

# CORONARY ARTERY DISEASE (CAD)

## Screening

**RISK FACTORS** for coronary artery disease include:

- Smoking.
- Aboriginal people.
- Diabetes.
- Family history (1st degree relative with onset of CAD at age < 65 yrs if female and < 55 yrs if male).
- Hypertension.
- ACR > = 3.6 mg / mmol.
- Dyslipidaemia.
- Central obesity (waist circumference > 100cm).

**In those AT RISK:**

- Ask annually about symptoms of CAD (see box below).
- Do baseline ECG then 5 yearly.

**In those with Diabetes Mellitus (DM):**

- ECG every 2 years.

## Case Definition

CAD consists of a range of clinical syndromes resulting from atherosclerosis (blockages) in the coronary arteries. This includes:

- 1) **MYOCARDIAL INFARCTION** (MI) "heart attack".
- 2) **ANGINA** i.e. symptoms caused by restricted blood flow to the heart muscle which is reversible:

**(a) Unstable angina: -**

- Any new symptoms of CAD once MI excluded.
- Symptoms of CAD that have become more severe, prolonged or frequent on a background of stable angina.

- Symptoms of CAD occurring at rest

**(b) Stable angina: -** symptoms of CAD occurring at the same exercise threshold and no symptoms at rest.

3) **ASYMPTOMATIC CORONARY ARTERY NARROWING** which can cause silent MI or ischaemia.

### THINK: COULD THIS BE CAD?

A negative result on screening does not exclude CAD.

Have a high index of suspicion in those WITH RISK FACTORS.

Symptoms of CAD include crushing central chest pain with associated shortness of breath, nausea and sweating. However presenting symptoms may be atypical, particularly in people with diabetes.

Examples include atypical pain (e.g. vague chest discomfort, sharp pain, "indigestion"), shortness of breath without associated chest pain, and sudden change in exercise tolerance.

For patients with such presenting symptoms in remote areas, have a low threshold for evacuation, regardless of ECG findings.

## Principles of Management

**MI /SUSPECTED MI /UNSTABLE ANGINA:** all require urgent hospital admission.

**ALL OTHERS:**

Addressing risk factors through primary and secondary prevention is critical, hence:

Consider anti-platelet therapy – see Box 1 on page 2.

Smoking cessation is a priority (see [SMOKING CESSATION](#))

Manage other CAD risk factors (See also [HEALTHY LIVING](#), [DIABETES TYPE II](#), [HYPERTENSION](#), [DYSLIPIDAEMIA](#) and [PROTEINURIA](#)).

Be aware of co-existent heart failure (See [HEART FAILURE](#)).

### BASELINE ASSESSMENT:

Document other CAD risk factors (see 'Screening').

Document BP, pulse, BMI, waist circumference.

- **Confirm diagnosis and document extent of disease. Start with ECG** (See flow chart 'DIAGNOSING CAD' on page 3 of this guideline).
- Screen for diabetes (see [DIABETES TYPE II](#)).
- FBC, UEC, eGFR, LFT's, lipids, ACR
- **Consider CXR as soon as practical.**

## Therapeutic Protocols

Ensure **influenza and pneumococcal vaccines** are up to date.

**SUSPECTED CAD** (Until diagnosis confirmed or refuted)

1. **Antiplatelet therapy:** (see summary "guide to the use of anti-platelet agents" on p.2 of this protocol) AND
2. **Anti-anginal therapy** – be directed by resting heart rate as follows:
  - **HR > 60 – Atenolol** 50mg daily, double dose every 2 weeks to maximum 100mg daily. (If Contra-indications discuss with Physician). Substitute atenolol with carvedilol if associated heart failure (see [HEART FAILURE](#)) or with labetalol in pregnancy (see 'Women of Child Bearing Age');

OR

- **HR < 60** – avoid beta-blockers due to risk of bradycardia – use **isosorbide mononitrate MR** 30mg daily doubling dose every 2 weeks to maximum of 120mg daily

AND

3. **Glyceryl trinitrate (GTN)** 400mcg metered dose pumpspray and educate re use i.e. if pain occurs:

- Sit or lie down.
- Spray one dose under the tongue.
- If pain persists, repeat dose in 5 mins.
- If pain still persists after 5 mins, seek urgent medical help.

