Acute Coronary Syndrome Pathway

NT Perspective

DR MARCUS ILTON
CVD

- CVD
  - Ischaemic Heart Disease
    - Acute Coronary Syndromes
  - Cerebrovascular Disease
    - Strokes
  - Peripheral Vascular Disease
    - Aortic aneurysm
Ischaemic Heart Disease

• Is a complication of atherosclerosis.

• Remains a major cause of death in our society.

• Considerable morbidity.

• Improved survival over the last 20 years
  – 60% reduction in mortality.
Burden of CVD

- Every 10 mins one Australian dies from CVD.
- CVD is estimated to affect 2 out of 3 Australian families.
- 16.4% of Australian (3.2million) have CVD and effects of ageing alone this will increase to 24.4% (6.4 million) by 2051
- CVD causes 22% Burden of disease in Australia
Ischaemic Heart Disease

• Spectrum of Disease
  • Angina
    • Stable exertional
    • Prinz Metal
  • Acute Coronary Syndromes

• Complicated By:
  • Heart Failure
  • Arrhythmias
The spectrum of acute coronary syndromes

Spontaneous
- NSTEACS
  - Unstable angina
  - NSTEMI
  - ST ↑ MI
  - Sudden death
  - Increasing severity

Catheter-induced
- Abrupt occlusion
- MI
- Death
  - Increasing severity
Types of Myocardial infarction

- **Type 1**: Ischemic myocardial necrosis due to plaque rupture (ACS)
- **Type 2**: Ischemic myocardial necrosis due to supply-demand mismatch, e.g. coronary spasm, embolism, low or high blood pressures, anemia, or arrhythmias.
- **Type 3**: Sudden cardiac death (no cTr values)
- **Type 4**: Procedure related, post PCI or stent thrombosis (cTr > 5X Decision Level).
- **Type 5 post CABG**: (cTr > 10X Decision Level).
Acute coronary syndromes

- **Unstable angina** 2/1000 admissions per year
- **Infarct risk** 15-20%
- **Death** 15%
- **Pathogenesis** Endothelial disruption
  - Plaque erosion
  - Rupture
  - Platelet adhesion
  - Thrombus
Acute Coronary Syndromes

- 33% w/ confirmed MI have no CP on presentation (esp older, female, DM, CHF)
- 5% of NSTEMI will develop Cardiogenic Shock (60% mortality)
- Association between quantity of troponin and risk of death
- NSTEMI includes Type 2 -Type 5 biomarker elevations
Pathophysiology of ACS

One example of atherothrombotic disease progression

Lipid pool
Macrophages
Stress, tensile, internal
Shear forces, external

Atherosclerotic plaque
Plaque disruption

Fissure

Large fissure
Occlusive thrombus (STEMI)

Small fissure
Mural thrombus (NSTEMI vs NSTEACS - unstable angina vs NSTEMI)

Thrombus

18 hrs after admission
Coronary Angiography
Subsequent PTCA - 3.5x13 mm stent - IV abciximab
What is the Problem we are trying to address

- Despite our relatively younger population, the Northern Territory has the highest death rates from coronary artery disease (CAD) in both males and females.

- The higher death rates are seen in both the indigenous and non-indigenous populations.

- Complex pathway for patient care for ACS management in NT.
Issues along the ACS pathway that negatively impact on outcomes of Aboriginal and Torres Strait Islander patients.

1. Warning Signs of a Heart Attack
   - Lack of knowledge of the warning signs of heart attack and how to access emergency services.

2. Risk Stratification and Retrieval
   - Delayed risk stratification with lack of POCT and complex and variable retrieval pathways.

3. Pre-hospital Fibrinolysis
   - Lack of essential infrastructure and standardised protocols.

4. In Hospital Care: Diagnosis/Treatments
   - Disparities in hospital care including delays in treatment, including, documented lower intervention and revascularisation rates. Primary PCI not available for most patients from Regional centres and for all patients living remotely. Significant time delays from diagnosis to intervention.

