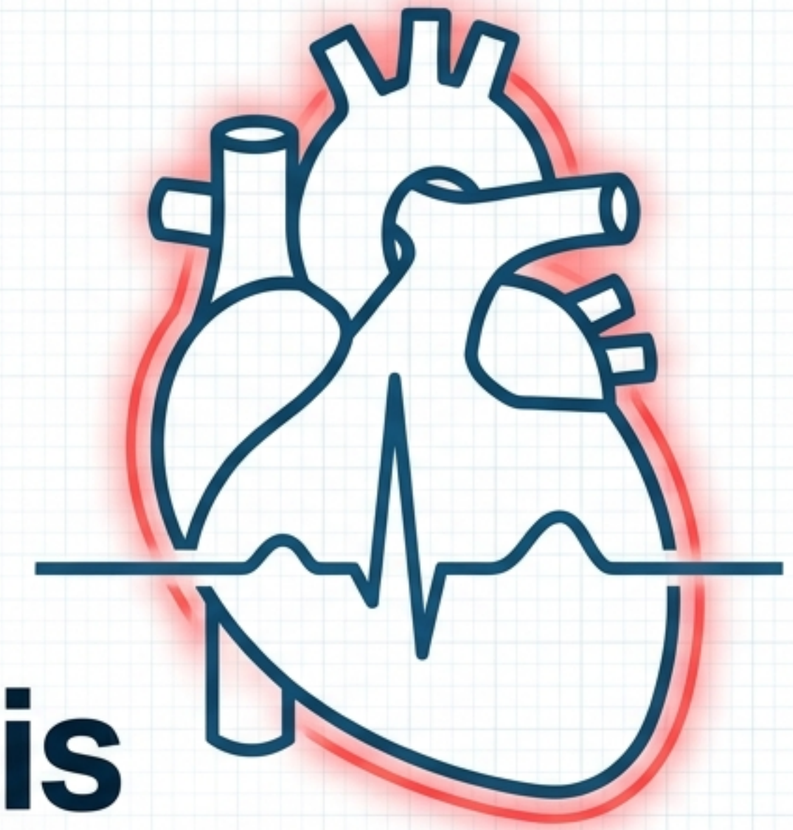


Acute Pericarditis

A Visual Clinical Protocol for Diagnosis, Risk Stratification, and Management

Adapted from Med2Date Australian Clinical Guidelines

THE ED BURDEN

HOSPITAL

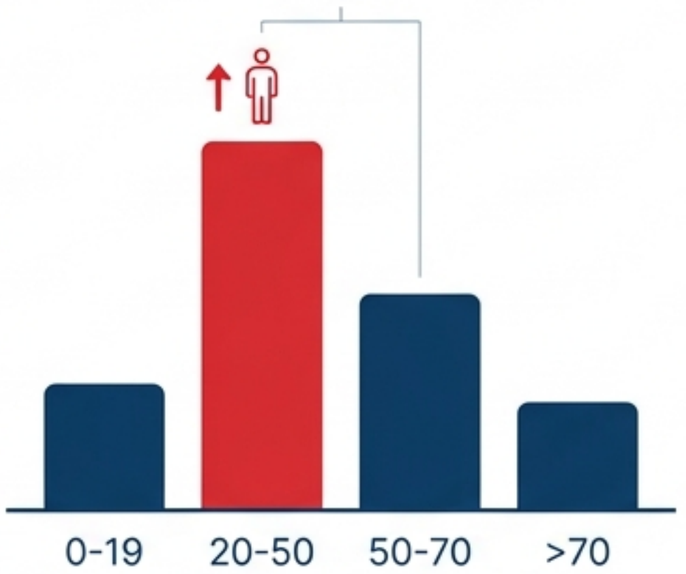
5%

Of all Emergency Department presentations with non-ischaemic chest pain in Australia are acute pericarditis.

INCIDENCE & DEMOGRAPHICS

POPULATION

27.7 per 100,000



Note: Seasonal viral spikes (Coxsackievirus B, echovirus) occur in temperate zones.

