# Myocardial Ischaemia National Audit Project (MINAP)

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South Wales Cardiac Network

Rhwydwaith y Galon De Cymru

Myocardial Ischaemia National Audit Project

( MINAP)
1. Executive Summary

All Hywel Dda Health Board hospitals currently participate in data collection for the Myocardial Ischaemia National Audit Project (MINAP). This is mandatory, with MINAP listed as one of the national audits identified by the National Audit Steering Group in the Annual Quality Framework. Although all four hospital enter data, there is great variation in the methods used to collect and input the data, to the resources provided at each site, and how the data is used locally. Of most concern is the incomplete data submitted from some hospitals, particularly non ST elevation myocardial infarction (nSTEMI) data. The MINAP dataset is examined and the data used for many local and national research projects, fuelling changes in cardiac care. Trends are examined and acted on, with recognition world-wide that MINAP is a reliable and credible database. In this year’s MINAP Public report, the lack of nSTEMI data collection was highlighted, especially in Wales.

MINAP should reflect prevalence of cardiac diseases, and covers all Acute Coronary Syndromes (ACS). A good approximation is that nSTEMI occurs more frequently than ST elevation myocardial infarction (STEMI), in a ratio of approximately 2:1. Past emphasis has been placed on the care of STEMI patients with targets on timely reperfusion reflected in the MINAP dataset: priority was given to the smaller STEMI group pf patients. The approaches to their respective management are different. With the recent evolvement of 24/7 access to Primary Percutaneous Coronary Intervention (pPCI) at Morriston hospital for STEMI patients, district general hospitals (DGHs) will see very few STEMI patients. Recording of data for nSTEMI patients needs to reflect this change of care and needs to be complete, reliable and credible across Hywel Dda not only to provide National data, but for local use. The data that is inputted is done well. The problem arises with data capture. Provision of suitable resources will be necessary to enable this.

2. Introduction

2.1
The Myocardial Ischaemia National Audit Project (MINAP) is a national audit, examining the care given to all Acute Coronary Syndrome (ACS) patients. ACS denotes all acute coronary events, which can be broadly categorised into:

- ST elevation myocardial infarction (STEMI)
- Non ST elevation myocardial infarction
- Unstable angina (troponin positive)
- Unstable angina (troponin negative)

Participating hospitals are required to enter data for all ACS patients who are admitted.

2.2
Emphasis has changed alongside evolving care of ACS patients. The MINAP acronym originally stood for Myocardial Infarction National Audit Project, with the change to Ischaemia reflecting the recognition of the need to audit care of all ACS patients, not just those with STEMI. With the very recent progress towards primary percutaneous coronary intervention (pPCI), with direct admission to a tertiary centre, MINAP now reflects this change, particularly from the district general hospital (DGH) perspective, where relatively few STEMI patients are now seen.
2.3
Many hospitals only collect complete data for STEMI patients, reflecting previous targets set for Annual Operating Frameworks. There has been opportunistic, incomplete collection of nSTEMI data in many Welsh hospitals. This needs to be addressed and rectified to accurately reflect care given in DGHs, to create a valid and reliable resource. Collecting data for MINAP is a requirement for all Welsh hospitals. This requirement also states complete data collection, which is not currently happening in all Hywel Dda hospitals.

The Annual Quality Framework (2010-11) states that "at a minimum the NHS should all play a full part in the following audit; MinaP, Tarn, RCP stroke audit and NCEPOD. They also need to be able to demonstrate that action has been taken to secure improvement in response to the findings."

3. Treatment of STEMI, nSTEMI and unstable angina patients

3.1
STEMI patients present with raised ST segments on electrocardiogram (ECG), new left bundle branch block or ST segment depression corresponding to a posterior infarction, alongside usual heart attack symptoms and an associated rise in troponin levels. This group of patients require urgent reperfusion of the affected area of the heart. The need for immediate treatment has been recognised, with the evolving ‘call-to-needle’ and ‘door-to-needle’ targets of 60 and 30 minutes respectively to administer a thrombolytic agent. This service was improved greatly with the introduction of training for paramedics to enable this to be given outside the hospital environment. Further progress has created a new ‘gold-standard’ with accessing pPCI services, only available in a tertiary centre – Morriston Hospital for Hywel Dda patients - again with timely intervention; 150 minutes ‘call-to-balloon’ time and 60 minutes ‘door-to-balloon’ time, these denoting the time from calling for help to opening the affected artery in the cardiac catheter lab (pPCI). If these timescales cannot be met, chemical thrombolysis is administered, with the patient still being transferred directly to the tertiary centre for ‘rescue’ PCI.