5. Secondary Prevention/Cardiac Rehabilitation
   - Inadequate follow-up care, reduced access to cardiac rehabilitation and secondary prevention.

Contributing to negative outcomes across the pathway are psychosocial issues of:
- Fear/institutional racism
- Cultural misunderstandings/waiting times/transport
- Health literacy/financial constraints

000 Emergency call number in Australia; POCT - point of care testing (NB High sensitivity Tropinin testing not readily available); R&R Regional & Remote; Variable and complex patient pathway from regional or remote communities in Australia.

Figure 2. Regional and Remote Aboriginal and Torres Strait Islander patient’s pathways for detection and management of ACS
Case 1.

- 30 year old male from Millingimbi

History:
- 2 hours of typical sounding chest pain presented to clinic
- CRF- Smoker, mild dyslipidaemia  HDL 0.7, LDL 2.8

Exam:
- Pulse 85 regular Normotensive
- No murmurs no failure

ECG:
- Faxmate to oncall Cardiologist and RMP
- Dx – Inferior STEMI
Date: 2/11/84

Trop 0.00

0018316

Shaun

2/11/84

Northern Territory Government

NT Cardiac
Case 1. - cont

- Initial Treatment
  - Aspirin
  - Clopidogrel
  - IV clexane
  - Tenecteplase in community – given by RN

- Outcome:
  - Resolution of pain and ECG changes

- Further Treatment
  - Transferred to Darwin via Careflight
  - Monitored CCU
  - Angiogram – moderate ectasis all vessels with 70% RCA -4-5mm vessel diameter
  - Transferred to FMC (nurse and family escort) – 5mm stent 6 days after STEMI
  - Home in community – for teleconference post procedure after 1 week
Case 2.

- 37 year old lady from Yeundemu

**History:**
- 7-10 hours of typical sounding chest pain presented to clinic
- CRF- Type II diabetes (HbA1c -14%), Smoker, dyslipidaemia LDL 3.8/HDL 0.9

**Exam:**
- Pulse 60 regular Normotensive
- No murmurs no failure

**ECG:**
- Faxmate to on call Cardiologist and RMP
- T wave inversion in anterior leads
- Dx. NSTEAC – Unstable angina – no tropinin rise
Case 2. - cont

- **Initial Treatment**
  - Aspirin
  - Clopidogrel
  - SC clexane

- **Outcome:**
  - Resolution of pain and ECG changes

- **Further Treatment**
  - Transferred to ASH (01 May 2015)
  - Monitored CCU – no Tropinin rise
  - Angiogram – Severe 3 vessel disease – totally occluded RCA- collaterals from left, 70-90% proximal and mid LAD and 60-70% proximal LCX. Preserved LV function.
  - Accepted for CABG surgery
  - Patient wanted to return home to community – for discussion with family
  - Further delay – risk of event 10-20%
Case 3.

- 59 year old male from Katherine

**History:**
- 4-5 hours of typical sounding chest pain presented to Katherine Hospital 8/08/15
- CRF- Previous LAD stent 1998 RPH, Type II diabetes (HbA1c -14%), Smoker, dyslipidaemia LDL 2.4/HDL 0.9 (on treatment)

**Exam:**
- Pulse 75 regular BP 138/85
- No murmurs no failure

**ECG:**
- Faxmate to on call Cardiologist – RBBB with T wave inversion in inferior leads
- Dx. NSTEMI – troponin rise 3126
Case 3. - cont

- **Initial Treatment**
  - Aspirin
  - Clopidogrel
  - SC clexane
  - Standard medications

- **Outcome:**
  - Resolution of pain and ECG changes

- **Further Treatment**
  - Transferred to RDH 08/08/15
  - Angiogram – Hazy 60-80% proximal LCX –modest OM , 40-50% instent stenosis
    Preserved LV function. 11/08/15
  - For FFR - ? PCI in Darwin
  - FFR +ve 0.76 (eg <0.85) – Therefore stented proceeded to DES 13/08/15
Issues

