Charles Inderjeeth, Dr Denise Glennon, Dr Hannah Seymour, Ms Jenny Stevens, Ms Lynley Buckley and Dr Lucy Kilshaw.

Ms Janis Harse and Ms Anne Riordan provided support to the sub-group and brought the document to completion.

Extensive support was also provided from the WA Health Information, Collection and Management Branch, which provided Hospital Morbidity data to examine aspects of current service provision. Hilary Johnston and Elizabeth Salur were particularly helpful.

Recommendations

1. An orthogeriatric model should be accepted as best practice in care of older people presenting to hospitals with fragility fractures and applied across WA health services.
2. Recruitment and development of a workforce to support the WA orthogeriatric model (complementing orthopaedic services). This should include:
 - orthogeriatrician coverage of level 5 and 6 hospitals on a 9 hour/ 7 days a week basis (or all metropolitan hospitals where non-elective orthopaedic surgery services are available)
 - geriatrician coverage of ACRUs as well as regional resource centres (through visiting services and telehealth technology)
 - multi-disciplinary rehabilitation teams (geriatrician-led) available at metropolitan Aged Care Rehabilitation Units (ACRUs) and at regional resource centres
3. Older people presenting with fragility fractures that do not require surgery but do require hospitalisation/ rehabilitation should be admitted under the care of the geriatric team rather than orthopaedic team.
4. Rehabilitation to occur away from the acute level 6 metropolitan hospitals at ACRUs that are 'closest to home' for patients
5. A coordinated secondary prevention system that begins in the acute episode and continues post discharge should be developed and applied across WA health services
6. Stronger linkages to be developed between primary, secondary and tertiary care environments to facilitate a patient-centric approach across the care continuum
7. A formal agreement is required between the WA Country Health Service (WACHS) and metropolitan Level 6 and Level 5 hospitals regarding organisational partnerships and the distribution of orthogeriatric care services across WA. This should facilitate access and improved pathways of care for rural patients through:
 - Expedited transfer arrangements from rural to metropolitan hospitals



- Early return to rural centres for rehabilitation services
 - Formalised care support arrangements between partnering metropolitan and rural hospitals
8. Introduction of Picture Archived Communication System (PACS) throughout WA to support orthopaedic service capacity particularly in the regional resource centres
 9. Expansion of transitional care options to meet orthogeriatric needs
 10. Promotion of ambulatory care options such as Rehabilitation In The Home (RITH) for those orthogeriatric patients for whom it is considered appropriate

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CLINICAL LEAD



1. Introduction

Orthogeriatric care refers to 'medical care for older patients with orthopaedic conditions that is provided collaboratively by orthopaedic services and aged care services' ¹.

This concept of care emphasises the importance of an early comprehensive assessment, a team approach to care, rapid definitive treatment, early mobilisation and full and open communication with the patient and family. It recognises that traditional orthopaedic care may not be optimal for older people, who often have medical and psychosocial issues that may complicate their presentation, treatment and recovery.

Devas and colleagues are credited with pioneering orthogeriatric care in Hastings, United Kingdom in the late 1950s². The drivers, 'a dense geriatric population' and beds being 'blocked by elderly patients' outstaying 'their need for purely surgical treatment', remain highly relevant half a century later.

In the older patient group, fractures are the most significant of orthopaedic conditions to result in hospital presentation and admission. Commonly, these fractures are the combined consequence of minimal trauma and underlying osteoporosis.

Hip fractures are the most debilitating of these so-called 'fragility' fractures and also require the most intense use of hospital resources. Almost all patients presenting with hip fractures will require surgery and most will require an intensive period of post-operative medical care and rehabilitation.

A 20-30% one-year mortality rate is associated with hip fractures. Many people will not return to their previous level of independence and may suffer some degree of ongoing hip discomfort³.

Other common sites for fragility fractures are the distal radius (Colles), humerus, pelvis, tibia, ankle and lumbar vertebrae. These fractures are also not insignificant in terms of their impact at both the personal and hospital resource level.



