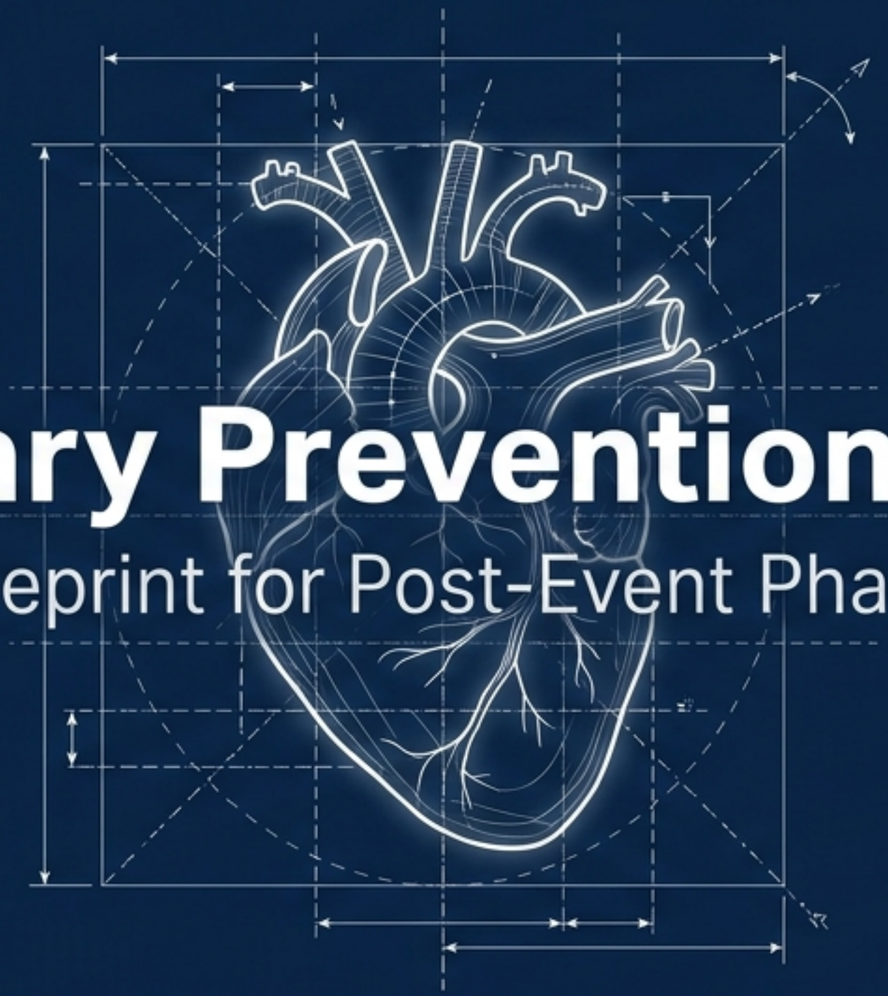


Secondary Prevention of CVD

The Clinical Blueprint for Post-Event Pharmacotherapy

[Evidence-Based] [Australian PBS Guidelines] [Clinical Reference]

The Stakes

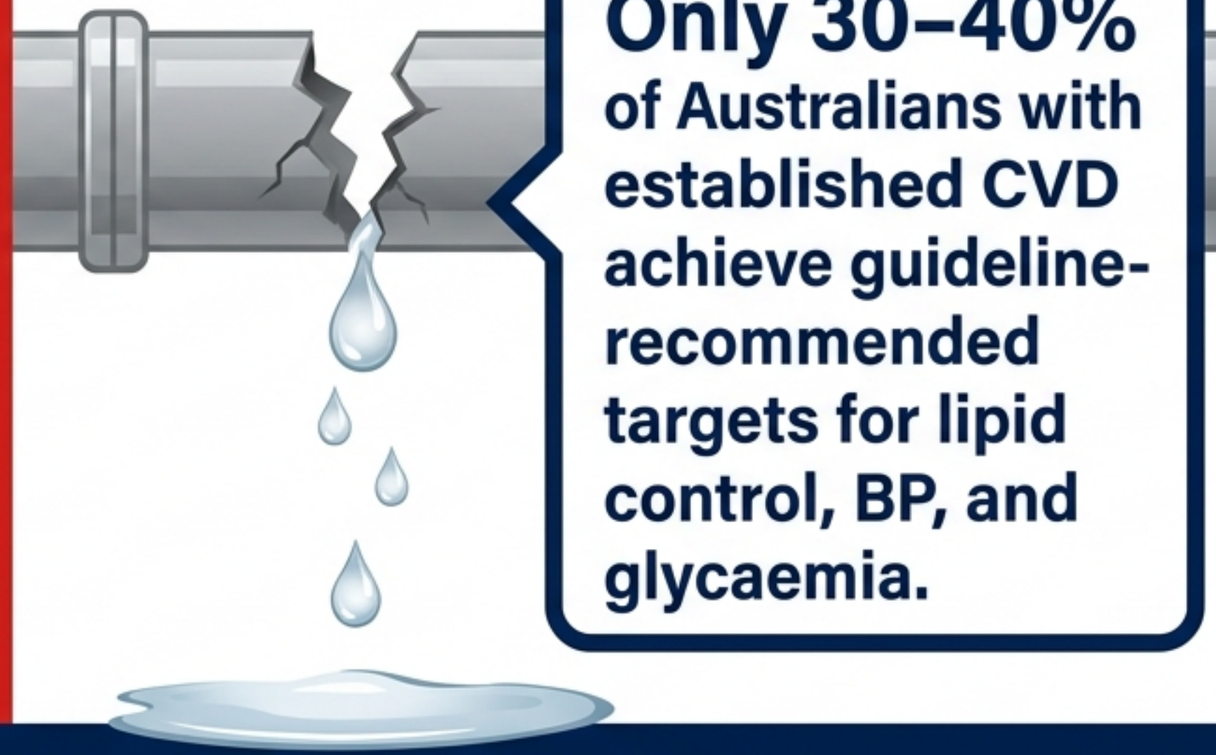
CVD is the leading cause of death in Australia (42,900 deaths/year; 25% of all deaths).

