Care of the older person in emergency

2019

Queensland Government

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For more information contact:
email: HIU@health.qld.gov.au

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Authors

Initiated by: Statewide ED Nurse Educator Committee

Developed by:

- Erin Cranitch, Clinical Lead, Healthcare Improvement Unit, Clinical Excellence Queensland, Nurse Practitioner Redland Emergency Department, Metro South Health
- Ellen Burkett, Clinical Lead, Healthcare Improvement Unit, Clinical Excellence Queensland, Senior Staff Specialist Emergency Physician, Princess Alexandra Hospital, Metro South Health
- Tamara Ward, Principal Project Officer, Healthcare Improvement Unit, Clinical Excellence Queensland
- Laureen Hines, A/Director, Healthcare Improvement Unit, Clinical Excellence Queensland

Reviewed and endorsed by:

- Amanda Naumann, Statewide ED Nurse Educator Committee (SWEDNEC) Co-chair, Nurse Educator Emergency, Sunshine Coast University Hospital
- Statewide Older Persons Health Clinical Network
- Queensland Emergency Department Strategic Advisory Panel

The following people are acknowledged for their contributions to content

Name	Position title	Document components reviewed
Denise Hobson	Geriatrician and General Physician RADAR Royal, Emergency and Trauma Centre Royal Brisbane and Women's Hospital, Clinical Improvement Fellow, Healthcare Improvement Unit, Clinical Excellence Queensland	All
Lisa Kelly	Senior Staff Specialist Geriatric Medicine, Princess Alexandra Hospital and Co-chair Statewide Older Persons Health Clinical Network	
Terry Nash	Emergency Physician, CARE-PACT Clinical Lead, Metro South Health	
Emily Cooper	Nurse Educator, Princess Alexandra Hospital, Metro South Health, SWEDNEC member	
Rikki Currah	A/ Nurse Educator, Princess Alexandra Hospital, Metro South Health, SWEDNEC member	
Frederick Graham	Clinical Nurse Consultant, Dementia and Delirium, Princess Alexandra Hospital, Metro South Health	
Andrea Taylor	Clinical Lead, Healthcare Improvement Unit, Clinical Excellence Queensland and Clinical Nurse Consultant, Geriatric Emergency Department Intervention, Sunshine Coast University Hospital	
Prue McCrae	Eat Walk Engage Program Manager, Royal Brisbane and Women's Hospital	
Shannon Finn	Senior Clinical Pharmacist, Royal Brisbane and Women's Hospital	
Christopher Reilly	Geriatric Emergency Department Intervention Team Pharmacist, Cairns and Hinterland Hospital and Health Service	
Anne-Louise McCawley	Statewide Clinical Education Program Manager Social Work and Welfare, Metro South Health	Abuse of the older person
Catherine Walsh	Social Worker, Advanced Domestic and Family Violence Co-ordinator, Princess Alexandra Hospital	
Melody Valentine	Solicitor, Human Rights and Civil Law Team, Caxton Legal Centre	
Catherine Ruff	Nurse Educator Adult Emergency Department, The Prince Charles Hospital, SWEDNEC member	Unit one: Care of the older person in emergency
Margaret Turner	Nurse Educator, The Prince Charles Hospital, Clinical Fellow of Australian Catholic University	
Tania Parr	Nurse Practitioner, CARE-PACT, Metro South Health	Urological presentations
Eva Bruce	Clinical Nurse, CARE-PACT, Metro South Health	Dermatological presentations
Daniel Williamson	Manager, Performance and Accountability team, Aboriginal and Torres Islander Health Branch, Queensland Health	Aboriginal and Torres Strait Islander People

Contents

Overview of the module

The ‘Care of the older person in emergency’ module contains four units encompassing specialised nursing considerations for care of the older person in the emergency department (ED). In this module the learner will develop their skills and knowledge in assessment of common emergency presentations, pharmacological and psychosocial considerations in this cohort.

Registered nurses (RNs) will consolidate theoretical underpinnings of their practice and demonstrate the requisite knowledge, skills and attributes required to care for older persons who are ill or injured.

Links to other modules (e.g. pre-requisites)

The recommendation for this self-directed module is that it be included in the 2020 review of the current State-wide Transition Support Program (TSP) 2016 for endorsement for articulation.

This module is designed as a stand-alone module of learning and contains all information necessary for attainment of the specified learning objectives, however for additional learnings there is some redirection to other TSP modules. The redirection is not mandatory for completion of this module.

Clinical learning is required to be supported by clinical support persons / clinical experts as available within the work environment of individual facilities.

Module Hours of Learning

60 hours of learning

Unit 1 Demographics and anatomical and physiological changes

Introduction

The Australian Institute of Health and Welfare (AIHW) define older Australians as those 65 years and over [1]. It is imperative this group of people be recognised as a ***separate cohort*** with unique physiological, psychosocial and medico-legal age related changes that inform their ED presentation and management. The older person requires comprehensive health management. The National Safety and Quality Health Service Standards (NSQHS) advocate for health services to ensure comprehensive care and describes this as “coordinated delivery of the total healthcare required or requested by the patient” [2]. Comprehensive care is also reflected by the National Midwifery Board Association (NMBA) standards ensuring RN practice is both person-centered and evidence-based [3].

This module will address common ED presentations in the older adult. This cohort often presents with multi-system involvement requiring a multi-faceted approach [4]. The module addresses the characteristics of common complaints in this group and their deviation from the typical cases seen in younger adults. Empirical evidence supports a gold-standard approach to nursing care of this cohort. There is assumed prior learning in systematic adult patient assessment, learners completing this module as part of the TSP will be redirected to other resources from that package.

The ED phase of care may have an everlasting impact on the older patient’s ability to maintain quality of life, longevity and can heavily inform their patient journey. By understanding common older person ED presentations, pharmacological and psychosocial considerations, the RN will have the skills to enhance their vital role in advocacy and tailoring the care to optimise patient outcomes.

Learning Objectives

On completion of this unit the ED RN will be able to:

1. Synthesise and integrate information from current evidence in the delivery of safe emergency nursing care to older persons.
2. Explore and analyse information pertaining to the older person demographics, frailty and geriatric syndromes.
3. Demonstrate the physiological changes related to ageing, the importance of history and comprehensive nursing care.
4. Evaluate the effect of iatrogenic complications on the older adult / person.

Key Concepts

- Geriatric syndromes
- Obtaining history
- Iatrogenic complications
- Transfer of care and discharge
- Physiological and anatomical changes
- Comprehensive Nursing Care

Demographics and Epidemiology

- The older population is commonly defined as people aged 65 and over [5].
- Queensland EDs are experiencing the ***highest growth*** in presentations by the older cohort; the growth equates to “more than double the statewide total increase across all age cohorts” [6].
- The total proportion of older adults is increasing; the Queensland government statisticians office report the number of people aged 65 years and over is anticipated to increase by approximately 1.8 million people between 2014 and 2061 [7]. In 2011 the older persons cohort in Queensland represented 13% of the total population; in 2016 the total proportion was 14.7%; by 2036 it is estimated the older cohort will represent between 19.5% - 20.9% of the total population [8].
- Improvements in life expectancy; (males aged 65 in 2014-2016 have a life expectancy of 84.6 years and females aged 65 in 2014-2016 have a life expectancy of 87.3 years) and higher standards of healthcare contribute to these trends along with a decrease in birth rate [9].
- In Australia patients aged 65 and over accounted for 22% of all ED presentations in 2017–18 [10].
- These statistics do not account for those identified as frail under the age of 65.

Aboriginal and Torres Strait Islander people

During patient assessment it is important to consider vulnerable groups who may require inclusion in comprehensive assessment from a ***younger chronological age***. ‘Older’

Aboriginal and Torres Strait Islander peoples may be identified by a younger chronological age as much as ***50+ years old***:

"The number of older Indigenous people (50 years and over) is growing, but they represent a relatively small proportion of the total Indigenous population (12%), compared with the share of 50+ year olds in the non-Indigenous population (31%).

Due to their poorer health status and higher levels of socioeconomic disadvantage, the health care and support needs of older Indigenous Australians differ from those of other Australians, and they use these services at both higher rates and younger ages.

In 2008, around 16% of older Indigenous Australians had severe core activity limitations meaning that they required help with self-care, mobility or communications.

Cardiovascular disease is the leading cause of disease burden in this population group, followed by malignant neoplasms, diabetes, chronic respiratory disease and nervous system and sense disorders. Dementia is emerging as a problem for Indigenous people at comparatively young ages (under 75 years), probably due to the high rates of chronic disease and other risk factors they experience, but relatively few access government support programs, particularly in remote communities" [11].

Australian Institute of Health and Welfare. Older Aboriginal and Torres Strait Islander People. 2011; Available from: https://www.aihw.gov.au/getmedia/e3d40457-965c-44dd-a639-edb68aaf8a9b/12283.pdf.aspx?inline=true

Geriatric syndromes

The term 'geriatric syndrome' references a number of conditions typical of, but not specific to the older adult. The use of the term enables recognition of multifactorial conditions that are especially important as they are associated with substantial morbidity and mortality [12]. The term encompasses but is not limited to [12, 13]:

- Frailty
- Delirium
- Falls
- Pressure injury
- Incontinence

Frailty

Frailty is an important geriatric syndrome. The Queensland Health Frail Older Persons Collaborative has endorsed the following definition of frailty for use across Queensland:

'Frailty' is a clinical term identifying as *a state of increased vulnerability, associated with but distinct from increasing age and multi-morbidity, resulting in disproportionate adverse health outcomes following a stressor*.

Importantly, 'number of years' itself does not define frailty [4].

- Frailty can be cognitive, psychosocial and or physical, which is characterised by decreasing strength and endurance presenting as otherwise unexplained reduction in physical activity and fatigue [14].
- Patients identified as 'frail' are estimated to be twice as likely to experience adverse health outcomes when compared to their non-frail counterparts [15, 16].
- Identification of frailty can influence triage decisions and should inform the initial nursing assessment and care plan. Queensland Health advocates the Rockwood Clinical Frailty Scale for use in the ED [see Appendix one].

The other geriatric syndromes are addressed later in the module.

Reading 1

	The following article is a suggested reading, it provides an overview of frailty Available via Clinical Knowledge Network (CKN): ***'Frailty thy name is..'*** by Arendts et al. Emerg Med Australas, 2017. **29**(6): p. 712-716. [14]

Obtaining a history

- Obtaining a history of presenting complaint, past medical history, medication schedule including over the counter medications and allergy status, is essential for comprehensive care in ED.
- In the older person there are challenges with efficiency and accuracy of gathering this information. These challenges may be attributed to:
    - Complexities within the history and co-morbid conditions
    - Communication difficulties or cognitive impairment
    - Polypharmacy and variable levels of compliance

[17-20]

These challenges may be overcome by the ***obtaining of collateral*** or informant history. This history can be obtained from multiple sources with a primary option including family,

caregiver and or patients' Enduring Power of Attorney (EPOA) or Statutory Health Attorney. Valuable collateral history may be sought from the family or caregiver. This person may not be the same person as the nominated substitute health decision-maker.

 *See 'Capacity' in Psychosocial considerations in Unit 4 Care of older person in emergency module for further information.*

Emphasis must be placed on the importance of concerns of spouse, daughter, son, and or carer of a patient along with clinical judgement on the veracity of their accounts. Initial health informant interview is also the time when detecting inconsistencies, which may be associated with abuse of the older person, become apparent. [21, 22].

 *See 'Abuse of the older person' in Psychosocial considerations in Unit 4 Care of older person in emergency module for further information.*

The role of the patient's General Practitioner (GP) as primary care provider is essential for this group [23]. The GP can provide practical medical information and has an important role in continuity of care post discharge from the Hospital and Health Service (HHS) [24]. Effective communication between ED and the GP is invaluable and would generally be undertaken by a senior member of the multi-disciplinary ED team [25].

Key concept

Other sources of health history information include:

- The **Queensland Ambulance Service (QAS)** if the patient was transferred by QAS, their record of patient history, assessment including vital signs, treatment, medications administered, patient response to treatment and psychosocial considerations provides valuable health information.
- The ***health record*** (unified hospital record and My Health Record) provides important information to do with hospital contact, medication summaries and outpatient visits.
- The patient's ***pharmacist*** may have information regarding the patient's medication schedule unable to be obtained from patient or family.
- Contacting external ***pathology*** or ***radiology*** services accessed by the patient relevant to their complaint may provide detail about their health trajectory to the point of their presentation to ED.
- Paid care providers such as RACF clinical staff.

[17, 26]

Iatrogenic complications

- This group is at a greater risk of ***hospital-based harm*** due to a high level of vulnerability to iatrogenic complications, namely [27]:
    - ***Falls***
    - ***Pressure injury***
    - ***Secondary infection***
    - ***Delirium***
    - ***Medication errors***.
- Reducing these complications remains high priority due to their causal relationship with extended admission, representation and likelihood of morbidity / mortality [28].
- Some HHSs have ED equivalent services and geriatric intervention models of care for this group to improve quality of care and avoidable ED presentations within a framework of patient safety and choice [29, 30].

Activity 1

	**Consider the following case and answer the questions below:**

86-year-old Henrietta is brought in by Ambulance to ED with one hour of palpitations. On arrival Henrietta has normal vital signs with rate-controlled atrial fibrillation. Her ED work-up shows a negative first troponin and Henrietta is now for admission for a repeat troponin. Henrietta, a retired teacher, usually lives independently at home with outside assistance with cleaning and has a good support system with her three daughters living close-by. In ED an intravenous cannula was sited and an indwelling catheter (IDC) inserted to monitor urine output; she is on continuous cardiac monitoring and her vitals remain within normal range. Henrietta moves to a medical assessment unit in the afternoon. Two days later it is noted that Henrietta has developed confusion and is febrile, upon thorough examination it is noted there is a stage two sacral pressure area. When attempting to reach her hearing aids Henrietta has a fall and fractures her neck of femur.

1) What are the actual and potential iatrogenic complications identified in this clinical case?

_____

_____

_____

2) What are the possible reasons for the development of the fever? Which of these are caused by the hospital admission?

_____

_____

3) What nursing / medical interventions could be questioned or avoided completely?

_____

_____

_____

4) How could the plan have included protective measures to mitigate iatrogenic complication risks?

_____

_____

Reading 2

	Via the CKN access: Lee, E.A. and C. Malatt, *Making the hospital safer for older adult patients: a focus on the indwelling urinary catheter.* The Permanente Journal, 2011. **15**(1): p. 49-52. [31]

Activity 2

	**Access the article above and answer the following question:**

1) Discuss the negative impacts of how IDCs can be a 'a one-point restraint' for an older person in hospital.

_____

_____

_____

Transfer of care and discharge

- Safe disposition or discharge is an important part of emergency care and nurses play a vital role in this process.
- Discharge risk assessment tools are available to guide decision making with appropriate and safe discharge. Older persons must have a discharge risk assessment performed prior to discharge. This may be completed by the treating

clinician, ED, in-hospital geriatric support team or Community Hospital Interface Program (CHIP) or equivalent nurse.

- The assessment must include, at a minimum:
  - level of independence of the older person (assessed via activities of daily living and instrumental activities of daily living tools).
  - home accessibility e.g. presence of stairs to access homes for patients with mobilisation changes post their presentation.
  - requirement for home health services or supports (this requires assessment of in-place services, review of level of independence of the older person and availability of informal home supports).
  - screening for carer stress, which may be screened for using a single question; 'do you feel overwhelmed in your caring responsibilities?'*
    **patient may be the carer of another individual and experiencing carer stress.*

Critical Point

	**No older person is to be discharged from ED until appropriate support in their usual environment is confirmed to be available*** [32] **discharge of the frail older person at night who lives alone presents risk unless appropriate support will be present upon discharge*

- Once the discharge decisions are made it is essential there is ***adequate planning, clinical handover to Residential Aged Care Facility (RACF) if patient returning to facility and documentation for both RACF patients and community-dwelling older persons.*** This is required to prevent adverse outcomes for the patient and to optimise continuity of care.

Practice Point [33-36]:

To ensure a safe discharge the older person requires:

- ✓ *A **discharge letter*** detailing diagnosis and treatment plan including
  - Recommended follow up for GP / private clinic / allied health / outpatient clinic; ensure referral to other clinic(s) including outpatient clinic has been attended
- ✓ An ***understanding of the discharge plan and follow up:*** time must be taken to ensure closed loop communication has occurred;

  E.g. Verbally relaying the discharge plan to the patient and carer (if applicable) and showing the patient / carer the plan written down on the letter, asking the patient to

say the plan back in their own words and then affirming the plan or amending any issues with their interpretation of the plan.

The patient must understand:

- the expected ***timeframe*** for the follow up
- ***where*** the follow up will take place
- what to expect from this appointment (e.g. There will be further planning at this appointment, there will be further treatment at this appointment or you will be contacted with further information)

✓ To have ***written communication regarding medication changes*** including those commenced, ceased, dose or administration time changes.

- Patients discharged home require a ***script*** and the ***prescriber to explain the change / possible adverse effects*** and where required, refer to the Emergency Pharmacist (where available) to review the changes with patient / family / carer. A community medication review may also be arranged.
- Patients discharged to the RACF with medication changes require an ***Interim Medication Administration Record (IMAR) or an ED discharge medication administration record (EDDMAR) and <u>medication supply</u>*** to allow new medications to be provided for a minimum of 5 days.
- The IMAR / EDDMAR enables RACF nurses to record medication administration after hospital discharge. IMARs have been demonstrated to improve safety and continuity of care for patients [35]. The IMAR is generated by the ED pharmacist and is required for any complex medication changes or initiation or cessation of high-risk medications. It is ideally provided to all RACF residents discharged from ED with new medications.
- The ***Emergency Department Discharge Medication Administration Record (EDDMAR)*** is produced by an ED prescriber upon discharge of RACF patients ***when a pharmacist is unavailable to produce the IMAR*** eg after-hours where medication changes entail simple medication additions or cessations of low-risk medications. The EDDMAR is designed to be used with the long term medication chart for up to 5 days post discharge, until the resident's medication chart is updated by their GP. Where high risk medication or complex medication changes occur with no ED pharmacist available to generate an IMAR, the resident should ideally be admitted to the Short Stay Unit to facilitate appropriate pharmacist input.

Think about your discharge process for older persons and discuss with your peers the process in your ED.

Physiological and anatomical changes related to ageing

 *Review primary and secondary survey and systematic patient assessment in Module 1 'Fundamentals of Emergency Nursing' as the following builds on this prior learning.*

- There are ***interesting physiological and anatomical changes*** in this age group which explain why observations noted in this cohort have different diagnostic and prognostic value than in their younger counterparts [37].
- Many manifestations of illness involve multi-systems, making it important to holistically address the impacts of the condition on the older person rather than addressing the isolated body system that may be expected to be affected in a younger person with the same condition [4].

Practice Tip

Each body system changes with age; the following tables can be used as a guide to help understand some of the changes that may be apparent in the older person and their ***clinical implications.***

Primary Survey Considerations

Primary survey	Older person considerations
Airway	Broken dentures may require removal; full well-fitted dentures may remain insitu until airway control is achieved as they may assist in achieving a good seal with bag-valve-mask ventilation. Airway suction; if observed secretions in an older person with altered level of consciousness, suction airway if the patient is unable to clear secretions themselves; older people may have a diminished gag reflex and cough. *Note: Importance of considering spinal immobilisation where indicated; degenerative changes and stiffening of the lower cervical spine (c-spine) make higher c-spine fractures likely including C1/C2 and odontoid process*
Breathing	↑ incidence of chronic obstructive pulmonary disease (COPD) / CO2 retention in past medical history: titrate oxygen to 88 to 92% in those with a prior history of COPD / CO2 retention.
Circulation	Vital signs may not reflect the degree of cardiovascular insult until late. *Note: Normal BP and HR may not be representative of normal volaemic state. It is important to consider other indicators of poor perfusion, such as urine output, lactate and conscious state.*
Disability	May have ↓ brain mass = ↑ incidence of intraparenchymal and subdural haemorrhage.
Exposure / Environment	↑ hypothermia risk as impaired ability to ↑ body temperature and ↓ heat loss. *Note: Deficit in thermal regulation may be attributed to a decrease in dermal thickness and loss of vascularity.* [38, 39]

** Adapted from: *Victorian Government. Older Person Trauma; primary survey. 2019. Available at:* https://trauma.reach.vic.gov.au/guidelines/older-person-trauma/primary-survey.

Sadro, C.T., et al., *Geriatric Trauma: A Radiologist's Guide to Imaging Trauma Patients Aged 65 Years and Older.* Radiographics, 2015. **35**(4): p. 1263-85.

System	Physiologic change	Clinical implications
Respiratory	↓ Number of cilia ↓ Alveoli tissue elasticity + lower lung lobes ↓ Macrophages ↓ Number of capillaries / ↑ chest wall rigidity	↓ Ability to trap debris ↓ Gas exchange ↑ Secretion pooling ↑ Risk respiratory infection ↓ Gas exchange = ↑ **Susceptibility to pneumonia hypoxia risk**
Cardiovascular	↓ Cardiac muscle tone and blood vessel elasticity ↓ Pacemaker cells ↓ Baroreceptor sensitivity	↓ Cardiac output ↑ risk for heart failure ↓ Venous return ↑ dependent oedema ↑ Risk of conduction abnormalities and ectopic beats ↓ Adaption to changes in blood pressure = **Increases susceptibility to shock + masked signs of shock**
CNS	Expanded subarachnoid spaces / stress on bridging veins [39] Brain atrophy ↑ Osmotic operating point for thirst sensation ↓ Thermo-regulation by hypothalamus ↓ Balance and peripheral nerve function	More susceptible to subdural haematomas [39] Less likely to manifest neurologic signs of ↑ intracranial haemorrhage ↓ Thirst perception = ↑ **dehydration risk and electrolyte disturbance** ↓ Heat / cold intolerance = **Blunted heat response to infection and ↑ susceptibility to environmental temperature change** Slowing of motor movements and fine motor skills = **Falls risk** [17, 37, 39]

Adapted from:
Woodford, H., *Essential Geriatrics*. 2016, Florida: Taylor and Francis Group
Williams, P., *Basic Gerontic Nursing*. 2016, Missouri, USA: Elsevier
Sadro, C.T., et al., *Geriatric Trauma: A Radiologist's Guide to Imaging Trauma Patients Aged 65 Years and Older.* Radiographics, 2015. **35**(4): p. 1263-85

Reading 3

	Access an anatomy and physiology textbook with content describing cardiovascular and respiratory age-related change and complete the activity below. Example: 'Senior moment: Cardiovascular changes with ageing' (p. 138) in Anatomy and Physiology Made Incredibly Easy. (2017) 5th edition 'Senior moment: Respiratory changes with ageing' (p.179) in Anatomy and Physiology Made Incredibly Easy. (2017) 5th edition

Activity 3

	**Match the Respiratory and Cardiovascular structures to changes that *may be* attributed to ageing*.** **Note: Not all patients will have these age-related changes*

Respiratory:

Structure	Change with ageing
Trachea	Degeneration causes decrease in recoil
Alveoli	Increased calcification and rigidity
Costal cartilage	Degeneration or atrophy
Lung tissue	Deviations from changes to the spine
Respiratory muscle	Number and size decrease with age

[40]

Adapted from:'Senior moment: Respiratory changes with ageing' (p.179) Anatomy and physiology made incredibly easy.

Cardiovascular:

Structure	Change with ageing
Left ventricle	Decreases with age
Heart valves	More rigid
Baroreceptors	Thicker 2nd to fibrotic and sclerotic changes
Cardiac cells	Hypertrophies or thicker from increased effort
Arteries	Function diminishes with age

[40]

Adapted from: 'Senior moment: Cardiovascular changes with ageing' (p. 138) Anatomy and physiology made incredibly easy.

