

Cardiac Monitoring in Adult Cardiac Patients in Public Hospitals in NSW

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Functional Sub group Clinical/ Patient Services - Critical care
Clinical/ Patient Services - Medical Treatment

Summary Cardiac monitoring is a routine activity which is carried out in hospitals throughout NSW. Over time, individual hospitals have developed a range of protocols and standards for cardiac monitoring which has resulted in variance in practice between hospitals and between Area Health Services. This Policy has been developed using the available evidence and in consultation with cardiac nurses and cardiologists in both rural and metropolitan areas, cardiothoracic surgeons, the Greater Metropolitan Clinical Taskforce Cardiac Network, consumer representatives, the NSW Health Statewide Cardiology Project team and the Ambulance Service of NSW, to assist clinicians to provide best practice in the management of adult cardiac patients who require cardiac monitoring.

Author Branch Health Service Performance Improvement Branch

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Applies to Area Health Services/Chief Executive Governed Statutory Health Corporation, Board Governed Statutory Health Corporations, Public Hospitals

Audience All staff

Distributed to Public Health System, Government Medical Officers, Health Professional Associations and Related Organisations, NSW Ambulance Service, NSW Department of Health, Public Health Units, Public Hospitals, Tertiary Education Institutes

Review date 25-Sep-2013

Policy Manual Not applicable

File No. 08/6221

Status Active

Director-General

This Policy Directive may be varied, withdrawn or replaced at any time. Compliance with this directive is **mandatory** for NSW Health and is a condition of subsidy for public health organisations.

The Use of Cardiac Monitoring in Adult Cardiac Patients in Public Hospitals in NSW

Policy Statement

The policy represents the recommended minimum standards for cardiac monitoring for adult patients with a primary cardiac diagnosis regardless of the clinical area in which they are managed. Compliance with the policy will improve patient outcomes and timely discharge through the appropriate use of cardiac monitoring in public hospitals in NSW.

Purpose

- To assist clinicians to provide best practice in cardiac monitoring for adult patients with a primary cardiac diagnosis.
- To reduce variation in cardiac monitoring practices for adults patients with a primary cardiac diagnosis.

Our commitment

- Cardiac monitoring for all adult patients will be carried out in accordance with this policy.
- All clinical staff are responsible for ensuring cardiac monitoring of an adult patient with a primary cardiac diagnosis is undertaken in accordance with this policy.
- Staff managing adult patients requiring cardiac monitoring will be proficient in ECG interpretation and have the required patient assessment skills.
- Facilitate the implementation of the policy for cardiac monitoring in the adult cardiac patient and monitor the performance of health facilities.

Roles and responsibilities

NSW Department of Health:

- Provides the policy standards and tools to support implementation of the policy.
- Monitors the use of the cardiac monitoring policy in the adult cardiac patient.

Chief Executives, Health Service Executives, Managers:

- Assign responsibility and personnel to promote the use of the cardiac monitoring policy in adult cardiac patients.
- Provide line managers with support to promote the use of the cardiac monitoring policy in adult cardiac patients within their areas.
- Report on the use of the cardiac monitoring policy in adult cardiac patients to the NSW Department of Health.

Directors of Clinical Governance:

- Ensure successful implementation of the cardiac monitoring policy in adult cardiac patients within their areas.
- Audit the use of the cardiac monitoring policy in adult cardiac patients within their areas.

Hospital, facility, clinical stream, and unit managers, Heads of Departments, Nursing Unit Managers:

- Implement the practices described in the cardiac monitoring policy.
- Promote compliance with the cardiac monitoring policy in adult patients with a primary cardiac diagnosis.
- Measure and report on the compliance with the cardiac monitoring policy for use in adult cardiac patients.
- Take action to improve compliance with the cardiac monitoring policy.

Staff

- Ensure their practice and work standards are consistent with the requirements detailed in the cardiac monitoring policy.

Title: The Use of Cardiac Monitoring in Adult Cardiac Patients in Public Hospitals in NSW

Introduction

Cardiac monitoring is a routine activity which is carried out in hospitals throughout NSW. Over time individual hospitals have developed a range of protocols and standards for cardiac monitoring which has resulted in variance in practice between hospitals and between Area Health Services.