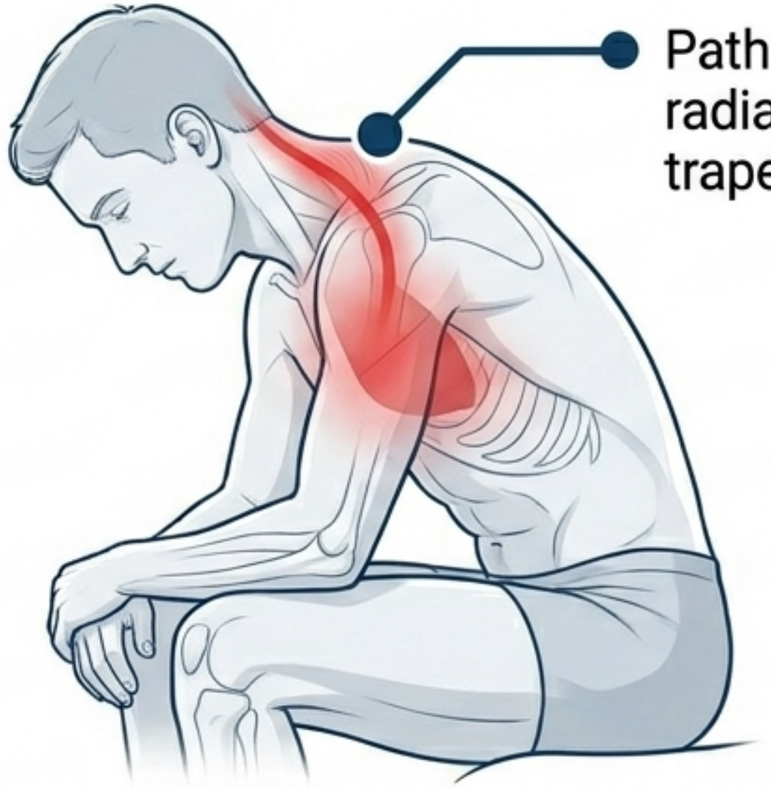
HIGH-RISK BASELINE

High underlying burden of Rheumatic Heart Disease (RHD) and Tuberculosis

in Aboriginal and Torres Strait Islander communities requires screening.