Secondary prevention reduces recurrent events by 25–50% and mortality by 20–30%.

Highly cost-effective: Every $1 spent on optimal post-ACS pharmacotherapy saves $4–$7 in downstream hospitalisation.

Annual health system cost: $8.8 billion.

The Evidence-to-Practice Gap



Only 30–40% of Australians with established CVD achieve guideline-recommended targets for lipid control, BP, and glycaemia.

The challenge is no longer a lack of evidence, but a failure of systematic clinical execution.

The Four Pillars of Cardiovascular Protection

Quadrant 1: Lipid Management

Target: LDL-C <1.8 mmol/L (or <1.4 for very high risk).

Focus: Aggressive descent.

Quadrant 2: Blood Pressure

Target: <130/80 mmHg.

Focus: Foundational combinations.

Quadrant 3: Diabetes

Target: HbA1c ≤53 mmol/mol (7.0%).

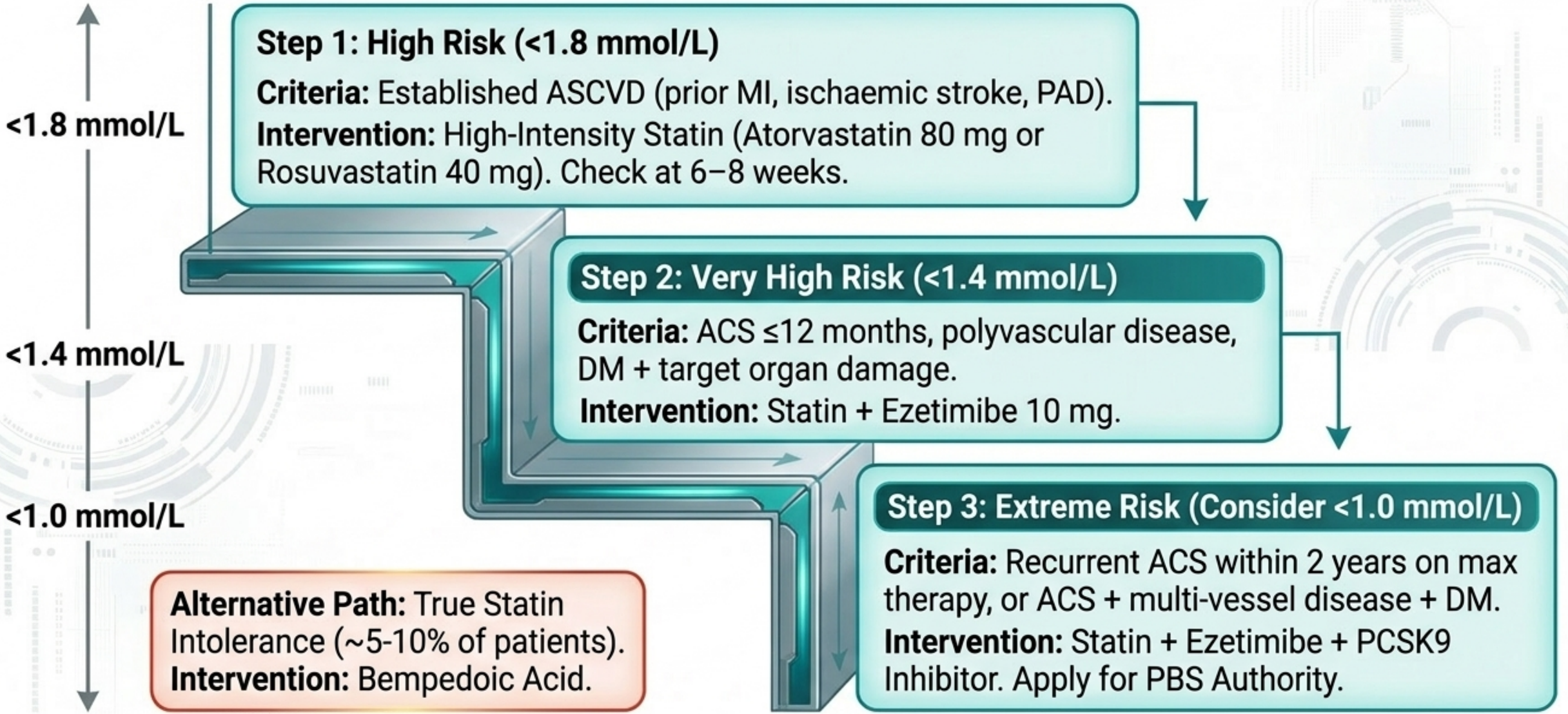
Focus: Organ protection (SGLT2i / GLP-1 RA).