# CORONARY ARTERY DISEASE (CAD)

## STABLE ANGINA

Manage as for SUSPECTED CAD

### AND

Regardless of initial lipid status, ADD **atorvastatin** 20mg daily. Double the dose every 6 weeks until LDL < 1.8 OR reach maximum dose of 80mg if tolerated (see [DYSLIPIDAEMIA](#)).

### If episodes of angina persist:

If not already on long-acting nitrate, add **isosorbide mononitrate MR** 30mg daily and double every 2 weeks to maximum 120mg once daily.

Then if angina continues: Add **nifedipine SR** 30mg daily and double the dose to 60mg daily after 2 weeks as needed.

Then if pain continues add **nicorandil** 5mg bd and double weekly to maximum dose 20mg bd.

## POST MYOCARDIAL INFARCTION

Manage as for SUSPECTED CAD and STABLE ANGINA.

### AND:

(1) if diabetes, hypertension and / or anterior MI and not already on ACEI: ADD **ramipril** 2.5mg daily, doubling the dose every 2 weeks to maximum 10mg daily

### AND

(2) ADD clopidogrel 75mg daily for 12 months (see Box 1).

## Follow-up

Review within one week of discharge (for MI or unstable angina) and every 2 weeks whilst titrating medicines.

### Once stable:

**3 monthly:** review frequency of exercise related angina and presence of angina at rest.

Check BP, BMI, waist circumference and smoking status.

**6 monthly:** lipids, UEC, eGFR.

**Annually:** ECG, ACR, capillary or venous blood sugar level if not a known diabetic.

## Guide to the use of anti-platelet agents

Secondary prevention (i.e. for those with known coronary artery disease)

All clients with coronary artery disease should remain on life-long aspirin 100mg daily unless contra-indicated

Add clopidogrel 75mg daily if:

1. Post-MI – continue clopidogrel for 12 months
2. Recurrent stable angina whilst on low dose aspirin – continue clopidogrel indefinitely

### Primary prevention (i.e. in people with no known history of coronary artery disease)

Aspirin 100mg daily may be beneficial where the risk of CVD is high and the risk of anti-platelet therapy (including GI and intracranial bleeding) is low. If aspirin contraindicated, clopidogrel 75mg daily may be used as an alternative

Consider aspirin for primary prevention in those with CVD risk of 15% or higher.

The table below provides some examples of risk factor combinations and estimated CVD risk. You can also use a web-based risk calculator such as:

[http://www.yourheartforecast.org.nz/Your\\_Heart\\_Forecast.html](http://www.yourheartforecast.org.nz/Your_Heart_Forecast.html)

Age in yrs	Aboriginal	Diabetes (<10 years, not well controlled)	High BP	Raised TC/HDL ratio	Smoker	Risk of MI or stroke in next 5 yrs
35	✓	-	✓	✓	✓	10%
	✓	✓	✓	✓	✓	14%
	-	✓	✓	-	-	7%
45	✓	-	✓	✓	✓	16%
	✓	✓	✓	✓	✓	23%
	-	✓	✓	-	-	10%
55	✓	-	✓	✓	✓	24%
	✓	✓	✓	✓	✓	33%
	-	✓	✓	-	-	15%
65	✓	-	✓	✓	✓	33%
	✓	✓	✓	✓	✓	42%
	-	✓	✓	-	-	21%

# CORONARY ARTERY DISEASE (CAD)

## DIAGNOSING CAD

- 1 AMI/SUSPECTED AMI/UNSTABLE ANGINA ALL REQUIRE URGENT HOSPITAL ADMISSION
2. For other presentations of suspected CAD, follow flow diagram below.