2. Objectives

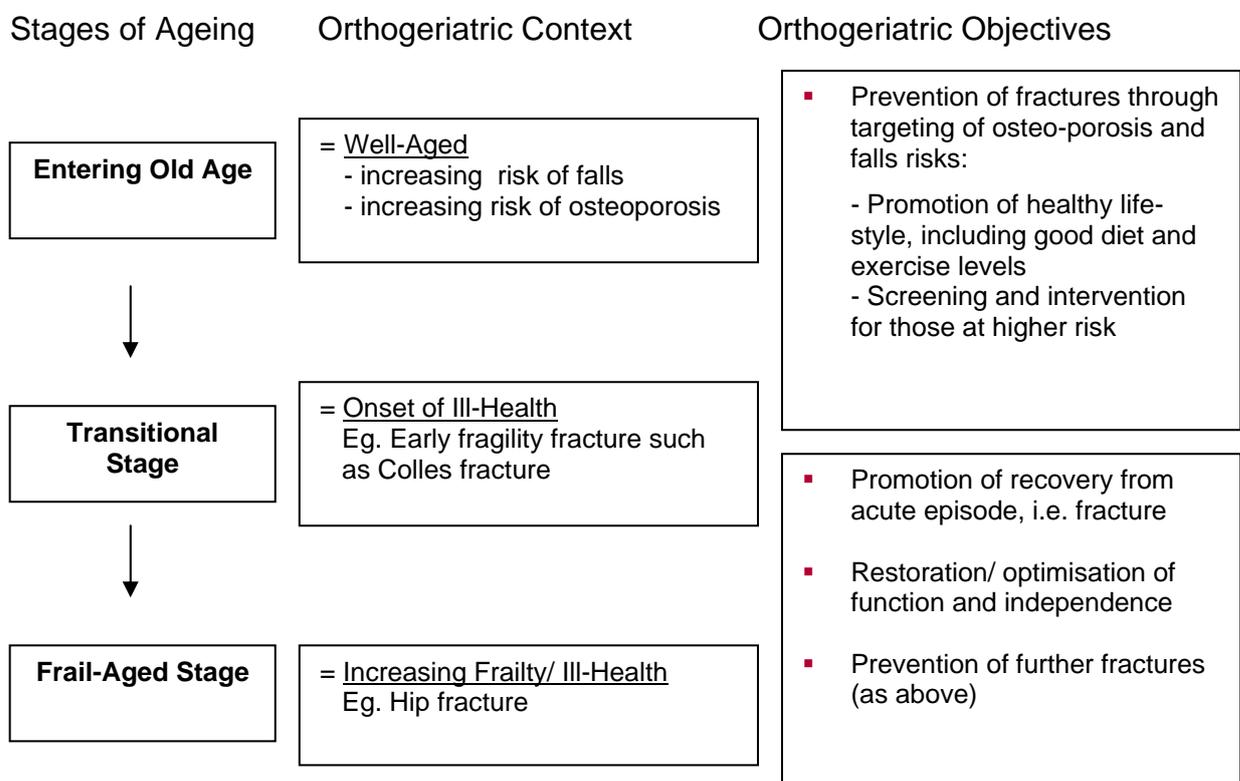
The Orthogeriatric Model of Care has broad objectives that relate to both the older people and to the health system in Western Australia. They are:

- to optimise the ongoing health and wellbeing of the older person either, with minimal trauma fractures or, at risk of minimal trauma fractures (See Figure 1 below for more specific objectives)
- to be practicable and cost-efficient

Optimal health care and cost-efficiencies are sometimes viewed as being ‘at odds’. However, costs have an important bearing on sustainability and, therefore, cost containments should help to ensure that the health system is able to provide optimal health care for the older person and, for all West Australians, into the future.

Additionally, more efficient care generally amounts to better care particularly in relation to older people. Rapid and definitive treatment promotes recovery and a return to independence. Conversely, languishing in hospital beds is likely to lead to complications and further functional decline that, in turn, increases the costs to the health system.

Figure 1. Objectives of orthogeriatric care in relation to the stages of ageing (See ‘Model of Care for the Older Person in WA’ 4)





3. Drivers for Change

The current service delivery model for older people presenting with fragility fractures is described in Appendix 1. There are recognised deficiencies, which are addressed within the proposed future model of care. The planned reconfiguration of WA metropolitan health services over the next decade together with the demographic reality of an ageing population also represent significant drivers for an improved model of care.

3.1 Evidence-Practice Gap in Secondary Preventative Care

Audit-based studies in Australia and overseas indicate that the majority of patients presenting at hospitals with a minimal trauma fracture do not receive adequate follow up care in terms of investigation, identification and appropriate treatment of risk factors.⁵⁻⁷ This is despite evidence that people who sustain one minimal trauma fracture are very likely to sustain another, and that interventions targeting osteoporosis and falls can be effective³.

3.2 Regional Inequities

Limited orthopaedic services in rural WA mean that most people sustaining a serious fracture in country areas will be transferred to the metropolitan hospitals. Delays due to geographical distances are often accentuated by high demand for ambulances and RFDS as well as breakdowns in communication and coordination between rural and metropolitan services. This may seriously compromise outcomes in the older patient group, given that rapid and definitive treatment is optimal.

3.3 Inconsistencies in Metropolitan Service Delivery

The pattern and level of orthogeriatric care varies across the metropolitan services. Orthogeriatrician coverage of emergency departments and acute wards as well as orthopaedic follow-up in the rehabilitation setting is inconsistent. Such variations in patterns of care are likely to result in varied patient and resource use outcomes. Indeed, unpublished hospital morbidity data suggests that the average length of stay for patients with hip fracture at the different rehabilitation sites across the metropolitan area varies from 16 to 37 days.⁸

3.4 Inadequate Focus on Non-Hip Fragility Fractures

Hip fractures have tended to be the central focus of orthogeriatric care as they are so significant in terms of associated debility and use of hospital resources. However, other fragility fractures are by no means insignificant. They represent one to two thirds of total inpatient and outpatient fractures and are often the precursors to hip fractures.³ Whilst they require similar principles of care, this does not systematically occur.

3.5 Acute Hospital Pressures

Best practice care may often not be delivered for various reasons including workforce and infrastructure limitations. Older patients presenting with fractures



may not be assessed promptly in ED, may not be fast-tracked to admission or have required surgery within recommended time periods.

Delays with downstream transfers may place pressures on the tertiary hospitals and result in delays in acute management. These may relate to bed availability, workforce limitations or to continuity of care concerns with accepting some transfers at rehabilitation units.

There is a difficulty securing beds for patients at ACRUs other than OPH, SPC and Fremantle/Kaleeya, which may relate to the limited orthopaedic coverage of these sites.

3.6 Lack of Slow-Stream (Transitional) Care Options

A significant group of orthogeriatric patients require slow-stream rehabilitation options. This group includes patients who are required to be non-weight bearing for a significant period and those who have an upper limb fracture that, in the short term, prevents them from returning to their home. Whilst transitional care services represent a suitable option, there are not enough places available to meet the current demand.

