# Chest pain

Resident with any of:

- Chest pain or discomfort
- Jaw pain or heaviness
- Atraumatic left or right arm pain or heaviness
- Angina equivalent symptoms (see Practice point 1)

1. Sit resident in position of comfort and check vital signs - review Recognition of the deteriorating resident.
2. Where the resident has a chest pain action plan, follow the plan.
3. If resident is hypoxic with oxygen saturations < 90%, deliver controlled oxygen via nasal cannulae, titrated to achieve oxygen saturations of no higher than 92%.
4. Where available, perform ECG.
5. If not immediately life-threatening, review Checklist for contact and verbally contact GP*.

**STABLE VITALS** → Identify and escalate Red flags for deterioration (see Practice point 2)

**RED FLAGS PRESENT** → Review advance care plan and refer to Management of residents with unstable vital signs

**UNSTABLE VITALS** → Review advance care plan and refer to Management of residents with unstable vital signs

**RED FLAGS ABSENT** → With GP, undertake Assessment of the resident with chest pain (see Practice point 3)

**CHEST PAIN CONSISTENT WITH CARDIAC ISCHEMIA**

**DEVELOPS RED FLAGS**

1. Reassess vital signs.
2. With GP:
   - Assess for contraindications to Glyceryl Trinitrate (GTN) - (see Practice point 4)
   - If no contraindications and ongoing chest pain or heaviness, administer GTN sublingually, 300 micrograms sublingual tablet or one 400 microgram spray. *Ensure residents are sitting or lying when administering GTN and for a 5 minute period after GTN administration.*
   - If pain not resolved in 5 minutes repeat vital signs and if remain stable, give further GTN dose
   - Where safe to do so, GP to consider administration aspirin 300mg orally
3. Provide supportive cares (see Practice point 5).
4. Increase monitoring of vital signs and look for development of red flags.

**ALTERNATE CAUSE OF CHEST PAIN OR DIAGNOSTIC UNCERTAINTY**

Assess for Escalation criteria (see Practice point 6)

**ESCALATION CRITERIA PRESENT** → Manage as per GP direction and in concordance with resident expressed goals of care; refer to ***HHS RaSS*** at GP discretion

**NO ESCALATION CRITERIA AND CHEST PAIN RESOLVED**

1. Continue to monitor progress closely.
2. With GP and resident, update or develop a chest pain action plan.
3. Implement preventive measures for future exacerbations of angina (see Practice point 7).

*Where timely, arrange telehealth or face-to-face GP review

# Chest pain practice points

## 1) Angina equivalent symptoms

Angina in older people may present with any of the following:

1. Typical angina symptoms (pressure-like chest pain / discomfort, central with radiation to jaw, neck, arm / shoulder or upper abdomen, worse with exertion).
2. Shortness of breath.
3. Diaphoresis (sweating).
4. Nausea and vomiting.
5. Syncope or pre-syncope (dizziness).

Cardiac ischemia may also present with delirium or an unexplained fall.

Angina may be precipitated by underlying illnesses that stress the cardiac system - examples include underlying infection, dehydration, GI bleed or exacerbation of chronic disease.

## 2) Red flags for deterioration in resident with chest pain

If any of the following red flags are identified in residents who have chest pain, review the resident's advance care plan, consult resident or substitute health decision maker (or nominated decision support person) and refer to Management of residents with unstable vital signs pathway.

The following are considered red flags in the resident with chest pain:

- Vital signs in the red or danger zone - refer to Recognition of the deteriorating resident
- Altered mental state or difficult to rouse relative to baseline
- The resident has ongoing severe chest pain despite appropriate management
- Syncope
- Chest pain associated with sudden onset of new neurological deficit
- Significant shortness of breath associated with chest pain
- ECG findings of new ST elevation or ST depression

Note: a decision to transfer a resident to hospital with chest pain should always consider resident goals of care and be respectful of informed choice by the resident (or substitute decision maker).

## 3) Assessment of the resident with chest pain

Goals of assessment of the resident with chest pain are to:

1. Identify the cause of chest pain.
2. Where the pain is consistent with cardiac ischemia, identify precipitants.
3. Identify complications of cardiac ischemia.

**Identify the cause of chest pain -**

- History from the resident and carers (and family where appropriate and relevant) for:
  - Nature and duration of pain
  - Radiation of pain
  - Associated symptoms
  - Prior episodes of the same pain and identified cause
- Examination including:
  - Vital signs
  - Focal chest findings such as focal crackles that do not clear with coughing
- Examples of assessment considerations are outlined in Table 1.
- Where a cardiac cause remains possible, perform an ECG and consider blood tests to assess haemoglobin, electrolytes, and troponin.