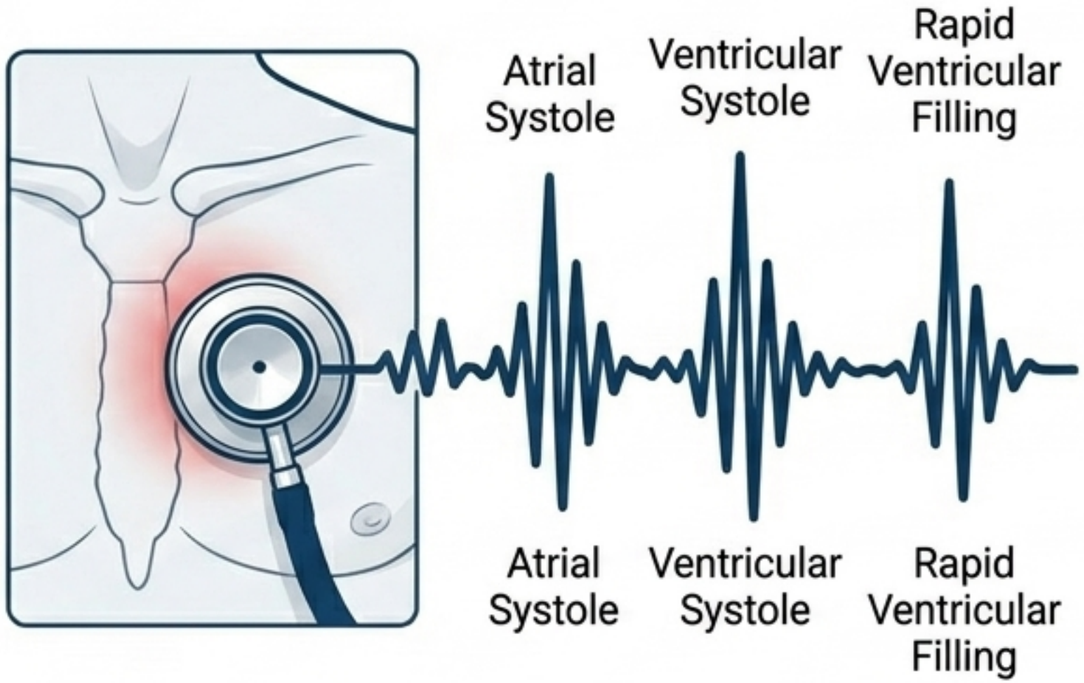
active screening

THE POSTURE & PAIN



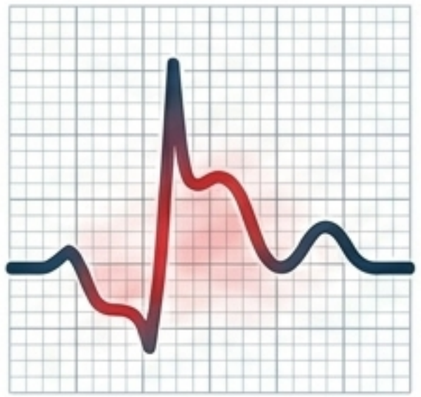
Sharp, pleuritic, worsened by supine positioning and inspiration.

THE FRICTION RUB



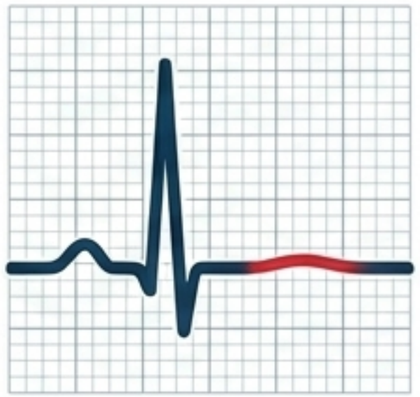
Specificity **~90%** | Sensitivity **35–60%**.
Best heard at end-expiration.

ECG Evolution in Acute Pericarditis



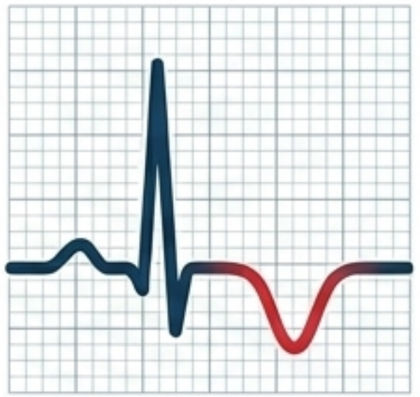
STAGE 1
Days 1–2

Diffuse concave **STE** (except aVR/V1); **PR depression** (highly specific).



STAGE 2
Days 2–3

Normalisation of ST segments; **T wave flattening**.



STAGE 3
Weeks

Diffuse **T wave inversions**.

STAGE 4
Weeks to months

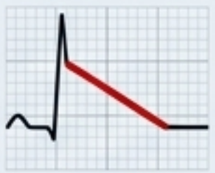
Complete normalisation of ECG.

Acute Pericarditis

Diffuse concave ST elevation

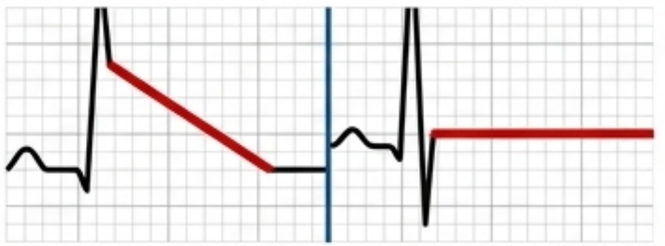
PR depression

Spodick sign (downsloping TP)



Absence of Q waves

Spodick Sign Magnifier

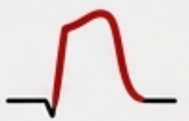


Pericarditis (Downsloping)

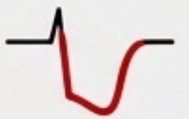
STEMI (Isoelectric)

STEMI

Convex (tombstone) **ST elevation**



Reciprocal ST depression



Isoelectric TP segment

Development of Q waves

If in clinical doubt, treat as STEMI and activate the catheterisation pathway.
Do not withhold reperfusion for suspected pericarditis alone.

The 2-of-4 Diagnostic Rule

- **Characteristic chest pain** (pleuritic, positional). — On
- **Pericardial friction rub**. — On
- **ECG changes** (diffuse STE / PR depression). — On
- **New/worsening effusion** on echo. — On

Diagnosis requires **2 of the 4** criteria.

Investigation Panel

CRP / ESR

Track inflammation & guide treatment duration.