Quadrant 4: Antiplatelets

Focus: Balancing ischaemic vs. bleeding risk (Extended DAPT).

Pillar 1 | Lipids

Stepwise Staircase of Lipid Management



Step 1: High Risk (<1.8 mmol/L)

Criteria: Established ASCVD (prior MI, ischaemic stroke, PAD).

Intervention: High-Intensity Statin (Atorvastatin 80 mg or Rosuvastatin 40 mg). Check at 6–8 weeks.

Step 2: Very High Risk (<1.4 mmol/L)

Criteria: ACS ≤12 months, polyvascular disease, DM + target organ damage.

Intervention: Statin + Ezetimibe 10 mg.

Step 3: Extreme Risk (Consider <1.0 mmol/L)

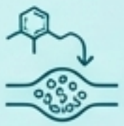
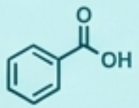
Criteria: Recurrent ACS within 2 years on max therapy, or ACS + multi-vessel disease + DM.

Intervention: Statin + Ezetimibe + PCSK9 Inhibitor. Apply for PBS Authority.

Alternative Path: True Statin Intolerance (~5-10% of patients).
Intervention: Bempedoic Acid.

Pillar 1 | **Lipids**

Lipid-Lowering Therapies: A Comparative Specification

High-Intensity Statins (Atorvastatin / Rosuvastatin) 	**Dose:** Atorva 40-80mg nocte / Rosuva 20-40mg daily.	**LDL-C Drop:** **39–63%.**	[✓ General Benefit]	**Note:** Rosuvastatin requires dose reduction (max 10mg) in severe CKD.
Ezetimibe 	**Dose:** 10mg daily.	**LDL-C Drop:** **15–25%** (add-on).	[✓ General Benefit] (with statin)	**Note:** IMPROVE-IT trial proven; first add-on choice.
PCSK9 Inhibitors (Evolocumab / Alirocumab) 	**Dose:** Evo 140mg SC Q2W / Aliro 75mg SC Q2W.	**LDL-C Drop:** **50–70%** (add-on).	[⚠ Authority Required]	**Note:** FOURIER/ODYSSEY OUTCOMES proven MACE reduction.
Bempedoic Acid 	**Dose:** 180mg daily.	**LDL-C Drop:** **15–25%** (monotherapy).	[⚠ Authority Required]	**Note:** CLEAR Outcomes proven; caution for uric acid/gout.

Pillar 2 | **Blood Pressure**

Target: <130/80 mmHg

(Consider 120-129 mmHg if high risk/tolerated, per SPRINT).

First-Line: ACEi (or ARB) + **Dihydropyridine CCB**. Preferred in CAD.

Second-Line: Add **Thiazide-like diuretic** for resistant HT.

Third-Line / Resistant: Add **Spironolactone** 25 mg.

Post-MI Foundation: ACEi + Beta-blocker is mandatory; add CCB/diuretic if above target.

Adherence Tip: Single-Pill Combinations (SPCs) improve adherence by 20–30%.

⚠ Diastolic Threshold Caution:
Avoid reducing DBP <60 mmHg in patients with significant coronary stenosis. Paradoxical increase in ischaemic risk due to compromised coronary perfusion.

Pillar 2 | Blood Pressure

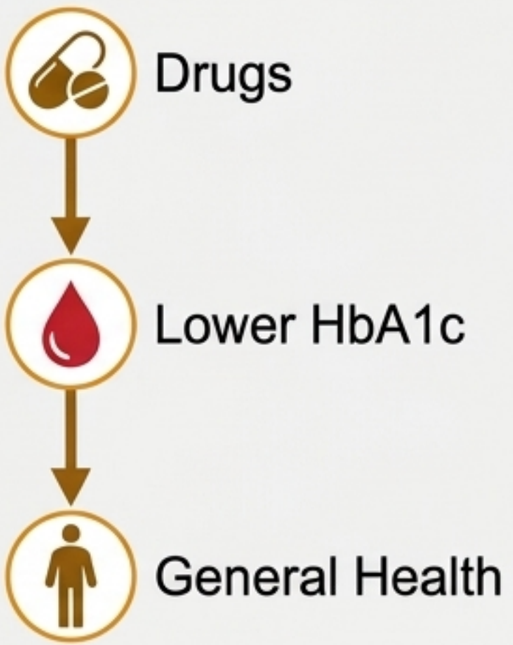
Antihypertensive Agents in CVD: A Comparative Specification