- **Dual anti platelet therapy**
  - Tigagrelor vs. clopidogrel
    - Case 1 – no data yet on safety with use with thrombolytic
    - Case 2 - good evidence to suggest better efficacy than clopidogrel
    - Case 3 - Assessed as Intermediate risk – significance of

- **Early Revascularisation**
  - PCI Darwin vs. Adelaide – early PCI indicated in all 3 as per guidelines.
    - Case 1. - ? Not a low risk procedure – large stent risk of slow flow
    - Case 2- Bifurcating lesion triple vessel– therefore CABG is best option
    - Case 3- Met low risk guidelines for PCI in Darwin – FFR guide therapy more regular use
    - All delays form initial presentation
The 2011 addendum to the 2006 Guidelines provides updates to:

1. Systems of care to support delivery of ACS services
2. Early response
3. Management of patients with STEMI
4. Management of patients with NSTEACS
5. Long-term management (after control of myocardial ischaemia).¹

Reference

1. Systems of care to support delivery of ACS services

Formal systems of care:

- defined continuum of care – from presentation to long-term management
- system-based approaches to deliver timely reperfusion at a local level (Grade B)
- routine audit integrated into all clinical ACS services (Grade B)
- training GPs/health workers to initiate fibrinolysis (if primary percutaneous coronary intervention [PCI] services are not readily accessible)
- practitioners are supported by ready access to expert cardiology consultation (Consensus)
- cardiac clinical networks established with appropriate protocols (Grade B).

For example: iCCnet CHSA network links > 70 hospitals, health centres and general practitioner [GP] surgeries across SA, aligned to the Health Reform Agenda principles.
2. Early response: treatment is time critical

<table>
<thead>
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<th>Time from symptom onset and likely outcome</th>
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<tr>
<td><strong>&lt; 1 hour</strong></td>
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<tr>
<td>Aborted heart attack or only little heart muscle damage</td>
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<tr>
<td><strong>1–2 hours</strong></td>
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<tr>
<td>Minor heart muscle damage only</td>
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<tr>
<td><strong>2–4 hours</strong></td>
</tr>
<tr>
<td>Some heart muscle damage with moderate heart muscle salvage</td>
</tr>
<tr>
<td><strong>4–6 hours</strong></td>
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<tr>
<td>Significant heart muscle damage with only minor heart muscle salvage</td>
</tr>
<tr>
<td><strong>6–12 hours</strong></td>
</tr>
<tr>
<td>No heart muscle salvage (permanent loss) with potential infarct healing benefit</td>
</tr>
<tr>
<td><strong>&gt; 12 hours</strong></td>
</tr>
<tr>
<td>Reperfusion is not routinely recommended if the patient is asymptomatic and haemodynamically stable</td>
</tr>
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</table>

In cases of major delay to hospitalisation (> 30 minutes) ambulance crews should consider pre-hospital fibrinolysis.
STEMI - Definition

An ST-segment elevation myocardial infarction (STEMI) is confirmed by an ECG.

STEMI is defined as presentation with clinical symptoms consistent with an ACS with ECG features including any of:

- persistent ST-segment elevation $\geq 1$ mm in two contiguous limb leads
- ST-segment elevation $\geq 2$ mm in two contiguous chest leads
- new left bundle branch block (LBBB) pattern.
3. Management of patients with STEMI

**Reperfusion therapy for ST segment elevation myocardial infarction (STEMI)**

**Symptoms consistent with ACS**
- Start ECG monitoring
- Pain relief
- Blood tests
- Glycoprotein 150–300 mg
  - Unless already given or contraindicated