High-Sensitivity Troponin

Elevated in ~30% = Myopericarditis.

(Note: does not change management without haemodynamic compromise).

Echocardiography (MBS 55122)

Perform in all cases to detect effusion.

CMR (MBS 63500)

Gold standard for diagnosis, oedema, and late gadolinium enhancement (LGE).

AETIOLOGY DIAGNOSTIC MATRIX

	**Viral / Idiopathic:** 80–90% of cases. Preceded by URTI. Diagnosis of exclusion.
	**Post-cardiac Injury:** Days/weeks post-MI (Dressler) or surgery.
	**Autoimmune:** SLE, RA, scleroderma. Check ANA, anti-dsDNA, C3/C4.
	**Uraemic:** eGFR <15. Fibrinous. Responds to daily dialysis.
	**Tuberculous:** Insidious. ATSI/migrant risk. Check ADA, QuantiFERON, AFB.
	**Drug-related:** Checkpoint inhibitors (pembrolizumab, nivolumab), hydralazine.

⚠ PURULENT / BACTERIAL

MEDICAL EMERGENCY. Mortality ~40%. High fever >39°C, toxic appearance. Urgent pericardiocentesis + Vancomycin & Ceftriaxone.

Triage Traffic Light System

Low Risk - Outpatient

- **No fever** (<38°C)
- **Small effusion** (<10mm)
- **Normal troponin**
- **Not immunosuppressed**

Action: Discharge with 1-week follow-up.

Moderate Risk - Inpatient

- **Fever** ≥38°C
- **Large effusion** (10–20mm)
- **Elevated troponin**
- **Oral anticoagulants**
- **NSAID failure** at 7 days

Action: Cardiology ward admission, telemetry.

High Risk - Urgent Intervention

- **Tamponade** (Beck's triad, pulsus paradoxus >10mmHg)
- **Suspected purulent/TB**
- **Haemodynamic instability**

Action: ICU/CCU, urgent drainage, cardiothoracic consult.

PHARMACOLOGICAL MANAGEMENT PATHWAY

First-line NSAID (Choose One) — PBS

Aspirin: 750–1000 mg PO TDS for 1–2 weeks, then taper over 2–3 weeks. (Preferred in post-MI).
Ibuprofen: 600 mg PO TDS for 1–2 weeks, then taper over 2–3 weeks.