Drug Class	Preferred Agents	Indications in CVD	Key Considerations
ACE Inhibitor	Ramipril, Perindopril	Indications: Post-MI, HFrEF, DM, CKD	Considerations: Monitor K^+/eGFR at 1-2 weeks.
ARB	Candesartan, Valsartan	Indications: ACEi intolerance, HFrEF	Considerations: Do NOT combine with ACEi.
Beta-Blocker	Metoprolol succinate, Bisoprolol	Indications: Post-MI (12+ months), HFrEF	Considerations: Prefer evidence-based agents for HFrEF.
Calcium Channel Blocker (CCB)	Amlodipine, Lercanidipine	Indications: Add-on therapy, angina	Considerations: Amlodipine is safe in HFrEF; avoid non-dihydropyridines in HFrEF.
MRA (Spironolactone)	Spironolactone	Indications: HFrEF, resistant HT, post-MI with LVSD	Considerations: Avoid if eGFR <30 or K^+ >5.0.

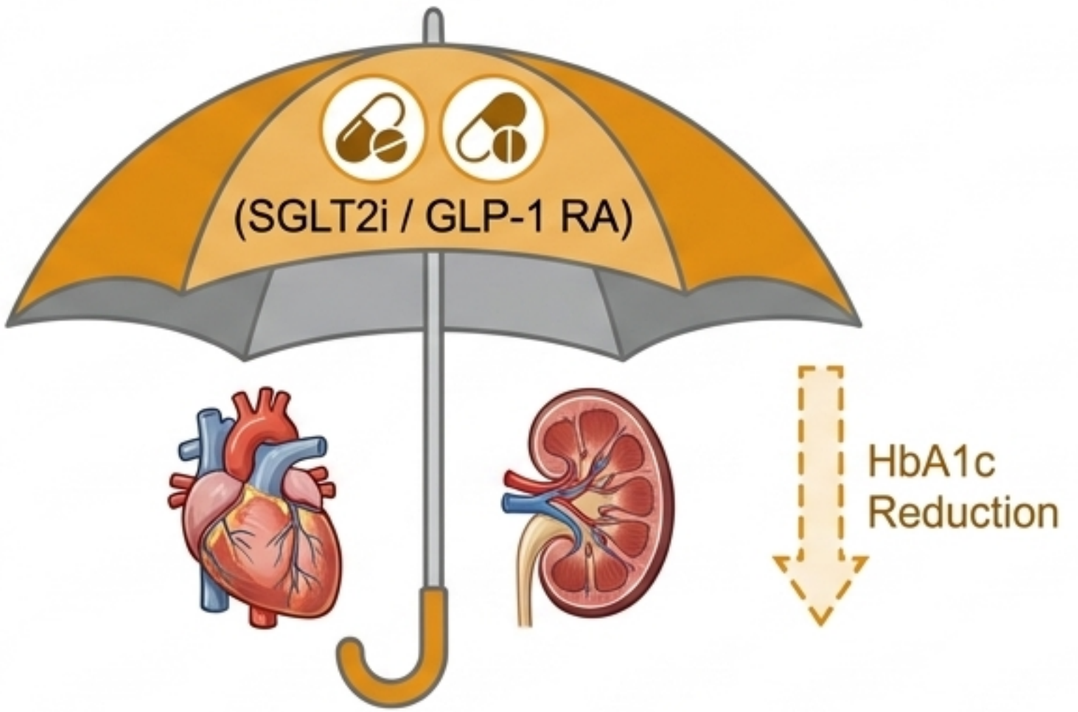
The Cardiovascular Paradigm Shift

T2DM increases CVD event risk 2–4x. Target: HbA1c ≤53 mmol/mol (7.0%).

The Old Paradigm



The New Paradigm



Cardiovascular protection is now the primary goal. SGLT2 inhibitors and GLP-1 RAs must be prioritized for their independent cardiovascular benefits, even in patients with well-controlled HbA1c on metformin. Glycaemic control is a secondary byproduct.

SGLT2 Inhibitors
(Empagliflozin / Dapagliflozin)

Mechanism Benefit: Reduces CV death and Heart Failure hospitalisation.

Key Evidence: EMPA-REG (38% reduction CV death); DAPA-HF/EMPEROR (efficacy regardless of DM status); DAPA-CKD (39% reduction in eGFR decline).

Clinical Notes: Initiate if eGFR ≥20. Hold peri-operatively.

[Restricted: ASCVD, HF, or CKD]

GLP-1 Receptor Agonists
(Semaglutide / Liraglutide)

Mechanism Benefit: Reduces MACE (Major Adverse Cardiovascular Events) in ASCVD.