**Immediate 12-lead ECG**

**Doctor to see patient within 10 minutes of arrival**
- (National triage category 2)

**Symptom onset**

- Does patient meet indications for reperfusion therapy?
  - Persistent ST elevation ≥ 1 mm in 2 contiguous chest leads or
  - ST elevation ≥ 2 mm in 2 contiguous chest leads or
  - New Q wave on the ECG pattern

**Monitor**
- Chest pain
- ECG
- Cardiac biomarkers
- Pain relief

**Note:** the routine use of supplemental oxygen is not recommended. Oxygen treatment should be reserved for patients with hypoxia (oxygen saturation < 90% and/or there is evidence of shock). **Contraindications for fibrinolysis**

**Absolute**
- Active bleeding or bleeding diathesis (excluding ecchymosis)
- Significant closed head or facial trauma within 3 months
- Suspected aortic dissection
- Any prior intracranial haemorrhage
- Ischaemic stroke within 3 months
- Known structural cerebral vascular lesion
- Known malignant intracranial neoplasm

**Relative**
- Current use of anticoagulants
- Noncompressible vascular puncture
- Recent major surgery (≤3 weeks)
- Traumatic or prolonged > 10 min CPR
- Recent intracranial bleeding (within 4 weeks)
- Active peptic ulcer
- History of chronic, severe, poorly controlled hypertension

- Severe uncontrolled hypertension (systolic > 180
  - mmHg or diastolic ≥ 110 mmHg)
- Ischaemic stroke > 3 months ago, chronic or known intracranial abnormality not covered in absolute contraindications
- Pregnancy

**Patients in whom fibrinolysis is contraindicated, or with ongoing symptoms or instability after fibrinolysis, should be transferred for PCI.**
Early response

• Implement reperfusion strategy for patients presenting within 12 hours of onset of ischaemic symptoms consistent with ACS (determined by physical examination):
  ▪ immediate 12-lead ECG
  ▪ insert cannulae
  ▪ pain relief
  ▪ blood tests.
• Give aspirin 150–300 mg (unless already given, or contraindicated).
• Doctor sees patient within 10 minutes of arrival (Australasian Triage Scale Category 2).
• Oxygen therapy indicated only for patients with hypoxia (oxygen saturation < 93%) and those with evidence of shock (Consensus).
Non-ST-elevation ACS (NSTEACS) applies to patients with suspected ACS in the absence of other plausible causes of troponin elevation (e.g. sepsis, pulmonary embolus).

Patients with NSTEACS may have a ‘normal’ ECG reading, or show minor changes (occurs in up to 50% of patients).

All patients with NSTEACS should have their risk stratified to direct management decisions.

The management of patients with NSTEACS requires evolving risk stratification: clinical assessment, assessment of cardiac biomarkers and time.
4. Management of patients with NSTEACS

- Clinical assessment: careful clinical history, ECG, chest X-ray and investigations to diagnose other causes of chest pain and evaluate the likelihood of evolving ACS.
- Troponin assessment: to assess the likelihood of MI.
- Stratify risk.
Evolving risk stratification

High-risk NSTEACS
Presentation with clinical features consistent with ACS and any of:
• repetitive or prolonged (> 10 minutes) ongoing chest pain/discomfort
• elevation of at least 1 cardiac biomarker (troponin or CK-MB)
• persistent or dynamic ST depression ≥ 0.5 mm or new T wave inversion ≥ 2 mm
• transient ST segment elevation (≥ 0.5 mm) in more than 2 contiguous leads
• haemodynamic compromise: systolic blood pressure < 90 mmHg, cool peripheries, diaphoresis, Killip class > 1 and/or new onset mitral regurgitation
• sustained ventricular tachycardia
• syncope
• LV systolic dysfunction (LVEF < 40%)
• prior PCI within 6 months or prior CABG surgery
• presence of known diabetes (with typical symptoms of ACS)
• chronic kidney disease – estimated GFR < 60 mL/min (with typical symptoms of ACS).