3.2
nSTEMI patients usually present with other ECG changes, such as ST depression, T wave inversion, alongside usual heart attack symptoms and an associated rise in troponin levels. These patients also need reperfusion measures, ideally within 48 hours, with angiogram/PCI and stent deployment where possible, or diagnostic angiogram leading to coronary artery bypass grafting, where the culprit lesion cannot be treated with a stent. These patients are diagnosed, stabilised, risk stratified and admitted to DGHs and referred to the tertiary centre. MINAP data in the DGH reflects initial care and treatment prior to transfer.

3.3
Unstable angina (USA) patients can present again with ECG changes, which can come and go, reflecting an unstable plaque, such as ST depression, alongside usual heart attack symptoms, with or without an associated rise in troponin levels. These are unstable patients sometimes referred to as ‘pre-heart attack’ patients. Care is the same as an nSTEMI patient, although if symptoms do not settle, some further investigative procedures may be undertaken prior to diagnostic angiography, many of which can be performed in the DGH.
4. The MINAP dataset

4.1
The MINAP dataset records over 150 data points for each admission. These include:

- Patient demographics
- Method and times of admission
- Pre-admission care and relevant medical history
- Admission vital signs
- Cardio-vascular risk factors
- Immediate treatment
- Blood results
- On-going in-patient treatment
- In-patient investigations and results
- Referral and transfer times
- Cardiological specialist care
- Discharge medication
- Referrals

There is also scope to collect locally relevant data alongside the mandatory fields.

4.2
It is possible, and encouraged, to download and use the data collected locally to examine areas of poor performance and learn from areas of good practice. Some examples of this in Hywel Dda are:

- Improving call to needle (CTN) times by arranging local multidisciplinary CTN meetings with paramedics
- Examine admission pathways and encourage dialing 999 to reduce delays to treatment and increase access to timely care
- Examine treatment of raised blood sugar levels on admission, in line with evidence/NICE guidance
- Support research, by sharing reliable data and reducing replication of data collection
5. Current MINAP practice in Hywel Dda

5.1 There is vast differences in resources, data collection/input methods and data completeness across the 4 Hywel Dda hospitals. Current practice is outlined in the tables below.

### 2010-11

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Bronglais</th>
<th>Glangwilli</th>
<th>Prince Phillip</th>
<th>Withybush</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STEMI data</strong></td>
<td>√ n=32</td>
<td>√ n=71</td>
<td>√ n=25</td>
<td>√ n=65</td>
</tr>
<tr>
<td>nSTEMI + USA trop +ve</td>
<td>√n=63</td>
<td>Some n=32</td>
<td>Very few n=14</td>
<td>√n=133</td>
</tr>
<tr>
<td>Unstable angina trop -ve</td>
<td>√n=32</td>
<td>X n=0</td>
<td>Very few n=1</td>
<td>Some n=13</td>
</tr>
<tr>
<td>Ratio nSTEMI/USA: STEMI</td>
<td>2:1</td>
<td>1:2</td>
<td>1:2</td>
<td>2:1</td>
</tr>
</tbody>
</table>

A true ratio of nSTEMI:STEMI should be at least 2:1, although this will not be accurately reflected in DGHs in the future as more STEMI patients are admitted directly to Morriston hospital for their care.

**Bronglais** | **STEMI, nSTEMI, Unstable angina trop +ve, no validation**
---|---
Case identification | Via troponin lists, supplied by path lab daily
Data collection | CCU Sister, CCU staff nurse
Data input | Forms sent to Prince Phillip, data input by Clinical Audit staff
Local use/validation | None – no access to own data once collected

**Glangwilli** | **STEMI, no validation**
---|---
Case identification | CCU admissions only
Data collection | CCU admitting nurse, previously overseen by Helen Humphries, Cardiac Specialist Nurse, no longer in this post. MINAP responsibilities have not been delegated elsewhere.
Data input | Forms sent to Prince Phillip, data input by Clinical Audit staff
Local use/validation | None – previously Cardiac Specialist Nurse.

