

Chapter 3: Model for general orthopaedic trauma rehabilitation

3.1 Summary

Many individuals experience general orthopaedic trauma in South Australia each year. Some are managed by their local general practitioner or hospital outpatient department conservatively whilst others require emergency department presentation and hospitalisation which may include surgical intervention.

The intervention and management strategy will be influenced by a number of factors including the cause and severity of the trauma, existing co-morbidities that the individual may experience and potential for improvement.

This chapter describes the model for general orthopaedic trauma focusing on relatively simple orthopaedic trauma experienced by individuals to either a single limb or multiple limbs including pelvic and spinal injuries not involving the spinal cord injury, but not that which is of a complex multiple trauma nature involving other body systems. Complex multi-trauma will be addressed by the Statewide Trauma Advisory Committee and the Statewide Rehabilitation Clinical Network at a later date.

The model outlines the key requirements for the provision of care to individuals across the continuum who experience general orthopaedic trauma. Whilst there are similarities across the continuum for all age groups experiencing this trauma there are also some differences, where this is the case this is noted as specifics related to:

1. The Paediatric and under 18 year age group
2. The 18 – 65 year age group
3. The over 65 year age group

It also needs to be acknowledged that the Model for Fragility Fracture should be referred to in relevance to those aged over 65 who experience general orthopaedic trauma, in particular those with significant pre-injury frailty, who suffer high impact or multiple limb injury. These individuals will have a similar risk of medical co-morbidities as the fragility fracture group and are likely to obtain similar benefits from a multidisciplinary ortho-geriatric model of care and focused rehabilitation.

3.2 Key recommendations

Service accessibility

- > Services that individuals with general orthopaedic trauma receive must not be limited by age group. Equity of access to services across the continuum is critical

Acute initial management

- > The general practitioner should be the first point of contact for minor orthopaedic trauma with more extensive general trauma initially being managed by hospital outpatient departments or emergency departments depending on nature and severity
- > For individuals who do not require admission for management of their orthopaedic condition access to ambulatory or community rehabilitation programs, single discipline outpatient intervention, equipment, community service supports and specialist review needs to be available
- > Identification of personnel to oversee the coordination of the care of these individuals in the community and linkages to appropriate services would be beneficial

Acute inpatient care

- > Surgical intervention needs to occur in a timely manner to maximise potential for recovery.
- > Rehabilitation must commence in the acute phase, provided by a multi-disciplinary team
- > Discharge directly home, with or without ongoing community supports and follow up rehabilitation, should be pursued for all individuals where at all practical.

- > Individuals not suitable for discharge directly home from the acute facility should be considered for post-acute inpatient rehabilitation
- > Rehabilitation protocols to guide clinical practice in the acute setting to be developed
- > Identification of personnel to oversee the coordination of the care of these individuals in the hospital setting may facilitate improved integration and transfer of care across the continuum

Post-acute inpatient management

- > To focus on maximising potential for recovery, independence and function by setting realistic goals collaboratively with the individual, family / carers and multi-disciplinary team
- > Ongoing rehabilitation in the community (ambulatory or community programs, single discipline outpatients), community support services and equipment need to be organised prior to an individual's discharge from inpatient rehabilitation
- > Individuals not able to achieve a level of function that will allow discharge to their previous accommodation will need to consider supported care options such as residential aged care
- > Rehabilitation protocols to guide general orthopaedic rehabilitation clinical practice require development

Community based rehabilitation and integration

- > Ambulatory and community based rehabilitation programs that are responsive to individual needs and focus on maximising independence and community re-integration need to be available to individuals who experience general orthopaedic trauma irrespective of if they have had a hospital admission or not.

Ongoing maintenance and function

- > Referral pathways are needed to ensure that individuals with general orthopaedic trauma can easily access services to sustain gains made in rehabilitation and ensure positive outcomes in the long term
- > Referral pathways need to be structured so that all health care practitioners managing these patients have the capacity to refer directly to appropriate rehabilitation facilities, services and / or professionals

Specific populations

- > Options including inpatient rehabilitation need to be available to individuals who are given a non-weight bearing status for a period of time following their general orthopaedic trauma. Availability of services must not be age dependent.