This Policy has been developed using the available evidence and in consultation with cardiac nurses and cardiologists in both rural and metropolitan areas, cardiothoracic surgeons, the Greater Metropolitan Clinical Taskforce Cardiac Network, consumer representatives, the NSW Health State-wide Cardiology Project team and the Ambulance Service of NSW, to assist clinicians to provide best practice in the management of adult cardiac patients who require cardiac monitoring.

Principles

- This policy provides advice on the use of cardiac monitoring of adult patients with a primary cardiac diagnosis regardless of the clinical area in which they are managed.
- Patients need to be allocated to the appropriate diagnostic group in a timely manner to ensure appropriate treatment is provided.
- Staff in specialty areas such as Emergency Departments and Intensive Care Units should refer to their own local guidelines for monitoring of other medical or surgical conditions.
- Patients who require cardiac monitoring must be regularly assessed and direct visual observation must be maintained by nursing staff proficient in ECG interpretation and patient assessment skills.
- If appropriately trained staff are not available, there is no therapeutic value in cardiac monitoring.
- Cardiac monitoring must not be used to replace careful observation of the patient.
- A minimum daily reassessment of the patient's monitoring requirement is necessary to ensure that cardiac monitoring is ceased appropriately.
- Clinical need, not equipment availability, should determine which patients receive cardiac monitoring.

In this document the terms

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| Must | Indicates a mandatory action required by a NSW health policy directive, law or industrial instrument. |
| Should | Indicates an action that should be followed unless there are sound reasons for taking a different course of action. |

| Group A | |
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| <p>Recommendations</p> <p>The following patients:</p> <ul style="list-style-type: none"> require continuous cardiac monitoring and direct visual observation until monitoring is discontinued should not have monitoring discontinued without a written medical order. The need for monitoring must be reassessed and documented by a medical officer every 24 hours should be managed by nursing staff with ECG interpretation and patient assessment skills require an appropriately trained* escort and defibrillator for all transfers (*appropriately trained means a Registered Nurse or Ambulance Paramedic who can interpret a 3 Lead ECG and defibrillate if necessary) <p>NB: It is the Admitting Medical Officers responsibility to identify Group A patients</p> | |
| Indications for Monitoring | Monitoring Duration |
| <p>Acute Coronary Syndromes (ACS)</p> <ul style="list-style-type: none"> ST Elevation Myocardial Infarction (STEMI)* Non ST Elevation ACS 'High Risk' (includes NSTEMI) | <ul style="list-style-type: none"> Monitor for a minimum of 24 hours from the onset of pain, then reassess and document the need for monitoring daily <p>*ST segment monitoring may be useful, if available</p> |
| <p>Life Threatening Arrhythmias/Implantable Devices</p> <ul style="list-style-type: none"> Post Cardiac Arrest Ventricular Tachycardia/Ventricular Fibrillation Asystole Syncope of unknown origin (with loss of consciousness) 2nd and 3rd degree atrioventricular blocks and other symptomatic bradyarrhythmias Awaiting Implantable Cardiac Defibrillator (ICD) or Permanent Pacemaker (PPM) plus or minus temporary pacing <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> Anterograde SVT via an accessory pathway(s) producing a rapid ventricular response. | <ul style="list-style-type: none"> Monitor until reversible cause is rectified, device implanted (and satisfactorily tested) or until medical therapy has stabilised cardiac symptoms Reassess and document the need for monitoring daily <hr style="border-top: 1px dashed black;"/> <ul style="list-style-type: none"> Monitor until definitive therapy (usually ablation) is established |
| <p>Pharmacotherapy</p> <p>Intravenous Drug Therapy</p> <ul style="list-style-type: none"> Inotropes, Vasoactive Drugs, Antiarrhythmics, Fibrinolytics <p>Other</p> <ul style="list-style-type: none"> Ingestion of pro-arrhythmic drugs causing actual or potential QT prolongation or ventricular arrhythmias | <ul style="list-style-type: none"> Continue monitoring during course of therapy Reassess and document the need for monitoring daily The duration of monitoring must be based on risk stratification ie the type of drug, time since ingestion and the total dose |
| <p>Urgent Surgical Revascularisation</p> <ul style="list-style-type: none"> Critical left main disease (or left main equivalent) | <ul style="list-style-type: none"> Continue monitoring until patient has a coronary revascularisation procedure |
| <p>Post Cardiac Surgery</p> | <ul style="list-style-type: none"> Monitor for a minimum of 48 hours. Reassess and document the need for monitoring daily |
| <p>Other Indications for Cardiac Monitoring</p> <ul style="list-style-type: none"> Haemodynamically compromised patients including those requiring inotropes and/or intra-aortic balloon pump (counter pulsation) | <ul style="list-style-type: none"> Continue monitoring for the course of therapy |