Comprehensive Nursing Care

- The importance of conducting a ***comprehensive health assessment*** in this group is invaluable. It is imbedded in Standard 4 of the Registered Nurse Standards for Practice [3] and a dedicated component of the NSQHS standards [2]. A comprehensive health care assessment is an assessment that encompasses not only the acute health care issue but the impact of the older persons overall health issues on their life and well-being, it also aims to ensure risks of iatrogenic harm are identified and strategies implemented to prevent harm [2].
- An understanding of physiologic age-related changes inform best practice in responding to the needs of this group.

Activity 4

Match the age-related change to how the health care professional can comprehensively respond to patient's needs.

Age-related change	Comprehensive health care response
Decreased thirst reflex	Hearing aids in / adjust volume when communicating with a patient. When a patient is triaged to waiting room the triage nurse must highlight the presence of hearing induction loop technology if present -- this requires the patient to flick a switch on their hearing aid to activate; where an older person has not brought their hearing aids to ED, a personal hearing amplifier may be used
Auditory sensory deficit	Glasses on?
Decreased ability to maintain core body temperature	Offer fluids regularly if safe to do so
Decreased perception of need to void	Check and prompt prescription of regular medications to reduce delirium risk
Visual sensory deficit	Regular toileting for comfort and to reduce agitation risk; consider post void bladder scan
Possible unawareness of medication regime	Visual tools to assist communication including pain assessment e.g. visual analogue scale; explain call bell use and ensure within reach
Possible inability to self-report pain	Addressing comfort / warmth / cooling / dry clothing and incontinence aids

Adapted from: Woodford, H., *Essential Geriatrics*. 2016, Florida: Taylor and Francis Group

Williams, P., *Basic Gerontic Nursing*. 2016, Missouri, USA: Elsevier

Critical Point

	• ***Physiological and anatomical age-related changes*** inform practice [17]. • This patient cohort is a dynamic group with increased probability of missed / mixed diagnosis [41]. • There is a greater probability of drug interactions / toxicity [42]. • ***Communication*** can provide a challenge due to decreased sensory function (hearing, eye sight) [4].

Unit 2 Common older person ED presentations

Introduction

- Older people often present ***without the 'typical' symptoms*** seen in younger adults [37].
- Often ***there are added symptoms*** that may be misleading [41].
- There is a high incidence of hidden features or ***occult illness*** in this group [41].
- Reaching a diagnosis and management plan is both ***interesting and sometimes challenging***.

Learning objectives

1. Synthesise and integrate information from current evidence in the delivery of safe emergency nursing care to older persons
2. Explore and analyse the aspects of common ED presentations of older persons and the importance of comprehensive assessment
3. Demonstrate how the ED clinician responds to common presentations and the importance of tailoring treatment for the older person
4. Evaluate the effectiveness of treatment and care planning for common ED presentations

Key Concepts

- Neurological presentations
- Respiratory presentations
- Cardiovascular presentations
- Abdominal pathology
- Falls
- Syncope
- Trauma
- Sepsis
- Pain

Reading 4

	The following article is suggested reading, providing an overview of the approach to common presentations of older persons to ED Available via CKN: Perry, Adam. Macias Tejada, and D. Melady, *An Approach to the Older Patient in the Emergency Department.* Clinical Geriatric Medicine, 2018. **34**(3): p. 299-311.

Neurological presentations

Review Neurological Emergencies in Adult Emergencies module 2 as this unit addresses specific neurological emergencies applicable across the lifespan.

There are many different neurological changes related specifically to age. This topic will specifically address:

1) Delirium

2) 'Behavioural changes and psychological symptoms associated with cognitive impairment' which may also be referred to as 'responsive behaviours' [43].

When caring for older persons in ED it is important to understand these conditions and to be able to differentiate between delirium and chronic cognitive impairment such as dementia.

Delirium

Delirium is an "acute disorder of attention and cognition" [44].

***Delirium** is usually an indicator* of an underlying pathology and is characterised by:

- ***Acute*** onset and ***fluctuating*** course; **and**
- ***Inattention*** ***and either of:***
  - ***Disorganised thinking***
  - ***Altered level of awareness***

[45]

- Key features of delirium include impaired consciousness and disturbed cognition involving disorientation, memory difficulties and language alterations [44].

Age-related Factors

- Regularly missed and misunderstood and often confused with dementia, ***delirium*** is a common, serious, costly and often fatal disorder in older persons presenting to ED [44].

- Although a single underlying factor can cause delirium***, in older people it is usually multifactorial,*** involving a complex relationship between ***patient vulnerability,*** that is age, sensory deficits, cognitive impairment and ***precipitating insults*** such as pain, illness, sepsis, trauma, constipation, polypharmacy, medications and / or anaesthesia [44, 46].
- Unlike dementia, delirium is mostly reversible if underlying pathology is treated [45]. Up to ***30-40% of delirium in older hospitalised people may be preventable*** if care is modified to accommodate vulnerability [47, 48].
- Delirium is an independent predictor of high in-patient mortality between 25-33% [49]. This relationship exists regardless of whether the patient is from RACF or community dwelling [50].
- A review of studies show that 7-10% of older ED patients have delirium, however ED clinicians only recognise delirium in one in six affected patients [4]. When delirium is missed in ED a cross-sectional study found that only one in sixteen of these patients will have their delirium recognised by the admitting team [51].
- Delirium is very common in hospitalised people with dementia – known as ***delirium superimposed on dementia*** [52]. Identification requires a focus on changes in attention and vigilance compared to the person's baseline. Collateral from family and caregivers is useful for establishing a baseline.
- The emergency RN has **3 key roles** to play in relation to delirium:

    1) **Identify those at risk for delirium – consider vulnerability plus precipitating insult**
    2) **Screen for delirium in those at risk and when identified notify the**
        a. Nurse in charge due to the potential need to arrange a nursing special
        b. Emergency registrar or consultant to prompt identification of the cause of the delirium
        c. Emergency or ward pharmacist to undertake a medication review for potentially contributing medications
        d. Family / next of kin / substitute health decision maker (due to increased morbidity / mortality risk)
    3) **Institute an appropriate delirium prevention plan and / or a plan of management for the older person with delirium**

Activity 1

	**The web link and reading below contains the information relevant to the activity below. Review one or both to answer the following question.**

Web Links

	Podcast: *Diagnosing and Managing Delirium in Older Adults* https://gempodcast.com/2015/11/11/diagnosing-and-managing-delirium-in-older-adults/ Website: GERI-EM; *'Causes of Delirium'* https://geri-em.com/cognitive-impairment/causes-of-delirium/ [53, 54]

Reading 5

	Nagaraj, G., et al., *Is delirium the medical emergency we know least about?* Emergency Medine Australasia, 2016. 28(4): p. 456-8. *https://acem.org.au/getmedia/08528262-4da1-4049-9234-91ae6abed4a4/emm12639(1)-acute-geriatric-series-delirium.aspx* [45]

1) a) Does your ED use screening to identify delirium as part of the primary nursing assessment? YES / NO

b) If so, what is the screen and outline how it is used in your department

_____

_____

c) If not, what steps can be taken by the RN when performing a comprehensive health assessment in detecting delirium?

_____

_____

_____

2) There are many mnemonics used to remember ***causes for delirium.*** From the Geriatric Emergency Medicine podcast or the Geriatric Emergency Medicine website identify the related conditions for the following mnemonics:

D _____
I _____
M _____
E _____
S _____

D _____
E _____
L _____
I _____
R _____
I _____
U _____
M _____

Activity 2

Read the clinical example and answer the questions

Clinical example

A 90-year-old man was transferred to a geriatric unit post initial presentation to the ED and transfer to ICU with septic shock in the setting of a left lower lobe pneumonia. This presentation was complicated by acute renal impairment, acute myocardial infarction and delirium.

PMHX: hypertension, hypercholesterolemia.

Medications: pantoprazole, dalteparin, perindopril, bisoprolol, aspirin, simvastatin, hypromellose—dextran 70 eye drops, metoclopramide and lactulose.

On transfer to the unit he was still confused. His physical examination revealed a frail, elderly man, orientation to person intact, but not to time or place.

BP 90/53 mm Hg

HR 53 bpm and regular.

RR 18 breaths/min SP02 98% RA

Temp 36.5^{o}

Further testing: Thyroid function results were consistent with hypothyroidism.

[55]

1) This man's presentation is multi-factorial; state the possible causes for this patient's apparent hypoactive delirium. You may wish to refer to the previous mnemonics to guide your answer

2) What other diagnosis do you think the observation of hypoactivity in this case might be mistaken for?

3) Having identified his hypoactive delirium, outline the actions you now take to assist in identification of cause and to prevent complications as a result. You may wish to refer to the '3 key roles' to guide your answer

Web Links

	4AT and CAM are used in many ED settings, these tools are accessible via QHEPs: https://qheps.health.qld.gov.au/__data/assets/pdf_file/0023/2046380/sw683.pdf https://qheps.health.qld.gov.au/__data/assets/pdf_file/0028/1939501/confusion-assessment.pdf

Key concept

Hypoactive forms of delirium can be difficult to detect; research shows the ***hypoactive or mixed forms*** of delirium are collectively ***at least three times as common*** as the hyperactive form [45]. **It is very important not to miss this diagnosis as:**

- Early detection and appropriate treatment is associated with improved outcomes [45]

Dementia

- ***Dementia is a neurodegenerative syndrome*** characterised by progressive decline in multiple areas of function, including language, memory, perception and cognitive skills [56].
- The most common types of dementia include [57]:
    - Alzheimer's dementia
    - Vascular dementia
    - Dementia with Lewy bodies (DLBD)
    - Frontotemporal dementia
    - Alcohol related dementia
- It is reported that 9% of Australians aged 65 and over have a diagnosis of dementia, in the 85 years and over age range this figure rises to 30% [58].

Behavioural changes and psychological symptoms of dementia (BPSD)

- Refers to a variety of symptoms specific to dementia which can appear in isolation or alongside each other, but require different treatment approaches:
    - ***Behavioural symptoms***: repetitive vocalisations **/** agitation **/** aggression **/** wandering [59, 60].
    - ***Psychological symptoms***: anxiety **/** depression **/** hallucinations **/** delusions **/** sleep disturbances [59, 60].
- Within the trajectory of their disease, 90% of people with dementia will develop at least one, if not several BPSD. A portion of these people will present to ED with a ***behavioural emergency*** related to BPSD [61, 62].

Key Concept

Many of the observed 'behavioural symptoms' may not be reflective of dementia disease progression but may be attributed to ***other problems which cannot be expressed*** because of the ***impact of dementia on communication and language*** [62, 63].

- Many BPSD are attributed to the *impact of dementia on communication and language* [62, 63].
- BPSD like agitation, aggression, wandering and vocalisations can be conceptualised as expressions of an *unmet physical, emotional or psychological need* [64].
- If the unmet need is addressed, then symptoms may be relieved. Careful assessment can inform clinicians on what the unmet need is likely to be.
- People with dementia often experience a progressively lowered stress threshold. When internal (e.g. pain or fatigue) or external (e.g. noise, change in routine, busy ED setting) environmental demands exceed their stress threshold, behavioural symptoms such as agitation and combativeness may occur [65].
- To successfully address ***unmet needs*** or a ***lowered stress threshold*** [64, 65], nurses must consider key psychosocial aspects such as communication style and patient preferences, as they explore clinical aspects such as pain, constipation, hunger, illness or delirium.

P.I.E.C.E.S. framework

PIECES is a simple framework that can guide ED staff on how to address the many factors that may trigger BPSD. Prevention of behavioural crisis usually depends upon all these factors being holistically addressed [43].

P – physical cause e.g. pain, urinary discomfort
I – intellectual capacity e.g. memory, confusion, cognition
E - emotional health e.g. depression, anxiety
C – capability e.g. maintaining level of independence
E – environment e.g. keeping surroundings unambiguous
S – social self e.g. "who is this person, what is their life history?"

[43]

Web link

	For additional reading and resources on assessment and management of BPSD, access introduction to assessment and management of Behavioural and Psychological symptoms of dementia for novice clinicians: https://www.dementiatrainingaustralia.com.au/wp-content/uploads/2017/03/2369_QLDDTA_Intro_BPSD_Resource6.pdf

Activity 3

	**Reflect on a behavioural emergency of an older person you have cared for and describe the case in the space provided below. Then, using your case use the PIECES framework on how this may have been applied to your patient.**

P

I

E

C

E

S

Practice Point

Managing Behavioural and Psychological Symptoms

Dementia [66]:

1. Address ***unmet needs*** or ***lowered stress threshold*** alongside medical provocations – pain, illness, drugs, constipation, delirium.
2. Non-pharmacological approaches should be attempted first, except in cases of severe distress, immediate risk of harm, or when pain is suspected (*see behavioural crisis on the next page).*
3. If non-pharmacological approaches are inappropriate or have failed, drug treatment for some BPSD is indicated. A trial of analgesia should be considered prior to alternate drug therapy.
4. Antipsychotic medication for psychosis or intractable aggression often takes several days to show effectiveness.
5. Pharmacological measures should always complement and not replace psychosocial approaches.

Delirium:

1. Identify and treat medical illness, reduce medication side-effects*;* ***alleviate physical and emotional discomfort including pain*****;** promote sleep hygiene and work to reduce risks of harm while accommodating pre-existing vulnerabilities [44].
2. Avoid antipsychotics except for in cases of extreme distress or danger (see behavioural crisis below) [44].
3. Avoid benzodiazepines except for cases of withdrawal.

Behavioural Crisis [67]:

1. If safe to do so, ensure a physical assessment for causes of discomfort or pain through a head-to-toe examination, bladder scan if applicable for urinary retention. Treat suspected pain and discomfort with priority.
2. If not safe to conduct a physical assessment, trial analgesia before specific pharmacological therapy (e.g. fentanyl 10-25 microgram increments intravenously or subcutaneously).
3. Where there is immediate danger or severe distress and ***pain has been assessed***, antipsychotics may be used for their sedative properties. However, evidence of their effectiveness is low and serious side effects in dementia and delirium are noted including increased mortality [68], cardiac complications and up to a three times greater risk of stroke and dementia [66]. Large doses and parenteral administration should generally be avoided.
4. Antipsychotics and benzodiazepines can cause paradoxical reactions in older people with dementia and / or delirium including increased agitation [67].
5. Adherence to your local HHS protocol for behavioural crisis in older people is advised.

   The Therapeutic Guidelines recommend [69]:

   Risperidone 0.25mg orally, twice daily initially OR

   Olanzapine 2.5mg orally, daily initially OR

   Oxazepam 7.5mg orally, 1-3 times daily

Critical Information: In high danger situations where parenteral antipsychotic therapy may be indicated, this should occur only with senior emergency doctor input and after a trial of intravenous analgesia.

*When Dementia with Lewy Body or Parkinson's disease is suspected / present, ***1st generation antipsychotics are contraindicated*** (e.g. Haloperidol and Droperidol) due to high vulnerability to drug-induced movement disorder side effects.[66]

Pharmacological Considerations Unit 4 care of the older person in emergency provides further detail on risks of medications prescribed to patients in behavioural emergency.

	For further information on the diagnosis and management of Dementia with Lewy Body Disease visit the following website: https://www.dementia.org.au/about-dementia/types-of-dementia/lewy-body-disease

Assessing and treating pain is a priority in dementia and delirium

- Although a priority in all patients, there is opportunity to improve pain management in people with dementia and delirium. A recent study in ED reported a 77 minute longer median time to analgesia in cognitively impaired patients with long bone fracture, compared to patients with no cognitive impairment [70].
- Pain may be poorly recognised as many patients with dementia or delirium may not be able to self-report their pain, and to observers ***pain-related behaviours appear similar to BPSD*** [71].

Practice Point

Pain assessment in cognitive impairment:

- Attempt self-report using an appropriate pain assessment scale
- Identify the presence of painful conditions and treatments
- Observe behaviours, along with self-reporting of pain using a validated pain scale, e.g. PAINAD
- ***Implement an analgesia trial*** and measure effect using an appropriate pain tool

[72]

Non-BPSD related presentations of people with dementia

- Patients with dementia will present to ED for surgical and medical complaints unrelated to their dementia diagnosis [73].

- Dementia carries a heavy risk burden for these patients:
    - One recent retrospective study reported surgical mortality for patients with dementia was 13% over 30 days, increasing to as high as ***92% at 2 years*** [73].
    - A review of other studies noted a surgical mortality rate of ***less than 7%*** for those without dementia when age was controlled for [74].
- The ***supportive care*** mentioned in the practice points above remain paramount to the prevention and management of BPSD for people with dementia during their ED stay.

Critical Point

	Pain assessment with a cognition-appropriate assessment tool and ***timely, effective pain management*** is paramount in the Emergency management of patients with dementia or cognitive impairment. This is important for multiple reasons including the prevention of delirium. *See Pain in Unit 2 care of the older person in emergency* *See Pharmacological considerations Unit 3 care of the older person in emergency*

Respiratory presentations

Review 'Respiratory Emergencies' in the TSP Adult Emergencies module 2. The following information complements the already consolidated learning from this module.

There are many different respiratory ED presentations in the older cohort. This section will address:

- Dyspnoea
- Influenza
- Pneumonia
- Pulmonary Embolism

Dyspnoea

- Shortness of breath (SOB) is a common presenting complaint in ED. Identifying the aetiology of the complaint can be challenging in this group due to many factors, including

the potential small margin between disease and age-related physical deconditioning [75, 76].

- A systematic review examining age distribution and causes of dyspnoea found 60% of people presenting to ED with dyspnoea are over 65 and in this group 70% of the cases were deemed to be due to pulmonary or cardiac origin [75].
- The possible causes can be categorised as [75-77]:
    - respiratory conditions
    - cardiac conditions
    - metabolic
    - haematological
    - toxicological
    - neuromuscular
    - psychiatric causes.

Activity 4

	**Consider an older patient you have cared for with dyspnoea and answer the following questions**

1. What was the identified cause of the dyspnoea?

   _____

2. How did the person's age, co-morbidities, medications and social factors affect their presentation?*

   _____

   _____

   _____

   _____

**Examples of common causes of dyspnoea in this cohort is described below, which may help with case reflection examination findings.*

Practice Point

Causes of dyspnoea with age-related considerations

Note: Older people are more likely to have more than one pathology for dyspnoea [78]

Airway obstruction	1) Swelling lips / tongue / throat – consider allergy status or angioedema secondary to idiosyncratic reaction to ACE inhibitors 2) Onset while eating; older people are at ↑ risk for dysphagia and aspiration: are dentures missing? [4, 79]
Acute Coronary Syndrome	1) May have accompanying chest or jaw or arm pain / report burning sensation or indigestion pain / may not have typical accompanying symptoms seen in younger people.  *See cardiovascular presentations in the care of the older person in emergency* [80, 81]
Congestive Cardiac Failure	1) Orthopnoea or ↑ SOB while supine and / or paroxysmal nocturnal dyspnoea (waking at night with SOB) 2) History (Hx) of CCF 3) Changes to heart rhythm and rate and / or elevated jugular venous pressure (JVP) 4) May have lower limb oedema / swelling 5) May present with bilateral basal inspiratory crackles on chest auscultation, but may also present with bilateral wheeze (cardiac wheeze)  *See Congestive Cardiac Failure in Adult Emergencies Module 2* [77, 82]
Exacerbation of COPD / Asthma	1) Hx of COPD* or asthma and / or smoking 2) Bilateral wheeze with auscultation 3) Purse-lipped breathing 4) Beware the silent chest or older persons sitting forwards in “tripod” position *May have COPD in early phase of illness and undiagnosed [77, 83]

Pneumonia	1) Pleuritic chest pain / cough +/- purulent sputum / septic changes / fever *may note an absence in changes to vital signs in the older cohort *See Table in Unit 1 Physiological Changes in the care of the older person in emergency* *'Pneumonia' and 'Sepsis in the care of the older person in emergency* [78, 84]
Pulmonary Embolism	1) Hx of PE / DVT – current calf tenderness or swelling (may be absent) 2) Pleuritic chest pain 3) Hx of cancer [78, 85]
Pneumothorax	1) Recent hx of falls / chest surgery / hx of lung disease 2) Hx of pneumothorax 3) Reduced breath sounds on affected side [4, 78]
Diabetic Ketoacidosis	1) Hx of diabetes / ↑ fluid intake (polydipsia) and micturition (polyuria) 2) High blood glucose level and urinary ketones [86, 87]
Anaemia	1) Hx of disease process causing anaemia / bleeding eg GI bleed 2) Pallor [75, 76, 88]

Influenza

- Influenza disproportionately affects the older person cohort, with the highest morbidity and mortality in this group [89].
- The Australian Department of Health and Welfare's 2017 data analysis reported people aged 65 years and over accounted for greater than 90% of all notified influenza-related deaths [90].
- Older people are particularly vulnerable to influenza due to likelihood of immune system deterioration and presence of co-morbidities [91].
- Older people living in close proximity to each other (e.g. RACFs) may be particularly vulnerable to influenza due to increased likelihood of pathogen transmission [90].

Practice Point

Influenza can be challenging to differentiate from other respiratory tract infections using clinical signs alone:

Suspect influenza if the older person has:

Sudden onset of symptoms (in the elderly these may be atypical and include anorexia, mental status changes or worsening of underlying COPD or cardiac failure)

AND

At least one respiratory symptom (new or worsened cough OR sore throat OR SOB)

AND

At least one systematic symptom (fever OR malaise OR headache OR myalgia)

[92]

Critical Point

Influenza symptoms may also include:

- New onset of or increase in ***confusion (delirium)***
- Worsening of underlying conditions including exacerbation of congestive cardiac failure or chronic obstructive pulmonary disease
- Of note this cohort ***may not necessarily have a temperature ≥38°C*** secondary to immunosenescence (gradual deterioration of the immune system) or due to regular anti-pyrexial medications masking the febrile state *

* *This topic is addressed further in 'Sepsis' Unit 2 in the care of the older person in emergency*

[90]

Community Acquired Pneumonia:

- Pneumonia is the leading cause of infection in the over 65 age group [4].
- Over 65s are at increased risk of CCF and cardiac complications following diagnosis of pneumonia, when compared with younger patients [4].
- Predisposing factors to pneumonia include [93]:
    - Underlying respiratory disease

- Immunosuppression
- Impaired swallow and / or cough reflex*

**If signs of aspiration are noted in ED e.g. coughing after ingestion of food or fluid, changes in voice after eating or drinking, escalate to medical officer and assess as per local HHS policy*

- Older people are at risk of missed pneumonia diagnosis;
  - Cough / febrile state / dyspnoea are absent in 66% of cases of older persons with pneumonia [93].
  - ***50%*** of the older person cohort who are later diagnosed with pneumonia present with ***acute confusion*** as the primary complaint [4].

Predicting pneumonia mortality risk: CURB-65 is a tool able to be used in ED to risk stratify a patient's community acquired pneumonia

"The CURB-65 score:

- Confusion
- Uraemia
- Respiratory rate $\geq$ 30 breaths / minute
- BP systolic < 90 mmHg or diastolic $\leq$ 60 mmHg
- Age $\leq$ 65 years
- Mortality rate is likely to be low if score is 0-1, moderate if 2 and high if $\geq$ 3"

[94]

Curb-65 calculation:

https://www.mdcalc.com/curb-65-score-pneumonia-severity

Activity 5

Consider the following clinical example and using the web link above, answer the following questions

Clinical example

Trevor is a 78-year-old retired pilot from interstate who has been holidaying in your local area. He presented to the ED with his worried wife who reported he had breathlessness on exertion while walking around outside their hotel, lethargy and a feeling of light headedness; he has had a cough with green sputum for a week. After a work-up in ED including bloods where his urea is normal, a chest x-ray confirms a diagnosis of pneumonia. You take a full set of vital signs and observe him for changes; you note he has no confusion, his vital signs are RR 30, BP 95/60, T 37.2 and Sp02 92% on RA

1) Calculate Trevor's CURB-65 score _____
2) What is his predicted 30 day mortality per cent? _____
3) What management do you anticipate for Trevor based on his CURB-65 score?