3.3 Background

The availability of literature on the rehabilitation of individuals with general orthopaedic trauma is minimal, hence this model has been developed based on the expert clinical opinion of health professionals from medical, nursing and allied health backgrounds in South Australia who provide care to these individuals on a daily basis.

Current services

An individual with general orthopaedic trauma will usually present to one of the following:

- > General practitioner
- > Via inpatient or other specialty unit referral
- > Emergency department or
- > Outpatient department of their local acute hospital for initial management.

Services provided are variable across metropolitan and country areas.

Inpatient rehabilitation is available at public and private hospitals in metropolitan Adelaide for individuals experiencing general orthopaedic trauma, however referrals to these facilities are not consistently made and are usually dependent on local processes.

Ambulatory and community based orthopaedic rehabilitation is provided by public and private hospitals as well as community agencies such as Domiciliary Care SA and Commonwealth funded Day Therapy Centres. These services however are often limited and perceived to be deficient in meeting individual requirements.

3.4 The model

3.4.1 Organisation of services

- > Individuals who have experienced general orthopaedic trauma will require varying levels of intervention, management, identification of risk and ongoing support. It is critical that services are integrated across the continuum, have multiple access points, are client centred and able to respond to individual needs.
- > Services provided across the continuum should have a multi-disciplinary team focus that include medical, nursing and allied health, which would include but not be limited to physiotherapy, occupational therapy and social work. This will promote strong communication, teamwork, collaboration with individuals and their families / carers and quality patient outcomes.
- > Acute management will occur in a variety of settings depending on nature and severity of injury and individual circumstance. This may include management by the general practitioner, emergency department and hospital admission, or a combination of these.
- > Post-acute inpatient rehabilitation will be provided to individuals experiencing general orthopaedic trauma in designated rehabilitation units at metropolitan general hospitals and country general hospitals.
- > Easily accessible ambulatory rehabilitation programs including home based rehabilitation and centre based day therapy need to be available for all individuals experiencing general orthopaedic trauma who require this service for recovery. This includes availability in metropolitan and well as country areas.
- > Community rehabilitation programs and services are provided by a range of organisations including public (state and commonwealth), private and non-government hence it is important that health forms strong partnerships with these services to facilitate delivery of care that is seamless, client centred and minimises duplication.
- > General practitioners are an essential service link across the continuum of care in the ongoing management of an individual's general orthopaedic trauma condition, therefore other service providers must ensure open and regular communication occurs.

