DATA COLLECTION FOR THE

JRCALC / ASA NATIONAL CLINICAL AUDIT OF CORONARY HEART DISEASE

APPLICATION NOTES

Version 1.0

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Introduction

This project is the response of the profession to the audit requirements of the National Service Framework for Coronary Heart Disease. The project is run by the Ambulance Service Association National Clinical Effectiveness Programme (ASANCEP) on behalf of the Ambulance Service Association (ASA) and the Joint Royal Colleges Ambulance Liaison Committee (JRCALC) and is working collaboratively with the Clinical Effectiveness and Evaluation Unit (CEEU) of the Royal College of Physicians of London, in line with their MINAP (Myocardial Infarction National Audit Project) study as part of the Coronary Heart Disease national Service Framework.

The project is indebted to the South East Ambulance Clinical Audit Group (SEACAG) for a vast amount of consensus work in establishing a core data set for acute myocardial infarction with definitions for terms that would allow the collection of comparable data across the country, and that would also mirror the work of MINAP to ensure compatibility of data. Consensus was derived from participation of approximately ten ambulance services with audit leads of both Two Shires Ambulance Service NHS Trust and London Ambulance Service NHS Trust developing the database software and the Core Data Set on their behalf and on behalf of the ASA and JRCALC.

The information contained in the Application Notes will assist you to use the software provided in your Welcome Pack. It provides a detailed explanation on the use of the data application which has been provided, and we strongly recommend that hard copies of this manual are available for reference to both those collecting and inputting data.

Contacting the Project

The ASANCEP will provide a limited Help Desk during working hours for problems related to either the technical application or the clinical definitions and related issues involved in the audit. We would very much prefer it if you contacted the help desk by e-mail, but if this is not possible you can also reach us by telephone or fax. Where possible we will endeavour to get back to you within 24 hours of your query.

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1 An outline of the NSF requirements

These proposals are based on the requirement by JRCALC imposed by the Medicines Commission that there be a national clinical audit of prehospital thrombolysis and the use of opiate analgesia (morphine sulphate). They are also based on the requirements of the National Service Framework for Coronary Heart Disease quoted below. The immediate requirements are listed in bold. These are to be achieved by April 2002.

The following is an extract from the National Service Framework - Coronary Heart Disease:

Chapter Three - Heart attacks & other acute coronary syndromes.[1]

Clinical audit
Clinical audit - the systematic assessment and improvement of the quality of care - is an essential component of modern high-quality health care. It will also be an essential component of effective clinical governance. Participation in clinical audit is recognised by the General Medical Council and other professional bodies as an integral part of good practice. The Government also expects all health professionals working in the NHS to undertake clinical audit and to use the results to improve the quality of care.

Hospitals and ambulance services should undertake an annual clinical audit that allows them to estimate the items listed in bold below.

1 Percentage of Category A calls to emergency services attended within 8 minutes of a call for professional help by a trained individual with a defibrillator.

2 Number and % of patients eligible for thrombolysis arriving at hospital within 30 minutes of call for professional help ('call to door' time).

3 Number and % of patients eligible for thrombolysis receiving it within 30 minutes of arrival at hospital ('door to needle time').
[The target becomes 20 minutes from 2003].

4 Number and % of patients eligible for thrombolysis receiving it within 60 minutes of call for professional help ('call to needle time').

5 5 number and % of adult patients with out-of-hospital, non-traumatic cardiac arrest who reach hospital alive and survive to leave hospital

6 6 number and % of patients with suspected AMI, given at least 300 mg aspirin within 60 minutes of call for professional help

The immediate priorities for implementing this area of the NSF are:

by April 2001 reducing call to needle time for thrombolysis for heart attacks (the time from when the initial call is made until clot-dissolving thrombolytic therapy begins); this involves

- improving ambulance response times so that 75% of category A calls receive a response within 8 minutes
- increasing to at least 75% the proportion of A&E departments able to provide thrombolysis
- leading to 75% of eligible patients receiving thrombolysis within 30 minutes of hospital arrival by April 2002 and within 20 minutes by April 2003

[1] Coronary Heart Disease National Service Framework Chapter 3 p14-15.

2 Data collection for the audit requirements

Delays before treatment

The first priority is to record the number and percentage of all thrombolysis eligible patients who receive treatment either as prehospital thrombolysis or within 30 minutes of arrival in hospital, and provide similar data for those having treatment within 60 minutes of a call for help[2]. This latter figure involves collecting call times and the time of arrival in hospital. These data must be collected continuously.