_____

_____

_____ _____

Hospital Acquired Pneumonia:

- Predisposing risk factors include hospital admission for 2 or more days in the last 3 months [93].

Aspiration pneumonia

- Aspiration pneumonia is defined as pneumonia second to inhalation of orophangeal contents [4, 93].
- A systematic review identified risk factors for aspiration pneumonia that are highly prevalent in the over 65 cohort; lung diseases, dysphagia, severe dementia, diabetes mellitus, Parkinson's disease, poor dentition and the use of certain pharmacotherapy including proton pump inhibitors and angiotensin-converting enzyme inhibitors [84].
- Predominant causative organisms have been described as polymicrobial: staphylococcus aureus; streptococcus pneumoniae, gram-negative bacilli; anaerobes [93].

Pulmonary Embolism (PE)

See 'Pulmonary Embolism' in Adult Emergencies Module 2

- In the older cohort, PE is less likely to present with SOB or pleuritic chest pain than younger people and is more challenging to diagnose [41].

- Reviews of data have identified the main differences in the characteristics of the older population with later diagnosed PE are:
    - There is a higher incidence of PE with increasing age
    - Older people are less likely to have pleuritic chest pain
    - There is less association with Deep Vein Thrombosis
    - There is higher prevalence of antiplatelet therapy
    - There is a higher mortality rate in the older cohort [41, 95]

Cardiovascular presentations

Review 'Cardiovascular Emergencies' in the TSP Adult Emergencies Module 2. The following detail complements the already consolidated learning from this module

In the older person cohort, cardiac emergencies may present with ***different symptoms***, ***blunted changes of vital signs*** and ***differing assessment*** findings than in younger people [41].

The following outlines the key considerations:

Arrhythmia:

- Older people have a high incidence of atrial fibrillation (AF), age-related changes include a loss of cardiac pacemaker cells, deposition of fat and fibrous tissue in pathways of the conduction system and structural changes resulting in stiffening of the left ventricle leading to decreased filling pressure and enlargement of the left atrium [4, 17].

Hypertension:

- Due to compensatory changes over time, older people have a higher baseline blood pressure which means ***detecting a hypotensive state must be relative to their baseline measurements*** [96]. This means that older persons may be at ***risk for delays to detection of shock*** and that hypoperfusion of vital organs may occur at a higher recorded blood pressure than a younger persons [93].

There are many anti-hypertensives prescribed in this group all with a side-affect profile especially important to consider, risks include:

1. Falls (particularly vasodilators)
2. Masking of early signs of shock through blunting of tachycardic response to hypotension (e.g. beta-blockers)
3. Increased risk of electrolyte disturbance (e.g. diuretics)
4. Increased risk of renal dysfunction when co-prescribed with nephrotoxins such as Non-steroidal anti-inflammatory drugs (NSAIDs) (e.g. ACE inhibitors)

[97]

 *Further detail on pharmacotherapy complexities is described in 'Pharmacology in the older person' Unit 3 of care of the older person in emergency*

Cardiac Valve dysfunction:

- Increased prevalence of valvular dysfunction (stenosis or incompetence) due to degenerative changes and calcification [98].

Aortic Aneurysm:

 *For review of thoracic aortic aneurysm in 'Cardiovascular Emergencies' in Adult Emergencies Module 2*

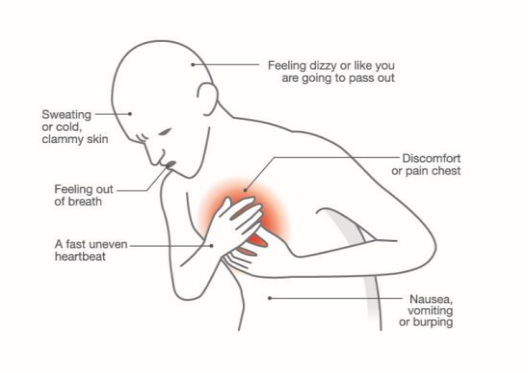
Acute Coronary Syndrome (ACS)

 *Review 'Acute Coronary Syndrome' in the Adult Emergencies Module 2, the following detail complements the already consolidated learning from this module*

ACS encompasses the spectrum of disease from unstable angina to acute myocardial infarction [99].

Age-related factors

'Typical presentation' of Acute Myocardial Infarction (MI) may induce in the clinician a picture of a person with: heavy substernal chest pain / diaphoresis / nausea +/- dyspnoea



Critical Point

	Myocardial Infarction is this cohort can look ***vastly*** different than their younger counterparts [81].

In diagnosed MI:

- Large reviews have reported a startlingly ***high incidence of painless MI*** [80]
- Over the age of ***65*** only about ***50%*** of patients will have pain [4]
- Over the age of ***85*** only ***33%*** will have pain [4]
- The most common ***anginal equivalent*** symptom in this cohort is ***dyspnoea*** [4]
- The older the person, the higher the likelihood of 'atypical' MI symptoms including:
    - Syncope / confusion* / stroke / fatigue / vague GI discomfort including loss of appetite or may have nausea / vomiting

      **neurological symptoms are less likely in the younger cohort* [100]

- Of the percentage that do describe pain, 20% of the time the pain is described as ***burning or indigestion*** [101]

Key concept

- People from this cohort may present with ***severe myocardial damage***, studies report older people are more likely to delay review or there is a delay to diagnosis with irreversible consequences [81].
- It is therefore not surprising that mortality is higher in those presenting with no chest pain or non-specific symptoms [81]. Early detection in ED is associated with improved survival rates [41].

Features confounding the diagnosis of MI in older persons:

- As people age there is a decreased ***likelihood of ST segment changes in MI***, this may be attributed to reduced myocardial mass; therefore it is important for clinicians to stay alert for ***subtle ECG findings*** [4].
- ECG is non-diagnostic in 43% of patients older than 85 years with a NSTEMI, compared with 23% of patients younger than 65 [101].
- The older person may have the following ECG findings at baseline that may increase the challenge of identifying acute ischemia on ECG:
    - Left Bundle Branch Block (LBBB)
    - prior MI findings
    - chronic Q waves or flipped T waves
    - a higher incidence of PVCs and / or left axis deviation [4].
- Cardiac biomarkers like troponin require special interpretation and consideration of factors like presence of renal impairment [101].

Activity 6

	**Read the information provided above regarding symptoms of MI in older and younger patients and place the symptoms under the correct cohort**

Symptoms of MI in older and younger persons		
Substernal chest pain	ECG abnormalities more likely present	Diaphoresis is less common
Dyspnoea	More likely to have painless MI than the other cohort or pain located jaw / neck / shoulder / epigastric	Neurological symptoms less common
+/- neuro symptoms - syncope or confusion (remember the D.E.L.I.R.I.U.M mnemonic)	Vague GI discomfort including loss of appetite or may have nausea / vomiting	Nausea
Dyspnoea (most common anginal equivalent symptom)	Diaphoresis is common	More likely to have baseline ECG abnormalities increasing the challenge of identifying acute MI

Classic younger adult presentation of MI	**Older adult presentation**

Adapted from Williams, P., *Basic Gerontic Nursing*. 2016, Missouri, USA: Elsevier. AND
Meiner, S., Yeager, J., *Gerontologic Nursing*. 6th edition ed. 2019, Missouri: Elsevier.

Key concept

Identifying MI early is important for patient outcomes;

* This group has an ***increased mortality rate from MI*** than their younger counterparts

  - 85% of all MI deaths are in the elderly [101].

* In older females presenting with chest pain the mortality rate is 13%; if presenting without chest pain mortality is 21% [102].

* In older males presenting with chest pain the mortality rate is 7%; if presenting without chest pain mortality is 22% [102].

Critical Point

**** As per local guidelines administration of GTN must proceed with caution****

There is an **absolute contraindication** to its use in:

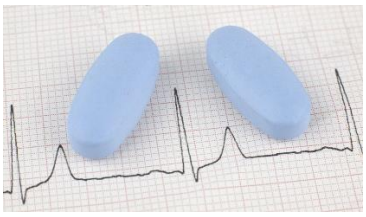
Patients with **severe aortic stenosis**:

- Risk of profound hypotension and cardiovascular collapse

Patients who have taken **phosphodiesterase inhibitors in the last 24 hours e.g. Sildenafil (Viagra), Tadalafil or Vardenafil**

****Always check the patient medication history****

- Sildenafil (Viagra) in the setting of ACS interacts with vasodilatory properties of nitrates and risks severe hypotension and death



[103]

Practice point

Clinical implications of the above:

Compare older persons' vital signs (particularly blood pressure) to their usual / baseline vital signs and be vigilant in observing trends in vital signs

1. Have a low threshold to perform an ECG on older persons presenting to ED, (even when not presenting with chest pain) in order to facilitate EARLY identification of potential cardiac ischaemia
2. Be alert for subtle changes on the ECG
3. Compare the ECG to prior ECGs where available
4. Check for a history of aortic stenosis or a history of ingestion of phosphodiesterase inhibitors such as Silendafil (Viagra) in the prior 24 hours BEFORE administering GTN [103].

Presenting features of abdominal pathology

Review 'Gastrointestinal emergencies' in the Adult Emergencies Module 2. The following detail complements the already consolidated learning from this module

An 'acute abdomen' in the older adult can present very differently from the described typical signs and symptoms in the younger cohort. The older person may only present with ***vague discomfort*** or ***no pain at all*** despite presence of potentially life-threatening pathology [41, 96].

- Instead of the 'typical symptoms' of abdominal pathology of pain, peritonism, fever and tachycardia, the older person may describe or be observed to have ***tachypnoea, vague respiratory symptoms, bowel changes*** and / or a ***change in food or fluid*** intake [96].
- In older adults traditional markers of serious illness such as abnormalities found on ***imaging or pathology may be absent*** [41]. This means that significant pathologies may be present despite normal blood test results and normal plain imaging.
- There exists only a weak correlation with vital signs and severity of disease in older adults; due to a blunted response to adrenergic stimulus pain may not induce tachycardia. There may not be the typical deviation in vital signs you would expect to encounter in a younger patient with abdominal pathology - the older cohort has both ***increased susceptibility to, and masked signs of shock*** [4, 41].

Reading 6

	Via CKN access: Spangler, R., et al., *Abdominal emergencies in the geriatric patient.* Int J Emerg Med, 2014. **7**: p. 43.

Activity 7

	**Using the article above regarding abdominal emergencies in the older person, match the clinical sign with the findings in the older person below:**

Clinical sign	Findings in older person
Pain	May be unreliable
Physical exam	May be non-specific or complete omission of
Laboratory results	May be normal in the setting of abdominal pathology
Symptoms	May be deceptively normal early
Vital signs	Delay in onset of

Key Concept

The abdominal examination in this group has a high incidence of being ***misleadingly benign*** [96]*:

* Even with catastrophic conditions such as ***Abdominal Aortic Aneurysm (AAA) rupture*** or ***mesenteric ischemia*** [104].

- AAA occurs almost exclusively in the older cohort [4].
- Fewer than 50% of older patients with ruptured AAA present with the classic combination of hypotension / abdominal pain and a palpable abdominal mass [41].

- A multi-centre cohort study reported that of AAA rupture in the over 65 cohort 8.2% reported atypical pain and alarmingly 11.8% denied pain altogether [104].
- There is a ***50-95% mortality rate*** for ruptured AAA: mortality increases by 1% with each passing minute demanding prompt diagnosis and intervention [41, 105].

Abdominal pathologies in patients without pain

- There is an increase in the incidence of ***pain-free abdominal pathology*** and more common variation in pain locations differing from classic presentations [96].
- In 25% of older adults diagnosed with appendicitis there is an observed absence of right lower quadrant pain [41].
- Studies have shown that of the over 60 year group with endoscopically proven peptic ulcer disease 35% denied presence of abdominal pain [41].

Surgical Abdomen

Common surgical causes of abdominal pathology and differences in their presenting features include:

Cholecystitis:

- ***less likely to*** - localise pain
  - elicit fever / have peritoneal response
- ***higher mortality with perforation*** [96]

Changes occurring in the biliary system secondary to ageing make older patients vulnerable to acute cholecystitis which is one of the most common indications for emergency surgery in this population [106].

Bowel obstruction:

- Increased incidence in the older cohort and increased requirement for surgical intervention [96].

Appendicitis:

- Is misdiagnosed in 54% of cases [96].
- Increased mortality in older adults; 4-8 times higher than younger people [96].
- Decreased localisation of pain to classic abdominal landmarks due to loss of nerve endings, there may be no guarding due to decreased abdominal muscle mass; appendicitis in this group is difficult to diagnose and more likely to perforate [41].

Key Concept

Like cardiovascular complaints in older persons, abdominal pathology has an increased incidence of ***coexisting disease*** and ***delayed presentation*** resulting in higher rates of end organ damage and higher mortality rates [106].

Activity 8

Using the information above place the following age-related changes with the correct clinical implications:

Age-related changes pertaining to Abdominal Pathology	Clinical implications
Blunted response to adrenergic stimulus	Less able to ward off infection
Loss of nerve endings	Pain does not reliably induce tachycardia
Decreased production of leucine and cytokines	Less likely to localise pain
Loss of abdominal muscle mass	Less likely to present with guarding

Falls

Epidemiology:

- Falls represent the leading cause of trauma-related deaths in over 65s [107].
- Falls are one of the leading causes of morbidity and mortality in Australians over 65; the Australian Institute of Health and Welfare's report released in 2018 noted 1 in every 10 days spent in hospital by a patient 65 and older was directly related to a fall [108].
- The NSQHS standards identify preventing falls and harm from falls as one of the National Standards, noting more than 80% of injury-related hospital admissions in over 65s are due to falls [2].

Falls as predictors of patient outcomes:

- There is compelling evidence falls are a marker of frailty and a predictor of poor patient outcomes: A large retrospective study concluded 23% of people over 65 who fall, even without sustaining an injury, will fall again within 6 months [109].
- Even with very minor injuries falls are associated with high mortality rates; this is attributed to the ***fall representing the manifestation of underlying medical issues;*** 44% of older patients admitted who suffer falls from standing height are readmitted within the year and these patients have a 33% 1-year mortality [110].
- Falls are the number one cause of loss of independence / transfer from community-dwelling to RACF-dwelling for older persons [109].

Critical Point

	In this group **falls** must be investigated as a **SYMPTOM** of underlying pathology rather than an isolated event [111]

Falls assessment

- The NSQHS standards advocate for a multifactorial approach to prevention of falls and for this to be part of routine care for older people [2].

Practice point

Falls History:

- Fall details of when / where / how and why
- Was the fall unwitnessed or witnessed – gathering the level of detail in the witness' account of the fall
- Ability of the person to recall fall details
- Length of time the person was on the floor
- Ability to mobilise post the fall
- Presence of symptoms preceding the fall: chest pain / palpitations / SOB / headache dizziness / vertigo / pre-syncope

See 'Syncope' in Unit 2 care of older person in emergency

- Health history including number of falls in last year

- Medication history including new medications / changes to schedule and presence of high risk medications including anticoagulants e.g. Warfarin / rivaroxaban / dabigatran / apixaban or anti-platelet therapy e.g. Aspirin, clopidogrel

Patient assessment has 3 goals:

1. Assessment for evidence of trauma secondary to the fall
2. Assessment for evidence of the cause of the fall
3. Assessment for factors that may contribute to future falls

Initial review should include at a minimum primary survey, vital signs (including postural BP assessment, conscious level or GCS), ECG, blood glucose monitoring and trauma secondary survey and pain assessment [4, 112].

 *See Major Trauma in Management of the Critically Ill Older Adult and minor injuries in Adult Emergencies. See Trauma in Common older adult presentations.*

The aetiology of the fall:

Falls assessment for the ***underlying cause***, also known as intrinsic cause, involves considerations including but not limited to:
Changes to: Vision **/** balance **/** strength **/** reflex **/** proprioceptive feedback **/** postural blood pressure changes
Presence of: Dehydration **/** infection **/** painful joint **/** underlying cardiac causes **/** urological contributors such as urinary urgency

The *Preventing Falls and Harm from Falls in Older People Best Practice Guidelines for Australian Community Care* identify the following ***falls risk factors*** requiring management strategies:

- Balance and mobility limitations
- Cognitive impairment
- Vision
- Continence
- Feet and footwear
- Syncope
- Dizziness and vertigo
- Medications
- Environmental consideration
- Injury surveillance and observation

- Ensuring the patient who has fallen has a fall assessment

Prevention strategies

Where there is no acute medical precipitant identified, appropriate multi-disciplinary referral underpins falls prevention strategies. An individualised approach is required, partnering with the patient's GP and the following may be recommended:

- Optimising vitamin D and calcium levels
- Medication management review
- Review of home environment / safety equipment e.g. occupational therapy review
- Functional assessment / physiotherapy review in optimising safety balance and strength
- Specialist review e.g. geriatrician.

[2, 111-113]

The *Guideline for the Prevention of Falls in Older Persons* developed by the American Geriatrics Society, the British Geriatrics Society and the American Academy of Orthopaedic Surgeons Panel on Falls Prevention recommend:

1) Older people who present for review after a fall or report recurrence of falls in the past year and / or demonstrate abnormalities of balance or gait should be assessed for their falls risk.
2) This assessment should be performed by clinicians with appropriate experience and skills, which may require referral to a specialist, for example a geriatrician.

[112, 113]

Differentiating a 'syncope' from a 'fall'

Taking a detailed falls history from the patient and witness' (and establishing the quality of the witness' account) is paramount in determining whether there were syncope / syncopal symptoms described precipitating the fall.

Syncope is addressed in Unit 2 of the care of the older person in emergency

Questioning the term 'mechanical fall'

- When there is a low index of suspicion of syncope, there may be a tendency to group these falls into the category ***'mechanical fall'.*** Authors conclude use of ***the term 'mechanical fall'*** in this older person cohort carries ***significant risk in terms of***

increased probability of missed diagnosis [111, 114]. The majority of falls in older people have a combination of intrinsic and extrinsic factors.

'Mechanical Fall'

- is a vague term, there is no clear agreed upon definition [109, 114].
- implies an ***extrinsic*** cause of the fall which may turn clinicians away from examining ***intrinsic*** causes of fall [111, 114].
- can decrease concern over fall and quality of investigation into the ***aetiology of the fall*** [109].
- is not associated with decreased adverse events when compared with syncope related falls [114].
- implies the reason for the fall is not reversible or able to be intervened upon which

= *a missed opportunity to prevent further harm for the patient*

Golden Rule

The ***aetiology of falls*** in the older population must be comprehensively investigated as falls may be:

- ***A symptom of an acute medical condition***
- Caused by a prescribed ***medication*** / over-the-counter* or alcohol ingestion

  **The older people cohort purchase over 40% of total over the counter medications*
- The ***advancement of a chronic medical illness***
- Comprehensive fall assessment includes evaluation of:
  - Cause
  - Injuries related to fall
  - Risk factors
  - Prevention strategies

[109, 112, 115]

Activity 9

	**Read the following case study and use the practice point above and the image below to answer the questions**

Edward is a 78 year old male who describes a fall in his bathroom at home. Using the information in the above image and using your local guidelines assess for the following:

1) What are the possible causes of the fall? (use falls assessment in practice points to guide your answer)

2) What physical examination is required to comprehensively assess this patient?

3) How might further falls be prevented in the future? And what referral may be appropriate to respond for this incident? (Use prevention strategies in the practice points to guide your answer)

Web link

	**For further reading access national or local falls guidelines:** https://www.safetyandquality.gov.au/wp-content/uploads/2009/01/Guidelines-HOSP.pdf https://www.health.qld.gov.au/stayonyourfeet/for-professionals/resources-prof

Syncope / pre-syncope

Syncope is described as a transient loss of consciousness with associated loss of postural tone, followed by return to baseline neurologic function without requiring resuscitative effort [116].

- Research efforts to differentiate 'pre-syncope' and 'syncope' have reported the two are a part of a spectrum of the same symptom [117].
- Abnormal conscious state past the first five minutes may indicate another cause such as seizure [118].

The aetiology of syncope is generally divided into:

1) Cardiac syncope
2) Neurocardiogenic syncope or vasovagal
3) Orthostatic syncope
4) Vascular causes
5) Sepsis is also identified as an illness that may present with syncope

[116-118]

Prevalence and patient outcomes:

- Syncope is more prevalent in the older person age group than any other [4].
- 20% of patients over 65 with cardiovascular syncope present with the chief complaint of ***fall*** [118].

'Falls' is addressed in Unit 2 of care of the older person in emergency

- Research notes a high rate of adverse events in the first 30 days in the older person cohort; a recent prospective observational study found the rate of adverse event from syncope was 18.7% [119].

- It has been shown that patients with ‘pre-syncope’ or ‘near syncope’ are just as likely to have adverse outcomes as syncope groups studied [117, 119].

Age-related Factors:

- There is demonstrated increased susceptibility risks to syncope with age [118].
- Assessment of syncope patients also includes a comprehensive trauma assessment [116].

  Trauma is addressed in Unit 2 care of the older person in emergency

- The aetiology of syncope may be multi-factorial, in some studies ***up to 30%*** of people have ***more than one possible cause*** for syncope [120].

Critical Point:

	Life threatening conditions with syncope in this age group include ***pulmonary embolus, cardiac arrhythmia, thoracic aortic dissection, ruptured abdominal aorta and subarachnoid haemorrhage*** [4, 118, 121]

Important Assessment / Interventions

Syncope assessment includes obtaining collateral, medication profile and objective findings including:

- Primary survey and full set of vital signs including blood glucose monitoring

Cardiac and vascular causes

- ECG within 10 minutes of presentation
- Telemetry
- Bilateral arm BP measurement
- Auscultation heart and lungs
- Chest x-ray
- Full blood count / electrolytes and other blood tests dependent on history and examination findings

Neurally mediated

- Ongoing observation and neurovascular exam including GCS

Orthostatic hypotension

- Postural lying and standing blood pressures

[4, 122, 123]

Measuring orthostatic vital signs

Measure BP after the patient has been relaxed and supine for 5 minutes, then again after 1 and 3 minutes of standing, while asking the patient to report any symptoms [123].

Web Link

	Are Orthostatic vital signs helpful in ED? https://gempodcast.com/2018/08/14/orthostatics/ [124]

Reading 7

	Kennedy, M., et al., *Reconsidering orthostatic vital signs in older emergency department patients.* Emerg Med Australas, 2018. **30**(5): p. 705-708. [123]

Activity 10

	**Using the podcast and / or article above, insert the terms (factors affecting postural hypotension) to the appropriate statement about age-related changes below**

Factors affecting postural hypotension		
Water	Decreased	Vasculature
Salt	Increase	Ventricular

Age-related changes resulting in increased susceptibility to postural hypotension
* ⬇ Baroreflex-mediated response preventing compensatory_____ in heart rate
* _____ vasoconstriction
* ⬇ _____ and _____ conservation
* _____ and _____ stiffening impeding early diastolic filling

Adapted from: Kennedy, M., et al., *Reconsidering orthostatic vital signs in older emergency department patients.* Emerg Med Australas, 2018. **30**(5): p. 705-708.