3.7 Limited Ambulatory Care Options

There is limited use of Hospital in the Home (HITH) and Rehabilitation in the Home (RITH) options for patients with hip fracture and other minimal trauma fractures. This is despite general consumer preferences for non-inpatient care and positive outcomes being reported for ambulatory care in this patient group.⁹⁻¹⁰

3.8 Planned Reconfiguration of Metropolitan Health Services

The planned decentralisation of metropolitan acute health service delivery outlined in the Clinical Services Framework 2005-2015¹¹ will result in a reconfiguration of orthopaedic and orthogeriatric services. The relocation of specialised rehabilitation services from SPC to the Fiona Stanley site will not include orthogeriatric rehabilitation and this will necessitate greater use of Aged Care Rehabilitation Units (ACRU's).

3.9 Demographics

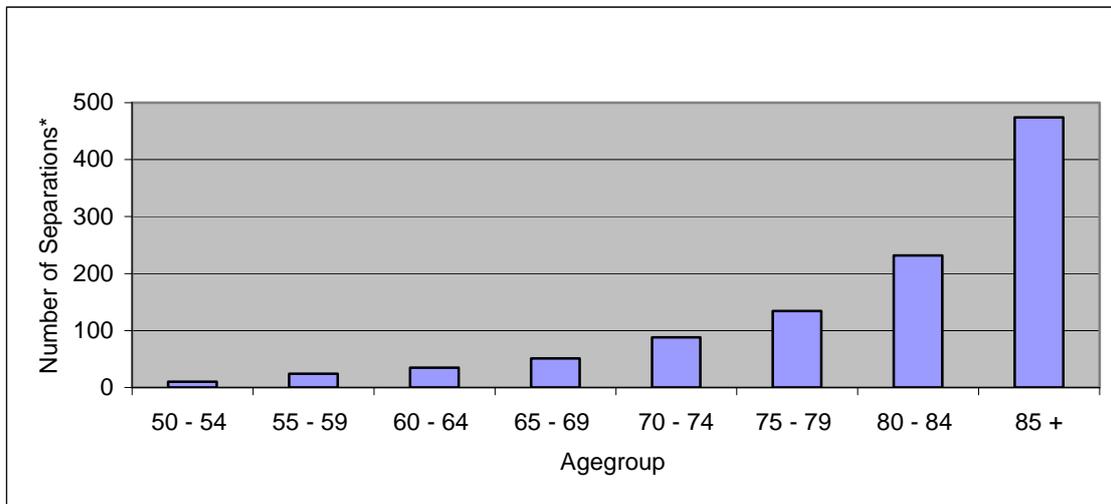
The WA population is ageing and this will also continue to place major pressures on WA health services into the future. Between 2004 and 2051, the proportion of the WA population that is aged 65+ is predicted to increase from approximately 12% to approximately 26%. The subgroup of those aged 85+ is predicted to increase from just over 1% to close to 6%¹².

Osteoporosis and minimal trauma fractures, like many other health conditions, increase with age. It is estimated that one in two women and one in three men over 60 years of age will sustain at least one minimal trauma fracture as a result of osteoporosis.¹³

For hip fractures, the statistics are even more alarming. The graph below demonstrates the age distribution of patients separating from WA hospitals in 2005/06 with a primary diagnosis of hip fractures: Ninety percent of patients were 65 years of age or older and close to half (43%) were 85 years or older.¹⁴



Figure 2. Hip Fracture Separations at WA Hospitals in 2005/06 – Age Distribution



In summary, the number of people presenting at hospitals with fragility fractures is likely to increase markedly in coming years. The orthogeriatric model of care, and the health system as a whole, must be responsive to this challenge. Whilst resources will need to increase and further efficiencies be sought, there is also a need to develop and utilise new strategies and cost-effective approaches.

* For this analysis, patient records with a recorded separation of 'to another acute hospital' were excluded, in order to avoid the double-counting of patients with hip fracture as primary diagnosis.



4. Future Service Delivery Model of Care

4.1 Configuration of Services

4.1.1 Orthopaedic Surgical Services

Metropolitan Level 6 and 5 Hospitals

Surgery for hip and other fractures will continue to be mainly performed at the level 6 tertiary hospitals. However, some trauma surgery may be supported at other metropolitan hospitals where the appropriate level of resource is available.

The reconfiguration of metropolitan health services over the next decade will result in a decentralisation of surgical services. Whilst most trauma-related orthopaedic surgery is currently performed at RPH (SMAHS), SCGH (NMAHS) and FHHS (SMAHS), when FSH becomes operational around 2011, SMAHS surgery will be performed there. After 2015, Joondalup is expected to become a tertiary centre and, hence, trauma surgery will also be performed there (NMAHS).

Regional Resource Centres

A limited amount of orthopaedic trauma surgery may continue to be performed at some rural resource hospitals such as Bunbury, Albany, Geraldton and Kalgoorlie.

4.1.2 Orthogeriatric Services

Metropolitan Hospitals with Emergency Departments

An orthogeriatric service will be available on a 9 hour, daily basis at those metropolitan hospitals with an emergency department, enabling coverage of the acute hospital wards and the EDs.

Regional Resource Hospitals

In rural regions, the orthogeriatric model will be supported by direct liaison between orthopaedic and geriatric services at regional resource centres.

4.1.3 Geriatric-led Multi-disciplinary Rehabilitation Services

Orthogeriatric rehabilitation services will continue to be concentrated at OPH and Fremantle Health Services as well as the tertiary rehab centre at RPH - SPC until sufficient beds are available to allow the current service at RPH - SPC to decentralise to the ACRU's.