Morphine and Anti-emetics

Data on the prehospital administration of opiate analgesia and any related anti-emetic are also required to be collected continuously as part of the national audit.

Survival after cardiac arrest

You are required as one of the audit points in the NSF to record survival of out of hospital cardiac arrest. You will need support from the hospital to determine discharge diagnosis and survival. This should be regarded as a secondary target. There is evidence that at least as many lives are saved by effective resuscitation as by thrombolytic treatment[3].

3 Practical aspects of data collection

General

The primary purpose of the audit is to allow you to demonstrate that your Trust can satisfy the standards of the NSF for coronary heart disease. These standards concern delays to treatment and use of thrombolytic treatment. In order to keep the work as simple as possible the data items that have to be recorded have been kept to a minimum. However there are some data items which are not essential to satisfy the needs of the NSF, but which will be valuable locally in providing a better understanding of your management of the patient. It is therefore not essential to collect every data item on every patient. The Core Data Set explains in more detail what is essential and what is not.

As much as possible data collection for the NSF should be part of the clinical pathway of care of these patients. It is reasonable to expect to have asked the patient details such as the time of onset of symptoms, and recorded this on the patient report form.

Clinical data items

You must collect times of onset, time of starting reperfusion treatment etc as accurately as possible on all patients. We need to know which of your patients are eligible for reperfusion treatment, whether they get this or not. This means it is ideal to record details on all ST elevation AMI in order to give a numerator and not only those receiving reperfusion treatment.

Data confidentiality and security

As part of the export function when records are copied to be sent to the ASANCEP for national analyses, no patient identifiers are exported. Data for local use will include all fields, whereas data for the national audit will be aggregated to ensure patients are anonymised and that data is secure.

[2] The numerator is the number of patients having thrombolytic or other reperfusion treatment, and the denominator is the total number of ST elevation infarctions admitted to hospital.

[3] The United Kingdom Heart Attack Study Collaborative Group. Effect of time of onset to coming under care on fatality of patients with acute myocardial infarction: effect of resuscitation and thrombolytic therapy. Heart 1998;**80**:114-120.

Guidance issued by the General Medical Council in July 2000 highlighted potential legal difficulties with the use of patient information. The Government is developing a strategy to address these difficulties with the aim of ensuring the consistent use of patient information where informed consent exists and anonymised patient information where there is no consent. The Health and Social Care Bill currently before Parliament will enable certain prescribed services to continue to use patient confidential information without consent. This is intended to safeguard essential services such as the present database and the cancer registries in the transitional period, until the NHS moves to informed consent and the technology to support anonymised data is put into place.

Data validation

The main purpose of the data set is to provide contemporary high quality data analyses to monitor the required NSF standards but it will also allow comparison of the performance of ambulance services. Professor Sir George Alberti (President of the Royal College of Physicians) and Dr Howard Swanton (President of the British Cardiac Society), stated in the foreword to the Acute Myocardial Infarction Core Data Set that 'while analyses based on data of doubtful quality breed cynicism and frustration within the service, good quality data can provide a powerful engine for change and improvement'.[6] This applies equally to this project.

Good data validation is very important to this project, and the confidence of all involved in this work ultimately depends upon the integrity of data recording and analysis. Continuous logging of all infarctions, rather than just thrombolysis eligible infarctions, also allows important validation checks on the proportion of patients considered eligible for treatment, and on the total number of infarctions recorded.

Data entry into the data application is a potential source of inaccuracy that you must consider. At a meeting of the trial sites it was proposed, and agreed, that at least 5% of data entered into the data application should be audited against the data entry forms, if you use them, or the patient notes. This could be done by your audit department. This probably represents 10 – 20 sets of notes per year and you will be given further advice on this.

The ASANCEP is planning to undertake a data quality to evaluate the validity, completeness, reliability and timeliness of the data and produce a monitoring framework to ensure the quality of the national audit data. The ASANCEP will also be working with the MINAP Data Quality Study to learn from and inform their process of validation which will provide a protocol for future NHS Information Authority data accreditation procedures.