Key concept

- There are many different causes for syncope / pre-syncope, in the over 65s cohort and the aetiology may be multi-factorial [4].
- Patients presenting with undifferentiated pre-syncope or syncope should have the symptom-quality examined and then be carefully investigated for life-threatening diagnoses [117].

Clinical example

HOPC: *89 year old female from an RACF presents with the following information only; 2 days of pre-syncope with reduced appetite and lethargy:*

PMHX: *Congestive Cardiac Failure, Atrial Fibrillation*

MEDS: *Frusemide, warfarin, aspirin and digoxin*

Using this limited detail, consider the likely causes of the complaint (possibilities are listed below):

Intracranial vascular cause / bleed / pathology / cardiac cause / abdominal pathology / infection / metabolic cause / medication side effects / toxicity / psychiatric - depression may present with weakness and general fatigue

This example demonstrates the complex and possibly multi-factorial pathology for the older patient, which will affect assessment and treatment. The case is adapted from; The Geriatric Emergency, EM Cases, for further detail on this case and the cause identified by the treating team listen to:

https://emergencymedicinecases.com/episode-34-geriatric-emergency-medicine/

[125]

Trauma

Review 'Major Trauma' in the Management of the Critically Ill Module 4, as the following detail complements the already consolidated learning from this module

Epidemiology

- The mortality risk of trauma patients increases dramatically with age [101].
- In the older population **falls** are the most common mechanism followed by motor vehicle accident (MVA) [126].
- In the Australian Institute of Health and Welfare Older Australia 2014-15 report, injuries to the hip / femur (at 24%) and head trauma (at 24%) were the most common types of injury resulting from a fall [1].
- A ***6-times greater mortality rate*** has been reported in the older person cohort, compared to younger trauma patients when the degree of injury is controlled [126].

Activity 11

	**Consider the following examples of case studies presenting to an Australian ED and then use the web link below to answer the question**

75 year old male Fall from standing height GCS 14 PEARL 3 CT NAD*	40 year old male Fall from standing height GCS 14 PEARL 3 CT NAD*
Same story, same features…	
14 day mortality **9.3%**	14 day mortality **0.9%**
6 month unfavorable outcome** ***43.4%***	6 month unfavorable outcome** **6.2%**

**Answer no to all CT outcome options*

***Unfavorable outcome is defined by death, vegetative state or severe disability as defined by the GCS, risk stratification calculated via the MRC Crash trial indicator* [127]

	Using the web link below, access the MRC crash trial indicator to predict the 14 day and 6 month mortality for these cases. Input the information of both patients using the details above with the new detail of CT results. Each patient has a **subarachnoid haemorrhage and midline shift** on their CT report http://www.crash.lshtm.ac.uk/Risk%20calculator/index.html

14 day mortality ___ %	14 day mortality ___ %
6 month unfavorable outcome ___ %	6 month unfavorable outcome ___ %

Trauma as a geriatric syndrome

- This cohort has a unique set of physiology including reduced physiological reserves and reduced compensatory mechanisms which contribute to higher mortality rates [126].
- Trauma in older people is multi-factorial, has a high incidence of occult injuries and pre-existing medical conditions; these are all risk factors for poor outcomes [128, 129].
- A review of older age and triage ***reported under-triage*** in both the pre-hospital and hospital setting: ***in spite of higher mortality the older person is less likely to receive a trauma team alert / respond*** [130].
- Higher rate of osteopenia equates to increased likelihood of fractures including cervical spine fractures [131].
- Abuse of the older person may be present in those with trauma. It should always be considered, especially when circumstances of the incident are inconsistent or do not correlate with reported mechanism / assessment [21].

The topic of 'Abuse of the older person' is addressed in Unit 3 Psychosocial considerations in care of the older person in emergency.

Reading 8

Access GEMSIG Article:

Carpenter, C.R., et al., *Major trauma in the older patient: Evolving trauma care beyond management of bumps and bruises.* Emerg Med Australas, 2017. **29**(4): p. 450-455.

https://acem.org.au/getmedia/78c75ea8-711b-45cc-84ac-a6d6e6e2dc7f/Carpenter_et_al-2017-Emergency_Medicine_Australasia.aspx

[130]

Activity 12

Consider the following case study and use page 451 of the article above to answer the following questions for activity 12 and 13:

Alma is an 82-year-old female BIBA who has been hit from the rear by a motor vehicle travelling 20 kilometres per hour while riding her mobility scooter. Alma is not reporting any complaints other than feeling "like she's had a bit of a jolt". In her pre-hospital observations paramedics have reported to the triage nurse that Alma's observations are "within normal limits". Alma is usually independent and has osteoarthritis with no prior lung or cardiac disease. Alma is triaged and moved to Resuscitation for full assessment and management.

1) What impacts of ageing may affect airway management?

_____

_____

2) Upon review in Resus, it is noted Alma has a RR of 24 and SPO2 of 93%:

   a) Using the table in the article as a guide what impacts of ageing will affect Alma's breathing?

   _____
   _____
   _____

   b) What will need to be initiated early to respond to these impacts?

   _____
   _____
   _____

3) Alma's HR is 80 and blood pressure is 105/80

   a) What state may be present even with these vital signs?

   _____
   _____

   b) What other specific information including medication history would be important to collect early in order to evaluate her cardiovascular status?

   _____
   _____
   _____

4) Alma's GCS is 15, what important physiological changes must be considered when assessing her neurological state?

   _____
   _____

5) What physiological change(s) can cause a delay in neurological change with occult intracranial haemorrhage?

   _____
   _____

Activity 13

Match the age-related changes / factors to risks in trauma:

Age-related changes / factors	Risks in trauma
Cerebral atrophy	Predisposed risk to aspiration
Thinning of epidermis	↑ Space for brain to move especially with accelerating / decelerating forces Vessels that line the inside of the skull vault are stretched across = more likely to rupture
Pre-existing illness including dementia or psychotropic medications	↑ Risk of significant bleeding in pelvis
Decreased pain receptors and laxity of abdominal walls	↑ Risk of haemorrhage particularly cerebral
Decreased cough reflex	Higher risk of degloving injury
Chronic renal insufficiency	Blunting of usual tachycardic response to hypovolemia
Reduced baroreceptor sensitivity / decreased response of adrenergic catecholamines reduced response of membrane receptors	Risk of fluid overload / electrolyte imbalance
↑ pre-morbid use of anticoagulant therapy	↑ Difficult neurological assessment / establishing change from baseline
Underlying joint abnormality	Cervical spine fractures can involve more than one level and are more frequently clinically unstable and can occur post simple falls from seated or standing height
Lateral compression pelvic fractures are more common	More severe pulmonary contusions
Osteoporosis / changes to bone density	↑ Risk of occult bony injuries [130] [132] [126]
Decreased chest wall compliance	Missed abdominal pathology

Adapted from:

1) Braun, B.J., et al., *Polytrauma in the elderly: a review.* EFORT Open Reviews, 2017. **1**(5): p. 146-151.
2) Carpenter, C.R., et al., *Major trauma in the older patient: Evolving trauma care beyond management of bumps and bruises.* Emerg Med Australas, 2017. **29**(4): p. 450-455.
3) Dimitriou, R., G.M. Calori, and P.V. Giannoudis, *Polytrauma in the elderly: specific considerations and current concepts of management.* Eur J Trauma Emerg Surg, 2011. **37**(6): p. 539-48.

Trauma sequelae

- Can result in iatrogenic complications for example:

  Fall → period of stasis → associated Deep Vein Thrombosis → deconditioning / muscle wasting → loss of independence [111, 133].

- Survivors of major trauma in this group have been shown to be more frail 1 year post trauma [134].
- Certain injury patterns are more predictive of mortality and morbidity.

Reviewing rib fractures as an example

The literature

* Due to physiological changes including osteopenia, this group is more likely to sustain rib fractures after adjusting for the injury severity score [38, 129].

* A systematic review found ***age*** of the trauma patient, the ***number of rib fractures*** and the presence of ***pre-existing co-morbidities*** has been found to directly corelate with ***mortality*** [38].

* A retrospective 10 year study examined the development of pneumonia post rib fractures between older and younger groups, with similar injury severity score. It reported pneumonia in the younger group was **17%** compared with **31%** for older patients [129]. It was demonstrated the younger patient mortality was **10%** and older patient mortality was **22%**. Authors found mortality steadily increases for each additional rib fracture as does the odds of 1) contracting pneumonia 2) dying [129].

Critical point

	• The cause of trauma may be multi-factorial in this age-group. • It is paramount to consider age-related changes in every step of care including primary / secondary survey / interpretation of vital signs / treatment / disposition. • There is a high incidence of occult injury. • Injury severity is often mismatched with the mechanism. • Preventative strategies, often multi-disciplinary, must be implemented to reduce the risk of further trauma. [126, 130, 132, 134]

Sepsis

Review 'Septic shock' in Management of the Critically Ill Module 4. The guidelines discussed in this module are tools that have been prospectively validated in the ED population.

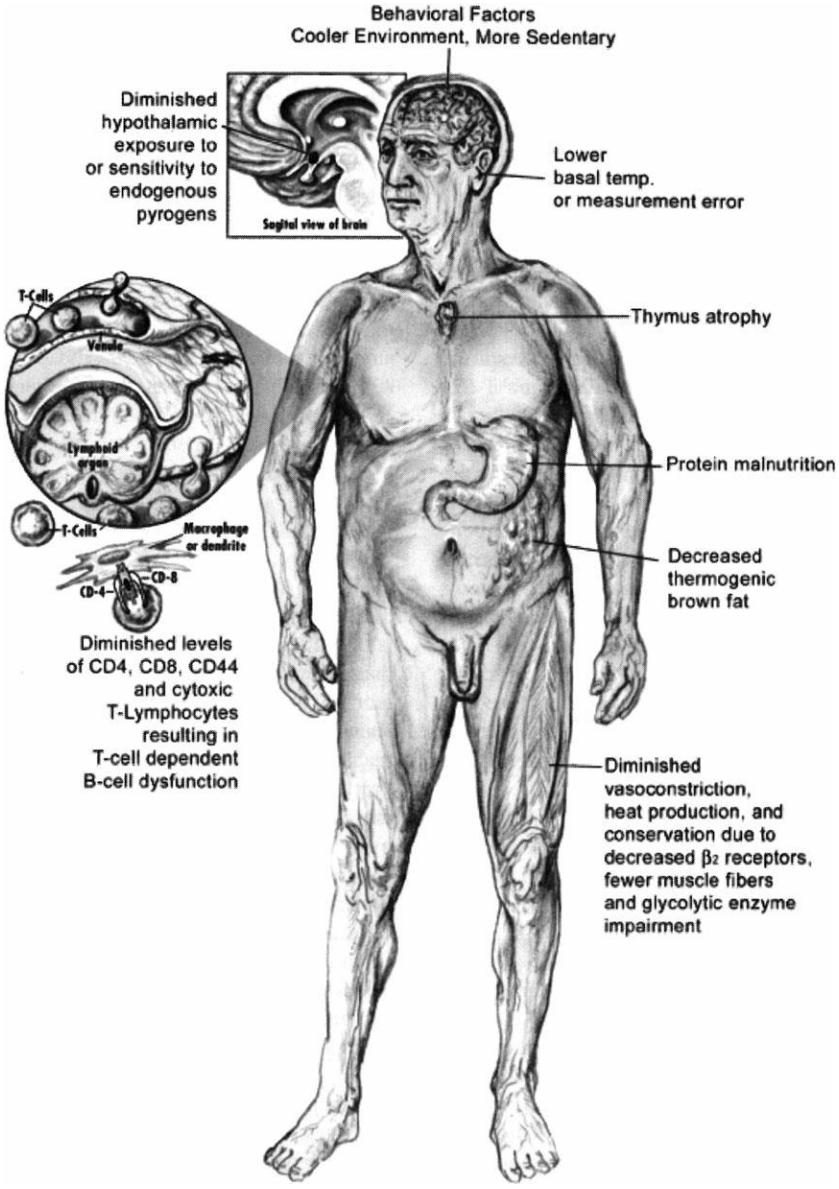
Sepsis is defined by the Surviving Sepsis campaign 2016, as *life-threatening organ dysfunction attributed to a dysregulated host response to infection*. Septic shock is identified as a subset of sepsis with circulatory and metabolic / cellular dysfunction; septic shock is associated with an increased risk of mortality compared with sepsis alone [135]. Recognition of sepsis and treatment is vital as resuscitation, organ support and rapid initiation of antibiotic therapy reduces mortality [136].

Epidemiology

- A review of studies has reported people over the age of 65 account for two thirds of sepsis cases [93].
- It has been reported mortality rates for sepsis in patients aged over 65 years is significantly higher at 27.7% than the 17.7% rate of their younger counterparts [137].
- The over 65 patient cohort are 26% more likely to die by the end of one week of hospitalisation for sepsis than younger patients [137].
- Septic shock has a 30-50% higher mortality rate in the older adult cohort [41].

Critical Point

	The blunting of vital sign change has been identified as a reason for observed 1) delayed presentation, 2) under-triaging and 3) subsequent poor outcomes of patients with sepsis in this cohort. [4, 138, 139]



Factors associated with sepsis susceptibility in older persons. (*Reproduced from Burkett, E.,* et al. [93] *with permission*)

Important age-related changes and how these may delay identification of sepsis:

- Age dependent defects in T and B cell function, cytokine and chemokine network alteration and a more pronounced procoagulant state in older patients renders this group at high risk for mortality from severe septic states and shock [140, 141].

- Risk factors for sepsis include chronic medical conditions, medication related immunosuppression, invasive devices and frequent hospital encounters. The presence of these risk-factors are more common in this cohort [138].
- It has been shown older patients had ***fewer signs and symptoms*** of sepsis but have a higher risk of organ failure and a worse prognosis than younger patients [142].
- Reviews of data has shown the over 65 cohort is at increased risk of a ***sudden deterioration in sepsis*** to septic shock [137].
- Sepsis must be a consideration in non-specific presentations of unexplained fall or reduced mobility [93].

Reading 9

	**Access:** Burkett, E., et al., *Sepsis in the older person: The ravages of time and bacteria.* Emerg Med Australas, 2018. **30**(2): p. 249-258. https://acem.org.au/getmedia/65bd47e7-eb5c-4277-8e50-8cd65678ca93/Burkett-Sepsis

Activity 14

	**Access the article and image above and complete the following case study**

Case study:

Pearl is an 84 year old female who is brought in by Ambulance from an RACF with a two day complaint of lethargy. You obtain the following information; Pearl is usually cognitively intact with a history of atrial fibrillation, congestive cardiac failure, mild renal impairment, hypertension and Parkinson's disease. Pearl usually mobilises with a four-wheeled walker. Pearl has a temperature of 37.9 and RR of 24 with a BP 90 systolic with a HR of 70.

1) Name eight age related factors that may affect Pearl's risk for sepsis or for complications associated with sepsis?

2) What aspects of Pearl's history or presentation may be the reason she is not observed to be tachycardic on arrival?

_____

_____

_____

_____

Activity 15

	**Access the following quick sepsis related organ failure assessment (qSOFA) calculator and calculate Pearl's qSOFA score and associated in-hospital mortality risk**

	qSOFA calculator: https://www.mdcalc.com/qsofa-quick-sofa-score-sepsis

1) Pearl scores ____ points in the qSOFA score

2) This is associated with a _____ in in-hospital mortality

Source control

A review found the source of the infection is not identified in one third of older patients with bacteremia [41]. The authors noted the classic findings of vital sign changes, pain over infective site and increased white blood cell count were not reliably present [41]. Source control refers to procedures that remove the nidus of infection such as drainage of an abscess or removal of an infected gall-bladder [93].

- Common sources for older people:
  - Pneumonia - *See 'Respiratory presentations'*
  - Urinary tract infection - *See 'Urology presentations'*
  - Skin source - *See 'Dermatological presentations'*
  - Intra-abdominal causes - *See 'Presenting features of abdominal pathology'*

- Meningitis and encephalitis* *Review Unit Two Neurological Emergencies in Adult Emergencies Module 2*

  **In the older person age group there is a lower incidence of rash and neck stiffness with meningitis; differentiating from other causes affecting neurological status may also be challenging* [93].

- A review identified rapid control of infective source is critical for ***cholangitis, cholecystitis, intra-abdominal abscess, gastro-intestinal perforation, ischemic bowel, necrotising soft-tissue infection or implanted device infections*** [93].

Important Assessment / Interventions of suspected sepsis for this cohort:

Identification of sepsis using systemic inflammatory response (SIRs) criteria remains the mainstay of ***early sepsis identification at triage***.

Clinical judgement is especially important for this group due to the aforementioned likelihood people of the older person cohort being less likely to generate a febrile and tachycardic response [41].

- Primary survey and full set of vital signs including blood glucose.
- Overreliance on SIRS to identify sepsis in older people could delay identification.
- Blood screening including at least two sets of blood cultures and a venous blood gas [93].
- Wide bore cubital fossa intravenous access for intravenous antibiotics / intravenous fluid resuscitation + consideration of appropriate access for vasopressor support where indicated*

**Early management with IVABs / IV fluid resuscitation and inotropic support where indicated is associated with improved outcomes* [93].

- Timely administration of appropriate antibiotics is associated with improved survival rates; guidelines suggest target administration time of within one hour of triage [135].
- Initial IVT recommendations continue to be 30ml/kg of crystalloid over the first 3-6 hours [135]. However administration of IVT beyond physiological requirements has been associated with tissue oedema / organ dysfunction and increased mortality [143]. In older persons with a history of cardiac failure, reduced LV function or myocardial infarction, there is additional risk that fluid resuscitation may precipitate pulmonary oedema. In these patients,

administration of fluid resuscitation in boluses of 250mls, repeated where indicated and accompanied by recurrent assessments may improve safety.

- Current guidelines continue to support a target mean arterial pressure of 65 mmHg in older patients with sepsis [135].
- Arranging source control is critical after initial resuscitation – this may require early involvement of surgeons if indicated [93].
- Screening for mortality is important; tools used for identifying risk of mortality in sepsis include the quick Sepsis Related Orqan Failure Assessment (qSOFA). Confirming ***goals of care <u>early</u>*** is essential to ensure intervention is aligned with patient choices - however this process must not delay initial treatment; ongoing therapy should be guided by person's wishes [93].

  See Advance Care Planning in the care of the older person in emergency
- Identify the most appropriate place for disposition, guided by clinical status, response to initial resuscitative measures and patient goals of care.

Dermatological presentations

See 'Soft tissue injuries, skin injuries and wound management' in Adult Emergencies Module 2.

The following detail complements the already consolidated learning from this module

There are many different dermatological related presentations to the ED from the older person cohort.

Factors affecting these presentations include:

- Age related changes to skin; including loss of elasticity, thickness, vascularity and strength, which increase risk for pressure injury, bruising and skin tears and subsequent risk of skin and soft-tissue infection
- Higher incidence of benign and malignant skin tumours and autoimmune conditions affecting the skin
- Medications including immunosuppressive medications and use of corticosteroids (e.g. Prednisolone)

[144, 145]

Acute wounds

- Aging and its association with functional decline / immobility / vulnerability for falls creates risk for traumatic injury [4, 146].
- There are different mechanisms for traumatic wounds including blunt or penetrating force. The first priority in trauma remains with patient assessment, including a primary survey and additional to any interventions for airway or breathing, gaining haemorrhage control [147]:

- Checking of vital signs and volume status until bleeding is controlled and then at regular intervals, depending on wound severity / estimated blood loss while undertaking recurrent reviews.
- Establish the source of the bleeding, with a focus on determining whether there is evidence of arterial involvement e.g. spurting of blood vs oozing of blood*

  **Note incidence of anti-coagulant or antiplatelet therapy in this cohort and their predisposition to more bleeding.*
- Apply pressure: consider the position of the wound, elevate where possible. The majority of wound hemorrhages can be controlled with direct pressure, absorbable sealant dressings, e.g. calcium alginate dressing placed directly on the wound in the area of hemorrhage.
- Ensure pain assessment (with cognition appropriate pain tool) is conducted and appropriate pharmacological and non-pharmacological pain relief has been given and timeframe for reassessment.
- Ensure appropriate imaging of wound is ordered to exclude underlying fracture / foreign body.
- Consider ADT status of patient.

[146]

Skin Tears

- Skin tears are traumatic skin wounds

Practice Point [146, 147]

- A skin tear is a wound that is caused by shear, friction or force. Ageing skin compromises its ability to withstand these forces [146].
- A skin tear can be

  a) partial thickness, which is separation of epidermis from dermis

b) full thickness, which is separation of the dermis and epi-dermis from underlying structures [146]

- Skin tear management follows three main steps of:

1) Assessment
    - Assess and document skin tear using your local recognised classification system e.g. skin tear audit research (STAR) system in the Queensland University of Technology (QUT) wound assessment and management resources [See Appendix Two]
    - Is the skin flap observed to be pale / dusky or darkened?
    - Notify of need for reassessment in discharge / disposition planning [147], particularly where the skin flap is pale / dusky / darkened, indicating potential risk of necrosis of the flap

2) Management
    - Control bleeding of wound
    - Clean wound with normal saline
    - Realign edges of skin if possible
    - Apply low adherent soft-silicone dressing to wound, ensuring dressing goes beyond at least 2cm of wound edges. Draw arrows on dressing to indicate which direction to remove dressing – note: the arrows should point with the apex at the direction that points from the base of the wound flap to the apex – this prevents the dressing from being removed in a direction that would potentially result in peeling back of the flap from apex to base; consider limb protector
    - Do NOT use steri-strips for apposition of skin edges in a skin tear in an older person

3) Prevention
    - Prevent risk of further trauma – assess falls risk
    - Use of soap-free products and ***apply moisturiser twice daily**** to limbs and trunk

      **A randomised cluster trial found the application of moisturiser twice a day, reduced the incidence of skin tears by almost 50% in residents of RACFs* [148].
    - Use correct positioning techniques including q2 hourly turns
    - Optimise nutritional status – may consider dietician referral, particularly if malnutrition screening tool (MST) suggests risk of malnutrition [149].

      See MST via QHEPS at:
      https://www.health.qld.gov.au/__data/assets/pdf_file/0029/148826/hphe_mst_pstr.pdf
    - Reduce environment risks for patient
    - Wound plan for patient / carer / RACF

4) Documentation of the skin tear (see below for wound documentation guidance)

See Appendix One Skin Tear Management Flow Chart

Pressure Injuries

 *Access your local pressure injury training module for review of pressure injuries. The following complements this learning with a focus on common presentations and considerations for the older adult.*

- A pressure injury (PI) is "a localised injury to the skin and / or underlying tissue, usually over a bony prominence, as a result of pressure, or pressure in combination with shear and / or friction" [150].
- A PI can develop rapidly; in as little as two hours [151, 152].
- Pre-disposing factors for pressure injuries can be divided into:
    1) ***Intrinsic factors:*** older age, immobility and inactivity, skin temperature and pH, malnutrition and chronic illness, particularly where there is absence of motor or sensory function e.g. in spinal cord injury or stroke.
    2) ***Extrinsic factors:*** Pressure, shear and friction and moisture [146].
- ED clinicians have an important role in the timely identification and management of pre-existing PIs and prevention of hospital-acquired PIs:
    - A systematic review reports the incidence of hospital-acquired PIs range from less than 3% to over 30% of patients [153].
    - An Australian observational cross-sectional study found a prevalence of 5.2% of adult patients had a PI on presentation to ED. Participants with PIs and ***those at high risk of PI were found to have spent longer in ED***; the study found even for those with an identified PI or noted to be high-risk, it was rare that pressure relieving interventions were implemented in the first hour of presentation [151].