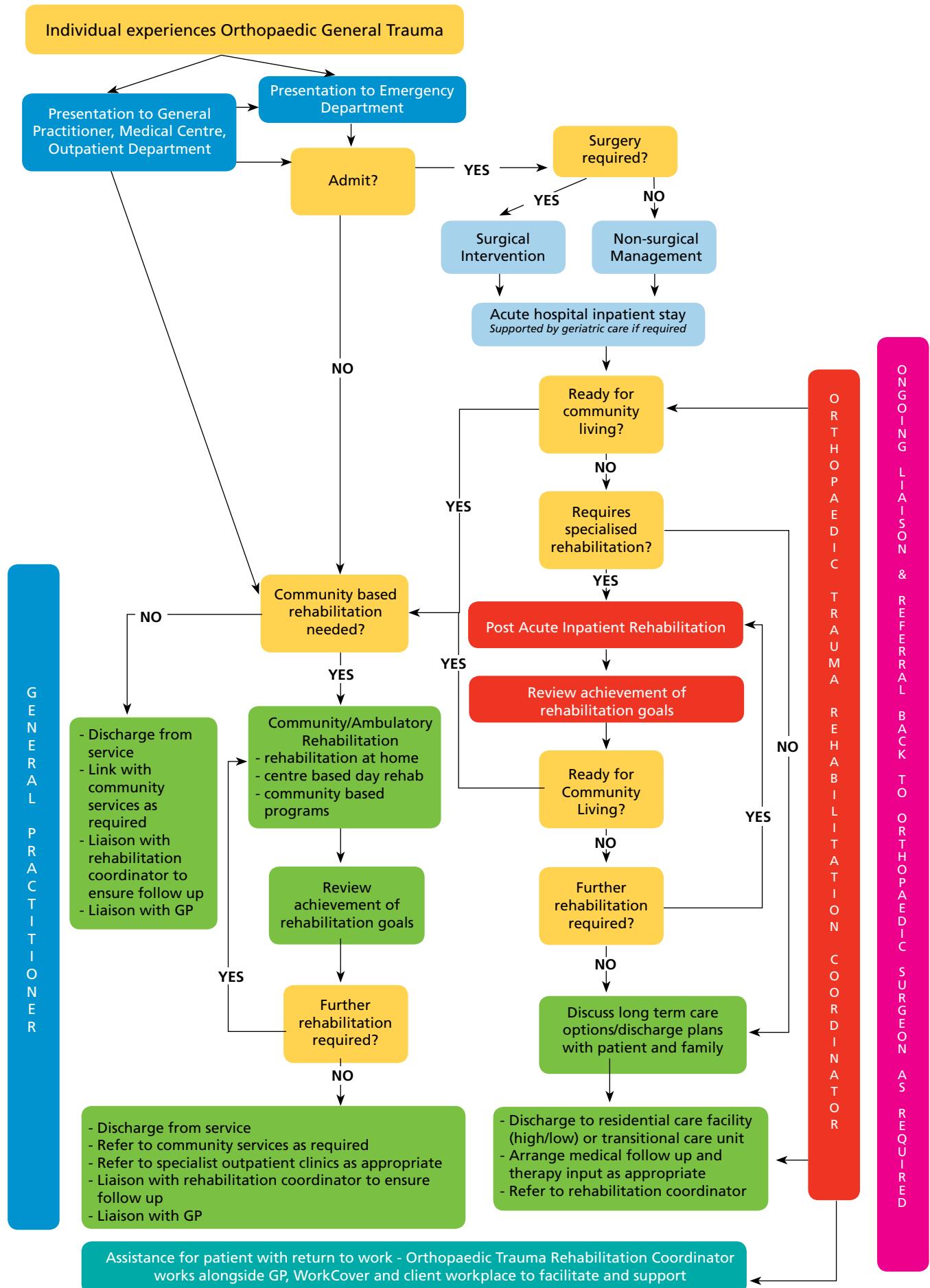
3.4.2 The continuum of care

An individual who has experienced general orthopaedic trauma is likely to encounter a number of phases along the continuum as noted below:

- > Acute initial management
- > Acute inpatient care
- > Post-acute rehabilitation
- > Community based rehabilitation and re-integration
- > Ongoing maintenance of function

The phases an individual experiences will be influenced by a number of factors including severity and type of trauma, need for hospitalisation, pre-morbid function, social supports, functional capacity and recovery potential. This model is presented as a linear process across the continuum for clarity; however it is acknowledged that this does not always occur in reality. See Figure 3

Figure 3: General Orthopaedic Trauma Continuum of Care – Possible Pathways



Acute initial management

Key requirements

By general practitioner or medical centre – not requiring acute hospital input

- > Given the vast spectrum of general orthopaedic trauma that may be experienced ranging from minor to serious, the general practitioner may be the first point of call for many orthopaedic traumas.
- > The general practitioner may be able to manage the ongoing care of many individuals who experience general orthopaedic trauma with input from radiology and other diagnostic services as required. For some individuals, consultation by or referral to an orthopaedic specialist or hospital emergency department will be required for further investigation and management of the presenting condition.
- > When the general practitioner is managing the ongoing care of an individual with an orthopaedic trauma, it is essential that they can access relevant services to assist the individual, including ambulatory and community based rehabilitation; equipment and community support services such as self care, cleaning and nursing assistance. Therefore multiple access points to services are needed.

By emergency department or outpatient department / acute hospital

- > Assessment of the orthopaedic trauma through orthopaedic evaluation, and completion of appropriate diagnostic tests including radiological investigation to confirm the diagnosis.
- > Essential information on the individual's pre-morbid function, cognitive function, social situation including supports and current function, should be gathered by medical, nursing or allied health staff at the time of the individual's initial presentation. This information coupled with the confirmation of diagnosis is essential to guide team decision regarding the most suitable plan – admission to hospital for further intervention or discharge home with follow up care as appropriate.
- > **PAEDIATRIC** - In line with Mandatory Reporting requirements, it would be necessary to investigate and exclude the possibility of non-accidental injury where a 3rd party could have been responsible for the injury incurred and referral to the appropriate service would occur if required.