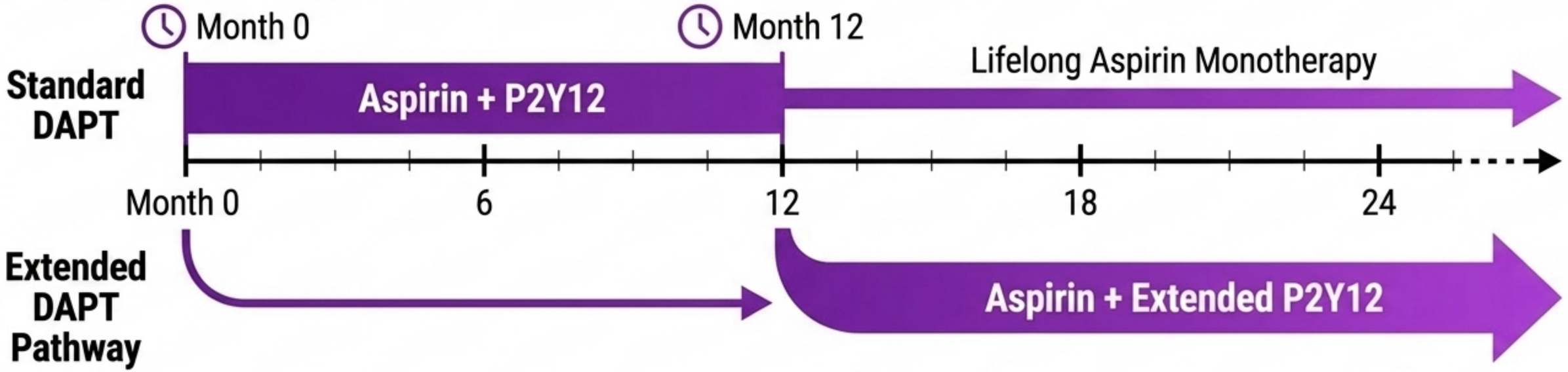
Key Evidence: SUSTAIN-6/LEADER (MACE reduction); SELECT (20% MACE reduction in non-diabetic obesity).

Clinical Notes: Significant weight loss. GI side effects. Contraindicated in MTC/MEN2.

[Restricted: T2DM + established ASCVD]

The Foundation: Low-dose Aspirin (75–100 mg daily) is indeft (lifelong). Reduces vascular events by 25%.

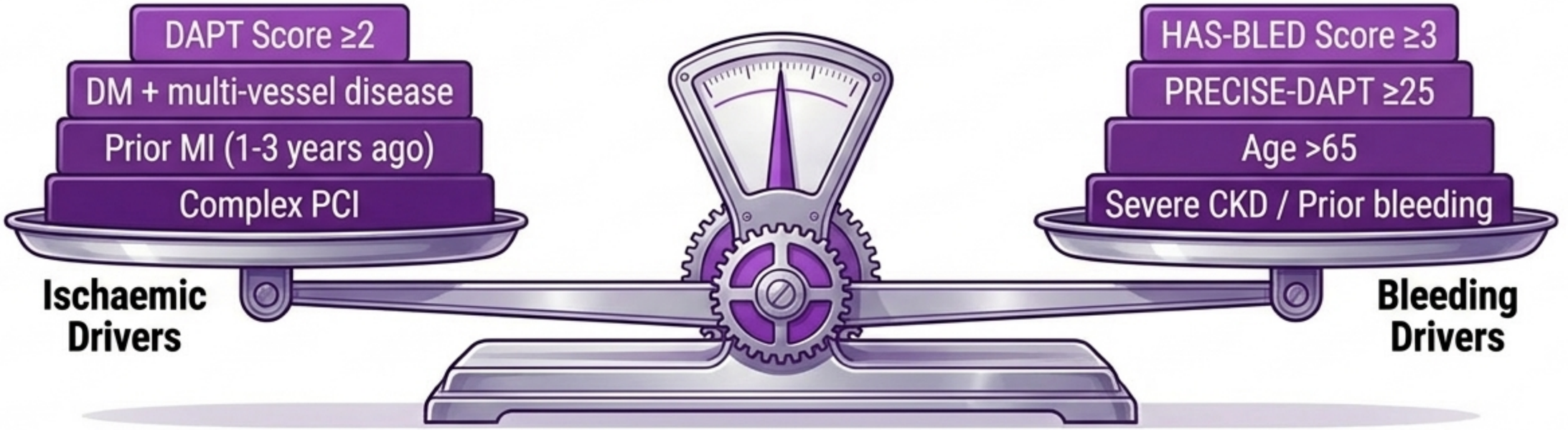
- **P2Y12 Inhibitors** (The DAPT Partners):
  - **Clopidogrel** (75mg): Standard choice. Caution: CYP2C19 poor metabolisers have reduced efficacy.
  - **Ticagrelor** (90mg BD): Superior in ACS (PLATO). Caution: Dyspnoea common; higher bleeding risk.



Post-Stroke Pathway: Following ischaemic stroke/TIA, DAPT for 21 days, then Clopidogrel 75mg monotherapy lifelong (CAPRIE trial).