Admit to coronary care unit or high dependency unit:
• estimate ischaemic risk, estimate bleeding risk, choose augmented antithrombotic therapy
→ refer for angiography to determine surgery/PCI, or medical therapy.
Evolving risk stratification

Intermediate-risk NSTEACS
Presentation with clinical features consistent with ACS and any of:

- chest pain or discomfort within past 48 hours that occurred at rest, or was repetitive or prolonged (but currently resolved)
- age > 65 years
- known CHD: prior MI with LVEF ≥ 40% or known coronary lesion > 50% stenosed
- no high-risk ECG changes (see above)
- two or more of: known hypertension, family history, active smoking or hyperlipidaemia
- presence of known diabetes (with atypical symptoms of ACS)
- chronic kidney disease – estimated GFR < 60 mL/min (with atypical symptoms of ACS)
- prior aspirin use.

And not meeting the criteria for high-risk NSTEACS.
Evolving risk stratification

Intermediate-risk NSTEACS

Recurrent ischaemia or elevated troponin?

YES

- admit to CCU or high dependency unit:
  - estimate ischaemic risk, estimate bleeding risk, choose augmented antithrombotic therapy

→ refer for angiography to determine surgery/PCI, or medical therapy.

NO

- undertake stress test (e.g. exercise ECG):
  → positive – refer for angiography to determine surgery/PCI, or medical therapy
  → negative – proceed to discharge patient with urgent cardiac follow-up (on upgraded medical therapy) according to long-term management after control of myocardial ischaemia.
Evolving risk stratification

Low-risk NSTEACS
Presentation with clinical features consistent with ACS without intermediate- or high-risk features, for example one of the following:
- onset of anginal symptoms within the last month
- worsening in severity or frequency of angina
- lowering in anginal threshold.

Appropriate period of observation. Consider if stress test (e.g. exercise ECG) needed?

YES
Stress test (e.g. exercise ECG) using treadmill.

NO
Proceed to discharge patient with urgent cardiac follow-up (on upgraded medical therapy) according to long-term management after control of myocardial ischaemia.
Framework for Enabling Streamlined Patient Care

Creating individual, family and community awareness of warning signs of heart attack and what action to take

- The ACS pathway
- Acute Care Management
- Secondary Prevention & 3 Phase Cardiac Rehab.
High Risk Intermedia te Risk Low Risk

**High Risk**
- Typical chest pain/discomfort (>10mins)
- ST elevation or depression (≥0.5 mm) or deep T wave inversion in 3 or more leads (Note: Thrombolysis for STEMI)
- Elevated serum markers (Troponin)
- Syncope
- Associated: heart failure, mitral regurgitation or gallop rhythm
- Haemodynamic compromise:
  - systolic blood pressure <90 mmHg
  - cool peripheries
  - diaphoresis
- Prior PCI within 6 months or prior CABG
- Presence of known diabetes (with typical Symptoms of ACS)
- CRD – eGFR<60ml/min (with typical Symptoms of ACS)
- Resolved but prolonged (>10mins) or repetitive chest pain
- Nocturnal pain

**Intermediate Risk**
- New onset exertional chest pain/discomfort
- Age ≥65 years Caucasian (or ≥45 Indigenous)
- Known IHD: prior MI, LVEF ≤40% or known coronary lesion >50% stenosed
- Patient history of 2 or more of:
  - hypertension,
  - family history
  - active smoking,
  - hyperlipidaemia
- Diabetes and/or Chronic Renal Disease – eGFR <60ml/min (with atypical symptoms of ACS)

**Low Risk**
- Onset of angina within the last month.
- Worsening of the severity or frequency of angina
- Lowering in the anginal threshold.
- Short duration (<1min)
  - Atypical pain
  - No risk factors