With the planned closure of SPC, other ACRUs will need to play a stronger role. This will also enable patients to receive their rehabilitation at sites closer to their homes.

Regional ACRUs should be established in Bunbury, Albany, Geraldton, Kalgoorlie, Northam, Port Hedland and Broome, making 'close to home' rehabilitation also available for rural patients.



There will be a degree of coverage by geriatricians in these rural rehabilitation units. There will be a reliance on formal partnerships with metropolitan area ACRUs for visiting geriatric consultation supported also through the use of tele-health. The use of PACS should also provide support and improve the capacity of orthopaedic services.

Patients who have had surgery in the metropolitan tertiary hospitals may receive initial rehabilitative care in the metropolitan ACRU before being transferred to the rural ACRU for the final stages of their rehabilitation.

However, as rural rehabilitation services mature, direct transfer from the metropolitan hospital to the rural ACRUs will become more common. Those rural patients who have not required surgery, will receive both acute and rehabilitation services (as required) in the regional resource centre and ACRU. This will again be dependent on PACS and tele-health support.

4.1.4 Slow-Stream Rehabilitation Services

Transitional care or slow stream rehab options should be available through metropolitan level 5 and 6 hospitals and in the regional resource hospitals.

4.1.5 Ambulatory Care Services

RITH and HITH type services may be suitable for some patients as selected by the orthogeriatrician.

Home care packages may assist some patients to return to home after rehabilitation. These packages of care can provide short-term support services such as domestic assistance, meals and transport whilst the patient is still returning to full independence.

Some patients may require ongoing community support from the Home and Community Care program or the Australian government's higher level packages of care in order to continue to function in the community. Some may have received these services prior to the fracture, and will continue to benefit from them, post-discharge from hospital. Others may require these services to commence as they may have stabilised at a lower level of independence than their level prior to the fracture episode.

4.1.6 Outpatient Services

Outpatient osteoporosis or 'fragile bone' clinics will be conducted at the metropolitan hospitals with an ED where all appropriate specialist services are available.

Falls Clinics will be associated with the ACRUs, where the geriatrician and multi-disciplinary team are available.

In rural regions, such clinics may again be supported by tele-health and visiting geriatric and other specialist services.



Table 1. Current and Future Linkage of Orthogeriatric Rehabilitation Sites with Tertiary Hospitals

2008 – FSH operational		FSH operational		JHC operational	
Tertiary Hospital	ACRUs	Tertiary Hospital	ACRUs	Tertiary Hospital	ACRUs
RPH	SPC* Mercy SDH Bentley			JHC (North)	JHC Mercy SDH
SCGH	OPH* JHC	SCGH (Central)	OPH Mercy SDH JHC	SCGH (Central)	OPH
FHHS	Fremantle (Kaleeya)* Peel Rockingham Armada	FSH (South)	Fremantle (Kaleeya) Peel Rockingham Bentley Armada	FSH (South)	Fremantle (Kaleeya) Peel Rockingham Bentley Armada

* The majority of ortho-geriatric rehabilitation is currently performed at these sites.



Table 2. Service Configuration Matrix for Delivery of Orthogeriatric Care

	Metropolitan Hospitals with EDs	ACRUs	Regional Resource Hospitals
Screening Assessment within ED	Yes	No	Yes
Orthopaedic ‘Non-Elective’ (Trauma) Surgical Services	Yes	No	Limited
Orthogeriatric Services	Yes	No	No
Geriatric-led Rehabilitation Services	No	Yes	Yes - visiting or tele-health services
Step-Down Rehab. Options including Transitional Care Services	Yes	Yes	Yes (limited)
Ambulatory Care Services, eg. RITH, HITH, HCPs	Yes	Yes	Limited
Aged Care Assessment Services for residential care or community care referrals, where required	Yes	Yes	Yes
Outpatient Services	Yes – Fracture Clinics, Osteoporosis Clinics,	Yes – Falls Clinics, Mobility Clinics, Day Therapy Centres	Yes – Clinics with Telehealth support



4.2 Continuum of Care

4.2.1 Primary Care

Fragility fractures are, to a significant extent, preventable. Their prevalence may be reduced through general targeting of osteoporosis and falls in population health promotion programs and more specific targeting of higher risk individuals by GPs.

Health Promotion and Intervention campaigns

Osteoporosis should be targeted throughout life through the promotion of:

- A healthy diet, emphasising adequate calcium intake
 - Healthy levels of exercise, emphasising the importance of weight-bearing
- Older people should also be specifically targeted with respect to the above and more particularly with respect to vitamin D levels and falls prevention.

GP Care Team

A level of screening of older patients for osteoporosis and falls risk should occur as a standard part of their health check-ups. Those assessed as being at high risk should be referred on for further investigations.

For some at risk, advice about lifestyle adjustment with respect to calcium intake and exercise may be appropriate. For those with more progressed conditions, calcium and vitamin D supplements may be prescribed. For those at even greater risk, bisphosphonate prescription may be beneficial and for postmenopausal women, the option of hormone replacement therapy should be considered.

Older people may also be referred to mobility classes, falls clinics and day therapy centres as appropriate.

Other Community Care Support

Older people should be supported to remain mobile and independent in their homes and their community. Programs such as HACC provide support those with functional disabilities, including general frailty. The promotion of 'wellness' in the provision of care encourages the older person to retain their independence as much as possible.

The provision of appropriate aids and equipment and modifications to homes can also extend independence in the home and community as well as prevent falls.

Medication prompting may be provided through support workers, potentially improving adherence to osteoporosis interventions.