Colchicine (Mandatory Adjunct) — PBS

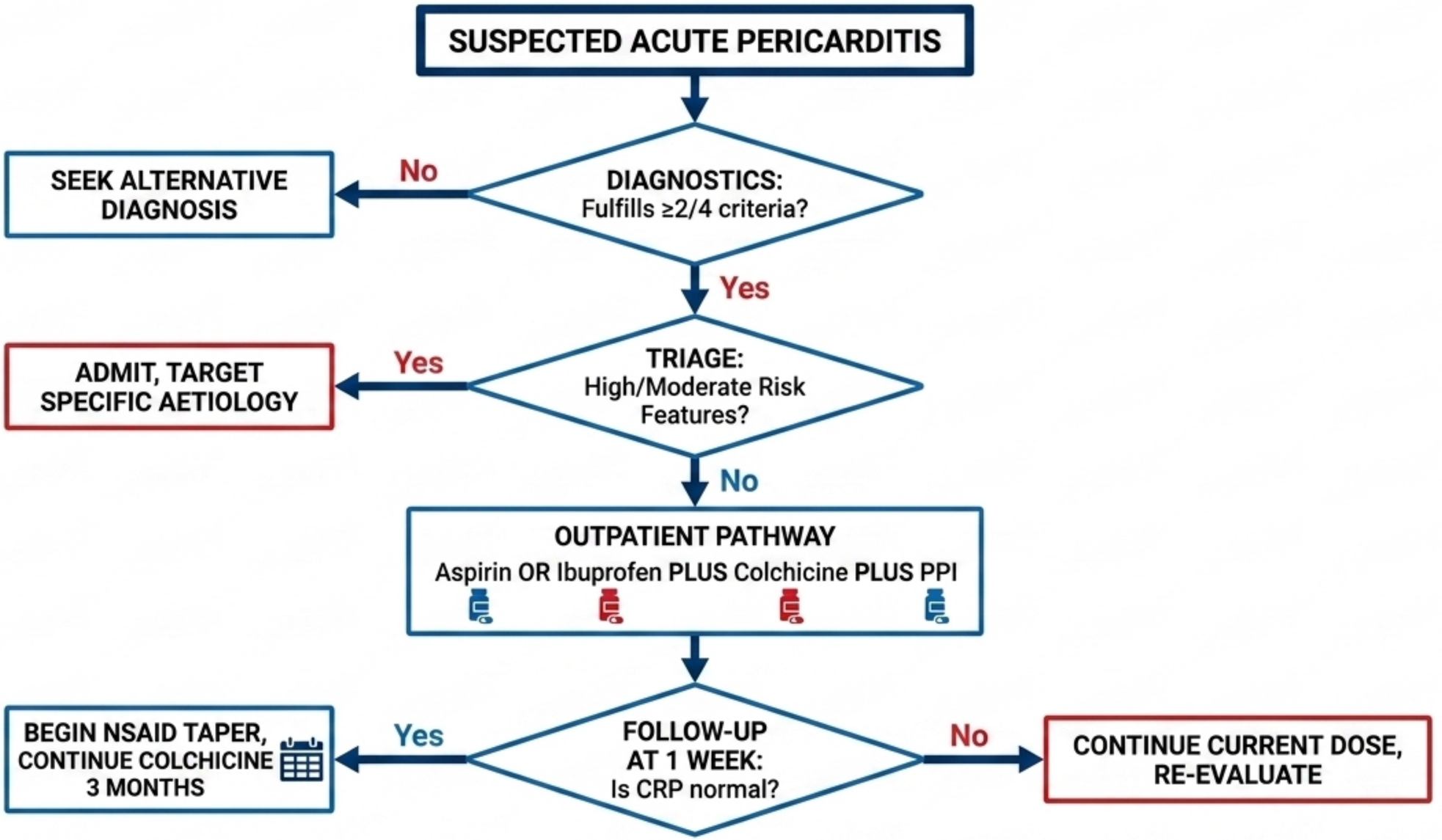
Dose: 500 mcg PO BD (if ≥70 kg) or 500 mcg PO OD (if <70 kg) for 3 months.
Adjustments: Halve dose for eGFR 10–30. Avoid in severe hepatic impairment.

Gastroprotection — PBS

PPI: Pantoprazole 40 mg PO daily alongside high-dose NSAIDs.

COPILOT / CORP Trials: Adding Colchicine reduces recurrence risk by ~50%.