# Chest pain practice points (cont'd)

## 3) Assessment of the resident with chest pain (cont'd)

**Table 1: Examples of considerations in assessment of acute chest pain**

| Assessment features | | Cardiac ischemia | Aortic dissection | Pneumonia | Pulmonary embolism | Traumatic pneumothorax |
|---|---|---|---|---|---|---|
| **Pain features** | **Onset** | Gradually increases in intensity over minutes | Sudden | Gradual | Sudden | Commonly post-trauma e.g. fall |
| | **Location** | Left or central chest | Central chest | Left or right | Left, right or central | Left or right |
| | **Radiation** | To both arms or neck or jaw | To back +/- to legs | Nil | | |
| | **Duration** | A changing pattern of pain over the prior 24 hours | Constant | Hours to days | Hours to days | Most commonly post-fall or trauma |
| | **Character** | Similar to episodes of prior cardiac ischemia; pressure-like pain | Sharp, tearing or ripping | Pleuritic (worse on inspiration), sharp | | |
| | **Aggravating / relieving factors** | Worse with exercise; relieved with rest | - | Worse with inspiration / coughing | | |
| **Associated symptoms** | | Diaphoresis (sweating) Nausea / vomiting | May have syncope or focal neurological deficits | Shortness of breath | | |
| | | | | Fever | Calf pain | Focal chest wall tenderness |
| | | | | Cough | Hemoptysis (coughing up blood) | |
| **Risk factors** | | Peripheral arterial disease; | Hypertension Bicuspid aortic valve or aortic dilation | Poor swallow; immune compromise; advanced dementia | History of PE or DVT; active malignancy; immobilisation | History of trauma or underlying pulmonary disease (e.g. asthma / COPD) |
| **Examination findings** | | Diaphoresis | Extremity pulse or blood pressure difference | Fever | Tachycardia | Tachycardia |
| | | Tachycardia / bradycardia | | Friction rub | Tachypnoea | Tachypnoea |
| | | Bi-basal crackles | | Focal chest signs | Asymmetric leg swelling or calf tenderness | Reduced air entry on side of pneumothorax |
| | | Examination can be normal | | | | |

**Precipitants of cardiac chest pain** include:

1. **Acute coronary syndrome** - suspect particularly if pain onset at rest or ongoing chest pain or acceleration of chest pain symptoms (unstable angina).
2. **Exacerbations of chronic co-morbid conditions** (e.g. Chronic Obstructive Pulmonary Disease [COPD]).
3. Development of an **acute medical illness** (e.g. sepsis, anaemia, arrhythmias, hypertensive urgencies, thyrotoxicosis).
4. Progression of **valvular heart disease**.
5. **Medications** that precipitate tachycardia (e.g. beta-2-agonists such as salbutamol, anticholinergic medications).

**Identify complications of cardiac chest pain** including:

1. Heart failure.
2. Cardiac arrhythmia or ischemia.

# Chest pain practice points (cont'd)

## 4) Contraindications to GTN or aspirin

**GTN is contraindicated if:**

1. Systolic (top) blood pressure is < 110 mmHg.
2. Severe anaemia (haemoglobin less than 80).
3. Severe aortic stenosis or obstructive cardiomyopathy.
4. Sildenafil citrate ("Viagra") or vardenafil administered in previous 24 hours or avanafil in previous 12 hours or tadalafil in prior 48 hours - note for all PDE5 inhibitors a longer interval is required if excretion is delayed due to drug interactions, renal or hepatic impairment - extreme caution is advised.
5. Known hypersensitivity to GTN.

**Aspirin is contraindicated if:**

1. Known hypersensitivity or allergy to aspirin or non-steroidal anti-inflammatory drugs.
2. Aspirin sensitive asthma.
3. Severe active bleeding.

## 5) Supportive care of the resident with chest pain

**Supportive care** for residents with chest pain includes:

1. Avoid dehydration - where there is no clinical concern for heart failure, increase frequency of offering of fluids.
2. Falls risk management plan - residents who have had GTN are at increased risk for postural hypotension after GTN administration; ensure residents are sitting or lying when administering GTN and for a 5 minute period after GTN administration.
3. Manage contributors such as hypertension, anemia, infections etc.
4. Symptom relief - as determined by cause of chest pain. Where symptoms persist despite maximal therapy, consider consultation with the local *HHS RaSS* team at GP discretion.

## 6) Escalation criteria

First screen for red flags as above. Where there are no red flags, presence of any of the following may prompt escalation to HHS RaSS at GP discretion (or in resident's nearing end of life, to the resident's palliative care provider):

- Red flags in a resident who has conservative goals of care and does not wish to be transferred to hospital
- Resident has recurrent chest pain despite management
- Diagnostic uncertainty

## 7) Prevention of exacerbations of angina

1. Control risk factors including hypertension and blood glucose control in diabetes.
2. Consider pharmacological agents that may be of benefit in the individual resident.
3. Consider where appropriate, individualised graded exercise program guided by clinical status, symptoms, co-morbidities and frailty.
4. Identify and treat depression.
5. Manage contributors (e.g. anaemia).

## Chest pain references


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## Chest pain version control

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|---|---|---|---|---|---|
| **Pathway** | Chest pain | | | | |
| **Document ID** | CEQ-HIU-FRAIL-00007 | **Version no.** | 3.0.0 | **Approval date** | 16/10/2023 |
| **Executive sponsor** | Executive Director, Healthcare Improvement Unit | | | | |
| **Author** | Improving the quality of care and choice of care setting for residents of aged care facilities with acute healthcare needs steering committee | | | | |
| **Custodian** | Queensland Dementia, Ageing and Frailty Clinical Network | | | | |
| **Supersedes** | Chest pain 2.0 | | | | |
| **Applicable to** | Residential aged care facility registered nurses and General Practitioners in Queensland RACFs, serviced by a RACF acute care support service (RaSS) | | | | |
| **Document source** | Internal (QHEPS) and external | | | | |
| **Authorisation** | Executive Director, Healthcare Improvement Unit | | | | |
| **Keywords** | Chest pain, acute coronary syndrome, angina | | | | |
| **Relevant standards** | Aged Care Quality Standards:<br>Standard 2: ongoing assessments and planning with consumers<br>Standard 3: personal care and clinical care, particularly 3(3)<br>Standard 8: organisational governance | | | | |