Pillar 4 | Antiplatelets

Extended DAPT: The Ischaemic vs. Bleeding Balance

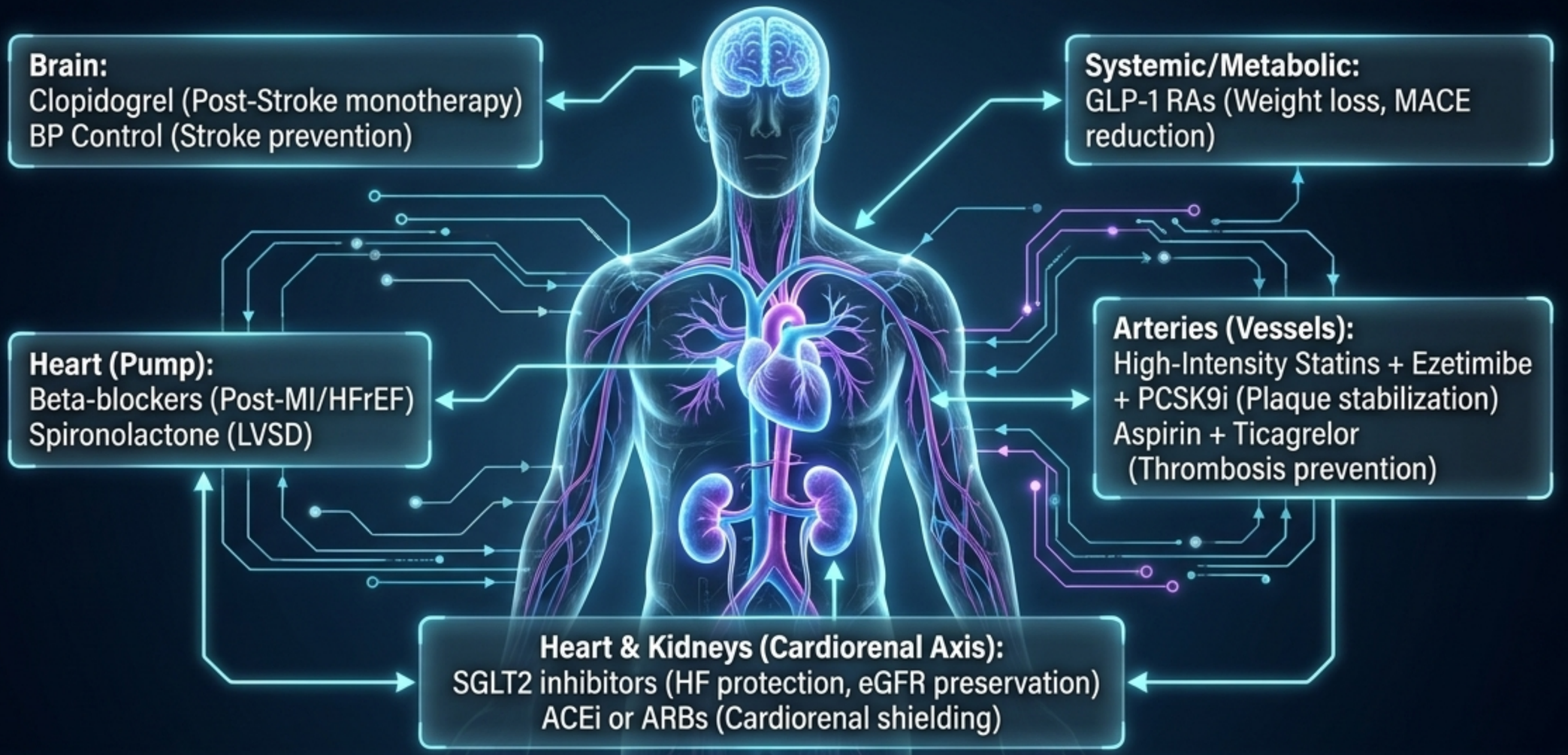


Decision Framework

Low Ischaemic / High Bleeding	Moderate Risk	High Ischaemic / Low Bleeding
Stop DAPT at 3–6 months. Monotherapy thereafter.	Consider extending Ticagrelor 60mg BD + Aspirin up to 36 months.	Extend DAPT for 36+ months.