THE MASTER ALGORITHM

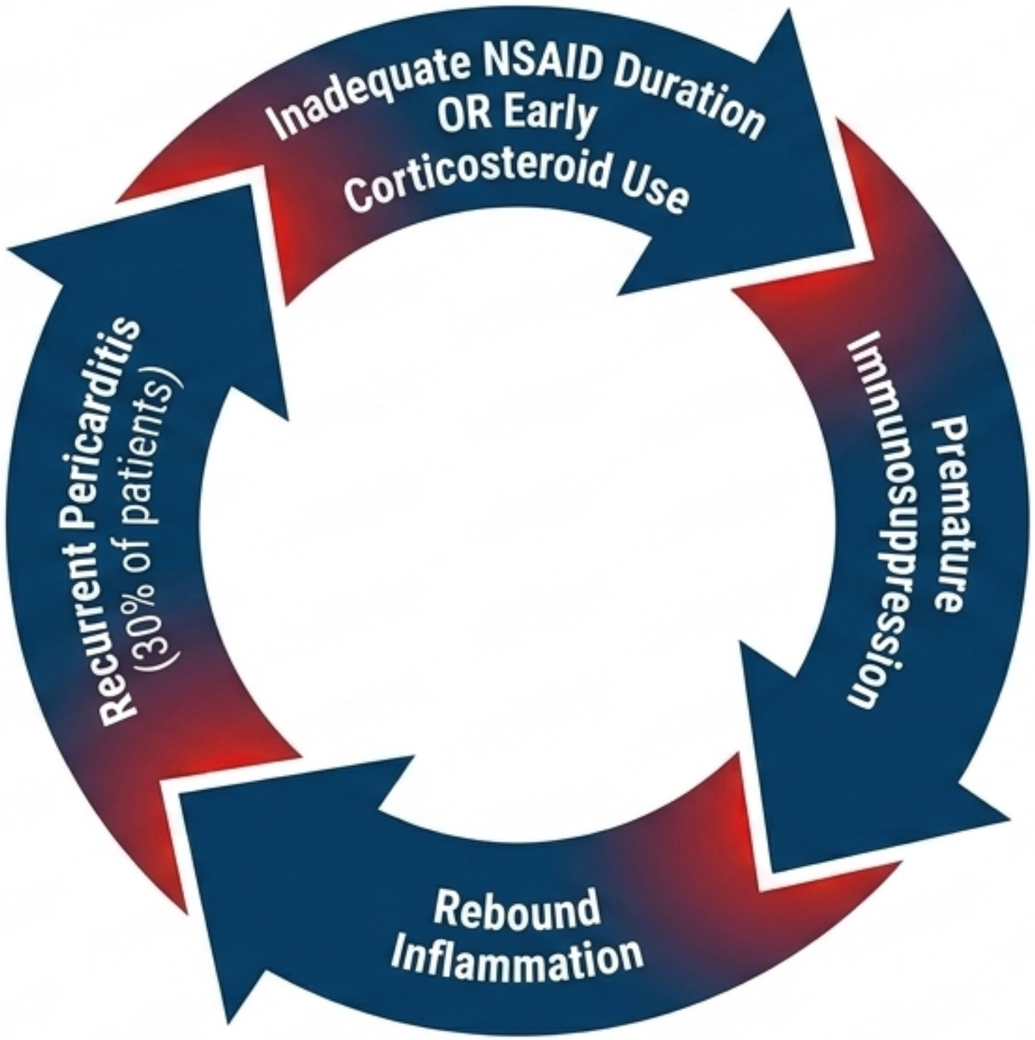


THE CORTICOSTEROID TRAP & VICIOUS CYCLE

The Corticosteroid Trap

Do NOT use corticosteroids as first-line therapy.

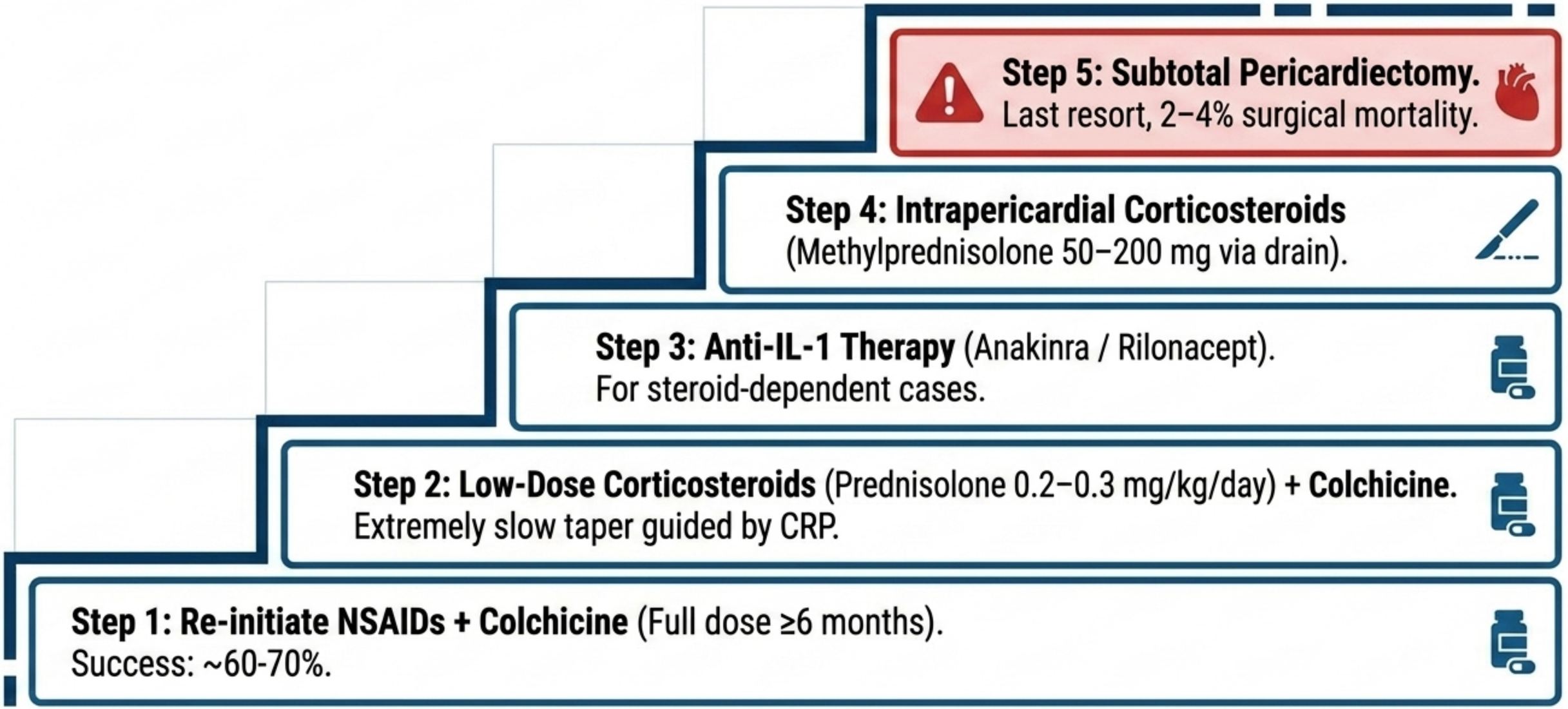
Early use doubles recurrence risk.