Subsequent changes/completion of your data

Data can be completed or corrected at any time. Each time you send your data you export all of your records, thus the most current export will overwrite previous data. If an error is found this can be corrected in your database, and the corrected data will then be analysed. This means that even if your data was initially inaccurate or incomplete, it is possible to update the database, and the subsequent analysis, with corrected data.

Adding additional fields to the MINAP data application

This application only collects those data items required for the AMI core data set and can be developed further by individual hospitals if they wish by adding further data fields for local use. Please note that no changes should be made to the core data set fields themselves as these are exported and used for central analysis. Any additional fields will not be exported and therefore can be used for local monitoring only.

Any changes that are planned locally <u>MUST</u> be notified to the ASANCEP prior to being added to the application.

Summary

To meet immediate requirements you need to:

a) identify and record all patients treated with AMI who are eligible for thrombolysis and continuously record delays and treatment of those patients who receive thrombolytic treatment.
b) record data on the administration of opiate analgesia and anti-emetics

More detail is given in JRCALC's 5-stage plan for national audit in the introductory document.

[6] Birkhead JS, Norris R, Quinn T and Pearson M. Acute Myocardial Infarction: a core data set for monitoring standards of care. Royal College of Physicians 1999, iii.

4 A guide to using the data application

Introduction

This section will help you to get started with data collection. It should be read by those who record and input data. It contains advice on data entry. With this document there is a data entry reference guide (Appendix 1), of which you may want to make copies.

Overview of the data application

Defaults for several fields (e.g. ambulance service and thrombolysis model adopted) will be set at installation. Again any changes to these defaults MUST be notified to the ASANCEP prior to implementation.

On opening the database you enter the Main Menu of the application. Again the introductory document provides details on the screens/menus available.

Help

Help is accessible from every form within the application and provides links to all the documentation:

- Installation notes
- Core Data Set
- Data Application Guide

There is also and email link to the ASANCEP and to the webpages covering the project.

Adding a new patient

Data is entered in 2 stages:

1. Patient details
2. Incident details

To enter data it is easiest to press Return to move to the next field, as you will then move through all the required fields in sequence.

Each form can be amended using the appropriate form and details obtained from hospital can also be added at a later date.

Entering time fields

The fields for entry of date and time data are blank, (ie without an input mask such as **/**/****: **:**) Data entry is simple. Leading zeros are needed. Enter a forward slash / between mm dd yy. The colon between hours and minutes is essential. Times should be recorded on a 24 hour clock. Note that time intervals are calculated for you.

Some times are pre-populated within the application once a key time has been entered. This speeds up data entry as changes to the minutes need be carried out.

Making a mistake with times

Mistakes with dates and times are not terminal. An error checking routine prevents most illogical times from being entered, and gives you a warning when this happens.

On rare occasions it is possible to get stuck when entering a date and time with the field refusing to accept your corrections. If this happens wipe the whole field by clicking on the left hand mouse button and wiping across the whole field (so that colours are reversed). Then press Delete on your computer keyboard. Then enter the date once more.

Appendix 1: REFERENCE GUIDE TO FIELD OPTIONS

Code	Gender
0	Not specified
1	Male
2	Female

Code	History
0	None
1	Previous AMI
2	Previous treated Angina
3	Hypertension
4	Diabetes
5	High cholesterol
6	Peripheral Vascular Disease (PVD)
7	Asthma
9	Not known
55	More than one of the above

Code	Call type
0	Not specified
1	Emergency
2	Dr.'s Emergency
3	Dr.'s Urgent
4	Other

Code	Crew
0	Not specified
1	Technician
2	Paramedic
3	Paramedic trained to Thrombolyse
4	Trainee Crew

Code	GCS
	Enter a score between 3 -15
0	Not specified
70	GCS Score not used by this Trust

Code	SP02
	Enter a % rate for Pulse Oximetry reading
0	Not specified
600	SpO2reading is too low
700	Trust does not use Pulse Oximetry
800	Equipment not available

Code	Pain score
	Enter a score between1-10
0	Not specified
70	Trust does not use a Pain Score
9	Not Known
99	Trust does not use a 1-10 Pain Scoring system

Code	AVPU
0	Not specified
A	Alert
N	AVPU Not used by this Trust
P	Responds to Pain
U	Unresponsive
V	Responds to Voice

Code	Was last pain score post-analgesia
0	Not specified
2	Yes
3a	No
3b	Analgesia not administered
70	Pain score not used by Trust
9	Not known