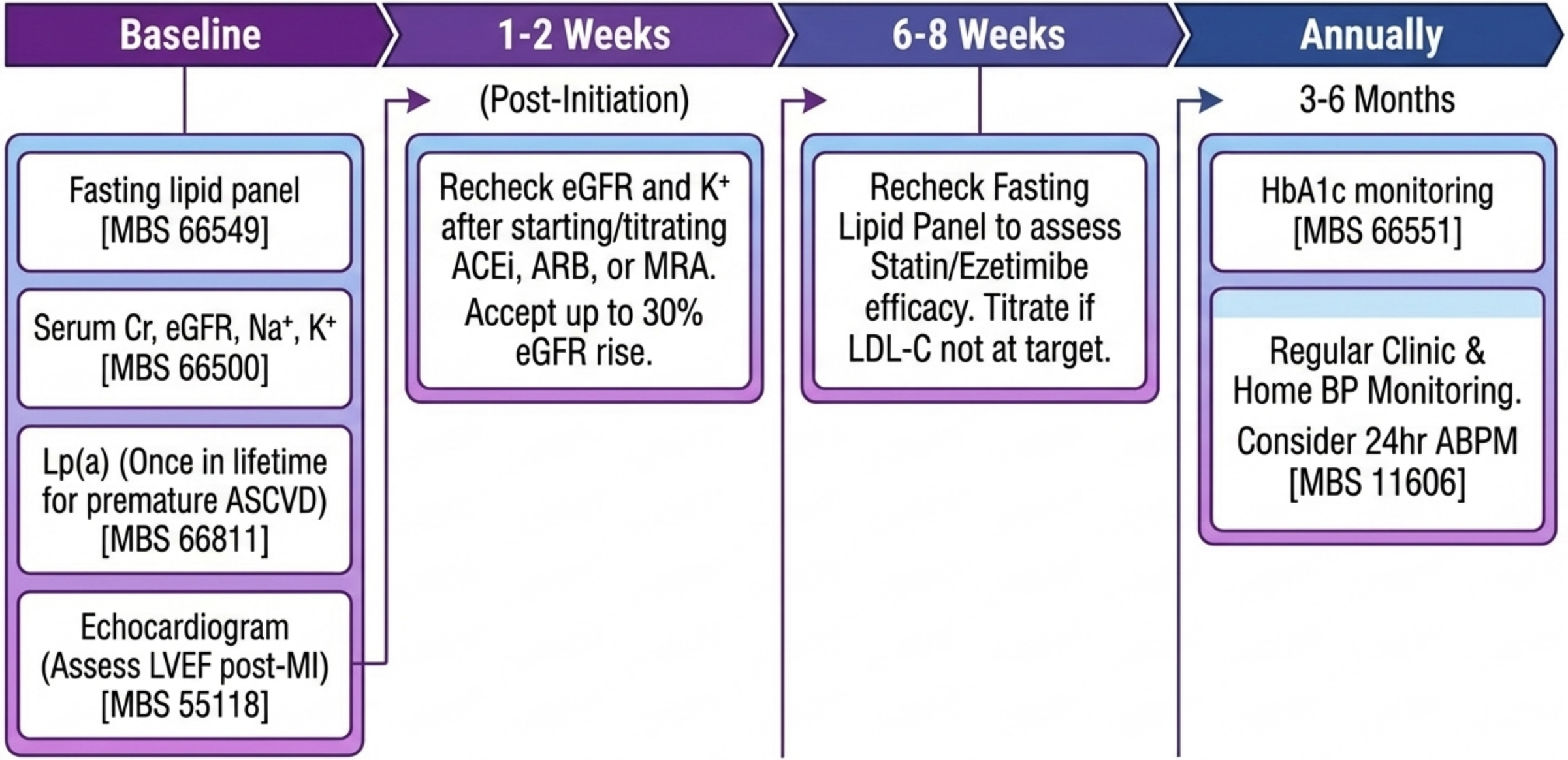
Red Alert: Absolute contraindications to extension: HAS-BLED ≥3, prior ICH, thrombocytopenia (<50), or need for long-term anticoagulation.

Synthesis: The Organ Protection Blueprint



Takeaway: Secondary prevention is no longer about treating isolated numbers; it is about deploying overlapping pharmacological shields across the cardiorenal and vascular systems.

Investigations & Monitoring Timeline



Special Populations Matrix

	Statins	ACEi/ARB	SGLT2i/GLP-1	Antiplatelets
Pregnancy	🔴 Statins (Cat X).	🔴 ACEi/ARB (Cat D teratogen).	🔴 SGLT2i.	🟢 Aspirin 100mg (Safe/Pre-eclampsia).
Paediatrics	🟡 Statins (FH only >10yrs).			🟡 Aspirin (Post-Kawasaki).
Elderly (≥75)	🟡 Reduce intensity if frail.	🟡 BP Targets (Pragmatic <140/90 to avoid falls).		🟡 High bleeding risk/add PPI.
Renal	🟢 Atorvastatin (No adj). 🟡 Rosuvastatin (Max 10mg if eGFR <30).	🟡 ACEi/ARB (Essential, monitor K+).	🟡 SGLT2i (Initiate if eGFR ≥20).	
Hepatic	🔴 Statins (Avoid in active disease/Child-Pugh B-C). 🔴 Ezetimibe (Avoid in mod-severe).			
Immunocompromised	🟡 Statins (Interact with HIV PIs and Cyclosporin).			🟢 Colchicine (0.5mg for rheumatic disease CVD risk).

The Mortality Gap: Aboriginal and Torres Strait Islander Health

1.7x

Aboriginal and Torres Strait Islander Australians experience CVD mortality at 1.7 times the rate of non-Indigenous Australians, accounting for ~25% of the life expectancy gap.