Key roles of the ED nurse

1) Perform a skin integrity check during initial nursing assessment to identify pre-existing PIs. If PIs are identified complete a HHS relevant incident report e.g. Riskman. Notify treating team of existence of PI and update plan of care with treatment.
2) Perform a risk assessment for PIs using your local scale, e.g. Waterlow scale or skin assessment tool.
3) An appropriate Pressure Injury Prevention and Management Plan (PIPP) should be implemented during the patient's admission.
4) Patient / substitutive health decision maker are informed of the PI, risk identified, and plan implemented.

[154]

There are multiple sites where PIs can occur, some with a higher incidence than others. When a PI is identified the clinician must proceed with assessment and classification [150, 155].

Key concept

Pressure Injuries

Assessment and accurate classification of pressure injuries enables optimisation of wound management / patient management, planning and prevention.

Stage 1 - Intact skin with non-blanching redness of a local area, usually overlying a bony prominence

Stage 2 – Partial thickness loss of dermis, usually presenting as a shallow open ulcer with a red or pink wound bed; may also present with serum-filled blister

Stage 3 – Full thickness tissue loss; Subcutaneous fat may be visible tendon, muscle or bone are not. Slough may be visible however does not obscure the depth of tissue loss. Depth of wound may vary depending on location

Stage 4 – Full thickness loss with exposed tendon, muscle or bone. Slough or eschar may be present. Often includes undermining and tunnelling. Depth may vary as per anatomical location

Suspected deep tissue injury

Maroon or purple localised area of discoloured intact skin and / or blood-filled blister. This occurs due to damage of underlying tissue secondary to shear or pressure

Unstageable / unclassified

Full thickness tissue loss whereby actual depth of ulcer is obscured by slough or eschar. Staging cannot be determined unless slough or eschar is able to be removed

*****

Mucosal Pressure Injuries are pressure injuries on mucous membranes where there has been a history of a medical device in use at the injury location e.g. IDC. Although **mucosal pressure injuries cannot be staged** they must be identified and managed through a multi-disciplinary approach. Mucosal pressure injuries from IDCs may be prevented by appropriate use of catheter stabilisation devices. After placement and securing of an IDC,

the patient should be assessed in both sitting and standing positions to ensure that there is not undue pressure on skin or mucosal surfaces from the IDC in these positions.

Images reproduced with permission from the Queensland Health Patient Safety and Quality Improvement Service

[146, 154, 156]

Chronic wounds; differentiating arterial, venous and diabetic ulcers

Patients may present to ED with primary complaint of a chronic wound or a wound may be identified during their history taking or physical assessment. Identifying wound aetiology is essential for management; aetiology may be determined by taking a clinical history including [146]:

- Predisposing factors for arterial / venous disease / diabetic ulcer e.g. History of intermittent claudication / DVT / varicose veins / diabetes
- History of the wound / timeline of events
- Pain quality / onset / location / relieving features
- Previous ulcers, their aetiologies, interventions used to manage these

[146]

Differentiating features of **arterial, venous** and **diabetic ulcer** are listed in the table below by **history, pain, typical location, ulcer appearance** and **surrounding skin:**

Type of wound	Arterial Ulcer	Venous Ulcer	Diabetic ulcer = neuropathic ulcer
History	History of smoking or intermittent claudication	History of thrombophlebitis, DVT, varicose veins, lower extremity injury, surgery to leg; aching and swelling worse at end of day and relieved with leg elevation	History of diabetes, numbness, paraesthesia, burning or loss of sensation in feet
Pain	Often very painful requiring strong analgesia; pain increases with exercise and leg elevation	Pain often dragging ache worse with mobilisation and relieved by leg elevation	Painless or neuropathic pain
Typical location	Distal lower limbs especially overlying bony prominences	Lower 1/3 of leg	Sites of pressure in foot eg metatarsal heads, heels and toes
Ulcer appearance	Round or punched out ulcer with sharply demarcated border, base often pale or discoloured nonviable tissue	Shallow, irregular margins, often with fibrinous material at ulcer bed	Surrounding callus, variable depth
Surrounding skin	Cold, pale feet; loss of hair, shiny taut skin	Peripheral oedema; venous dermatitis (pigmented skin); +/- atrophy blanch or white scar formation	Frequently callused
Vascular status	Capillary refill time > 4-5 seconds; pulses weak or absent	Capillary refill time < 3 seconds; pulses generally present	Capillary refill time < 3 seconds if no associated arterial disease; potential for bounding pulses

*** Modified from: Queensland Health and Royal Flying Doctors Primary Clinical Care Handbook. 7th edition. 2011. Cairns, p360.*

Lower limb neurovascular assessment

The lower limb neurovascular assessment is essential in determining aetiology of lower limb wounds; observation of sensation, pain, movement, colour, temperature capillary refill palpation and doppler of pulses:

- ***Dorsalis pedis (DP);*** on central dorsal part of foot

- ***Posterior tibialis (PT);*** posterior to medial malleolus*
- Peroneal; lateral dorsal part of foot
- Popliteal posterior knee
- Femoral groin

[146]

Ankle Brachial index (ABI)

- The ankle brachial index (ABI) is a non-invasive test used to assess for signs and symptoms of Peripheral Arterial Disease (PAD) [157].
- The (ABI) test compares the BP measured at a patient's ankle with the blood pressure measured at the arm; a low ABI number can indicate PAD [158].

Type of wound	Arterial Ulcer	Venous Ulcer	Diabetic ulcer = neuropathic ulcer
Ankle brachial Index	ABI: 0.6 to 0.9 = peripheral occlusive disease; < 0.5 = critical arterial disease; *Note: if ABI > 1.3 it suggests the potential for calcified vessels and should not be relied on to exclude underlying arterial disease*	Normal ABI 0.9 or higher	Normal ABI 0.9 if no associated arterial disease

*** Modified from: Queensland Health and Royal Flying Doctors Primary Clinical Care Handbook. 7th edition. 2011. Cairns, p360.*

Web Links

	For lower limb neurovascular observations via QHEPs access: https://qheps.health.qld.gov.au/__data/assets/pdf_file/0025/715237/656360.pdf For ABI guide via QHEPS access: https://qheps.health.qld.gov.au/__data/assets/pdf_file/0019/2287000/abpi-guide.pdf For ABI self-directed learning package via QHEPs access : https://qheps.health.qld.gov.au/__data/assets/pdf_file/0042/668949/sdlp-abi.pdf

Wound documentation

Comprehensive assessment ensures ***accurate*** *documentation* for communication and treatment plans [159].

* *See web links for lower limb neurovascular observations and images, record of dorsalis pedis and posterior tibialis*

Practice Point

Document:

- Type of wound e.g. surgical incision / burn / laceration / ulcer
- Aetiology e.g. trauma / surgical / reason for chronic wound venous / arterial / diabetic (if known)
- Duration of wound (if known)
- Location
- Tissue loss e.g. superficial wound / partial wound / full thickness wound
- Clinical appearance
- Measurement dimensions – including depth
- Exudate – type / amount / colour / consistency / odour
- Wound Edges – raised or rolled edges / colour change / sensation
- Surrounding skin – assess for erythema / oedema / maceration
- Pain – e.g. Burning / stinging, use cognitive-appropriate pain scale
- Would infection – evidence of local or systemic infection

[146]

Activity 16

	**Review the flow charts in Appendix 2 and answer the following questions**

1) All wounds require: _____
_____
_____
_____

2) Name four risk factors for sustaining a skin tear
_____
_____
_____
_____

3) Slough may be present, however does not obscure the depth of tissue loss, full thickness tissue loss describes a Stage _____ pressure injury

4) Outline the difference between unstageable pressure injuries and suspected deep tissue pressure injuries
_____
_____
_____
_____
_____

5) Treatment for an arterial ulcer involves the application of compression? YES / NO

6) Venous ulcers typically have pain relieved by positioning of legs **above or below** heart level? _____

Urological presentations

There are many urological presentations common to older persons. The following sections address

- Urinary tract infections (UTIs)
- Urinary continence
- Indwelling urinary catheters (IDCs)

Urinary tract infections

- UTIs account for nearly 25% of all infections in community dwelling older people [160].
- UTI is both ***over and under-diagnosed*** in the older person cohort [161, 162]: A retrospective review of patients over 75 with a discharge diagnosis recorded as UTI, found that over ***43% did not meet UTI criteria*** with 8% of those developing clostridium difficile diarrhoea [163].

UTIs are defined as ***the presence of urinary symptom(s)*** including:

- Suprapubic tenderness
- Costovertebral angle pain or tenderness
- Urinary frequency
- Urinary urgency
- Dysuria

AND ***presence*** of a ***urinary pathogen*** in a freshly voided mid-stream specimen.

[160]

Challenges associated with diagnosing a UTI in the older adult include:

- High rates of asymptomatic bacteriuria [37]
- No definitive test facilitating a timely diagnosis in ED [160]
- Prevalence of co-morbidities especially cognitive impairment which may limit assessment for symptoms and signs of UTI [160] e.g. reporting of frequency / dysuria / urgency, may be difficult for the patient to articulate in the setting of cognitive impairment

Asymptomatic bacteriuria (ASB) is presence of urinary pathogen with ***no typical symptoms*** or signs of urinary tract pathology.

[160]

UTI in community-dwelling older adults

Given the high prevalence of ASB in older persons, it is important to consider the probability of UTI based on history and examination findings, prior to ordering a urine microscopy and culture.

Features that increase risk for UTI in older persons include [164-166]**:**

Domain	Feature
Past medical history	Immunocompromised
	Diabetes
	Cognitive impairment
	Immobility
	Impairment in activities of daily living, particularly disability in drinking and feeding self and disability in washing hands and face
Past urological history	Prior antibiotic treatment for UTI
	Urinary incontinence
	Cystoceles (females)
	Prostatic hypertrophy (males)
	Recent instrumentation of urinary tract
	Renal stones

Important considerations regarding UTI in older adults:

1. Association of UTI in the older adult with isolated malodorous [166-168] or cloudy urine [166, 168] is controversial: ***there is no indication to test urine on the basis of isolated malodour or cloudiness.***
2. Falls may be associated with UTI in the setting of urinary urgency, frequency, nocturia and incontinence [169]. However, there is ***no routine indication for urine testing in those presenting with a fall without localising urinary symptoms*** [170].
3. A history of rigors or shaking chills, is a predictor of bacteraemia in older persons (AOR 3.06, 95% CI 1.3-7.19), with UTI being the most common cause of bacteraemia in this cohort [171]; therefore those presenting to ED with rigors and no alternate more likely cause should have UTI considered as a potential cause.
4. Although dysuria is widely described as predicting presence of a UTI, the dysuria needs to be established to be acute and not chronic. Chronic dysuria in older persons

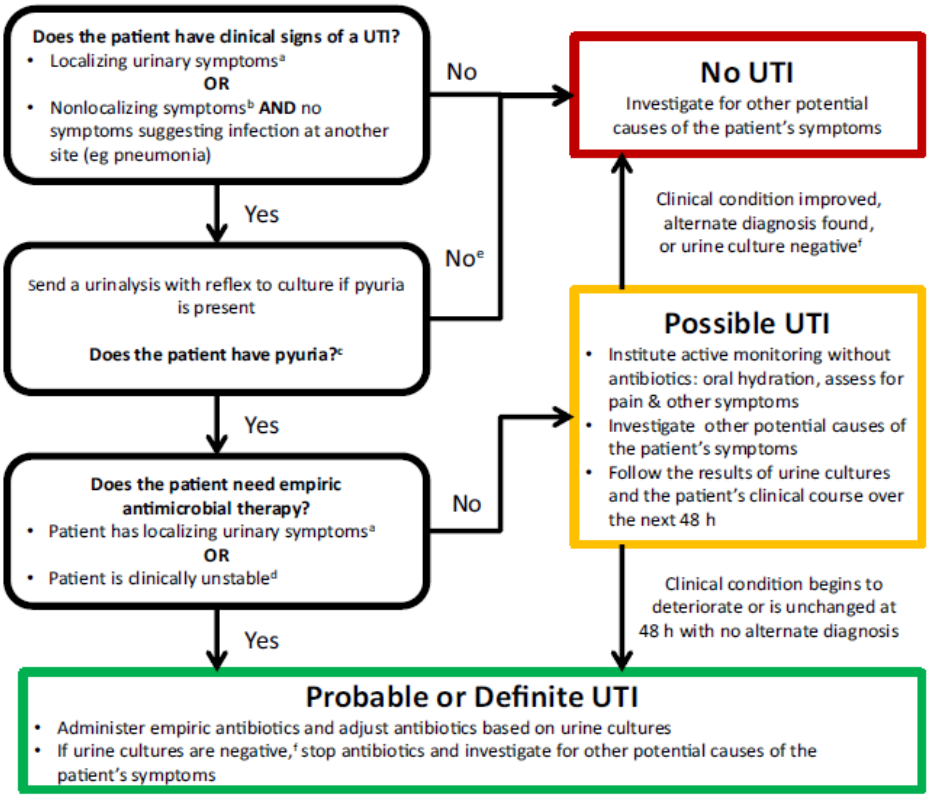
may be due to atrophic vaginitis in females and prostatitis in males, or malignancies of the bladder [172].

5. Collection of urine specimens should only occur when older persons have a high chance of a UTI; and then should involve:
    a. Staff assistance to obtain a midstream urine that has the lowest potential chance of contamination (prior cleansing of genitalia and in women, holding labia apart during sampling) [173, 174]
    b. In cognitively impaired, consider use of in-out catheterisation to obtain a urine sample (this may cause distress so ONLY perform if clinically indicated)
    c. In those with a long-term IDC, change IDC and collect urine from a freshly inserted catheter

Key concept

In older community dwelling adults, the decision of whether to prescribe antibiotics for a presumptive diagnosis of UTI should be assertively individualised against the following criteria (summarised in figure below):

1. The presence or absence of localising symptoms
2. Where non-localising symptoms alone are present, results of an assessment to identify infection at an alternate site
3. Presence of clinical instability.



a. Localising signs include: acute dysuria; urinary frequency or new or worsening urgency or urinary incontinence; suprapubic pain or tenderness; gross haematuria; costovertebral angle tenderness
b. Non-localising symptoms include fever, rigors or clear-cut delirium
c. Greater than 10 white blood cells per high-powered field on microscopy or positive leukocyte esterase
d. Patient considered unstable if there is fever, sepsis or acute illness requiring care within an intensive care unit
e. UTI should still be considered in patients with neutropenia
f. Urine cultures may be negative if obtained after the patient has received antibiotics; in such cases, stop antibiotics given specifically for UTI, if the patient's clinical condition is not improving

Reprinted from Infectious Diseases Clinics 31(4). Cortes-Penfield N, Trautner B, Jump R. Urinary tract infection and asymptomatic bacteriuria in older adults, 673-688. Copyright (2017), with permission from Elsevier.

Web Link

	Via CKN access eTG: *Note: This guideline is only applicable to the RACF population* https://tgldcdp.tg.org.au/viewTopic?topicfile=urinary-tract-infection-aged-care&guidelineName=Antibiotic#toc_d1e58

Activity 17

	**Guidelines on assessment and treatment of RACF residents with suspected UTI focus on the importance of establishing symptoms and a urinary pathogen** **Access the guideline, read the case below and answer the questions.**

Clinical example

88 year old female Mary presents to ED via Ambulance having fallen in the dining room of her RACF after dinner. Staff reported cloudy malodorous urine in the past two days. Mary is at her usual conscious state with no evidence of delirium; she denies dysuria, urinary frequency or urgency, suprapubic or flank pain. She is afebrile and other observations are normal for her. Mary has a comprehensive assessment including an abdominal exam that identifies no tenderness.

1) Should you obtain a mid-stream urine?

_____

2) If yes to the above, should a urinalysis be performed, or should the urine specimen be transferred to the laboratory for testing?

_____

3) What is the next step in Mary's care?

_____

_____

Reading 10

	Further reading on the predictive value of symptoms can be accessed via CKN: Loeb, M., et al., *Effect of a multifaceted intervention on number of antimicrobial prescriptions for suspected urinary tract infections in residents of nursing homes: cluster randomised controlled trial.* BMJ (Clinical Research Ed.), 2005. **331**(7518): p. 669-669. [175]

Long-term IDCs

There is a high prevalence of IDCs in older people;

- There are many possible complications associated with IDCs; in particular IDCs are the cause of approximately 80% of UTIs in the acute care setting [176].
- Catheter-acquired urinary infection (CAUTI) is the identified source for about 20% of episodes of health-care acquired bacteremia in hospitals, and more than 50% in RACFs [177].
- CAUTI is challenging to diagnose; guidelines suggest CAUTI should be considered when patients have the following signs and symptoms; temperature 38 degrees or higher, acute mental status change, rigors, flank pain, acute haematuria or pelvic discomfort [178].
- Due to the development over time of a biofilm on the device, the major determinant for the presence of infection is attributed to duration the IDC is in situ [177, 179].

Practice Point

Collecting urine samples in patients with CAUTI, if ongoing IDC is required

Remove the IDC: the catheter must be replaced ***before*** collecting the urine specimen to avoid culture of bacteria present in the biofilm of the IDC, but not in the bladder

Replace the catheter collect a midstream sample during IDC change.

Ensure the pathology request indicates that the urine specimen provided was obtained via an IDC

[178]

IDCs inserted in ED

- A large percentage of IDCs are placed in ED, a lack of understanding of the risk factors associated with IDCs may be responsible for extended duration of placement:
  A study examining awareness of IDCs and whether awareness was linked with appropriate use found 28% of clinicians were unaware their patient had an IDC [180]. The study also concluded inappropriate IDCs are more likely to be overlooked than clinically appropriate ones [180].
- Critical thinking including ***questioning the clinical requirement for the IDC*** and understanding risk factors associated with placement is important for ED clinicians [177, 181].

IDCs may be inserted in the ED for:

- fluid output monitoring - critical illness requiring hourly in / out monitoring
- acutely ventilated patients
- acute pulmonary oedema or a CCF requiring non-invasive positive-pressure ventilation
- major trauma
- orthopedic injuries requiring immobilisation e.g. spine fractures, hip fracture
- spinal cord injury
- clot retention associated with gross haematuria
- ***acute urinary retention***

[182, 183]

Older people who present to ED in ***acute urinary retention*** and have an IDC inserted as management require carefully planned follow up.

Key roles of the RN when caring for a new IDC include:

- Following HHS procedure regarding IDC placement competency*
- ***Ensure that the foreskin is replaced*** after IDC placement in uncircumcised males
- Optimising IDC care, including patient education and use of a stabilisation device (check that after placement of the stabilising device, there is no pressure exerted on the skin by the catheter in a variety of positions: sitting, standing and lying; pressure injury to the penile tip and perineal region are common with IDCs in older persons)
- Education and promotion of independence for the patient in IDC management; a referral to a hospital continence nurse dependent on local availability of services may be warranted
- Ensuring IDC management information is included in transfer of care and there is a follow up plan formulated [184]**

***** *National Guidelines may be sourced from the Australasian Urological Nurses Society:* https://anzuns.org/wp-content/uploads/2011/12/ANZUNS-Catheterisation-final-Document-October-20131.pdf

***The follow up procedure may be dependent on HHS local policy.*

Discharging the older patient with a new IDC

Upon discharge from hospital it is important patients have appropriate education and supplies to avoid the need for return to ED; a supply list and plan may have the following equipment:

- 1 large drainage bag per 10 days with IDC
- 1 leg bag per 10 days with IDC
- A catheter change date within 4-6 weeks ***OR when clinically appropriate***
- A Trial of Void date for the IDC to be removed (timing of trial of void depends on bladder volume and likely underlying cause of retention: consult the ED senior doctor or urology specialist nurse)

[184]

An educational resource should be issued to the patient, along with a plan if there are any problems associated with the device.

Web Links

For access to a 'caring for your catheter guide', visit the following resource:

Queensland Government. *Caring for your urinary catheter*. 2016. Available from: http://paweb.sth.health.qld.gov.au/sqrm/qiu/brochures-posters/documents/uro-urinary-catheter.pdf.

For further information for patients caring for supra-pubic catheters, access the following resource:

Queensland Government. *Caring for your supra-pubic catheter at home* . 2017. Available from: https://qheps.health.qld.gov.au/__data/assets/pdf_file/0025/573703/qeh2044.pdf

[184, 185]

Incontinence

- Although there is a higher prevalence of urinary incontinence in the older cohort, urinary incontinence is not a normal part of ageing [186].
- An understanding of the ***different types of urinary incontinence*** experienced by older people is important to the ***ED nurse role***. Promoting continence / avoidance of incontinence is essential in:
    - Reducing risk of falls
    - Delirium prevention, where this is associated with urinary retention
    - Optimising hygiene which is associated with reduced infections or skin compromise
    - Understanding side effects of medications prescribed for incontinence
    - Maintenance of patient dignity [187, 188]

Key Concept

Dignity is of high importance but, paradoxically, it is at high risk of being easily breached when an older person is in hospital [189].

There are four types of urinary incontinence and a ‘mixed incontinence’ condition which occurs when there is more than one type of incontinence [37].

Type of incontinence	Causes / clinical features	Management
Stress	Due to inadequate sphincter function / pelvic floor dysfunction • Characterised by a small amount of urine leaked during times of increased intra-abdominal pressure • Usually in woman but may occur after prostate surgery	Mainstay treatment is: gynecological assessment if applicable, physiotherapy, pelvic floor exercises
Urge	Caused by intermittent strong bladder contractions secondary to an upper motor neuron lesion or detrusor muscle disorder • Characterised by frequency, urgency, nocturia	Bladder training Avoidance of bladder irritants e.g. caffeine, alcohol Pharmacotherapy e.g. Oxybutynin* **Note contraindications and side effect profile* *See ‘Anticholinergics’ in Pharmacological considerations in care of the older person in emergency*

Type of incontinence	Causes / clinical features	Management
Overflow / incontinence associated with retention	Caused by underactive bladder or blocked bladder outlet: • Common cause of incontinence in older men, as blockage attributed to benign prostatic hyperplasia • Women may have with prolapsed uterus / cystocele or rectocele, causing overflow incontinence • Can occur with lesion affecting spinal cord • Medications can cause urinary retention, particularly opioids, anticholinergic medications, calcium channel blockers, NSAIDs, benzodiazepines	Surgical intervention Long-term IDCs Pharmacotherapy for prostate disorders however most have a side effect profile e.g. Tamsulosin can cause postural hypotension  *See 'Syncope' in Common ED presentations in care of the older person in emergency*
Functional	Term to describe factors outside the bladder that cause incontinence • Co-morbidities associated with mobility and dexterity e.g. Arthritis • Impaired cognition including dementia	Optimising management of co-morbidity Management of environmental factors Timed toileting is a management strategy for functional incontinence [17, 37]

Adapted from: Williams, P., *Basic Gerontic Nursing*. 2016, Missouri, USA: Elsevier.

Woodford, H., *Essential Geriatrics*. 2016, Florida: Taylor and Francis Group.

Practice Point

All older persons who present to ED and who have new incontinence should have the following attended to:

1. Targeted history and examination to identify likely cause: ensure treating doctor aware of new incontinence
2. Bladder scan to exclude urinary retention – where acute urinary retention is present, consider IDC placement
3. Regular toileting and placement of appropriate continence aids
4. Skin integrity check and barrier wipe to protect perineal skin
5. Referral to CHIP / Geriatric Emergency Department Intervention (GEDI) / incontinence specialist nurses for education and information on eligibility for continence aids support scheme

Presentations of pain

Pain is defined by the International Association for the Study of Pain (IASP), as an unpleasant sensory and emotional experience associated with actual or potential tissue damage [190]. It is a challenging and critical aspect of care in the older person demographic in terms of assessment and management [4].