**Prince Phillip** | **STEMI, no validation**
---|---
Case identification | CCU admissions only
Data collection | CCU admitting nurse, previously overseen by Helen Humphries, Cardiac Specialist Nurse, no longer in this post. MINAP responsibilities have not been delegated elsewhere.
Data input | Forms sent to Prince Phillip, data input by Clinical Audit staff
Local use | None – previously Cardiac Specialist Nurse

**Withybush** | **STEMI, nSTEMI, Unstable angina trop +ve, validation**
---|---
Case identification | Via Troponin lists, supplied daily by path lab
Data collection | CCU admitting nurse, dedicated/funded CCU staff nurse @ 3 hrs a week, MINAP lead as required
Data input | CCU ward clerk, dedicated/funded @ 4 hrs a week
Local use | MINAP Lead @ 7hrs a week, some data collection, data examination, runs multidisciplinary CTN/MINAP meetings 6 weekly. Supplies information
5.2
The different time allocated to MINAP varies greatly between the sites, which directly reflect the data completeness and use of the data. Although Bronglais are collecting all ACS data, they are struggling to manage this within management/admin time, with clinical pressures often reducing the time allocated. Clinical support for MINAP has not been replaced in Prince Philip and Glangwilli General Hospitals. Maternity leave and several months of having no access to Lotus Notes has created a backlog of data entry that is currently being inputted in Withybush. Bronglais, Glangwilli General and Prince Phillip hospitals do not feel adequately resourced to participate in the annual Data Validation process due in January 2012.
The Cardiac Network has initiated multidisciplinary regional Call-to-Needle meetings to discuss cases that fell outside the 60 minute thrombolysis time and those that were successful, to learn from case review. Again, these are based on MINAP data and can only reflect what is on the database. Although the focus of these meetings will change reflecting the access to pPCI, the multidisciplinary forum will be of value to support all ACS care across the Trust.

5.3
The 1000 lives+: Improving Acute Coronary Syndromes Care aims to improve quality of care for ACS patients. The two principle drivers for this are:
1. A Rapid Assessment bundle
2. A Continuing Inpatient Monitoring bundle

Data to monitor the continuing inpatient monitoring bundle will be derived from the MINAP dataset, covering:
- ACS risk factors
- Initiation of phase 1 cardiac rehab
- STEMI care, looking at timely revascularisation and methods used
- nSTEMI care, looking at risk, revascularisation and timely transfer
- All ACS discharge medication

With incomplete data, this will not be possible.

6. Other resource considerations

6.1
The Central Cardiac Audit Database (CCAD) is the national co-ordinating centre for cardiac related data. CCAD not only co-ordinates MINAP and several other cardiac databases, but also the National Heart Failure Audit. This is a Department of Health mandatory audit, and likely to be added as a ‘tier 1’ mandatory audit in the next Annual Quality Framework recommendations. Currently only Bronglais hospital submits data to this dataset. Consideration of this as a mandatory audit alongside consideration of entering nSTEMI data may be useful when planning resources. Only 7% of Welsh hospitals submitted data to the last public report. A recommendation from the WHSSC Cardiac Services Review approved by the Joint Committee of CEOs was “the implementation of the National Heart Failure Audit by all Health Boards”. The South Wales Cardiac Network will be working with the Associate Clinical Lead for WHSSC (Dr Jonathan Goodfellow) to address this.
Conclusions & Recommendations

There is current disparity and inequity across Hywel Dda in resources allocated to MINAP and data completeness. As the data is used both locally and nationally to support service improvement, this needs to be addressed. The data collection requires clinical input and validation. Hywel Dda needs to commit to participating fully in data collection to reflect all ACS management accurately. Scope to do this will emerge with the reduction of STEMI admissions to DGHs, although it must be remembered that the workload for both data entry and data collection will increase as the ratio of nSTEMI to STEMI patients is approximately 2:1.

The National Heart Failure audit uses a similar data input system. It is likely that this will become a mandatory audit in the near future. It could be valuable to consider participation in this alongside restructuring MINAP data collection and input. Using MINAP data locally can support local and Trust-wide service improvement, but only with reliable, credible and complete data. Full support for complete participation in MINAP is vital, with each site needing dedicated clinical time, alongside data entry, to allow this to happen.