Admission not required – able to be managed at home

- > For individuals who have experienced general orthopaedic trauma who are identified as being able to be discharged home, further assessment and input from the multi-disciplinary team based in the emergency or outpatient department, needs to occur.
- > The members of the multidisciplinary team must include allied health, medical and nursing. Social work involvement is likely to be particularly advantageous as is input from physiotherapy and occupational therapy to enable mobility and functional ability to be assessed to guide required follow up care needed.
- > Rehabilitation and support services that may be required on an individual's discharge from the emergency department may include:
 - Ambulatory and community based rehabilitation
 - Single discipline outpatient intervention e.g. physiotherapy (provided by public, private or non-government organisation providers)
 - Community service support such as self care, cleaning, shopping or transport assistance
 - Equipment and home modifications to facilitate safety and independence at home
 - Outpatient orthopaedic specialist review
- > To ensure continuity of care the referring health care practitioner / member of the multi-disciplinary team must liaise with the general practitioner to inform them of the individual's specific discharge plan from the emergency or outpatient department. This would include any rehabilitation or community services organised to support the individual in the community.
- > On discharge from the emergency or outpatient department, individuals and their carers / family members must be provided with appropriate information to assist them to work in partnership with services referred to, with the aim to return them to their optimal pre-morbid functional state.

Hospital admission required – for surgical or conservative management

- > Once it has been determined that an individual requires hospitalisation, transfer to the definitive inpatient ward should occur as soon as possible, this will usually be under the care of the orthopaedic team. This will ensure the minimisation of complications and early commencement of intervention from the ward based multi-disciplinary team.

Acute inpatient care

Key requirements

- > Following on from the assessment and initial management plan developed in the emergency or outpatient department, the multi-disciplinary orthopaedic team will implement the plan, whether it be conservative management or surgical intervention.
- > For those individuals requiring surgical intervention this needs to occur in a timely manner, with the expertise of orthopaedic specialists, anaesthetists and surgical staff using currently recognised operative techniques.
- > Acute inpatient care should be provided by a multi-disciplinary team consisting of medical, nursing and allied health. Physiotherapy, occupational therapy, social work and dietetics are essential members of the team, with input available from other allied health professions as required. Pharmacy input will also be beneficial to the team for many individuals.
- > A multi-disciplinary team that works well together communicates and respects the roles and contributions of others will ensure appropriate management plans and discharge options are facilitated with delays to treatment and complications minimised.
- > Rehabilitation must commence in this phase, with a focus on the individual's mobility and function in basic everyday activities including self care, toileting and feeding. This will assist in guiding the need for ongoing rehabilitation and ensure early referral to post acute rehabilitation services.
- > Development of rehabilitation protocols to guide clinical practice and rehabilitation options for individuals experiencing general orthopaedic trauma is recommended, utilising national and international guidelines where available.
- > The first option for all individuals who have experienced a general trauma related orthopaedic injury should be discharge home with access to appropriate care and rehabilitation services to ensure maximal independence is achieved as soon as possible. All individuals must have equal and timely access to the assessment of their functional requirements by all members of the multidisciplinary team.
- > Discharge options will vary depending on the individual's mobility, independence in everyday activities, informal social supports and goals. The most appropriate discharge option will be determined in partnership with the patient, their carers and family and the multi-disciplinary team.
 - Individuals who are safe with their mobility and have achieved necessary independence in activities of daily living (ADLs) (with or without aid), have appropriate family / carer supports and an appropriate discharge environment given their limitations are likely to be suitable for the following discharge options:
 - Early supported discharge services such as rehabilitation in the home and centre-based day rehabilitation
 - Transition care (community) or the equivalent available for all age groups
 - Community programs / services e.g. Domiciliary Care SA, Commonwealth funded Day Therapy Centres, council services such as cleaning, shopping and transport
 - Single discipline interventions (e.g. physiotherapy), either public, private or non-government organisations.
- > The multi-disciplinary team needs to ensure that for these individuals that equipment, home modifications and all necessary community based supports have been organised to facilitate their safe discharge home. This may include the completion of an assessment of an individual's home environment and referral to community based services including rehabilitation, personal care, transport and domestic assistance.
- > If an individual is being discharged directly home, the general practitioner needs to be informed and made aware of the suggested ongoing management plan including follow up rehabilitation and services that have been organised. This should occur within the 48 hours prior to the individual's discharge. The individual and family / carers also need to be informed of this information with relevant education provided as appropriate.
- > Individuals who have limited mobility (require assistance or have weight bearing restrictions) and / or live alone with limited supports are likely to be most appropriately discharged to one of the following:
 - Inpatient rehabilitation for patients requiring this level of assistance
 - Respite / non-weight bearing beds if required for all age groups prior to an intensive inpatient or ambulatory rehabilitation program
 - Residential transition care or the equivalent service available for all age groups
 - Return to local country health services or permanent residential aged care facility – high care (if previously resided in such facility)