When to Use Steroids (Safe List)

1. **Refractory cases** failing ≥2 weeks NSAID+Colchicine.
2. Specific autoimmune aetiologies.
3. Absolute NSAID contraindications (eGFR <30).

The Recurrence Escalation Pathway



Anakinra (Kineret)

	**Mechanism:** IL-1 receptor antagonist.
	**Dose:** 100 mg SC once daily.
	**Evidence:** AIRTRIP trial (reduced recurrence from 90% to 10%; NNT ≈ 1.4).
	**Notes:** Screen for latent TB. Adjust for eGFR <60.

Rilonacept (Arcalyst)

	**Mechanism:** IL-1α and IL-1β trap.
	**Dose:** 320 mg SC loading, then 160 mg SC weekly.
	**Evidence:** RHAPSODY trial (96% risk reduction).

PBS Alert Banner: Neither agent is PBS-listed for pericarditis in Australia. Special Access Scheme (SAS) or private prescription required.

Pregnancy

Avoid Colchicine.

Aspirin ≤100mg safe in 2nd trimester.

Prednisolone is first-line if anti-inflammatories required.

Paediatrics

Use **Ibuprofen** (5–10 mg/kg).

Avoid Aspirin (Reye syndrome).

High risk of tamponade.

Elderly (>65)

PPI gastroprotection mandatory.

Lower threshold for malignancy workup.

Reduce Colchicine based on eGFR.

Renal Impairment

eGFR <30: NSAIDs contraindicated. ⚠

Use Prednisolone + adjusted Colchicine.

If uraemic: intensify dialysis.

Hepatic Impairment

Avoid NSAIDs/Colchicine in Child-Pugh C.

Use Prednisolone (active form, no conversion needed).

Immunocompromised

HIV (CD4 <200 = fungal/MAC risk).

Oncology (Checkpoint inhibitors have high recurrence, need cardio-oncology co-management). ⚠

Aboriginal and Torres Strait Islander Health Considerations

Epidemiological Burden

TB Incidence: ~8x higher.

RHD and TB are leading causes.

Pancarditis from Acute Rheumatic Fever requires benzathine penicillin G prophylaxis.

Diagnostic Thresholds

Low threshold for QuantiFERON-TB Gold.

Pericardial ADA >40 U/L.

PCR (Low threshold).

Access & Logistics

POCUS by remote health practitioners.

RFDS aeromedical evacuation for large effusions.

Coordinate with ACCHOs.

Note PBS safety net advantages for dispensing Colchicine/Aspirin.

The Restriction Timeline

Acute Pericarditis:
Minimum 3 months
strict restriction from competitive/strenuous sport.

Myopericarditis (Troponin elevated):
Minimum 6 months
strict restriction.

The Clearance Checklist

- Normalisation of CRP and ESR
- Complete resolution of effusion on TTE
- Normal 12-lead ECG & Holter
- Normal LV systolic function
- CMR showing no residual oedema or LGE (mandatory for myopericarditis)

Adapted from 2015 ESC Guidelines for Cardiovascular Abnormalities in Competitive Athletes