- Pain has potential for a ***cascade effect on quality of life;*** this cohort is particularly vulnerable to pain, it has an association with disability secondary to decreased mobility, falls, sleep impairment, depression, anxiety and isolation [191].

Pain and the Emergency Department

- Pain is the most common presenting complaint to EDs [192], with approximately 40-50% of adults presenting with pain that is documented as moderate to severe [193].
- Pain is observed to be under reported and undertreated in the older person cohort when compared to their younger counterparts [194]. This is attributed to issues of communication / use of inappropriate pain assessment scales, certain beliefs upheld about pain and its management, including stoicism [195].
- There are recognised significant challenges and observed hesitations in prescribing of analgesia by Emergency care providers for older adults, that are commonly attributed to:

  1) Difficulty in identifying the aetiology of pain.

  2) Concern for pharmacological adverse effects [196].

- Up to half of those persons aged over 65 years presenting to ED have a condition associated with cognitive impairment, and therefore use of stand alone ***numerical pain assessment tools may be inappropriate for a significant proportion of all older patients in ED with pain*** [197].
- Older persons with dementia or communication barriers e.g. aphasia, are at even higher risk of undertreatment of pain [198]. They are known to receive fewer analgesics than others of similar age and pathology [62, 191, 199]. It is imperative timely and more appropriate pain relief be administered to achieve gold standard care for this cohort in ED.

Types of pain

1) Nociceptive pain (somatic or visceral)
2) Neuropathic pain (central or peripheral)
3) Mixed pain (nociceptive and neuropathic components) [196]

Nociceptive Pain [200-202]

Type of nociceptive pain	Location	Description	Management
Superficial somatic	Skin and mucosa	Burning / stinging / sharp pain; well localised	Paracetamol Opioids Non-pharmacological interventions: cognitive behavioural therapy, heat, topical preparations

Type of nociceptive pain	Location	Description	Management
Deep somatic	Muscles, joints and bones	Aching / gnawing; well localised	Paracetamol Opioids Non-pharmacological interventions: heat, exercise (if medically cleared) *If persistent or acute in the setting of trauma consider ED imaging
Visceral	Abdominal or transthoracic organs	Deep cramping / squeezing pain; diffused and not usually well localised; may be referred to cutaneous sites	Optimal analgesic approach influenced by underlying cause

Neuropathic pain [200-202]:

Cause	Location	Description	Management
Somatosensory nervous system disease / lesion / injury or dysfunction of nerves	May be referred to the area of the skin the nerve would normally supply	Burning / shooting / tingling / electric shock	Less responsive to common analgesia – adjuvant medication e.g. Anti-depressants / anti-convulsants / topical agents

Psychological pain or related to psychiatric factors

- Depression can present as somatic pain and may also exacerbate pain secondary to organic causes; additionally, pain secondary to organic causes can contribute to development of depression [203].

Acute onset

- Effective treatment of acute pain in older adults is a common challenge emergency clinicians confront [204].
- Interventional studies on older adults support the value of ***early analgesic treatment*** [191]: In a post-operative, orthopedic older adult cohort, those who received standing orders and administration of analgesia prior to physiotherapy sessions had less long-term pain reported and better functional outcomes than those who did not [205].

Chronic pain

- Older adults may present to the ED with complaint of chronic pain; it is recommended all patients with this complaint undergo a comprehensive geriatric pain assessment in the appropriate setting.

Key concept

- A comprehensive assessment can guide treatments more likely to provide benefit for the patient and identify targets for intervention besides analgesia
- A multidisciplinary approach to chronic pain that includes both pharmacological and non-pharmacological modalities for pain is recommended
- Involvement of family members and carers for support to assist with health literacy and compliance with treatment and maintain positive outcomes from support measures

[206]

Pain Assessment

Pain in the older adult must be assessed using a tool appropriate to cognition [207]; if cognitively intact use Numeric Rating Scale (NRS):

- In those with mild or moderate cognitive impairment, initially trial use of the NRS and supplement with use of the PAINAD tool.
- In those with severe cognitive impairment use the PAINAD tool.

Web link

	Access the PAINAD from QHEPs or your local pain assessment tool for people with cognitive impairment**:** https://qheps.health.qld.gov.au/__data/assets/pdf_file/0024/422277/sw571.pdf

Activity 18

	**Using the web link above answer the following questions in relation to PAINAD**

Clinical Scenario

An 88 year old female Dorothy, presents to the ED from an RACF after a fall witnessed by staff, that occurred while attempting to stand up from the dining room chair. Dorothy has a diagnosis of dementia with moderate to severe cognitive impairment and only speaks occasionally with soft usually incomprehensible words. She has had no pre-hospital analgesia administered as she shook her head when assessed by QAS enroute for pain; the QAS paramedics state that during the ride Dorothy was observed to moan slightly when going over bumpy areas. Upon your assessment you note: Normal breathing and respiratory rate, moaning and grimacing when her right arm was moved to help put on her hospital gown, and a noted preoccupation with the bed remote. When you attempt to speak gently to Dorothy she is unable to be reassured, you attempt to help her by putting the bed control into a safer area and she called out 'HELP!' recurrently and hit out at you.

1) How would you score Dorothy on PAINAD?

_____

2) Understanding that the **PAINAD** score of 2 or more can be used as an indicator of probable pain [197]: What would you do next with the information you gathered from the score?

_____

3) What do you think might be the cause of Dorothy's pain?

_____

_____

Critical Point

	Untreated pain is a risk factor for development of **delirium** with its attendant increased mortality risk [50]

Understanding the link between pain and agitation

Reading 11

	**Via CKN Access the Article:** Husebo, B.S., et al., *Efficacy of treating pain to reduce behavioural disturbances in residents of nursing homes with dementia: cluster randomised clinical trial.* BMJ (Clinical Research Ed.), 2011. **343**: p. d4065-d4065. [208]

Activity 19

	**Consider the following questions in relation to the reading above**

1) What is the design of this trial? What is your assessment of the intervention in this study?

2) What do the results infer about the relationship between severity of neuropsychiatric symptoms and pain treatment?

3) What might you consider more carefully the next time you see an agitated patient present to ED?

_____

_____

_____

_____

Practice Point

Non-pharmacological Treatment of Pain:

Consider:

- Application of heat / cold packs – ensure monitoring of the skin and regular review to avoid secondary injury. As per local policy, only use products for provision of heat pack and cold packs endorsed for this purpose in ED
- Movement / repositioning
- Where appropriate and in consultation with Specialist / multi-disciplinary team, support e.g. sling / immobilisation / early splinting of fractures where indicated / elevation (depending on pathology)
- Cognitive or psychological treatments
- Many cognitive behavioural therapies have been shown to be effective for management of pain post ED visit
- A randomised controlled trial identified that older persons may have reduced pain and higher satisfaction when managed in a reclining chair than if managed on a traditional ED trolley [209]

[4]

Pharmacological Management of Pain

Selection of appropriate analgesia must be based on ***patient specific risks including pain severity; presence of pre-existing renal dysfunction or liver dysfunction (and therefore risk of toxicity***) and ***preferences; appropriate route / dose*** and frequent reassessments and retreatments are needed [204].

For specific pain management as per pain type:

See Nociceptive and neuropathic pain management in the table above for pharmacological treatment of pain

For specific pharmacological considerations related to drug absorption / distribution and metabolism:

See Pharmacological considerations in the Older person which address' NSAIDs and opioids in this group

Consider pharmacological treatments targeting the site of the pain:

Femoral nerve or iliacus blocks

Ultrasound guided nerve-blocks have been shown to be an effective pain relief for people in ED with neck of femur fracture: A recent Cochrane review supported regional nerve block use to reduce acute pain post hip fracture, post analysis of high-quality evidence demonstrating the practice reduces pain on movement, within 30 mins of block placement [210].

Topical applications of medications

NSAID topical applications e.g. Diclofenac (voltaren) gel. Careful consideration must be given to the use of this treatment, as the topical preparation has potential to cause the same systemic adverse effects profile as oral preparations; topical NSAIDs should be used with caution in those patients with a history of GI bleeding or ulceration or severe renal impairment [211].

See Pharmacological considerations in the care of the older person in emergency which address' NSAIDs and opioids in this group

Consideration of other topical treatments may deliver effective analgesia in certain types of pain; eg topical capsaicin for neuropathic pain; treatment must be individualised for patient, post pain assessment [212, 213].

Pharmacologic therapy is an important part of the treatment plan for pain. If prescribed for disposition / discharge, it requires ***patient education*** to ***prevent inappropriate medication administration*** and to ***minimise side effects***, and ***non-compliance*** [191].

Golden Rule

Reassessment post therapeutic intervention is essential.

This includes:

1) Full vital signs

2) Pain assessment using the appropriate pain scale (eg self-report or PAINAD)

3) Observation for adverse affects as per administration guide

Intervals between further assessment is dependent on pharmacotherapy and route of administration.

See Pharmacological considerations in the Older person; Activity 6: 'Opioids' in this group

Critical Point

	Pharmacologic therapy is an important part of the treatment plan for pain. If prescribed for disposition / discharge, it requires ***patient education*** to ***prevent inappropriate medication administration*** and to ***minimise side effects***, and ***non-compliance*** [191].

Unit 3 Pharmacological considerations in the older person

Introduction

There are specific considerations for the use of pharmacotherapy in the older person. This is due to complex drug regimes, higher prevalence of chronic disease and an increased vulnerability to drug-drug and drug-disease interactions [42]. These complexities can be divided into intrinsic and extrinsic factors:

Learning Objectives

On completion of this unit the ED RN will be able to:

1. Synthesise and integrate information from current evidence in the delivery of pharmacotherapy for the older person.
2. Explore and analyse the concept of polypharmacy and information pertaining to safety and effectiveness of pharmacological choices for the older person.
3. Demonstrate an understanding of risk / benefit in pharmacotherapy for the older person.
4. Evaluate the effect of prescribing in the older person by reviewing criteria to identify potentially inappropriate prescribing.

Key Concepts

- Medication prescribing
- High benefit / high risk medications
- Polypharmacy

Potential intrinsic factors: Body mass, age related drug absorption / distribution / metabolism and elimination.

System	Physiologic change	Clinical implications
Absorption	- Increased gastric pH - Changes in perfusion of gut and decreased gastric motility	Early release of enteric coated medications Slight decrease in absorption may be observed

System	Physiologic change	Clinical implications
Distribution	- Decrease in lean body mass; increase in body fat - Decrease in serum binding proteins - Decrease in albumin	May require dosage reduction of hydrophilic medications and prolonged time to elimination of lipophilic medications (e.g. benzodiazepines) Increase serum levels of unbound drug
Metabolism	- Reduced liver mass and hepatic blood flow - Decreased enzyme activity of cytochrome p450 - Reduced first-pass metabolism	Reduce rate of metabolism Potential increase in bioavailability and increased drug exposure
Elimination	- Reduced renal blood flow and renal mass - Decreased synaptic activity, loss of neuronal substance impaired glucose metabolism in the brain and more readily penetration of medications in the CNS	Loss of glomerular filtration capacity; decrease in concentrating and diluting ability decrease elimination increase half-life Higher susceptibility and exaggerated response to medications interacting with CNS

Adapted from: Meiner, S., Yeager, J., *Gerontologic Nursing*. 6th edition ed. 2019, Missouri: Elsevier.

Beatriz Korc-Grodzicki, H.M.H., Armin Shahrokni,, *Geriatric Assessment for oncologists.* Cancer Biology and Medicine, 2015. **12**(4).

Potential extrinsic factors Include multiple medications / more than one administrator of medications, impaired memory / cognitive function / poor health literacy and non-compliance [4].

Medication prescribing in the older person

Risk / Benefit ratio:

The risk / benefit ratio of drug use in this population is of high importance when prescribing. They can be divided into high risk / low benefit and high risk / high benefit and these will be discussed below.

High Risk / Low Benefit

There are some medications deemed to be high-risk low benefit and should be avoided in almost all circumstances in the ED [4].

Medications grouped in this high risk-low benefit, include but are not limited to:

1) Anticholinergic drugs e.g. Amitriptyline, Oxybutynin, Promethazine
2) Antipsychotics e.g. Droperidol, Olanzapine, Quetiapine, Risperidone, Haloperidol
3) Benzodiazepines e.g. Oxazepam, Temazepam, Diazepam, Midazolam
4) NSAIDs e.g. Ibuprofen, Diclofenac, Meloxicam, Ketorolac

Anticholinergic Medications

Review 'Anticholinergic toxidrome' in Adult Emergencies Module 2. The following complements the learnings from that module

Chemical properties of anticholinergic medications can cause more pronounced reactions in the elderly [214]. This is due to:

- Reduced metabolism and excretion of medications [4].
- An increase in blood–brain barrier permeability allowing for medications to cross more easily into the brain [4].

Anticholinergic side effects:

- Sedation **/** Confusion **/** Visual changes **/** Dizziness **/** Hallucinations **/** Dry mouth **/** Urinary retention **/** Constipation **/** Reduced sweating and elevated body temperature [215].

Clinical example

Prescribing cascade with anticholinergic side-effects

88 year old female Rita presented to the ED with a fall, her medications were:

Amlodipine / Frusemide / Oxybutynin / Paracetamol

*Prescribing cascade: Amlodipine caused lower limb oedema for which she was commenced on frusemide. Frusemide affected Rita's urinary incontinence for which her GP prescribed oxybutynin. Oxybutynin has anticholinergic effects which caused confusion and sedation which was deemed the cause of her fall [216] **

Aspects of this case were developed from Nguyen, P.V.-Q. and C. Spinelli, Prescribing cascade in an elderly woman. Canadian Pharmacists Journal: CPJ = Revue Des Pharmaciens Du Canada: RPC, 2016. **149(3): p. 122-124.*

Antipsychotics

Antipsychotic use in this age group in ED carries a heavy risk burden and co-morbid conditions must be considered when instituting this practice. Extreme caution must be exercised with their use as they are known to increase the risk of stroke, the rate of cognitive decline and increased mortality in patients with dementia [58, 217].

Clinical Practice Guidelines

- The Clinical Practice Guidelines (CPG) for dementia, recommend antipsychotics only be used, ***when non-pharmacological measures have not been successful*** to adequately control symptoms of ***aggression and agitation*** that can accompany delirium or as a part of the spectrum of behavioural and psychological symptoms of dementia (BPSD) ***AND*** **only if the patient's symptoms represent a considerable risk of harm** * [58]

  See 'Neurological presentations' in care of the older person in emergency

- Anti-psychotics are to be used only in the ***lowest possible dose and for the shortest duration*** [58]

**** If Dementia with Lewy Body is suspected, or for patients with Parkinson's disease, first generation anti-psychotic pharmacotherapy is contraindicated (e.g. droperidol or haloperidol); this is due to the risk of severe untoward reactions in particular the risk of extra-pyramidal side effects and associated increased mortality*** **[58] [218]**

Antipsychotic side effects:

- Sedation **/** extrapyramidal symptoms **/** orthostatic hypotension **/** dizziness **/** dry mouth **/** urinary retention **/** constipation **/** tachycardia [215].

Benzodiazepines

Benzodiazepines in the ED must be used with extreme caution in this age group due to:

- Age related general body fat increase, total body water decrease and the increase in body fat results in an increase of the volume of distribution for highly lipophilic drugs (e.g. diazepam) and may cause an ***increase in the medication's elimination half-lives*** [4].
    - An example is diazepam, where the elimination half-life is 90 hours at age 80 [219].
- The effect of increased benzodiazepine concentration increases risk of delirium / falls and a cascade of issues contributing to morbidity and mortality in this age group [4]
- There are indications for use in the ED in this age group, made in consultation with appropriate specialties. Note: If an older person has been on a benzodiazepine medication for a prolonged period of time, then sudden cessation of benzodiazepines may be associated with a withdrawal syndrome that may include delirium [220]

Benzodiazepine side effects:

- Sedation **/** drowsiness **/** respiratory depression **/** nausea **/** dizziness **/** slurred speech [215].

Non-steroidal Anti-inflammatory Drugs (NSAIDs)

Non-steroidal anti-inflammatory Drugs (NSAIDs) are a high-risk medication in this group [42].

Golden Rule

NSAIDs (e.g. ibuprofen) must not be nurse initiated in the older person age group for the following reasons:

- ***Risk for acute renal failure***
- Older people have thinner gastric mucosa / produce more acid and have lower gastric motility and therefore ***may cause gastric bleeding*** in this group.

[4]

High benefit / high risk medications

Certain medications can have a high benefit / high risk scenario which means they are associated with improved clinical outcomes in terms of reducing morbidity and mortality, however need to be carefully managed in this group as they carry high risk of adverse effects.

Activity 1

	**Access the electronic therapeutic guidelines (eTG) or MIMs Online via the CKN and match the medication to the following risks in the older person**

Medication	Risks in the older population
Coumadin (Warfarin)	Potential for over and under dosing, requires fine motor skills and visual acuity for administration
Insulin	This drug is metabolised by the liver, hepatic function decreases with age, almost every medication – antibiotics particularly (especially ciprofloxacin), have a strong potential to affect the potency of this medication and carry associated risks secondary to this
Sulphonylureas (e.g. gliclazide)	The blood brain barrier of older persons is more permeable, so there is a more immediate effect of the medication – 'start low go slow' with appropriate assessment of medication's effect. Further risks include respiratory depression and sedation
Opioids	The long acting sub-groups of this medication may induce sustained hypoglycaemic episodes and cause serious adverse events including precipitation of falls

[221-224]

Practice Point

Gentamicin:

- ***Serum creatinine clearance and estimated glomerular filtration rate (eGFR)*** should be checked before commencing on aminoglycosides wherever possible – administration of an initial dose of gentamicin in sepsis however, should not be delayed in order to await results of blood tests
- ***Measure actual body weight when checking dose for administration***, guidelines state: Use Ideal Body Weight or actual body weight, whichever is less

  *When actual body weight is greater than 20% above ideal body weight, it is recommended the prescriber uses actual adjusted body weight.

[225, 226]

	For further information follow the link to access the Aminoglycoside dosing in adults and the formula for actual adjusted body weight: https://www.health.qld.gov.au/__data/assets/pdf_file/0019/713323/aminoglycoside-guidelines.pdf

Polypharmacy

Though there are many definitions of polypharmacy - it is generally defined as the use of multiple medications (commonly defined as six or more); polypharmacy is common in the older population due to increased likelihood of multiple co-morbidities and pharmacotherapy for these [227].

- Nearly 50% of older persons take one or more medications deemed to be not medically necessary [228].
- The effect of polypharmacy is greater in this population due to associated adverse outcomes, including negative side effects, drug-drug interactions, adverse events including delirium and falls resulting in increased length of stay and hospital readmission soon after discharge [228].
- Identifying ‘polypharmacy’ is important for triggering review of medications to optimise the health of the individual; well-designed clinical pharmacist intervention studies, who enrolled high-risk older patients with polypharmacy, have shown a clinical pharmacist review can be effective in reducing aspects of unnecessary prescribing [228].

- The Beers criteria and STOPP START criteria, offer guides to avoid inappropriate prescribing for this age group [42]. All medications have inherent risks, optimal prescribing in the older person age group relies on the careful weighing of these risks. While the topic of which setting is most appropriate for deprescribing to take place for this age group (e.g. ED vs primary care) remains topical, there is compelling evidence calling for regular medication review in this cohort [97, 228]*.

  **There also needs to be consideration not just of the type of drug, but also the complexity of the regime e.g. how many doses a day, different requirements (with / without food) visual acuity and fine motor skills e.g. appropriateness of the medication container* [229]

- Where an ED pharmacist is available, medication review should be undertaken, particularly in those with polypharmacy and a presentation associated with a fall or presyncope.
- Medication reconciliation is also very important in older persons, to ensure that there is an accurate understanding of older persons' medications.

Reading 12

	12.1 American Geriatrics Society 2019 Updated AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. Available via CKN or at https://onlinelibrary.wiley.com/doi/full/10.1111/jgs.15767 And / or 12.2 STOPP / START criteria for potentially inappropriate prescribing in older people: version 2 https://academic.oup.com/ageing/article/44/2/213/2812233

Activity 2

	**Access the Beers criteria and / or STOPP / START criteria in the reading(s) above and give examples below of high risk medications in this age group**

Medication	Clinical reason for change

Unit 4 Psychosocial considerations in the older person

Introduction

There are many psychosocial considerations and vulnerabilities unique to the older person cohort. ED clinicians have an important role in recognising and responding to psychosocial issues and in safeguarding the rights of the patient.

Learning objectives

On completion of this unit the ED RN will be able to:

1. Synthesise and integrate information from current evidence in the delivery of safe emergency nursing care to older persons.
2. Explore and analyse the aspects of common psychosocial considerations in ED presentations including abuse of older persons and the importance of comprehensive assessment.
3. Demonstrate how the order of consent may be applied in current practice.
4. Evaluate the effectiveness of treatment and care planning for psychosocial considerations in ED.

Key concepts

- Depression
- Elder abuse
- Capacity, impaired capacity and the order of consent
- End of life care and acute resuscitation plans

Older adults may experience functional decline, chronic pain, frailty or other health issues for which they become dependent on others [230]. Older people are more likely to experience bereavement or a decrease in socioeconomic status post retirement; these stressors singly or combined can result in loneliness, isolation or psychological or emotional distress in older people [230].

Australian Commission on Safety and Quality in Health Care: Standard 5 Comprehensive Care

The intent of the Comprehensive Care Standard is “to ensure that patients receive comprehensive care – that is, coordinated delivery of the total health care required or requested by a patient. The care is aligned with the patients expressed goals of care and healthcare needs, considers the impact of the patients health issues on their life and well-being” [2].

The Comprehensive Care Standard includes, but is not limited to mental health, cognitive impairment and end of life care [2].

Depression

- Depression has a high prevalence in the older person cohort and found in a significant number of patients presenting to ED: A review found depression to be a significant contributor to health service utilisation and mortality, even when studies controlled for comorbidities and in subjects who did not have all criteria for major depression.
- The Australian Bureau of Statistics in 2017 reported the highest rate of completed suicide is men >85 years [231].
- Depression is both underdiagnosed and undertreated in acute care; symptoms may be overlooked and untreated due to depression often co-existing with other problems and presenting as more generalised medical complaints of weakness, poor sleep, decreased appetite.
- Significant psychosocial stressors from studies across the care continuum note bereavement, physical disability, trauma and a lack of social support as major risk factors for depression.

[4, 230, 232, 233]

Abuse of the older person

The Australian Network for the Prevention of Elder Abuse defines abuse of the older person as “any act occurring within a relationship where there is an implication of trust, which results in harm to an older person. Abuse may be physical, sexual, financial, psychological, social and / or neglect” [234]. Abuse of the older person is situated within the context of the Domestic and Family Violence paradigm [235].

- Current evidence suggests that 1 in 6 people over the age of 65 experience elder abuse [236].
- Elder abuse is associated with as much as a three-fold higher mortality rate, and increased rates of ED visits, depression and RACF placement [237].
- A total of 50% of perpetrators are a victim's child and 14% have a spousal relationship [237].

ED staff are uniquely positioned to observe and respond to elder abuse

This is attributed to:

- The unplanned nature of the health service visit equates to perpetrators having less or no time to align histories with victims or suppress evidence of abuse.
- Older patients stay in ED longer and thus have increased observation time with multiple opportunities for staff of different disciplines to identify behaviours and signs of abuse.
- ED comprehensive care includes a head to toe assessment and therefore an increased likelihood of observing indicators of physical / sexual abuse and neglect that may be missed in clinic visits with more focused assessment.
- The nature of ED requires multiple account giving of patient history by the patient / carer, allowing for a greater likelihood of inconsistencies to be observed in ED.