**Yes to ANY**  
**Manage as High Risk**  
**If no to ALL**  
**Proceed to intermediate risk**

**Yes to ANY**  
**Manage as Intermediate Risk**  
**If no to ALL**  
**Proceed to Low risk**

**Yes to ANY**  
**and no higher risk features**  
**Manage as Low Risk**

**Standardised Guideline RDH - Chest Pain Risk Stratification**

- Admit Cardiology; monitored bed, plan for angiography
- Aspirin - 300mg, then 100mg daily
- GTN 300 to 600mg SL (if BP ≥ 90mmHg)
- Morphine IV
- LMW heparin - 1 mg/kg SC
- Consider Beta blocker –metoprolol 25 mg PO
- GTN IV if ongoing pain
- Repeat Troponin level and ECG at 8-24hrs
- Clopidogrel 300mg mg stat, then 75 mg daily
  - OR
- Tirofiban with unfractionated heparin in patients with:
  - Pain/ischemia refractory to medical therapy;
  - ST-segment depression or T- wave inversion >3mm in multiple leads
- Assess bleeding risk in all high risk NSTEMACS

**Yes to ANY**  
**Manage as High Risk**  
**If no to ALL**  
**Proceed to Low risk**

- Discharge for early Cardiology review if negative.

**Yes to ANY**  
**and no higher risk features**  
**Manage as Low Risk**

- Discharge for outpatient assessment.
  - +/- Outpatient exercise test
- NT Cardiac 8920 6250  Fax 8945 1365
- Re-consider other diagnoses/ 8hr TnI
- No further investigation required. D/c
Chest pain /Suspected Heart Attack – In Community

1) All CP patients perform ECG + Troponin. (As per CARPA page 59)
2) ECG sent to Epiphany or Fax mate 8918000 and Call RMP if no answer call on call Cardiologist 1300000324
   As per ACS protocol

   1. If no ECG Changes, no Troponin rise after 4 hours and no further chest pain use heart score and discuss with cardiologist
   2. If score >3 and pain in last 24 hours – for acute transfer to nearest hospital
   3. If score >3 and pain >24 hours previously for EST and review at nearest regional hospital
   4. If score less <3 and pain atypical – For review RMP – consider alternative diagnosis

### HEART score for chest pain patients

<table>
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<th>HEART score for chest pain patients</th>
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<td>History</td>
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<tr>
<td>Highly suspicious</td>
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<tr>
<td>Moderately suspicious</td>
<td>1</td>
</tr>
<tr>
<td>Slightly suspicious</td>
<td>0</td>
</tr>
<tr>
<td>ECG</td>
<td></td>
</tr>
<tr>
<td>Significant ST-deviation</td>
<td>2</td>
</tr>
<tr>
<td>Non specific repolarisation</td>
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<tr>
<td>Normal</td>
<td>0</td>
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<tr>
<td>Age</td>
<td></td>
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<tr>
<td>≥ 65 years</td>
<td>2</td>
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<tr>
<td>&gt; 45 and ≤ 65 years</td>
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<tr>
<td>≤ 45 years</td>
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<tr>
<td>Risk factors</td>
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<tr>
<td>≥ 3 risk factors or history of</td>
<td>2</td>
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<tr>
<td>atherosclerotic disease*</td>
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<tr>
<td>1 or 2 risk factors</td>
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<tr>
<td>≤ 1x normal limit</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
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</tr>
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</table>

*Risk factors for atherosclerotic disease:
- Hypercholesterolemia
- Cigarette smoking
- Hypertension
- Positive family history
- Diabetes Mellitus
- Obesity
ACS Network

- NT Remote communities and GDH, KDH, TCH
  - digital ECG’s
  - Phone / Fax System
  - Dedicated Fax system
    - 8918 8000 – Fax ECG (Faxmate)
    - ECG is emailed to on call Cardiologist (4 local Cardiologists)
  - Phone:
    - Dedicated Phone system: 1300 000ECG – 1300 000324
    - RDH switch to transfer calls to on call Cardiologist - Escalation to 2nd on call -24/7
  - Flow Chart
  - Cardiologist informs treatment plan
  - Community clinic treats and arranges transfer as per current protocols.