Bridging the Gap: Structural and Cultural Interventions

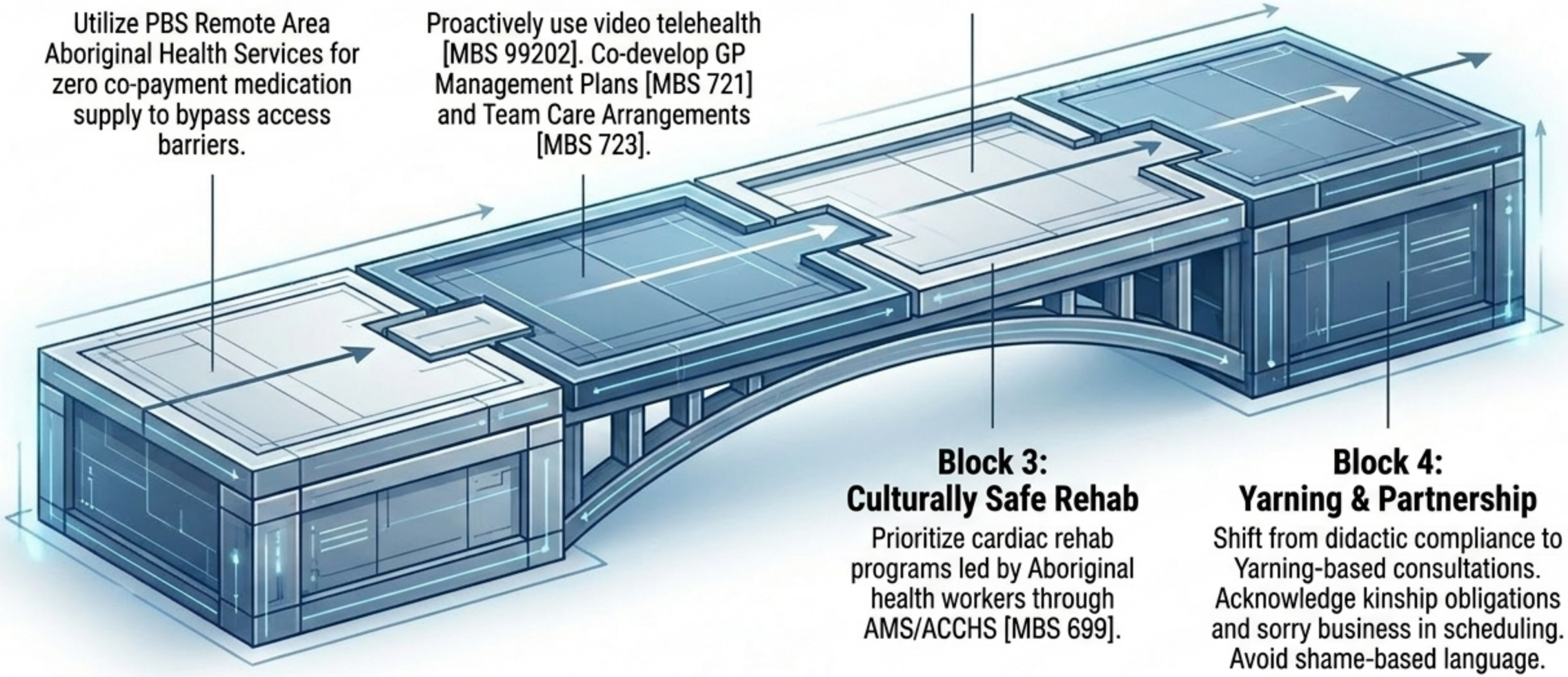
Block 1: PBS Remote Area Access

Utilize PBS Remote Area Aboriginal Health Services for zero co-payment medication supply to bypass access barriers.

Block 2: Telehealth & Care Coordination

Proactively use video telehealth [MBS 99202]. Co-develop GP Management Plans [MBS 721] and Team Care Arrangements [MBS 723].

Block 3: Culturally Safe Rehab



Block 3: Culturally Safe Rehab

Prioritize cardiac rehab programs led by Aboriginal health workers through AMS/ACCHS [MBS 699].

Block 4: Yarning & Partnership

Shift from didactic compliance to Yarning-based consultations. Acknowledge kinship obligations and sorry business in scheduling. Avoid shame-based language.

Quick Reference: The Secondary Prevention Master Blueprint

Panel 1: Lipids

Target: <1.8 (High) or <1.4 (Very High).
Pathway: High-Intensity Statin → +Ezetimibe → +PCSK9i/Bempedoic.
Recheck: 6-8 weeks.

Panel 2: Blood Pressure

Target: <130/80 mmHg (Avoid DBP <60).
Pathway: ACEi/ARB + CCB ± Thiazide ± Spironolactone.
Post-MI: ACEi + Beta-blocker foundation.

Panel 3: Diabetes

Target: HbA1c ≤53 mmol/mol (7.0%).
Paradigm: CV benefit first. Early initiation of SGLT2i + GLP-1 RA alongside Metformin regardless of baseline HbA1c.

Panel 4: Antiplatelets

Foundation: Aspirin 100mg lifelong.
DAPT: 12 months post-ACS (Aspirin + Ticagrelor/Clopidogrel).
Extended DAPT: Up to 36mo if DAPT score ≥2 and HAS-BLED <3.

Data derived from Med2Date Australian Clinical Guidelines (Updated May 2026).