



GRACE-1: Recurrent, Low-Risk Chest Pain in the ED

Recommendation 1

In patients with pain more than 3 hours, a **single high-sensitivity troponin** below a validated threshold can reasonably exclude ACS within 30 days.



Conditional recommendation, low level evidence

Single observational study of 15,717 patients
3.4 events of 30-day ACS per 1,000 patients

Recurrent chest pain: previous ED visit with chest pain having had a diagnostic protocol with no evidence of ACS or flow-limiting stenosis

Low risk: HEART score <4 points or other ED validated score including ECG



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Recommendation 2

In patients with a normal stress test in the last 12 months, a **repeat stress test is not recommended.**



Conditional recommendation, low level evidence

2 RCTs & 1 observational study, total 9,601 patients
No significant difference in death or MACE with repeat test

Recurrent chest pain: previous ED visit with chest pain having had a diagnostic protocol with no evidence of ACS or flow-limiting stenosis

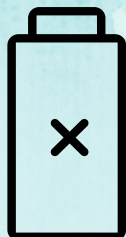
Low risk: HEART score <4 points or other ED validated score including ECG



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Recommendation 3

No evidence to recommend hospitalization
to reduce cardiac events in 30 days



No evidence

Recurrent chest pain: previous ED visit with chest pain having had a diagnostic protocol with no evidence of ACS or flow-limiting stenosis

Low risk: HEART score <4 points or other ED validated score including ECG



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Recommendation 4

In patients with $<50\%$ stenosis on angiography in the last 5 years, **refer for expedited outpatient testing** rather than inpatient evaluation.



Conditional recommendation, low level evidence

23 cohort & case-control studies, total 11,078 patients
7.84% death or myocardial infarction over several years

Recurrent chest pain: previous ED visit with chest pain having had a diagnostic protocol with no evidence of ACS or flow-limiting stenosis

Low risk: HEART score <4 points or other ED validated score including ECG



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Recommendation 5

In patients with no stenosis on angiography in the last 5 years, **refer for expedited outpatient testing** rather than inpatient evaluation.



Conditional recommendation, low level evidence

27 cohort & case-control studies, total 12,322 patients

5.2% death or myocardial infarction over 5 years

Recurrent chest pain: previous ED visit with chest pain having had a diagnostic protocol with no evidence of ACS or flow-limiting stenosis

Low risk: HEART score <4 points or other ED validated score including ECG



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Recommendation 6

In patients with no stenosis on CCTA in the last 2 years, a **single high-sensitivity troponin** below a validated threshold can exclude ACS in that 2 years.



Conditional recommendation, moderate level evidence

No direct evidence.
<2.5% MACE in 2 years in CCTA trials

Recurrent chest pain: previous ED visit with chest pain having had a diagnostic protocol with no evidence of ACS or flow-limiting stenosis

Low risk: HEART score <4 points or other ED validated score including ECG



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Recommendation 7

Suggest **depression and anxiety screening** to affect healthcare use and ED return visits.



Conditional recommendation, very low level evidence

1 observational study 365 patients: odds ratio 2.11 for pain recurrence in depression

2 observational studies 314 patients: odds ratio 3.22 for ED return in anxiety

Recurrent chest pain: previous ED visit with chest pain having had a diagnostic protocol with no evidence of ACS or flow-limiting stenosis

Low risk: HEART score <4 points or other ED validated score including ECG



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Recommendation 8

Suggest referral for anxiety or depression management to affect healthcare use and ED return visits.



Conditional recommendation, low level evidence

Multiple small RCTs with reduction in occurrence of chest pain with psychotherapy or antidepressant treatment

Recurrent chest pain: previous ED visit with chest pain having had a diagnostic protocol with no evidence of ACS or flow-limiting stenosis

Low risk: HEART score <4 points or other ED validated score including ECG