- **Commenced October 26th 2013**
- 1860 ECG’s reviewed in first 18 months
- Increased Thrombolysis in communities – no complications
ACS Network Cont

• Final Phase
  • Digital ECG Service:
    • Activate Epiphiny Server
      • Data storage, transfer and retrieval system (CVIS)
  • Ongoing Training program for all other communities.
  • Flow Chart Modification – as now direct ECG transmission
    • Dedicated Phone system – 1300 000 ECG (324)
    • Faxmate will remain as backup
  • Further Developments
    • Incorporate Heart Foundations Warning Signs AMI into CARPA
    • Change from Clopidogrel to Ticagrelor for all High Risk ACS patients (not STEMI)
    • Develop protocols for ? PCI within 24 hours of thrombolysis.
## 1. Site Codes and Locations

<table>
<thead>
<tr>
<th>Site Code</th>
<th>Location</th>
<th>Site Code</th>
<th>Location</th>
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<tbody>
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<td>Amoonguna</td>
<td>RAL</td>
<td>Alyangula</td>
<td>RLY</td>
<td>Jabiru</td>
<td>RTJ</td>
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<td>Ampilatwatja</td>
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<td>Angurugu</td>
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<td>Lake Nash</td>
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<td>Areyonga</td>
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<td>Adelaide River</td>
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<td>RBO</td>
<td>Bonya (Baikal)</td>
<td>RML</td>
<td>Mt Liebig</td>
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<td>Wagait Beach</td>
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<td>Pirlangimpi</td>
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<td>Timber Creek</td>
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### Version number | Purpose Changes | Author | Date
---|---|---|---
0.1 | Initial draft | SO | 30/01/2015
0.2 | Draft reviewed | RN | 01/02/2015
0.3 | Draft finalised | RN | 02/02/2015
1 | Final draft approved | MI | 03/02/2015
1.1 | Amendment for Trial Period | SO | 03/03/2015
1.2 | Amendment for Trial Period | RN | 10/04/2015
Rapid Chest Pain Assessment Unit

- Principle:
  - Chest Pain/ ? Angina symptoms - Diagnosis and further risk stratification within 2 weeks of onset
    - Darwin
      - Located ground floor DPH
      - Stress test, Stress Echo, Nuclear Perfusion Scans, CT CA, Coronary angiography and PCI (angioplasty)
      - Cardiology Consult – Cardiologist or Registrar.
      - Inpatient exercise testing post negative troponins.
      - Out Patients referrals GP’s
    - Katherine and Gove District Hospitals
      - Stress Test inpatient troponin negative and GP referral
      - Stress Echo / Cardiologist or Registrar review 4 weekly clinics
    - Groote Eylandt
      - Planned Stress test for trop negative patients and for GP referral – Oct 2017
Rapid Chest Pain Assessment Unit

- Principle:
  - Chest Pain/ ? Angina symptoms - Diagnosis and further risk stratification within 2 weeks of onset

- Alice Springs Hospital
  - Located ground floor ASH -
  - Stress test, Stress Echo, CT CA
  - Cardiology Consult – Cardiologist (3-4 days 3 weeks out of 4) or Registrar.
  - Inpatient exercise testing post negative troponins.
  - Out Patients referrals GP’s

- Tennant Creek Hospital
  - Stress Test inpatient troponin negative and GP referral
  - Stress Echo / Cardiologist or Registrar review 8 weekly clinics
ACS – Pathway
On going developments

- Expanded PCE
- Secondary Prevention
  - Patient Centered Care
  - Hospital based at time of acute care Phase 1
  - Phase 2-3
    - Out reach services
    - Multi Disciplinary
Creating individual, family and community awareness of warning signs of heart attack and what action to take

The ACS pathway

Acute Care Management

Secondary Prevention & 3 Phase Cardiac Rehab.