- > For individuals who have limited mobility, require assistance to perform self care activities and show limited potential for recovery, it may be necessary to consider permanent residential care. This is most likely to be for the older individual aged over 65 years with other pre-existing co-morbidities.
- > Prior to discharge, appropriate orthopaedic follow up needs to be arranged.

Post-acute inpatient rehabilitation

Key requirements

- > Post acute inpatient rehabilitation should focus on optimising an individual's potential for recovery to facilitate discharge to their usual accommodation.
- > Goals to be achieved during rehabilitation should be established in partnership between the multi-disciplinary team, individual and their family / carers. Information previously gathered in the acute phase combined with further assessment by the multi-disciplinary team in post acute inpatient rehabilitation will guide goal setting.
- > Goals should be realistic and prioritised, focusing initially on independence in mobility and self care and then other functional activities that will be essential to perform on discharge such as basic meal preparation.
- > Multi-disciplinary team involvement is essential to achieve goals set for the post acute inpatient rehabilitation phase and will include medical, nursing and allied health. Team functioning and patient outcomes will be enhanced by the setting of an individualised management / discharge plan and regular communication including case conferencing.
- > Development of rehabilitation protocols to guide clinical practice and rehabilitation options for individuals experiencing general orthopaedic trauma is recommended, based on national and international guidelines.
- > As with the acute phase discharge options from post-acute inpatient rehabilitation will vary depending on the individual's mobility, independence in everyday activities, informal social supports and goals. The most appropriate discharge option will be determined in partnership with the patient, their carers and family and the multi-disciplinary team.
- > Individuals who are safe with their mobility and have achieved necessary independence in activities of daily living (ADL's) (with or without aid), have appropriate family / carer supports and an appropriate discharge environment given their limitations are likely to be suitable for the following discharge options:
 - Early supported discharge services such as rehabilitation in the home and centre-based day rehabilitation
 - Transition care (community) or the equivalent available for all age groups
 - Community programs / services e.g. Domiciliary Care SA, Commonwealth funded Day Therapy Centres, council services such as cleaning, shopping and transport
 - Single discipline interventions (e.g. physiotherapy), either public, private or non-government organisations.
- > The multi-disciplinary team needs to ensure that for these individuals, equipment, home modifications and all necessary community based supports have been organised to facilitate their safe discharge home. This may include the completion of an assessment of an individual's home environment and referral to community based services including rehabilitation, personal care, transport and domestic assistance.
- > Individuals who have participated in a post acute inpatient rehabilitation program but continue to have limited mobility (require assistance or there are safety concerns), require assistance for self care and / or live alone with limited supports are likely to be most appropriately discharged to one of the following:
 - Residential transition care or the equivalent service available for all age groups
 - New admission to residential aged care facility or similar depending on age
- > The general practitioner needs to be informed of the individual's discharge plan including follow up rehabilitation / services organised and any specific management that he/ she needs to progress. This should occur within the 48 hours prior to the individual's discharge. The individual and family / carers also need to be informed of this information with relevant education provided as appropriate.
- > Access to orthopaedic review needs to be available in the post-acute inpatient setting, in particular if there are trauma related complications. Further, regular orthopaedic review needs to occur with timely feedback to the inpatient rehabilitation team for individuals with non/partial-weight bearing restrictions.
- > Prior to discharge, appropriate orthopaedic follow up needs to be arranged.
- > **PAEDIATRIC** – It is recommended that the paediatric and adolescent patients have access to inpatient rehabilitation within the appropriate environment for their age group.