4.2.2 Acute Care

Patients presenting to the ED with fragility fractures but no other acute complications would normally be triaged as level 3 or 4. This dictates that they should, ideally, be seen within an hour of presentation.¹⁵



Those patients assessed at the ED as requiring surgery will be admitted under the orthopaedic team. The orthopaedic, orthogeriatric and anaesthetic teams should all assess patients pre-operatively.

Whilst the orthopaedic team and anaesthetic team will necessarily focus on the surgery at hand, the ortho-geriatric team will perform a comprehensive medical, psychological and social assessment of the patient that may influence the surgery itself but will also have a strong focus towards the aftercare.

Surgery, when indicated, should be performed within twenty four hours unless there are strong medical contraindications.¹

Those patients with fragility fractures requiring hospitalisation for reasons other than surgery, for instance medical stabilisation and/or rehabilitation, should be admitted under a geriatric team rather than an orthopaedic team.

This will facilitate the comprehensive assessment and rehabilitation approach and optimal ongoing management of the patient.

Patients transferred back to the ward after surgery should remain formally under the care of the orthopaedic surgeon.

However, orthogeriatric and multidisciplinary input should intensify, and transfer to the rehabilitation environment should occur for most patients as soon as the patient is medically stable. Patients who have presented from nursing homes should be transferred back to residential care as soon as they are medically and surgically stable.

Mobilisation of the patient should commence in the acute ward, provided the patient is orthopaedically and medically stable. Normally, after hip surgery patients should stand with support within 24-48 hours of surgery.

In summary, the acute clinical care of the older patient with fractures must incorporate a comprehensive assessment, rapid definitive treatment, early mobilisation and a multidisciplinary team approach. These principles aim to prevent secondary problems that may arise in the older patient in response to the initial acute trauma, the surgery, other medical interventions (eg. pharmaceutical) and bedrest. A particular focus should be placed on the prevention of pressure sores, urinary retention and faecal impaction.

4.2.3 Rehabilitation

The rehabilitation phase should be characterised by increasing involvement of the geriatrician and the multi-disciplinary team. Whilst there will be decreasing involvement of the orthopaedic team, it is important that some follow-up is retained.

In this setting, there will be continued attention to medical issues by the geriatrician and nursing staff. However, the focus will be firmly on rehabilitation and restoration of function in order to return the patient to their home.

Instruction in mobilisation will continue under the physiotherapist with progression from a pulpit frame to a walking stick as tolerance improves. In some younger patients elbow crutches may be manageable.

The occupational therapist will assess the patient's physical home environment and organise appropriate aids and equipment to ensure safety and



independence upon discharge. The social worker will assess any social issues that impact upon the patient and their return home.

4.2.4 Secondary Prevention

Secondary prevention should be approached in a systematic and coordinated fashion, occurring to some extent during the inpatient journey but continuing, importantly, after discharge.

All patients presenting with fragility fractures should be assessed by the orthogeriatrician with respect to their ongoing fracture risk. This may trigger referral to other specialists such as endocrinologists for further investigation.

Referrals may also be made to Fragile Bone Clinics where patients may be reviewed by orthogeriatricians, endocrinologists and dieticians.

Treatment for osteoporosis may include anti-resorptive agents such as bisphosphonates, in addition to Vitamin D and calcium. Patients should also be referred, where appropriate, on to Falls Clinics as outpatients at the ACRUs.

Patients who are discharged back to nursing homes should wear hip protectors as an extra means of protection from further hip fractures.¹⁶

4.2.5 Linkages Between the Sectors

Strong linkages between the sectors are essential to ensure a patient-centric approach across the care continuum.

The orthogeriatrician, as the liaison between orthopaedics and geriatrics/ aged care services, provides the main linkage between the acute and rehabilitation settings.

Ideally, there should be some continuity of orthopaedic care in the rehabilitation setting through follow up at the ACRUs. Where this may not be practicable, fracture liaison nurses may be an alternative linkage option.

The orthogeriatrician will also be the primary link between the acute and secondary care of the patient, with respect to osteoporosis treatment and further fracture prevention.