Code	ECG
0	Not Specified
1	3 Lead
2	12 Lead

Code	Presenting rhythm
0	Not specified
1	ST Segment elevation
2	Left Bundle Branch Block
3	ST Depression
4	T-Wave changes - only
5	Other abnormality
6	Normal ECG
7	ECG monitored but no rhythm specified
9	Not known

Code	Oxygen Rate
0	Not specified
2a	100% - 60% High
2b	59% - 25% Medium
2c	< 25% Low
3	Not administered
4	Administered but rate not recorded

Code	Aspirin
1	Drug not used by this Trust
2	Drug administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one contraindication
5a	Contra - Allergy/Sensitivity
5b	Contra - Current Gastric or Duodenal ulcer
5c	Contra - Child under 12
5d	Caution - Asthma
5e	Caution - Pregnancy
5f	Caution - Kidney or Liver failure
5g	Caution - Hemophilia
5h	Caution - Current treatment with anti-coagulants
60	Patient did not consent
9	Not known

Code	GTN
1	Drug not used by this Trust
2a	Single drug dose administered
2b	Double drug dose administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one contraindication
5a	Contra - Hypotension
5b	Contra - Hypovolaemia
5c	Contra - Head trauma
5d	Contra - Cerebral hemorrhage
5e	Contra - Viagra
60	Patient did not consent
9	Not known

Code	Entonox
1	Drug not used by this Trust
2	Drug administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one Contraindication
5a	Contra - Severe chest injuries where pnemothorax may be present
5b	Contra - Severe head injuries with impaired consciousness
5c	Contra - The Bends (decompression sickness)
5d	Contra - Violently disturbed psychiatric patients
5i	Caution - Patient taken alcohol or illicit drugs
60	Patient did not consent
9	Not known

Appendix 1: REFERENCE GUIDE TO FIELD OPTIONS

Code	Nalbuphine
1	Drug not used by this Trust
2a	2.5mg Total drug dose administered
2b	5mg Total drug dose administered
2c	7.5mg Total drug dose administered
2d	10mg Total drug dose administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one Contraindication
5a	Contra - Any major ABC problems
5b	Contra - Respiratory depression
5c	Contra - Hypotension (systolic BP < 90mmHg)
5d	Contra - Impaired level of consciousness
5e	Contra - Head injuries with impaired level of consciousness
5f	Contra - Pregnancy
5g	Contra - Recent intake of alcohol
5h	Contra - Monoamine oxidase inhibitor, anti-depressant
5i	Caution - In the Elderly
60	Patient did not consent
70	No venous access
9	Not known

Code	Atropine
1	Drug not used by this Trust
2a	Single drug dose administered
2b	Double drug dose administered
3	Drug not administered
4	Drug administered prior to EMS arrival
60	Patient did not consent
70	No venous access
9	Not known

Code	Lidocaine
1	Drug not used by this Trust
2a	50mg Totals drug dose administered
2b	100mg Totals drug dose administered
2c	150mg Totals drug dose administered
2d	200mg Totals drug dose administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one contraindication
5a	Contra - Allergy to Lidocaine or local anesthetics
5b	Contra - Bradycardias
5c	Contra - Asystole
5d	Contra - Torades de pointes
60	Patient did not consent
70	No venous access
9	Not known

Code	Frusemide
1	Drug not used by this Trust
2	Drug administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one contraindication
5a	Contra - Hypokalaemia
5b	Contra - Pregnancy
60	Patient did not consent
70	No venous access
9	Not known

Code	Tramadol
1	Drug not used by this Trust
2a	50mg Totals drug dose administered
2b	100mg Totals drug dose administered
2c	150mg Totals drug dose administered
2d	200mg Totals drug dose administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one contraindication
5a	Contra - Suffering alcohol intoxication
5b	Contra - Already taking opiod analgesics
5c	Contra - Taking monoamine oxidase inhibitors (or within last two weeks)
5d	Contra - Pregnancy
5e	Contra - Severe head injuries
5f	Contra - Epileptic
5g	Contra - Child under 12
5h	Caution - in the elderly
60	Patient did not consent
70	No venous access
9	Not known