| Group B | |
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| <p>Recommendations</p> <p>The following patients:</p> <ul style="list-style-type: none"> require continuous cardiac monitoring or direct visual observation until monitoring is discontinued should have monitoring discontinued by registered nursing staff at the completion of the recommended monitoring period if the patient's clinical condition is stable, unless there is a written medical order to continue should have the need for continued monitoring reviewed and documented daily should be managed by nursing staff with ECG interpretation and patient assessment skills | |
| Indications for Monitoring | Monitoring Duration |
| <p>Non ST Elevation ACS 'Intermediate Risk'</p> | <ul style="list-style-type: none"> Monitor until the 2nd Troponin is available. If the 2nd Troponin is positive, manage as per non STEMI in Group A. If the 2nd Troponin is negative, monitoring may cease. |
| <p>Arrhythmias</p> <ul style="list-style-type: none"> Atrial Fibrillation or other supraventricular arrhythmias with haemodynamic compromise | <ul style="list-style-type: none"> Monitor until haemodynamically stable following reversion of rhythm or control of rate. Reassess and document the need for monitoring daily |
| <p>Acute Severe Electrolyte Imbalance</p> | <ul style="list-style-type: none"> Monitor until the acute electrolyte imbalance is corrected and there are no related arrhythmias present |
| <p>Post Percutaneous Coronary Intervention (PCI)</p> | <ul style="list-style-type: none"> Monitor for 4 hours If there are procedural complications, arrhythmias or haemodynamic compromise, monitor for up to 24 hours then reassess and document the need for monitoring daily |
| <p>Post Catheter Ablation & EPS</p> | <ul style="list-style-type: none"> Monitor for 4 hours or as per unit specific Protocol If there are procedural complications, arrhythmias or haemodynamic compromise, monitor for 24 hours then reassess and document the need for monitoring daily |

| Other Conditions when Cardiac Monitoring MAY BE Required | |
|---|---|
| Indications for Monitoring | Monitoring Duration |
| <ul style="list-style-type: none"> • Pericarditis • Pericardial effusion • Electrocutation • Suspected cardiac trauma | <ul style="list-style-type: none"> • Monitor according to the direction of the treating Medical Officer or local guidelines. • The need for cardiac monitoring must be reassessed and documented daily. |

| When is Cardiac Monitoring NOT Required? | |
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| Diagnoses | Management |
| <ul style="list-style-type: none"> • Non ST Elevation ACS 'Low Risk' patients • Patients with chronic atrial fibrillation without haemodynamic compromise • Stable patients with chronic ventricular premature beats • Patients with asymptomatic first degree heart block | <p>There is no evidence to support cardiac monitoring for these conditions</p> |

Appendix 1: Poster – The use of cardiac monitoring in adult cardiac patients in public hospitals in NSW

Bibliography

1. National Heart Foundation of Australia and Cardiac Society of Australia & New Zealand. Guidelines for the Management of Acute Coronary Syndromes 2006. MJA 2006. p184 S1-S32.
2. American Heart Association Scientific Statement, Practice Standards for Electrocardiographic monitoring in hospital settings, *Circulation*, 2004 110 2721 -2746

Professor Debora Picone AM
Director-General

Principles

Principles

- This policy provides advice on the use of cardiac monitoring for adult patients with a primary cardiac diagnosis regardless of the clinical area in which they are managed.
- Patients need to be allocated to the appropriate diagnostic group in a timely manner to ensure appropriate treatment is provided.
 - Staff in specialty areas such as Emergency Departments and Intensive Care Units should refer to their own local guidelines for monitoring of other medical or surgical conditions.
 - Patients who require cardiac monitoring must be regularly assessed and direct visual observation must be maintained by nursing staff proficient in ECG interpretation and patient assessment skills.
 - If appropriately trained staff are not available, there is no therapeutic value in cardiac monitoring.
 - Cardiac monitoring must not be used to replace careful observation of the patient.
 - A minimum daily reassessment of the patients monitoring requirement is necessary to ensure that cardiac monitoring is ceased appropriately.
 - Clinical need, not equipment availability, should determine which patients receive cardiac monitoring.