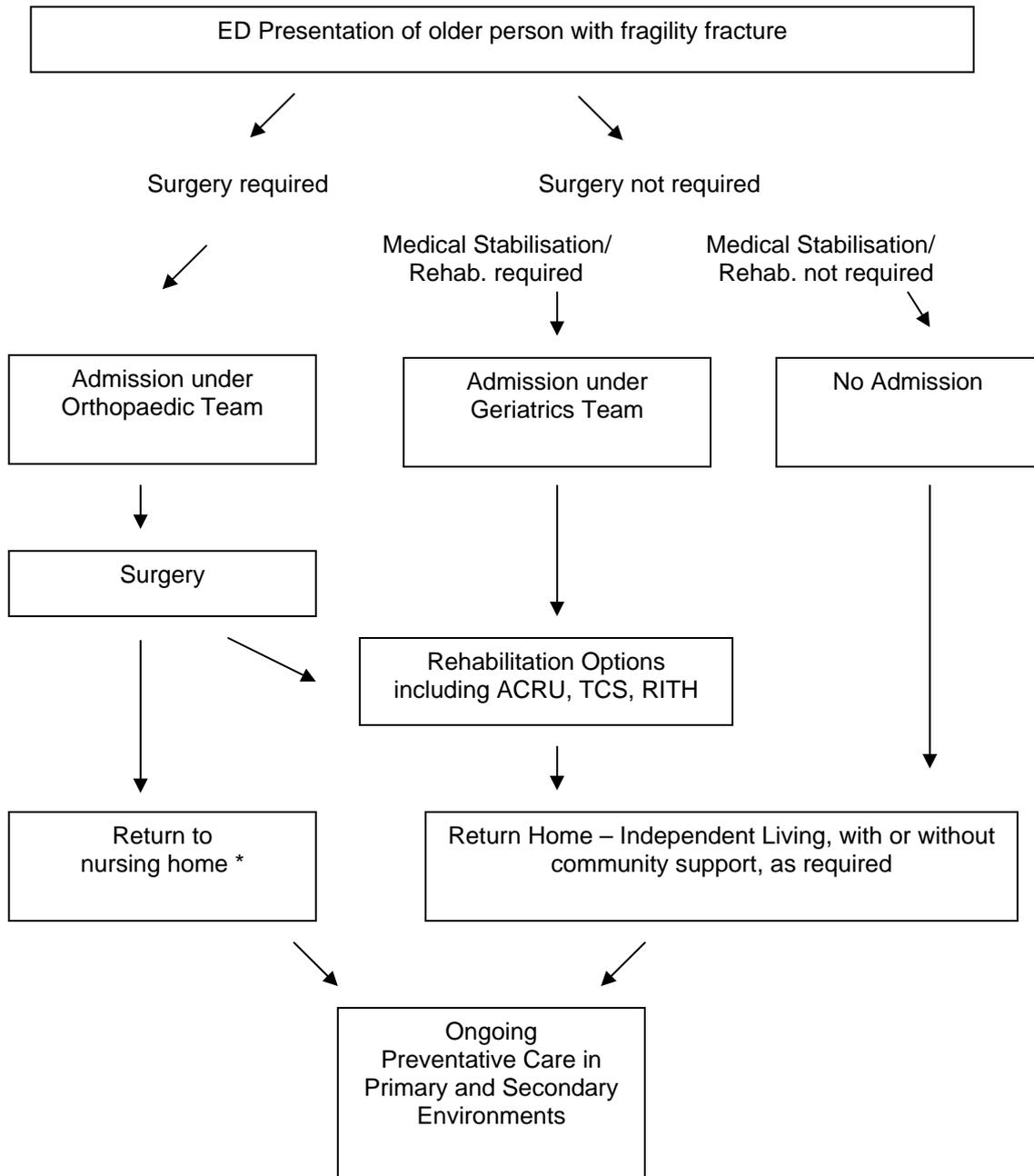
In terms of falls risk and prevention, the geriatrician and multi-disciplinary rehabilitation team are in the prime position to facilitate linkage between acute/ rehabilitative care and secondary services such as falls clinics and mobility classes.

The geriatrician and Aged Care Assessment Teams, as they traverse the community and hospital settings, should represent a strong linkage to primary care services. They should liaise strongly with patients' GPs to facilitate the ongoing optimal management.



4.2.6 The Patient Pathway Across the Care Continuum

Figure 3. Potential Patient Pathways in Orthogeriatric Model of Care



* A significant proportion of patients with fragility fractures present from nursing homes and they should return there as soon as they are stable



4.3 Standards and Guidelines

There are a range of evidence based guidelines relevant to the orthogeriatric model of care. A sample of them are listed below:

4.3.1 Orthogeriatric Care

- The British Orthopaedic Association has produced a comprehensive document, known as the Blue Book, which outlines the Care of Patients with Fragility Fracture.³ This document has been recently revised and is available on the website:

<http://www.boa.ac.uk/site/showpublications.aspx?ID=59>

- The Australian and New Zealand Society for Geriatric Medicine first published a Position Statement on Orthogeriatric Care in 1996.¹ A 2005 revision document is available at:

<http://www.asgm.org.au/documents/POSITIONSTATEMENTNO5v2.indd.pdf>

4.3.2 Hip Fracture Care/ Management

- The Scottish Intercollegiate Guidelines Network has published guidelines on the Management of Hip Fracture¹⁷

<http://www.sign.ac.uk/guidelines/published/index.html>

- In Australia, a systematic review has produced evidence based guidelines for fixing broken hips¹⁸

4.3.3 Management of Osteoporosis

- The Scottish Intercollegiate Guidelines Network has published guidelines on the Management of Osteoporosis¹⁹

<http://www.sign.ac.uk/guidelines/published/index.html>

4.3.4 Falls Prevention

- The Australian Committee on Safety and Quality in Health Care has published Falls Prevention Guidelines²⁰ are available at:

<http://www.health.gov.au/internet/safety/publishing.nsf/Content/falls>

- The American Geriatrics Society has also published strong evidence-based guidelines for prevention of falls²¹

4.4 Infrastructure and Capital Support

The delivery of the WA orthogeriatric model of care will rely heavily on infrastructure development and workforce support.

Given the current workforce shortage, attraction and retention will represent a particular challenge but will be necessary to build the appropriate clinical workforce in metropolitan and, more particularly, rural regions.

There is a need for existing workforce development in terms of orthogeriatric specialisation, particularly for consultant medical staff but also for the allied health and nursing professions.

Orthopaedic and rehabilitation services and beds will be realigned as a result of the reconfiguration of metropolitan health services over the next decade. A 2002 unpublished Department of Health discussion paper²² suggested, in particular, that the distribution of rehabilitation beds will need significant



adjustment due to the closure of RPH -SPC and the move towards 'close to home' services.

Strengthening of technologies such as tele-health and PACS will be required to support both orthopaedic and geriatric services in rural resource centres.

Facilities at rural resource centres will need to be enhanced generally to improve the options for acute and rehabilitative care for rural patients.