Code	Morphine Sulphate
1	Drug not used by this Trust
2a	2.5mg Totals drug dose administered
2b	5mg Totals drug dose administered
2c	7.5mg Totals drug dose administered
2d	10mg Totals drug dose administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one Contraindication
5a	Contra - Any major ABC problems
5b	Contra - Respiratory depression
5c	Contra - Hypotension(systolic BP<90mmHg)
5d	Contra - Impaired level of consciousness
5e	Contra - Head injury with impaired level of consciousness
5f	Contra - Pregnancy
5g	Contra - Resent intake of alcohol (*continued…*
5h	Contra - Monoamine oxidase inhibitors, anti-depressant
5i	Caution - Chest injuries, particularly with any respiratory difficulty
5j	Caution - In the elderly
60	Patient did not consent
70	No venous access
9	Not known

Code	Metoclopramide
1	Drug not used by this Trust
2	Drug administered
3	Drug not administered
4	Drug administered prior to EMS arrival
50	More than one contraindication
5a	Contra - First trimester of pregnancy
5b	Contra - Renal failure
5c	Contra - Phaechromcytoma
60	Patient did not consent
70	No venous access
9	Not known

Code	Streptakinase/ Reteplase/ Tenectoplase
1	Drug not used by this Trust
2	Drug administered
3	Drug not administered
4	Drug given prior to EMS arrival
5	Contra indicated by JRCALA thrombolysis checklist
9	Not known
60	Patient dosen not consent
70	No venous access

Appendix 1: REFERENCE GUIDE TO FIELD OPTIONS

Code	Check List Question
50	More than one of the above
5a	Patient NOT conscious, coherent or able to understand that a clot dissolving drug would be used
5b	Patient OVER 75 years old
5c	Patients' symptoms NOT characteristic of a coronary heart attack
5d	Patients' symptoms started OVER 6 hours ago
5e	Patients' pain DID NOT build up over seconds and minutes, it started totally abruptly
5f	Breathing DOES influence the patients' pain
5g	Patients heart rate is NOT between 50 - 140
5i	Patients ECG DOES NOT show abnormal ST elevation
5j	CAN NOT confirm that the QRS width is 0.14mm or less, and that bundel branch block is absent from the trace
5k	CAN NOT confirm that there is NO atrioventricular block greater than 1 st degree. Even after Atropine.
5l	Patient LIKELYto be pregnant Or has given birth within the last two weeks
5m	Patient HAS had a peptici ulcer within the last 6 months
5n	Patient HAS had a stroke within the last 12 months, Or HAS permanent disability from a previous stoke
5o	Patient HAS a bleeding tendancy, Or HAS had a recent blood loss, Or is taking Warfarin
5p	Patient HAS had a surgical operation, tooth extraction, significant trauma, Or head injury within the last 4 weeks.
5q	Patient HAS been treated recently for other serious head Or brain condition
5r	Patient HAS received Streptokinase before
5s	Patient HAS had chest compression for resuscitation for a period of longer than 5 minutes
5t	Patient IS being treated for liver failure, Or renal failure, Or any other severe systemic illness
9	Not known

Code	Decision to thrombolyse
1	Paramedic
2	GP
3	Other
9	Not Known
10	Not applicable

Code	Location Thrombolysed
10	Not applicable
1a	EMS
1b	GP
9	Not known

Code	Help
1	Called GP who saw patient before calling EMS
2	Called GP who called EMS before seeing patient
3	Called 999
4	Called NHS Direct
5	Patient made own way to hospital
6	Called local helpline
7	Called GP and told to make own way to hospital
9	Not known
10	Health care Professional advised self-care

Code	First on scene
1	EMS
2	Initial Response - EMS
3	Initial Response - Non EMS
4	EMS - Non Emergency
5	Other

Code	Defibrillator on scene
2	No
9	Not known
1	Yes

Data from MINAP via hospitals

Code	Reperfusion Location
0	No reperfusion attempted
1	Before admission to hospital
2	in A&E
3	In CCU (direct admission)
4	In CCU (slowtrack)
5	Elsewhere in hospital
9	Not known

Code	Final Hospital diagnosis
1	Definate MI
2	Unstable Angina
3	Threatened MI
4	Other - Non cardiac diagnosis
5	Chest Pain of uncertain cause
6	MI unconfirmed
9	Not known

Code	Discharge Status
1	Alive
2	Dead
3	Not Known

Code	Death in hospital
1	From MI
2	From complication of treatment
3	Other - Non cardiac related
10	Not applicable