

# Acute chest pain: NSTEMI rule in/out

Use in all patients aged > 24 years with chest pain unless:

- No chest pain since > 72h
- Clearly stable angina only
- Clearly due to other causes (e.g. trauma or shingles)
- STEMI / new LBBB on ECG
- Suspected oesophageal rupture or aortic dissection
- Pain pleuritic
- Recent cocaine use
- Clinical frailty score >6 (shared decision with patient / family)

**Disclaimer:**  
This is a clinical template; clinicians should always use judgment when managing individual patients

Approved by EF Guidelines Committee on 02Jul18  
Review date Jul20 . Trust Ref: C70/2016

## Patient details

Full name

DoB

Unit number

(use sticker if available)

## ① Symptoms of possible ACS?

*Tick as applicable*

- Chest pain and / or pain in arms, back or jaw lasting at least 5min
- Chest pain radiating to both arms
- Chest pain associated with nausea and vomiting, sweating or SoB
- Chest pain associated with hemodynamic instability (SBP <100, HR <50 or >100)
- Frequently recurrent chest pain (either new onset or abrupt deterioration in previously stable angina) with little or no exertion

## ② Suitable for EDU?

**YES**, as ALL of the below

- ECG non-diagnostic
- Haemodynamically stable
- Safe for discharge if NSTEMI excluded / no other reason to admit
- No crescendo angina (known CAD or history of chest pain on exertion AND >1 pain episode within last 24h)
- No coronary intervention (PCI or CABG) in last 4/52
- Grace score <141 (complete box 3)

**NO**, as not all of the above

## ③ GRACE risk and score

*Turn over for web calculator instructions*

- hs-cTnI raised above sex-specific limit
- ECG suggesting NSTEMI while observed

Age	HR	SBP	Creatinine
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Killip Class (presence or absence of CHF)

- I - None
- II - Raised JVP or rhonchi
- III - Pulmonary oedema
- IV - Cardiogenic shock

**Risk of death to six months**

%	Score
<input type="text"/>	<input type="text"/>

## ④ Enoxaparin cautions required?

**YES**, as at least one of the below

- Acute bacterial endocarditis
- Active major bleeding
- Stroke within last 8 weeks
- History of heparin-induced thrombocytopenia (History of) gastric or duodenal ulceration
- Hypersensitivity to any heparin / LMWH
- Known clotting disorder
- Platelets < 50,000
- Decompensated liver disease
- Diabetic retinopathy
- Intracranial haematoma within last 4 weeks
- Cerebral neoplasm
- Neuro- or eye surgery within last 4 weeks
- Current oral anticoagulation (unless INR < 2)
- Current anticoagulation with another heparin
- Systolic BP >180 or diastolic >110

**NB:** this can often be managed by urgent treatment e.g. with IV beta blocker or GTN

**NO**, as none of the above

## ⑤ NSTEMI management

- Calculate GRACE risk and score (see box 3; omit this step if diagnosis based on ECG changes)
- Bleep cardiology 'registrar' on \*88-2584-[extn] (try CCU 3719 or 3774 if no answer) to discuss
- Enoxaparin cautions (if any - see box 4)
- Appropriate disposition (i.e. usually CDU, sometimes CCU and - very rarely - AFU) as well as urgency of transfer:
- If dynamic ECG changes, hypotension or abnormal HR: 'Blue-light' patient to CCU by paramedic transport crew
- **NB:** Manage in ER until transfer
- If significant ongoing or recurrent pain: Urgent paramedic transport crew transfer
- 'Routine' transport if neither of the above
- Give Enoxaparin 1mg/kg SC unless advised not to
- Ensure analgesia needs are met
- **NB:** A small number of NSTEMIs will 'convert' to a STEMI. Repeat ECG guided by clinical changes.

Clinical features of possible ACS - See box 1

- 12-lead ECG NOW
- Give aspirin 300mg PO
- Establish IV access
- Oxygen only if needed
- Obtain CXR
- Provide good analgesia
- Obtain FBC, VBG, U&E, initial hs-cTnI and total cholesterol (additional bloods only as needed)

### Analgesia may include

- GTN 800 micrograms SL once
- Paracetamol 1g PO
- Dihydrocodeine 30mg PO
- Morphine 2-10mg IV if pain severe (score 7-10)
- Metoclopramide 10mg IV ONLY if nausea (**NB: Avoid cyclizine**)
- GTN infusion only if NSTEMI diagnosed AND pain recurs after an initial dose of morphine

Regional deep T-wave inversion or ST-depression

ECG features of NSTEMI with typical clinical picture?

hs-cTnI <5ng/L?

hs-cTnI >16ng/L (women) or >34ng/L (men)?

Further hs-cTnI testing required (2h after initial sample)

Suitable for EDU (see box 2)?

Clinical Frailty Score (see reverse) >5?

- Complete box 4
- Manage patient as per box 5
- Admit to AFU for further work-up
- Admit to CDU for further work-up
- Admit to EDU on 'NSTEMI Pathway'
- Discharge (unless there are other concerns) after completing 'CAD likelihood assessment' proforma

HH:MM  
Time (latest) chest pain episode started

HH:MM  
Time of arrival

Initial hs-cTnI  
ng/L  
Time obtained  
HH:MM

**NB:** if diagnosis based on raised hs-cTnI only, consider also myocardial injury (type II AMI; e.g. due to heart failure, arrhythmia, PE or sepsis); if in doubt, look at [Acute Cardiology Decision Aid](#) and / or discuss with ED senior

**NB:** Admission may not be in the best interest of people who are very frail, but decisions to discharge such patients can be ethically complex and are thus limited to consultants only

① Assessment by    ② Senior sign-off by (quality indicator; consultant if present, ST4-6 if not)

①	②
<input type="text"/>	<input type="text"/>
Print name	Signature
<input type="text"/>	<input type="text"/>
Position	Date
<input type="text"/>	<input type="text"/>
Time	<input type="text"/>

# 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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To calculate GRACE score, go to <https://www.mdcalc.com/grace-acs-risk-mortality-calculator>

The web calculator looks like this

Enter parameters as per example

### GRACE ACS Risk and Mortality Calculator ☆

Estimates admission-6 month mortality for patients with acute coronary syndrome.

When to Use	Pearls/Pitfalls	Why Use
Age		years
Heart rate/pulse	Norm: 60 - 100	beats/min
Systolic BP	Norm: 100 - 120	mm Hg
Creatinine	Norm: 62 - 115	µmol/L $\mu$ g
Cardiac arrest at admission	No Yes	
ST segment deviation on EKG?	No Yes	
Abnormal cardiac enzymes	No Yes	
Killip class (signs/symptoms)	No CHF Rales and/or JVD Pulmonary edema Cardiogenic shock	

#### Result:

Please fill out required fields.

### GRACE ACS Risk and Mortality Calculator ☆

Estimates admission-6 month mortality for patients with acute coronary syndrome.

When to Use	Pearls/Pitfalls	Why Use
Age	64	years
Heart rate/pulse	75	beats/min
Systolic BP	125	mm Hg
Creatinine	73	µmol/L $\mu$ g
Cardiac arrest at admission	No Yes	
ST segment deviation on EKG?	No Yes	
Abnormal cardiac enzymes	No Yes	
Killip class (signs/symptoms)	No CHF Rales and/or JVD Pulmonary edema Cardiogenic shock	

2 %

Probability of death from admission to 6 months

85 points

GRACE Score

Record both risk (as %) and score (as points) in Box 3 on the front