Glossary

(in serial order)

ACRU	Aged Care Rehabilitation Unit
PACS	Picture Archived Communication System
WACHS	Western Australian Country Health Service
RITH	Rehabilitation in the home
ED	Emergency Department
HITH	Hospital in the home
OPH	Osborne Park Hospital
SPC	Shenton Park Campus
ABS	Australian Bureau of Statistics
RPH – SPC	Royal Perth Hospital – Shenton Park Campus
HCP	Home Care Package
HACC	Home and Community Care
TCS	Transitional Care Service
SCGH	Sir Charles Gairdner Hospital
FH	Fremantle Hospital



Appendices

Appendix 1: Current Service Delivery Model

Overview

In a broad sense, an orthogeriatric model of care is currently applied in the care of older patients presenting with fractures to WA tertiary metropolitan hospitals. However, the pattern and level of orthogeriatric input varies across the hospitals, particularly in the acute phase of care. There is a strong orthogeriatric and multidisciplinary focus applied in the subacute and rehabilitation phase of care.

Orthogeriatric services are lacking both at peripheral hospitals in the metropolitan area and at regional hospitals in the country.

Secondary preventative care appears to be inconsistent and not systematically applied.

Acute Care

Most people with hip fractures present at one of the three metropolitan teaching hospitals, RPH, SCGH or Fremantle, where the appropriate orthopaedic surgical and aftercare will be available.

A small and inconsistent amount of hip surgery is performed in the regional hospitals at Albany, Bunbury, Kalgoorlie and Geraldton. HMDS data for 2005/06 (See Table 3) suggests that most hip fracture presentations at regional hospitals result in transfer to another acute metropolitan hospital.

With respect to other fragility fractures, they may present and be treated at a wider range of hospitals. Some may require no surgical treatment, in which case they are more likely to have continued care at the hospital of presentation (See Table 3).

Table 3. 2005/06 Regional hospital separations with 'fragility' fractures - percentages transferred to other acute (metropolitan) hospital in WA¹⁴

Region	Percentage - Hip Fractures	Percentage - Other Fractures, aged 65+
Kimberley	90%	50%
Pilbara	100%	25%
Midwest	64%	20%
Wheatbelt	90%	22%
Goldfields	64%	15%
SouthWest	61%	22%
Great Southern	30%	7%



Medical care commences at the emergency department and orthopaedic involvement will occur as soon as a fracture is suspected. Where surgery is indicated, the anaesthetic team will also become involved at this early stage.

Involvement of the orthogeriatric team in the emergency department and, in fact, even pre-operatively on the ward is not consistent across the tertiary hospitals. At RPH there is an expectation that the orthogeriatric team will attend the ED if required, whereas the anaesthetist may be more likely to perform all pre-operative medical assessments and screening at SCGH.

Patients with fractured hips are almost always cared for on specialised orthopaedic wards, whereas patients with other fractures may be accommodated on general medical wards.

The prompt involvement of the orthogeriatric team in the postoperative care of patients with hip fractures is standard within the tertiary hospitals. This facilitates a comprehensive assessment of the patient's medical and social situation and a forward focus on multi-disciplinary care, rehabilitation and discharge planning.

There are well-documented clinical guidelines for the treatment of hip fractures. Clinical pathways are used in the tertiary hospitals, acting as a checklist so that all appropriate steps are taken or variances explained. Guidelines for hip fractures are oriented towards the prevention of potential secondary problems associated with surgery and inactivity such as pressure areas, wound or urinary tract infections, deep vein thrombosis and pneumonia.

Rehabilitation and post-acute care

Most patients with a fractured hip who have had surgery in the tertiary hospital will go on to receive some form of multi-disciplinary rehabilitation with the aim of optimising their functional outcome. Whilst the rehabilitation phase is usually associated with transfer to a new site, the process begins very early postoperatively with mobilisation commencing within 48 hours of surgery.

Twenty-five to thirty percent of hip fracture patients have come from nursing homes, and these patients are generally transferred back to residential care as soon as they are medically and surgically stable.

Orthogeriatric rehabilitation occurs in a limited number of settings in WA. Patients are transferred from RPH to SPC and from SCGH to OPH a few days after surgery. At Fremantle hospital some patients will be rehabilitated on the acute ward whilst others are transferred to the Fremantle ACRU. Some privately-insured patients, particularly from SCGH, may receive rehabilitation at private hospitals.

There is currently very limited use of other ACRUs. There are also no structured rehabilitation services in rural regions and, as such, rural patients will generally continue their rehabilitation in the metropolitan area. Some patients are transferred to the regional hospital to complete the final stages of their rehabilitation and in order to facilitate linkages with community care.



Other Downstream Options

There is some use of transitional care, particularly for patients who are required to be non-weight bearing for a period of time and others who are unable to manage on their own at home. RITH is sometimes used for the younger patients with a fractured hip.

Secondary preventative care

There is a growing awareness of the importance of secondary prevention in this group of patients. However, this aspect of care is somewhat haphazard with many people with fragility fractures not receiving secondary care.

In WA tertiary hospitals, some assessment of ongoing falls risks as well as investigation and treatment for osteoporosis may commence during the acute and rehabilitation phases.

However, the bulk of this care is scheduled post-discharge, when patients may be referred to outpatient falls prevention clinics and osteoporosis clinics or to their GP for further investigation and treatment.

It is likely that many patients do not go on to receive this important component of care and, as a consequence, may present back at emergency with another fracture.

Likewise, the group of older people who present with fractures but do not require hospitalisation may or may not be referred for further investigations or followed up successfully.

There is the potential to seriously reduce the burden of fractures on the tertiary health care system through improved secondary and even primary care.