[21, 238]

Critical point

If a suspicion of elder abuse is raised ***early referral to social work*** is imperative. The social worker will establish consent for intervention and co-ordinate appropriate services for the patient. If the presentation is out of social work hours, consider an admission for review in-hours.

[239]

Important considerations

- Many people suffer from multiple forms of abuse simultaneously [238].
- Neglect is one of the most common forms of elder abuse; it is defined as the failure of a caregiver to ensure the necessities of life are provided, including adequate clothing, food, accommodation and access to medical care [237].
- Admission to hospital may be essential to allow time for evidence to be collated, multi-disciplinary team review and a safe disposition arranged [239].

Identifying behaviours and signs of elder abuse:

Reading 13

	Via CKN access: Hullick, C., et al., *Abuse of the older person: Is this the case you missed last shift?* Emergency Medicine Australasia: EMA, 2017. **29**(2): p. 223-228

Activity 1

	**Access the article above and list below the signs of abuse the article references under 'Identifying Elder Abuse'** *Note some of these signs may be identified in ED through informant collateral e.g. the Ambulance service*

1._____

_____

2._____

_____

3._____

_____

4._____

_____

5._____

_____

6._____

_____

7._____

_____

8._____

_____

Other behaviours, signs and assessment in ED [240]:

	Neglect	Physical Abuse	Sexual Abuse
Behaviours	Under or overmedicating patient Exposure to high risk situations / lack of supervision, older person left in isolation or unsafe places Refusal to allow others to provide care Failure of provision of basic needs, e.g. adequate medicines and clean clothing	Pushing or rough–handling Kicking, biting, hitting Restraining: physically or signs of chemical restraint Intentional injury with an object Over or underuse of medications	Non-consensual sexual contact, language or behaviour deemed exploitative e.g. cleaning the person's genitalia inappropriately Any behaviour observed to make an older person uncomfortable about their body or gender
Signs	Poor personal hygiene Lack of dental or medical care, or injuries that have not been appropriately treated Absence of required medical / functional aids Exposure to unsafe, unhealthy conditions (in history) Unexplained weight loss, dehydration, malnutrition	External or internal injuries, fractures, unexplained haematomas, pain with light touch Lacerations to mouth, eyes or ears and / or eye injuries Evidence of defensive wounds / striking, punching, pulling e.g. lacerations, haematomas, marks around neck, signs of traumatic hair loss Burns and their patterns, e.g. stocking / glove pattern suggesting forced immersion	Unexplained Sexually Transmitted Disease or bladder or bowel incontinence Injury e.g. scratches, bruises etc. to neck, face, chest, abdomen, limbs Trauma including bleeding around the mouth or genitals

	Neglect	Physical Abuse	Sexual Abuse
Assessment	A systematic physical examination must be conducted to assess the status of chronic illnesses Primary caregiver must be interviewed to ascertain their understanding of the patient's care needs and how well care is being managed *Note: Neglect may be deliberate or unintentional. Unintentional neglect may be due to an inability to provide care second to the carer's, mental health, cognitive impairment, frailty, or limited health literacy*	Head to toe assessment including the oral assessment for avulsion of teeth and / or dental fractures *Note assessment findings that do not match with the mechanism of injury reported. Zygomatic and jaw fractures are more likely to be sustained from a strike (e.g. punch) to the face than in a fall* Wrists and ankles should be examined for abrasions which may suggest the use of restraints Multiple injuries in different stages of healing should raise the suspicion of abuse e.g. old displaced fractures detected on radiographs, lacerations healing by secondary intention e.g. without sutures A cognitive appropriate pain assessment should be conducted The patient should be assessed for delirium which can result from pain or other medical problems	Comprehensive assessment for sexual assault; forensic evidence requires collection by experienced professionals Further assessment of sexual abuse is similar to assessment of sexual violence in younger adults

Adapted from: New South Wales Elder Abuse Helpline & Resource Unit. *NSW Elder Abuse Toolkit. 2016.* Available from: http://www.elderabusehelpline.com.au/uploads/pdf/Toolkit%20-%20FINAL%20-%20WEB.pdf
Lachs, M.S. and K.A. Pillemer, *Elder Abuse.* N Engl J Med, 2015. **373**(20): p. 1947-56.

Web Links

For further information on behaviours and signs of psychological and financial abuse which are not covered in the table see:

http://www.elderabusehelpline.com.au/uploads/pdf/Toolkit%20-%20FINAL%20-%20WEB.pdf

When elder abuse is suspected the 3 key roles of the ED multi-disciplinary team are:

1) Assess immediate safety of patient and staff:

   If a victim of elder abuse is in immediate danger in the ED, the matter should be escalated to the most senior medical officer and the patient be prevented from having any contact with the suspected abuser [239].

2) Treat acute medical and psychological issues and refer early:

   Patients may have traumatic injuries and metabolic abnormalities including those associated with dehydration requiring comprehensive medical care; the management of worsening chronic medical conditions may be required with +/- admission to provide extended treatment and observation [21].

Respond respectfully:

Listen to the older person

Acknowledge the information given

Validate and **Inform** the older person of the process the team is undertaking

Respect the older persons autonomy; their right to accept or refuse the interventions*

**See 'Capacity' in Unit 4 for further detail on patients' right to refuse interventions*

'Respond respectfully' is adapted from The Victoria State Government. *Strengthening Hospital Responses to Family Violence Elder Abuse Module*. For further information on this module visit: *https://haveyoursay.thewomens.org.au/shrfv-project/documents*

3) Report to the authorities

   In the case of older persons ***compulsory reporting applies to RACF providers who receive funding from the Federal Government***:

Reporting Abuse under the Aged Care Act (1997)

Compulsory reporting of Elder Abuse applies only to; "**residential aged care providers** that receive funding from the Federal Government and is limited only to any unlawful sexual contact or unreasonable use of force under the *Aged Care Act 1997(Commonwealth).* Any allegation or suspicion of unlawful sexual abuse or unreasonable force must be reported within 24 hours of the allegation being made to: the Police and the Department of Health and Ageing via the Aged Care Complaints Scheme" [235].

- If the patient does not meet this compulsory reporting criteria and where the patient has decision-making capacity, the ***patient must consent to intervention:*** Police and state-based older person abuse services can be used for further support in investigation and management; these services are usually co-ordinated by social work and intervention may be informed by local HHS elder abuse policy [237].
- If the ***patient refuses intervention*** by hospital staff, it must be determined whether the patient has the ***capacity to make this decision***.

 *See 'Capacity' in Unit 4 of care of the older person in emergency for further detail on how establishing capacity or impaired capacity and order of consent is undertaken in ED*

- If the patient has capacity and there is no imminent threat to the patient's safety and they wish to return home, the ED multi-disciplinary team must educate the patient about the potential for escalation of circumstances e.g. violence / mistreatment and provide appropriate referral materials for future use which may include the Elder Abuse helpline [235].
- The Elder Abuse Helpline operates Monday to Friday 0900hrs to 1700hrs toll free from anywhere in Queensland. Callers may remain anonymous and interpreting services are available [241]. Note; even though this number is free it does appear on a persons phone bill and it is important for the clinician, usually a social worker, to disclose this to the patient.

Debrief

The identification and management of elder abuse may be traumatic for the staff involved, notification of line-manager, team debrief and understanding local hospital support services is essential in continuing to provide optimal care for this cohort.

Web Links

	For counselling and support details visit Employee Assistance Service; https://qheps.health.qld.gov.au/hr/staff-health-wellbeing/counselling-support

Capacity

Understanding ***'capacity'*** and what determines ***impaired capacity*** is important when caring for the older population. Understanding of the ***order of consent*** enables the healthcare

provider to determine who the ***substitute health decision maker*** for the patient will be, if they are deemed to have ***impaired capacity*** [242].

'***Capacity'*** refers to a person's ability to:

- "Understand the nature and effect of decisions
- Freely and voluntarily make decisions
- Communicate those decisions in some way"

Queensland Government. Your rights at the end of life: Capacity. 2019. Available at: https://www.qld.gov.au/health/support/end-of-life/advance-care-planning/legal/capacity.

[242]

The law recognises; a person's right to control their own lives; "***People are presumed to have the capacity to make decisions for themselves unless proven otherwise"*** [242].

A patient with capacity:

- Can understand information regarding their medical treatment and treatment options, the patient can "weigh up the benefits, risks and burdens of each choice and freely and voluntarily make and communicate a decision" [243].
- Can make the choice to refuse any or all medical treatment, even if this results in their death. The patient must be informed of the nature of the proposed treatment measures and demonstrate an understanding of the proposed treatment measures and the risks of not proceeding with these [244].
- The law regarding consent for patients without capacity is written in the *Guardianship and Administration Act 2000* and *Powers of Attorney Act 1998* [242, 243].

Activity 2

The Acute Resuscitation Plan (ARP) contains information about capacity; access an ARP via the QHEPs website and complete the following activity to consolidate your learning:

https://www.health.qld.gov.au/clinical-practice/guidelines-procedures/patient-safety/end-of-life/resuscitation/overview

Use the following words to fill in the spaces in the five criteria for decision making capacity:

Describing terms for decision making capacity criteria		
Retain the information	Decision	Communicate
Implications	Basic medical situation	Coercion, undue influence or intimidation

Generally, the patient can be regarded as having decision making capacity if they meet the following five criteria:

1. The patient understands the _____.
2. The patient understands the nature of the decision being asked of him or her. Understanding includes the following:
   - _____, benefits, risks, what the treatment entails
   - alternatives and their implications, including the implication of no decision
   - being able to _____ (short-term memory function).
3. The patient is able to use, or weigh that information as part of the process of making the _____ (for example, asking questions).
4. The patient is able to _____ a decision (for example, by talking, using sign language or any other means).
5. The patient is able to communicate the decision voluntarily (for example, is there an absence of _____ by the patient's family / decision-maker(s)?)".

Queensland Government. Acute Resuscitation Plan (ARP) For adults at risk of an acute deterioration. 2017 https://www.health.qld.gov.au/__data/assets/pdf_file/0037/688267/sw065-acute-resus-form.pdf.

Impaired Capacity and the Substitute Health Decision maker

An appropriately qualified health professional can determine if a patient has ***impaired capacity****;* which means the person is not capable of; understanding any information that may be relevant to the decision which includes the consequences, retaining such information, even for a short time, using information to make decisions, communicating the decision [245].

If a person is deemed to have ***impaired capacity***, there is a ***hierarchy of consent that must be followed***. "Consent must be obtained through one of the following*:

1. A valid advance health directive (AHD)
2. A guardian appointed by the Queensland Civil and Administrative Tribunal (QCAT)
3. A health attorney under an AHD or EPOA
4. A statutory health attorney(s)
5. The Public Guardian" [246]

This means that if a person has a valid AHD, this should be used to guide treatment decisions where a person has impaired capacity. If there is no AHD, but the person has a QCAT appointed guardian, this guardian takes responsibility for treatment decisions. Only if there is no AHD or an appointed guardian, does the EPOA for health matters hold this role, or where there is no EPOA a statutory health attorney is used. Only where there is none of these available, or if the appointed EPOAs (or where no EPOA is appointed, statutory health attorneys) do not agree with each other on a course of action or do not appear to be acting in the patient's best interests, does the public guardian have a role.

** except in some emergency situations*

[246]

Advance Health Directive

An advance health directive (AHD) is a legal way for an individual to give instructions about their ***future health care***. An AHD is only applicable if a person's cognitive health deteriorates and they are deemed to have ***impaired capacity.***

An AHD:

- outlines the medical treatment or health care the individual wishes if no longer able to make decisions. It may be general, for example all available treatment is to be received or specific e.g. The choice to decline certain treatments
- enables the person to appoint an attorney for personal and health matters
- includes health information including medical conditions, allergies, and spiritual, religious, or cultural beliefs that could potentially affect care

[246]

A guardian appointed by the Queensland Civil and Administrative Tribunal (QCAT)

QCAT can appoint a ***guardian on behalf of an adult with impaired decision-making capacity***. The appointed guardian can make certain ***health and personal care decisions on the person's behalf***, which protects their rights and interests.

Generally, QCAT guardians can be authorised to make decisions on behalf of the adult, such as:

- where the person lives
- support services the person receives
- with whom the person has contact
- ***general health care matters***
- ***the approval of chemical and / or physical restraint in limited situations***

[247]

A health attorney or Enduring Power of Attorney

- An EPOA is ***appointed by an individual*** to make financial and / or personal decisions on their behalf, if / when the individual has impaired capacity; if there is doubt over whether a person has the capacity to appoint an EPOA, QCAT can make a decision about that person's decision-making capacity and appoint an EPOA.
- A person may have more than one appointed EPOA for health matters. Where more than one EPOA is appointed, the relevant documentation should be consulted to determine whether the person intended for each EPOA to be able to make decisions independently of the other, or whether the person intended that consensus be arrived at by the EPOAs.

[243]

Statutory Health Attorney

A statutory health attorney is the next substitute health decision maker by the order of consent, if there is no AHD / QCAT guardian or EPOA. A statutory health attorney is the first, of the following people in the list below who is readily available and culturally appropriate to act for the patient:

1. A spouse or de facto partner, if the relationship is close and continuing
2. A person who is responsible for the individuals primary care over 18 years of age*
3. A person who is a relative or close friend who is over 18 years of age*
4. If there is no one who meets the criteria for this, the law will recognise ***the Public Guardian*** as the patient's statutory health attorney.

**This person must not be a paid caregiver*

[248]

The Public Guardian

The Public Guardian is the final substitute health decision maker by the order of consent if there is no AHD / QCAT guardian / EPOA or statutory health attorney

- The *Public Guardian Act 2014* and *Guardianship and Administration Act 2000* set out the Office of the Public Guardian's legislative functions, obligations and powers.
- The Office of the Public Guardian is notified by the health care professional and a guardian is appointed who can advocate and mediate on behalf of patients with impaired decision-making capacity and also investigate allegations of abuse, neglect or exploitation of adults.

[249]

End of life care

- **End of life (EOL)** refers to the period of time when an individual is living with, and impaired by, a fatal condition even if the trajectory of illness is ambiguous or unknown [250].
- **End of life care (EOLC)** includes physical, spiritual psychosocial and spiritual care and treatment; EOLC also includes the support of carers and families, and care of the person's body after death. People are considered to be approaching the end of life

when it is likely they will die within 12 months. This is inclusive of persons whose death is imminent, that is, expected within a few hours or days and includes those with:

- advanced and progressive incurable conditions
- frailty and co-existing conditions and are expected to die within 1 year
- presence of existing conditions*

  **if the person is at risk of dying from a sudden acute crisis in their condition*
- life threatening acute conditions caused by sudden catastrophic events [250]

- The terms **Palliative care and EOLC** are not interchangeable; palliative care is not only for people who are nearing the end of their lives [251].
  - Palliative care aims to prevent and relieve suffering while supporting the optimal quality of life for patients and, regardless of the stage of the disease or the requirement for other therapies: Patients can benefit from palliative care even if they are receiving potentially curative therapies, for example radiation or chemotherapy in the case of malignancy, or have an advanced chronic illness, such as CCF or COPD [252].

Reading 14

	For further reading on approaches to death in the older ED patient access: Arendts, G., et al., *Approach to death in the older emergency department patient.* Emergency Medicine Australasia: EMA, 2016. **28**(6): p. 730-734.

EOLC and ED

- ED has an important role in EOLC as ED is the gateway to different sites and types of care for patients
- Of patients who die in hospital two thirds receive acute care and one third receive EOLC in the admitted patient episode [253]
- 70% of older patients present to ED at least once in the last year of life [254], maximal attendance rates are in the persons final weeks and days of life [255]
- A review of the approach to death in ED observed ***emergency care and palliative care are not mutually exclusive***
    - ED presentations may be required where emergent relief of symptom burden or psychosocial support is required
    - Investigations or procedures of an emergent nature may be unable to be accessed in the community and may result in improved symptom control

[255]

Disparities between goals of care and hospital death

- 80% of patients say they wish to avoid intensive treatment at the end of their lives [256].
- The disparities between EOL wishes and the type of care provided may be attributed to missed opportunity for discussions on goals of care in different settings including the ED.

People approaching the end of life are identified as;

- Those with a likely prognosis of 12 months or less
- Those with advanced chronic and progressive conditions
- Those managing multiple and life-limiting comorbidities, including extreme frailty
- Those with advanced progressive conditions who have made the choice to cease disease modifying treatment.

Queensland Government*. My care, my choices*. 2016. Available from: https://metrosouth.health.qld.gov.au/sites/default/files/msh-end-of-life-strategy.pdf.

Prognostication tools used in the ED

The Supportive and Palliative Care Indicators Tool (SPICT) is a guide to identify people at risk of dying within the next twelve months [257].

Web Link

	The SPICT tool can be accessed from QHEPs: https://qheps.health.qld.gov.au/__data/assets/pdf_file/0023/500729/spict.pdf

There are specific prompts for consideration of patients approaching end of life used by ED clinicians; information on the following may be promptly sought when patients present to the ED in the context of their presenting features.

Life limiting Illness	Older person considerations
Advanced dementia or other disease e.g. CVA / motor neurone disease	Inability to walk, dependent on others for all care needs
New York Heart Association class 4 CCF	No relief of symptoms at rest; often bedbound
COPD	Sp02 <88% RA or on continuous home 0^2, evidence of right heart failure, unintentional weight loss of >5kg
End stage liver disease	Ascites, episodes of spontaneous bacterial peritonitis / encephalopathy

Adapted from: Arendts, G., et al., *Approach to death in the older emergency department patient.* Emergency Medicine Australasia: EMA, 2016. **28**(6): p. 730-734.

Disease trajectories

Trajectories enable patterns of ***probable needs and interactions with health care services*** for patients with different life limiting illness to be mapped out. Physical, psychological and spiritual needs of people and their carers are likely to vary according to their disease trajectory [258].

Web Links

	The trajectory of dying or typical death trajectory can be accessed via the Royal College of Nursing site: https://rcni.com/hosted-content/rcn/fundamentals-of-end-of-life-care/typical-death-trajectory

Activity 3

	**Access the trajectory of dying via the weblink above to understand the patterns with which patients may access ED.** **Draw the correct pattern on the graphs below and reflect on cases you have seen in ED and their different disease trajectories.**

Sudden death

Terminal illness

Organ failure e.g. COPD / CC

Frailty

Clinical example

Dean, a 75 year old man has stage 4 heart failure. Over the next year, Dean has a high likelihood of visiting the ED multiple times. Based on his illness and prognostic factors, Dean has a 35% chance of dying by the end of 12 months. Identifying disease trajectory for Dean and care planning in partnership with his primary care provider and specialist team is important.

Case adapted from Rosenberg, M., S. Lamba, and S. Misra, *Palliative medicine and geriatric emergency care: challenges, opportunities, and basic principles.* Clin Geriatr Med, 2013. **29**(1): p. 1-29.

Management of patients with serious or incurable illness often includes concurrent curative and symptomatic interventions.

Clinical example

Beryl is an 85 year old female with mild dementia who is transferred from an RACF with likely pneumonia causing hypoxia, dyspnoea and delirium. She is triaged to a resuscitation room. As she is wheeled in it is clear that Beryl is critically unwell, with a patent airway oxygen saturation of 70% on RA and a PR of 140, with BP of 90 systolic. How do you proceed?

The nursing role here encompasses addressing Beryl's immediate healthcare needs and ensuring advocacy for her in terms of ensuring that her wishes, where known, are upheld and that she is provided high quality care (whether that be active medical care where this is her documented wish or active palliative care).

First steps here are to address the immediate life threats:

- Apply oxygen by 15L non-rebreather mask
- Position Beryl so that she is most comfortably able to breathe

The critical aspect that needs to be determined QUICKLY here is what would Beryl wish for her healthcare at this time were she able to make decisions for herself.

- Quickly confirm whether Beryl is able to understand her current situation (this appears unlikely from the proposed scenario, but decision making capacity should always be assessed, and it should not be assumed that a person lacks this capacity)
- Where Beryl does not have decision making capacity, check her medical record and accompanying transfer documentation to determine whether she has an AHD, an

advance care plan or an ARP. Where such a document exists, they may be used to guide therapy, however documented wishes should always be confirmed to be current with the substitute health decision maker.

- If there are no documented advance wishes, care should not be delayed to establish the advance care plan: establish IV access and commence a 250 mL bolus of saline
- Determine if Beryl has any pain and where appropriate, ensure analgesia
- Arrange timely administration of IV antibiotics
- Contact the nominated substitute health decision maker – where there is no documented evidence of who this is, contact the RACF and next of kin to determine whether there is an appointed decision maker. Where there is no appointed decision maker use the statutory health attorney (in the order of hierarchy described above)
- Principles of high-quality gerontic care in the ED can be applied to reduce the risk for Beryl for iatrogenic complications. These principles include:
    - Timely institution of medical care where consistent with wishes – as Beryl has evidence of delirium and sepsis, she will benefit from EARLY institution of antibiotics and judicious IV fluids
    - Management on a pressure relieving mattress with regular pressure area care
    - Minimise staff changes and provide orientation and reassurance and analgesia where required (guided by a cognition appropriate pain assessment)
    - Avoid IDC placement unless medically indicated
    - Facilitate Beryl's wishes in regard to family presence, at all times, Beryl's dignity and wishes should be upheld

Acute Resuscitation Plans

Acute Resuscitation Plans (ARPs) are medical orders established in consultation with the patient or their substitute health decision maker by the most senior Doctor available; the plan is designed to provide "***clinical direction in the event of acute deterioration"*** [244].

An ARP:

- Records resuscitation plans following discussion with the patient, or their substitute health decision maker if the patient does not have capacity, and other members of the multidisciplinary team
- Includes preferences about life sustaining measures, including whether the patient refuses or requests cardiopulmonary resuscitation (CPR)
- Offers a proactive approach to resuscitation plans, including treatments that will be provided
- Prompts a broader conversation about plans for end of life care
- Should be completed ***where it is reasonably expected*** that a patient may suffer an ***acute deterioration or critical event*** e.g. a respiratory or cardiac arrest, ***in the foreseeable future***
- Ideally ***should be completed before the patient's condition deteriorates*** and while they are still able to actively participate in decision making about their future healthcare
- Complies with the guardianship laws requiring the pathway for decisions about life-sustaining measures be thoroughly documented

Note: The ARP is not a legal document like an AHD and should not be relied upon for consent; consent from the substitute health decision maker(s) recorded on the ARP may also be required.

[244]

Critical Point

Previously completed ARPs must be checked and confirmed;

- Notify team of existing ARP, check the date and ensure the plan is valid.
- A conversation must take place with the patient or their substitute health decision maker and the ED team regarding the content of the ARP.
- Escalate if there are any discrepancies.

Symptom management in the dying patient

Patients may die in the ED with supportive cares or supportive cares may be commenced before transfer to ward. Care of the dying patient requires regular comprehensive assessment, proactive treatment and may require extensive care in order to obtain control of symptom burden and distress [259].

Critical point

	"***Care of the dying is urgent care*. *Timely recognition of a patient's transition to the terminal phase of life must be documented and communicated to patients, families, carers and other health professionals by the interdisciplinary team***. The care plan must be specifically revised to meet the unique needs of the patient, family and carers during this phase" [259].

Pain, dyspnoea, difficulty managing respiratory tract secretions, nausea and / or vomiting, restlessness and / or agitation, are considered the main symptoms in the imminently dying patient [260].