Community based rehabilitation and reintegration

Key requirements

- > Ambulatory and community based rehabilitation programs need to be:
 - Responsive to the individual's need, providing an individualised program of care to meet client goals,
 - Incorporate flexibility as client needs change to facilitate re-integration into everyday community living
- > Focused on maximising independence in mobility, self-care and everyday activities
- > These programs should be organised prior to an individual's discharge from hospital and need to be available to clients at time of discharge or within days of discharge to minimise the risk of re-admission, carer stress and ensure rehabilitation goals are achieved.
- > Individuals not admitted to hospital but referred to these programs from the emergency or outpatient department or by their general practitioner must have equal access to these rehabilitation programmes.
- > Development of rehabilitation protocols to guide ambulatory and community rehabilitation interventions for individuals experiencing general orthopaedic trauma is recommended based on national and international guidelines.
- > Staff providing the ambulatory and community based rehabilitation programs should be consistent where possible to avoid confusion and patient / carer stress from multiple agency / staff involvement.
- > Communication and liaison with all service providers involved in the patient's ongoing care in the community (e.g. Domiciliary Care SA, Disability SA, Community Aged Care Packages and Local Councils) is vital to optimise and individual's outcomes from the ambulatory and community rehabilitation programs and ensure continuity of service provision when these programs cease.
- > Transport issues that impact on attendance at centre based rehabilitation programs and outpatient medical appointments need to be addressed to ensure that the individual's recovery is not disadvantaged.
- > Regular communication needs to occur with an individual's general practitioner to ensure involvement in the person's management, consistency of approach and ongoing intervention as required.
- > To assist in any ongoing rehabilitation progress, timely review of ongoing general orthopaedic trauma related issues should occur by an orthopaedic specialist.
- > A Return to Work plan needs to be developed for those individuals where applicable. This would include but not be limited to referral to specialist services such as Commonwealth Rehabilitation Service / Work cover organisations that will assist with the return to work process.

Ongoing maintenance of function

Key requirements

- > Depending on the specific needs, recovery rate and family/carer requirements a range of levels of support in the community will be required by individual and their family/carer. These supports may be required for a short or long term period.
- > Referral pathways need to ensure that the individual has access to services through a variety of access points.
- > The availability and ease of access to these community services is critical so that the individual sustains the functional gains they have achieved through rehabilitation, contributing to positive outcomes for them, and their family and / or carers.
- > Community services that may be involved in the ongoing care of an individual who has experienced a general orthopaedic trauma include Domiciliary Care SA, Disability SA, Commonwealth funded Day Therapy Centres, single allied health disciplines such as physiotherapy and occupational therapy (private and public), exercise and balance classes and fitness classes. Services will vary depending on an individual's age and also needs as noted above.
- > The involvement of the General Practitioner in the individual's ongoing management plan including regular monitoring of sustained improvement in mobility, function and independence continues noting a need for further rehabilitation intervention if condition deteriorates.
- > Any changes in an individual trauma patient's function which impacts upon their independence, appropriateness of home environment and equipment requirements need to be addressed in an efficient and timely manner so as not to impede on their progress. This includes the individual with a general orthopaedic trauma whose level of function has temporarily deteriorated and requires rehabilitation review and possibly a short burst of rehabilitation. Further, these individuals who experience a short term disability and disruption to function must have access to funding for modifications to their home via an appropriate community stream.
- > Orthopaedic specialist review should be available if required at any time along the continuum, and direct access back to the specialist for any orthopaedic consideration should be obtainable in an appropriate timeframe.

3.5 Specific populations

Individuals who are non-weight bearing

Some individuals, following assessment and/or surgical intervention of the general orthopaedic trauma will be prescribed a non-weight bearing status by the orthopaedic specialist for a specified duration whilst the injury heals. Development of viable management plans for these individuals can be challenging.

Discharge home for some of these individuals will be possible with or without formal or informal supports. However for many individuals who have a non-weight bearing status it will not be possible for them to manage safely and independently at home during this time, hence alternative care options need to be sought.

It is important that individuals who are non-weight bearing with single or multiple orthopaedic limb trauma can access a rehabilitation program within a designated rehabilitation facility or service irrespective of their age or the severity of the limitations to weight bearing.

3.6 Workforce

NB Refer to Chapter 6 Workforce for the specific competencies related to the orthopaedic trauma rehabilitation coordination role.