Appendix 2: The Evidence Base

The Orthogeriatric Approach applied to Fracture Care

Devas and colleagues reported that the collaborative approach of the surgeon and geriatrician promoted earlier restoration of patient independence and reduced hospital lengths of stay.² An orthogeriatric approach has since been accepted as 'best practice' around the world in caring for older patients with orthopaedic trauma. However, the actual evidence base is somewhat limited.

A Cochrane systematic review of several decades of relevant literature identified only nine relevant randomised controlled studies.²³ These trials all compared specialised multidisciplinary inpatient rehabilitation supervised by a geriatrician or rehabilitation physician with usual (orthopaedic) care for older patients with proximal femoral fracture. Mortality, morbidity, functional status and hospital length of stay were examined, and the evidence was 'inconclusive' although there was a 'trend towards effectiveness in all outcomes'.

A recent RCT study has provided more compelling evidence.²⁴ In a comparison of multidisciplinary geriatric care with usual care for elderly patients with hip fracture, significant benefits were observed in terms of hospital length of stay, in-hospital mortality and major complication rates. Patient recovery rates at three months were better in the intervention group, although at six and twelve months there was no significant difference.

A more specific RCT demonstrated that proactive geriatric consultation in the hip fracture setting reduced the incidence of delirium by a third and reduced severe delirium by over one half.²⁵

The inclusion of prospective but non-randomised studies lends further support for the effectiveness of an orthogeriatric approach in care of the elderly with fractures.²⁶⁻²⁸

Furthermore, there are a number of literature reviews²⁹⁻³⁰ and other literature expressing expert opinion³⁰⁻³¹ that support an orthogeriatric model.

It should be acknowledged that there are significant challenges to conducting hospital-based RCTs related to such broad care concepts. These include:

- the ethics of randomising patients to non-intervention when the intervention is already accepted practice
- the heterogeneity of care concepts (eg. ortho-geriatric and orthopaedic models) being compared
- the difficulty in controlling the multitude of other factors involved with patients and in health care environments

General Geriatric Care for the Elderly

A meta-analysis of 28 controlled trials has demonstrated the general benefits of a comprehensive geriatric assessment in the care of the frail and elderly.³² The analysis indicated that geriatric evaluation, particularly when combined with strong long-term management, improved survival and function in older persons.



A recent literature review of 20 controlled trials examining the management of the older adult in the acute setting, indicated the following elements were critical in providing optimal outcomes:³³

- a team approach to care delivery either within a specialised geriatric unit or by way of geriatric consultancy
- targeted assessment to prevent complications
- an increased emphasis on discharge planning
- enhanced communication between care providers across the continuum

The general benefits of geriatric management for older people in the acute setting logically extends to those older people with fragility fractures.

Specific Orthogeriatric Interventions

The British Orthopaedic Association's comprehensive document on fragility fractures³ states that the involvement of an orthogeriatrician in acute care is likely to deliver the following benefits:

- Early identification and treatment of complications and co-morbidities
- Addressing of psychosocial factors that are influential in determining recovery from hip fracture
- Optimal scheduling of surgery
- Better communication with patients, families and multi-disciplinary team particularly as surgeons are generally less readily available at ward level
- Facilitation of research, education and audit
- A reduction in adverse effects
- Earlier initiation of rehabilitation and discharge planning
- More effective use of secondary prevention resources with a long term management approach

Hip Fracture Clinical Care

Clinical care research involving fragility fractures has focussed on hip fractures. Consistent conclusions from studies and systematic reviews have enabled the development and documentation of clinical guidelines and clinical pathways in relation to hip fracture care. Aspects of care such as time to surgery, methods of internal fixation, types of anaesthesia and analgesia, thromboprophylaxis, pressure care and optimal mobilisation have been well-covered.^{18,34}

Other Fragility Fracture Care

Although there has been little focus on other fragility fractures, it is suggested that many of the same evidence-based principles would apply.³

Ambulatory care

Some recent studies have suggested that rehabilitation in the home environment may result in better outcomes than that provided in the hospital setting.⁹⁻¹⁰ However, this would appear to be in conflict with other studies that have demonstrated better outcomes related to in-hospital assessment and management.³¹



Primary and Secondary prevention

Reviews in number of countries have suggested that secondary prevention is a very important component of care and one that it is not currently being addressed adequately.⁵⁻⁷

Falls Prevention Programs

The statistics related to falls and fractures are compelling. Thirty percent of people over 65 years of age living in the community fall each year. Between 10 and 25% of falls result in a serious injury and 6% result specifically in a fracture.³

There is evidence that falls prevention strategies can be effective.²¹ An RCT in which the intervention group received a thorough medical examination and an occupational therapy home visit, reported an odds ratio of 0.39 for the intervention group.³⁵ Further evidence for the effectiveness of falls prevention programs is still emerging.³

Hip Protectors

There is evidence that hip protectors can reduce the incidence of fractures in those at high falls risk. However, compliance is noted as not being high.¹⁶

Osteoporosis Treatment

A range of therapeutic agents have been assessed in large scale RCTs and meta-analyses, with consistent efficacy in fracture reduction being demonstrated for those at risk.³ Notably, a 50% fracture reduction over three years of treatment was observed in patients presenting with a multiple fracture history.

Evidence-based guidelines are readily available for the pharmacological management of osteoporosis.¹⁹

Research and Audit

In some countries there has been a strong trend towards auditing aspects of orthogeriatric care, with national databases being established to support this.³ It has been proposed that such measures will improve compliance with the established guidelines and, therefore, improve outcomes for patients.



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