Note: The following outlines symptoms, non-pharmacological considerations and classes of medications with examples of drugs which may be prescribed, it does not discuss appropriate dosing, route of administration or frequency as there are many variables associated with these aspects of prescribing in EOLC. Refer to local policy and the therapeutic guidelines for further detail on symptom management in EOLC.*

Web Link

	*Some medications are appropriately administered via a syringe pump device. It is important to note specific tubing may be requiring for certain medications. The device used is relative to your local HHS policy. A Niki pump is an example of a syringe driver. See the following education resources including link to Niki pump self-directed learning package: https://qheps.health.qld.gov.au/metrosouth/medicine/palliative-care/education

When a patient enters the final days or hours of life they may be placed on an end of life pathway to guide assessment and treatment.

Web Links

	See Care Plan of the Dying Person from the Centre of Palliative Care and Research Innovation for a comprehensive overview of assessment and treatment in the final days or hours of life https://clinicalexcellence.qld.gov.au/sites/default/files/docs/clinical-pathways/care-plan-dying-person.pdf

With all symptoms management in EOLC, if the patient appears to be distressed and is ***not responding to treatment, it is recommended specialist palliative care advice is sought without delay at any time of the day or night*** [260].

Pain

Patients who have been treated with analgesia will require ongoing pain management.

Monitor the patient's behaviour and assess possible reversible causes of pain e.g. Urinary retention; pain may also be expressed as restlessness or agitation in the unconscious terminal phase of life.

- ***Opioids*** are recommended as analgesia in the terminal phase and regular cognition appropriate pain assessment is essential, including every 15 minutes when medication orders are changed / new medication is commenced. ***Morphine is the opioid of choice*** for most opioid naive people in the final days of life*

  **If morphine is contraindicated e.g. allergy or end-stage kidney disease, an equivalent dose of an alternative opioid may be used with advice from palliative specialist if required*

[260]

Dyspnoea

For a patient who appears to be distressed by breathlessness, non-pharmacological measures may include optimising the patient's position and increasing cool air movement around the patient by using a fan *.

**Use of fans while validated in literature* [261, 262] *may be dependent upon local policy and procedure and patient preference.*

Recommended pharmacotherapy for breathlessness includes ***opioids (morphine or fentanyl) and benzodiazepines (midazolam or clonazepam)***. Either may be trialed first or used in combination. If the patient is assessed as dyspneic despite recommended medication doses, palliative care input is highly recommended.

Note: As a patient approaches death their pattern of breathing will often change, which may not be necessarily reflective of distress and may include:

- Decreased rate or irregular breathing
- Periods of rapid and shallow breaths
- Cheyne-Stokes respiration; episodes of apnoea and periods of deep, rapid breathing in-between
- Agonal breaths; excessive but ineffective breaths
- Noisy or 'rattly' breathing related to the pooling of respiratory secretions [260]

Management of respiratory secretions

Repetitive, rattly breathing may be secondary to the patient's inability to cough effectively or to swallow and clear secretions from the trachea or oropharynx.

Adjusting the patient's position may assist in managing the pooled secretions and encourage postural drainage. If pooled secretions are visible in the oral cavity, removing them by suction is a consideration, however it is important not suction beyond the oral cavity to avoid stimulating the gag reflex.

Anticholinergic drugs are commonly used to reduce the production of respiratory secretions and manage rattly breathing; If an anticholinergic drug is considered appropriate, a suitable therapy is ***glycopyrronium*** *or* ***hyoscine butylbromide****

**Unlike other anticholinergics, neither glycopyrronium or hyoscine butylbromide are likely to cause or exacerbate delirium in the patient, as they do not cross the blood brain barrier.*

See Pharmacological Considerations in the care of older person in emergency - anticholinergics

[260]

Nausea / vomiting

For onset of new nausea or vomiting in the terminal phase, where the cause is unknown, ***haloperidol*** or ***metoclopramide**** is usually used as first-line therapy. For intracranial causes of nausea and vomiting ***dexamethasone*** may be considered.

 *See Pharmacological considerations in the older person; antipsychotics*

****Metoclopramide is not to be administered if there is suspected bowel obstruction. Consider palliative care advice if bowel obstruction secondary to opiates is suggestive based on history.

 *For further information on nausea and vomiting management in palliative care including causes of symptoms see 'Gastrointestinal symptoms in palliative care' in the Therapeutic Guidelines. 2018. Available from: https://tgldcdp-tg-org-au.eu1.proxy.openathens.net/viewTopic?topicfile=palliative-care-gastrointestinal-symptoms&guidelineName=Palliative Care#toc_d1e352.*

[260]

Agitation / terminal restlessness

Patient's agitation may be multifactorial; the many causes include pain, delirium, emotional distress, metabolic changes or medication toxicity. Causes of agitation which can be addressed include urinary retention - IDC may be appropriate. If agitation persists despite addressing potential causes, the prescription of a ***clonazepam* or midazolam or haloperidol**** may be trialed.

**Clonazepam has a long half-life of 30-40 hours, frequent doses and ongoing use can cause accumulation and extreme sedation; midazolam has a shorter half-life and can be used for PRN doses.*

***Haloperidol is contraindicated in patients with Lewy Body Dementia and Parkinson's disease.*

 *See Pharmacological considerations in care of the older person in emergency - Antipsychotics*

[260]

Other symptoms that may require addressing in the dying patient:

- Other gastrointestinal symptoms, including dry mouth, constipation and diarrhoea
- Neurological and neuromuscular symptoms in palliative care, including seizures
- Dermatological symptoms in palliative care, including pruritis (itch) and sweating
- Genitourinary complications including urine retention

[260]

Web Links

For further information on symptom management in the dying patient access the therapeutic guidelines: Terminal care; care in the last days of life 2016 via:

https://tgldcdp-tg-org-au.eu1.proxy.openathens.net/viewTopic?topicfile=palliative-care-principles-of-symptom-management#toc_d1e47

Family, carer needs and cultural practices

In EOLC addressing the ***cultural, spiritual and psychosocial needs*** of patients and their families / carers is paramount to the provision of comprehensive care [260]. Referral to social work is important along with the offer of referral to pastoral care services, dependent on the wishes of the patient and families.

Quality care is provided by health care workers who:

"Endeavour to maintain the dignity of the care recipient, their caregiver(s) and family;

Work with the strengths and limitations of the care recipient and their caregiver(s) and family to empower them in managing their own situation;

Act with compassion towards the care recipient and their caregiver(s) and family;

Consider equity in the accessibility of services and in the allocation of resources;

Demonstrate respect for the care recipient, their caregiver(s) and family;

Advocate on behalf of the expressed wishes of care recipients, caregiver(s), families, and communities;

Are committed to the pursuit of excellence in the provision of care and support;

Are accountable to care recipients, caregiver(s), families and the community."

From: Australian Government. *Palliative care Australia; Core Values of the National Palliative Care Standards*. [Cited 2019, May 20]. Available from: https://palliativecare.org.au/wp-content/uploads/dlm_uploads/2018/02/PalliativeCare-National-Standards-2018_web-3.pdf.

Web Links

	For further reading via therapeutic guidelines access: • Communicating with the patient in palliative care • Cultural issues in palliative care • Loss, grief and bereavement https://tgldcdp.tg.org.au/viewTopic?topicfile=communicating-with-palliative-care-patient Via the Queensland Health website: Access the Guidelines for caring for Aboriginal and Torres Strait Islander people 'Sad news sorry business' https://www.health.qld.gov.au/__data/assets/pdf_file/0023/151736/sorry_business.pdf

Impact on staff on caring for dying patients in the ED

It is important ED clinicians discuss the challenges they face in EOLC of older people both to ensure optimal care for patients and families and to help cope with the emotional demands of their ED clinical role [260].

Web Links

	For further reading on care of staff and team via therapeutic guidelines access Caring for dying patients: impact on healthcare providers https://tgldcdp.tg.org.au/viewTopic?topicfile=caring-for-dying-patients-impact-on-healthcare-providers For local staff support services or counselling via QHEPs visit Employee Assistance Service; https://qheps.health.qld.gov.au/hr/staff-health-wellbeing/counselling-support

Appendix 1: Clinical Frailty Scale

Clinical Frailty Scale*

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

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

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

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

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

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

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

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

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

Scoring frailty in people with dementia

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

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

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

* 1. Canadian Study on Health & Aging, Revised 2008.
2. K. Rockwood et al. A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

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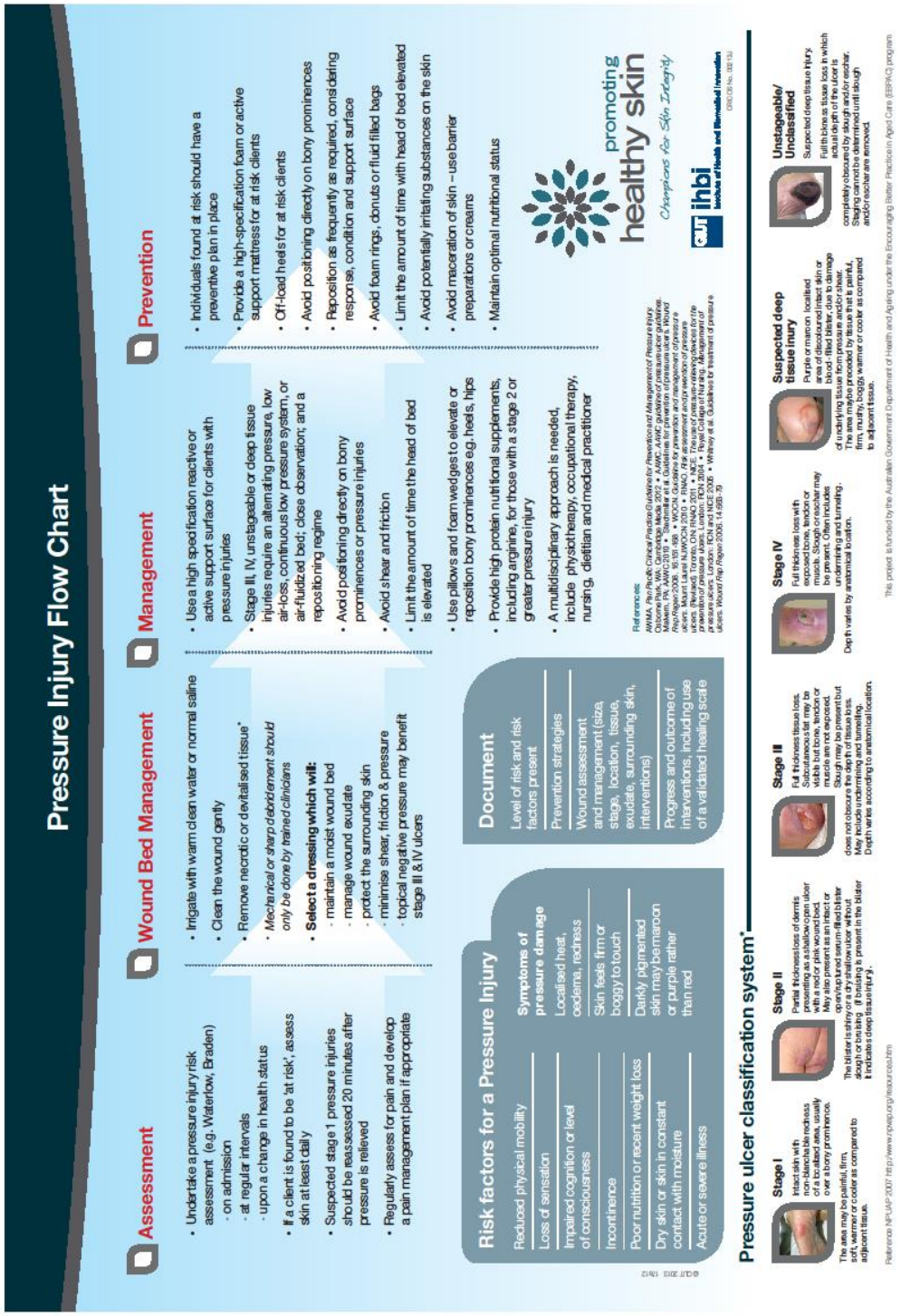
DALHOUSIE UNIVERSITY *Inspiring Minds*

Appendix 2: Wound Assessment and Management resources

Reproduced from QUT Promoting Healthy Skin [147]



Skin Tear Management Flow Chart

Assessment

- All clients should have a risk assessment for skin tears on admission
- Assess and document skin tears using a recognised assessment and classification system e.g. STAR[1]
- Assess the surrounding skin for swelling, discolouration or bruising

If skin flap is pale, dusky or darkened:

- Reassess in 24-48 hours or at the first dressing change
- * *Assessment should only be undertaken by trained staff*

[1] Carville et al. 2007

Management

- Control bleeding
- Cleanse the wound gently with warm water or normal saline, pat dry
- Realign edges if possible
  - do not stretch the skin
  - use a moist cotton-tip to roll skin into place
- Apply a low adherent, soft-silicone dressing to wound, overlapping the wound by at least 2 cm
- Draw arrows on the dressing to indicate the direction of dressing removal
- Mark the date on the dressing
- Apply limb protector

Prevention

- Assess skin regularly and implement a prevention protocol for those at risk
- Use soap-free bathing products
- Apply moisturiser twice daily
- Use correct lifting and positioning techniques
- Avoid wearing rings that may snag the skin
- When repositioning use assistive devices such as slide sheets
- Protect fragile skin with either limb protectors or long sleeves or pants
- Pad or cushion equipment and furniture
- Avoid using tapes or adhesives, use tubular retention bandages to secure dressings

Document

- Level of risk and risk factors present
- Prevention strategies
- Management strategies
- Category of skin tear/s, size, location, tissue type, exudate, surrounding skin
- Progress and outcome of interventions

Risk factors for a Skin Tear

- History of previous skin tears
- Bruising, discoloured, thin or fragile skin
- Cognitive impairment / dementia
- Impaired sensory perception
- Dependency
- Multiple or high risk medications e.g. steroids, anticoagulants
- Impaired mobility
- Poor nutritional status
- Dry skin / dehydration
- Presence of friction, shearing and/or pressure

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Ayello E, Sibbald R. *Preventing pressure ulcers and skin tears, in Evidence-based geriatric nursing protocols for best practice.* E Capezuti, et al, Eds. 2008, Springer: New York. • LeBlanc K, Baranoski S, *Skin tears:* Adv Skin Wound Care, 2011. 24(9S): 2-15 • Ratliff C, Fletcher K, *Skin Tears:* Ostomy Wound Management, 2007. 53(3) http://www.o-wm.com/article/6958 • Carville K et al., *STAR: A consensus for skin tear classification.* Primary Intention, 2007. 15(1): 18-28 • Joanna Briggs Institute, *Topical skin care in aged care facilities. Best Practice,* 2007. 11(3) • Wounds UK. *Best Practice Statement: Care of the Older Person's Skin Wounds.* UK 2012 , 2nd ed.

promoting healthy skin

Champions for Skin Integrity

QUT ihbi Institute of Health and Biomedical Innovation

CRICOS No. 00213J

STAR classification system

Category 1a
A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour **is not** pale, dusky or darkened.

Category 1b
A skin tear where the edges can be realigned to the normal anatomical position (without undue stretching) and the skin or flap colour **is** pale, dusky or darkened.

Category 2a
A skin tear where the edges can not be realigned to the normal anatomical position and the skin or flap colour **is not** pale, dusky or darkened.

Category 2b
A skin tear where the edges can not be realigned to the normal anatomical position and the skin or flap colour **is** pale, dusky or darkened.

Category 3
A skin tear where the skin flap is completely absent.

Skin Tear Audit Research (STAR). Silver Chain Nursing Association and School of Nursing and Midwifery, Curtin University of Technology. Revised 4/2/2010

This project is funded by the Australian Government Department of Health and Ageing under the Encouraging Better Practice in Aged Care (EBPAC) program

Venous Leg Ulcer Flow Chart

Assessment

History

- Medical
- Medications
- Wound
- Psychosocial / activities of daily living

Characteristics of the wound (see table below)

Diagnostic investigations:

- All patients with a leg ulcer should be screened for arterial disease, including an Ankle Brachial Pressure Index (ABPI)*
- Reassess the ABPI every 3 months or if clinically indicated

* Compression therapy is contraindicated if the ABPI is <0.8 or >1.2

* *Assessment should only be undertaken by a trained health practitioner*

Wound Bed Management

- Irrigate with warm water or normal saline. Pat dry
- Clean the wound gently (avoid mechanical trauma)
- Remove necrotic or devitalised tissue (e.g. autolytic debridement)*
- EMLA® cream can reduce pain associated with debridement

* *Mechanical or sharp debridement should only be done by a trained practitioner*

- **Select a dressing that will:**
  - maintain a moist wound bed
  - manage wound exudate
  - protect the surrounding skin

Management

- **Multilayered high compression therapy** should be applied following diagnosis of an uncomplicated venous leg ulcer

* *Compression therapy should only be applied by a trained practitioner*

- Check ankle circumference measures more than 18cm
- Apply moisturiser to the lower limb
- Apply padding over bony prominences
- Apply compression system as per manufacturers' guidelines
- **Remove bandaging if there is:**
  - slippage of bandage
  - decreased sensation of lower limb
  - toes go blue or purple, or leg swells above or below the bandage
  - increased pain in the foot or calf muscle that is unrelieved by leg elevation for 30 minutes above heart level
  - increased shortness of breath or difficulty breathing
- **Monitor Progress:** Trace wound before starting compression therapy, then every 2–4 weeks, or when rapid changes occur

Prevention

- Use of compression stockings for life reduces leg ulcer recurrence (Class 3 (40mm Hg) if tolerated, or highest level tolerated)

* *A trained practitioner should fit compression stockings*

- Replace compression stockings every 6 months
- Provide education to clients and carers on compression stocking application and removal techniques
- Refer to vascular surgeon if appropriate
- Monitor regularly, every 3 months
- Apply moisturiser twice daily
- Elevate the affected limb above heart level daily
- Encourage ankle and calf muscle exercises
- Repeat Doppler ABPI every 3 months, or whenever changing the type of compression therapy

Characteristics of a Venous Leg Ulcer

Venous leg ulcers typically	The surrounding skin often has:
Occur on the lower third of the leg	Haemosiderin (brown) staining
Have pain usually relieved by elevation of the legs above heart level	Hyperkeratosis (dry, flaky skin)
Are shallow and have irregular, sloping wound margins	Venous stasis eczema
Produce moderate to heavy exudate	Inverted champagne bottle leg appearance

When to Refer

Uncertainty in diagnosis
Complex ulcers (multiple aetiology)
ABPI <0.8 or >1.2
No reduction in wound size within 4 weeks after starting compression
Deterioration of ulcer
Signs of infection
Failure to improve after 3 months

References:
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Arterial Leg Ulcer Flow Chart

Assessment

History

- Medical
- Medications
- Wound
- Psychosocial / activities of daily living

Characteristics of the wound (see table below)

Diagnostic investigations

All patients with a leg ulcer should be screened for arterial disease, including an Ankle Brachial Pressure Index (ABPI)

* *Assessment should only be undertaken by a trained health professional*

Wound Bed Management

- Cleanse the wound gently with warm water or normal saline. Pat dry.
- In general, debride necrotic or devitalised tissue: *however,* do not debride dry gangrene or eschar
  * *Debridement should be undertaken only by a trained health professional*
- Maintain a moist wound environment, *however,* if dry gangrene or eschar is present, it is best left dry
- Topical antimicrobial dressings may be beneficial when wounds are chronically or heavily colonised

Management

- Promote oxygenation through avoidance of:
  - smoking
  - dehydration
  - cold
  - stress and pain
- Refer to vascular surgeon for restoration of blood flow by revascularisation, if appropriate
- Ensure optimal pain management strategies

Prevention

- Reduce risk factors:
  - cease smoking
  - control diabetes mellitus
  - control elevated lipids
  - control hypertension
  - anti-platelet therapy
  - control weight
- Refer to vascular surgeon for assessment if appropriate
- Exercise the lower limbs
- Protect legs and feet:
  - ensure soft, conforming, proper fitting shoes
  - refer to podiatrist for general footcare, orthodics and offloading as necessary
  - protect legs (e.g. padded equipment, long clothing)
  - use pressure relief devices e.g. high density foam or air cushion boots for those with limited mobility
- Keep the legs warm (e.g. socks, rugs)
- Eat a nutritious diet

Characteristics of an Arterial Leg Ulcer

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Arterial leg ulcers typically:

- Occur on the anterior shin, ankle bones, heels or toes
- Have pain which is relieved when legs are lowered below the level of the heart
- Have 'punched out' wound edges
- May have mummified or dry and black toes

The surrounding skin or tissue often has:

- Shiny or dry skin
- Devitalised soft tissue with dry or wet crust
- Thickened toe nails
- A purplish colour when the leg is lowered to the ground
- Loss of hair
- Cool skin

When to Refer

- uncertainty of diagnosis
- a low ABPI < 0.8 or a high ABPI > 1.2
- symptoms impact on quality of life
- multiple aetiology
- signs of infection
- ulcer appears ischaemic
- failure to heal

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Diabetic Foot Ulcer Flow Chart

Assessment

History

- Medical
- Medications
- Wound
- Psychosocial / activities of daily living

Characteristics of the wound

- Use a validated classification tool

Inspect for foot deformities

Diagnostic investigations*

- Screen all clients for peripheral arterial disease (PAD), including an ankle brachial pressure (ABPI)
- An ABPI less than 0.9 indicates arterial disease
- ABPI greater than 1.2 indicates a need for further investigation
- Use monofilament testing to assess for loss of sensation and neuropathy

* *Assessment should only be undertaken by a trained health professional*

Wound Bed Management

- Cleanse the wound with a neutral, non-irritating solution e.g. warm water or normal saline
- Cleanse wound bed gently to avoid trauma
- Remove necrotic or devitalised tissue, unless revascularisation is needed*

* *Mechanical or sharp debridement should only be done by a trained health professional*

- **Select a dressing which will:**
  - maintain a moist wound environment (except where dry gangrene or eschar is present)
  - protect the surrounding skin
  - manage wound exudate
  - topical antimicrobial dressings will help chronically or heavily colonised wounds

Monofilament testing to check sensation

Management

- Reduce pressure – offload pressure points e.g. use crutches, wheelchairs, custom shoes or inserts, orthotic walkers, diabetic boots, or total contact casts
- Promote oxygenation of the wound by avoiding dehydration, smoking, cold, stress and pain
- Optimise glucose control
- Regularly document progress in healing
- Re-evaluate treatment if failure to achieve 40% ulcer size reduction after 4 weeks
- A multidisciplinary team is needed; include podiatrists, orthotists, dietitians, GPs, wound care nurses and endocrinologists
- Consult remote expert advice with digital imaging for clients living in remote areas

Prevention

- Assess all clients with diabetes for PAD, neuropathy and foot deformity and classify the level of risk
- Protective footwear is required for those at risk, i.e. with PAD, neuropathy, callus, foot deformity and/or previous ulceration
- Offload pressure points as detailed under 'Management'
- Practise good foot care and daily inspection of feet
- Ensure an annual foot examination by a health professional (3 – 6 monthly if at moderate or high risk)
- Monitor and optimise blood glucose levels
- Quit smoking

When to Refer

- Uncertainty of diagnosis
- There is a low or high ABPI
- Symptoms impact on quality of life
- Complicated ulcers e.g. multiple aetiology
- Signs of infection or wound probes to bone
- No progress in healing or deterioration of ulcer

Characteristics of a Diabetic Foot Ulcer

Diabetic ulcers typically:

- Occur on the sole of the foot or over pressure points e.g. toes
- The wound bed can be shallow or deep, producing low to moderate amounts of exudate
- The surrounding skin is usually dry, thin and frequently has callous formation

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