This poster should be read in conjunction with the policy statement and standard related to cardiac monitoring.

Group A

Group B

Management

Management

- The following patients:
- require continuous cardiac monitoring and direct visual observation until monitoring is discontinued
 - should not have monitoring discontinued without a written medical order. The need for monitoring must be reassessed and documented by a medical officer every 24 hours
 - should be managed by nursing staff with ECG interpretation and patient assessment skills
 - require an appropriately trained* escort and defibrillator for all transfers (*appropriately trained means a Registered Nurse or Ambulance Paramedic who can interpret a 3 lead ECG and defibrillate if necessary)
- NB: It is the admitting Medical Officer's responsibility to identify Group A patients.**

Management

- The following patients:
- require continuous cardiac monitoring or direct visual observation until monitoring is discontinued
 - should have monitoring discontinued by registered nursing staff at the completion of the recommended monitoring period if the patient's clinical condition is stable, unless there is a written medical order to continue
 - should have the need for continued monitoring reviewed and documented daily
 - should be managed by nursing staff with ECG interpretation and patient assessment skills.

Monitoring Duration

Indications for Monitoring

Monitoring Duration

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| <p>Acute Coronary Syndromes (ACS)</p> <ul style="list-style-type: none"> ■ ST Elevation Myocardial Infarction (STEMI)* ■ Non ST Elevation ACS 'High Risk' (includes NSTEMI) | <ul style="list-style-type: none"> ■ Monitor for a minimum of 24 hours from the onset of pain, then reassess and document the need for monitoring daily <p>*ST segment monitoring may be useful, if available</p> |
| <p>Life Threatening Arrhythmias/Implantable Devices</p> <ul style="list-style-type: none"> ■ Post Cardiac Arrest ■ Ventricular Tachycardia/Ventricular Fibrillation ■ Asystole ■ Syncope of unknown origin (with loss of consciousness) ■ 2nd and 3rd degree atrioventricular blocks and other symptomatic bradyarrhythmias ■ Awaiting Implantable Cardiac Defibrillator (ICD) or Permanent Pacemaker (PPM) plus or minus temporary pacing | <ul style="list-style-type: none"> ■ Monitor until reversible cause is rectified, device implanted (and satisfactorily tested) or until medical therapy has stabilised cardiac symptoms ■ Reassess and document the need for monitoring daily |
| <ul style="list-style-type: none"> ■ Anterograde SVT via an accessory pathway(s) producing a rapid ventricular response | <ul style="list-style-type: none"> ■ Monitor until definitive therapy (usually ablation) is established |
| <p>Pharmacotherapy</p> <p>Intravenous Drug Therapy</p> <ul style="list-style-type: none"> ■ Inotropes, Vasoactive Drugs, Antiarrhythmics, Fibrinolytics <p>Other</p> <ul style="list-style-type: none"> ■ Ingestion of pro-arrhythmic drugs causing actual or potential QT prolongation or ventricular arrhythmias | <ul style="list-style-type: none"> ■ Continue monitoring during course of therapy ■ Reassess and document the need for monitoring daily ■ The duration of monitoring must be based on risk stratification ie the type of drug, time since ingestion and the total dose |
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Monitoring Duration

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Other Conditions when Cardiac Monitoring MAY BE Required

Indications for Monitoring

Monitoring Duration

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| <ul style="list-style-type: none"> ■ Pericarditis ■ Pericardial effusion ■ Electrocutation ■ Suspected cardiac trauma | <ul style="list-style-type: none"> ■ Monitor according to the direction of the treating Medical Officer or local guidelines ■ The need for cardiac monitoring must be reassessed and documented daily |
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When is Cardiac Monitoring NOT Required

Indications for Monitoring

Monitoring Duration

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| <ul style="list-style-type: none"> ■ Non ST Elevation ACS 'Low Risk' patients ■ Patients with chronic atrial fibrillation without haemodynamic compromise ■ Stable patients with chronic ventricular premature beats ■ Patients with asymptomatic first degree heart block | <ul style="list-style-type: none"> ■ There is no evidence to support cardiac monitoring for these conditions |
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patient first