

**MYOCARDIAL INFARCTION
NATIONAL AUDIT PROJECT**

**NATIONAL DATA
QUALITY ASSESSMENT**

2004

**CLINICAL
EFFECTIVENESS &
EVALUATION UNIT**



**Royal College
of Physicians**

Setting higher medical standards

**Myocardial Infarction National Audit Project
Clinical Effectiveness and Evaluation Unit
Royal College of Physicians**

Introduction:

The Myocardial Infarction National Audit Project (MINAP) was established in 2000 as a response to the NSF and in particular to the standards relating to the care of heart attack patients. Successful implementation of these standards was identified as: “people with a suspected heart attack will receive professional assessment and, where appropriate, be treated with thrombolytic (clot dissolving) drugs within an hour of calling for medical help or of 999”.

MINAP collaborates with the Central Cardiac Audit Database (CCAD) who developed a system to collect and analyse data from all acute hospitals in England and Wales. 100% of hospitals in England and Wales are submitting data to MINAP. During the last quarter of 2004 (Quarter 4, October – December) 85% of eligible patients received thrombolytic therapy within 30 minutes of arriving at hospital. This compares with less than 40% when MINAP first started. MINAP has, therefore, clearly demonstrated improvements in the care of heart attack patients.

Maintenance of data quality is crucial to MINAP as analyses are used to inform many organisations about the care of heart attack patients, including hospitals, Strategic Health Authorities, the Healthcare Commission, and the Department of Health. This data quality study allows examination of consistency of data entry in detail. It presents the overall percentage of observed agreement for each field between data on the MINAP database and data from case-notes re-audit. Individual hospital reports show hospitals their most frequent discrepancies and help them to understand areas of data weakness.

Previous Data Quality Studies:

MINAP previously carried out Data Quality Studies in 2001 and 2002. The aim of these studies was to develop a tool with which to systematically examine data quality and to promote local discussion, investigation and action on data quality.

Feedback from the 2002 Data Quality Study indicated that while hospitals found an annual data quality exercise was useful, collection of all MINAP fields was very time consuming. As it was agreed that the validation exercise should subsequently be performed annually, the number of fields that required validation was limited to twenty.

For the 2003 Data Quality Study an on line validation methodology was developed by CCAD. Participation in the 2003 Data Quality Study was voluntary. 100 hospitals successfully used the Data Validation Tool to validate their data and many commented on the straightforwardness of the tool.

We initially asked for the data to be validated by someone who had not had responsibility for initial data entry. Following the 2003 study, we accepted that this may not always be possible, and have agreed that data re-entry by the same individual who entered the original record was acceptable.

2004 Data Quality Study

For the 2004 Data Quality Study hospitals were asked to revalidate 20 cases for the following 20 fields.

Core Data Set Number:	Field Name:
2.01	Admission diagnosis
2.02	Method of admission
2.03	ECG determining treatment
2.04	Where was aspirin given
2.14	Cardiac enzymes/markers raised
2.17	Diabetes
3.06	Date/time of arrival at hospital
3.07	Was reperfusion attempted
3.08	Reason thrombolytic treatment not given
3.11	Where was initial reperfusion treatment given
3.14	Cardiac arrest location
4.01	Date of discharge
4.02	Discharge diagnosis
4.03	Bleeding complications
4.04	Death in hospital
4.07	Discharged on statin
4.09	Cardiac Rehab
4.11	Echocardiography
4.13	Coronary angiography at this admission
4.15	Date of referral for investigation/intervention

Hospitals identified patients via the patient case record number and the date and time of admission (core data set number 3.06).

CCAD randomly selected 25 cases for each hospital with an admission diagnosis of definite myocardial infarction between April 2004 to November 2004 and hospitals were asked to audit 20 cases; the extra 5 cases were spares in case of missing notes. The selected cases were displayed in the Data Validation Tool, showing the fields to be re-entered with the available options to re-enter the data. Hospitals were then asked to re-enter the 20 cases held in the MINAP database on the CCAD server against information in the medical notes. Hospitals were given two months to complete the study.

Participation in the 2004 Data Quality Study was mandatory as agreed by the MINAP Steering Group.

Results:

201 hospitals participated in the 2004 Data Quality Study. In 2003, 100 hospitals participated and in 2002 76 hospitals participated in the study.

The analysis examined agreement between data originally entered on the MINAP database and the data originally recorded in the medical notes. The observed percentage of agreement was computed for each field.

Appendix A shows the overall agreement scores for each field for the 3924 cases from all 201 hospitals in the study.

An overall data quality agreement score for all 201 hospitals has also been calculated. Scores ranged from 46 to 99 with a median of 84 and an inter-quartile range between 77 and 88. Thus, one quarter of hospitals had scores of below 77 and one quarter had scores above 88.

Hospitals were then given access to the Data Validation Tool in Lotus Notes; the tool contained the data originally entered onto MINAP, as well as the data entered during the study. This enabled hospitals to identify their discrepancies and we asked hospitals to explore the nature of their most frequent discrepancies and to consider if there was a systematic problem which led to this. Learning lessons from the fields with the most frequent disagreements is probably the best way of making the biggest improvements in the future quality of the data held in the MINAP database.

The agreement figure for 3.08 'Reason thrombolytic treatment not given' is low. We had found that this is a technical issue resulting from an initial entry of a blank, as opposed to '0. None.' When validation is performed it is not possible to replicate the blank and only '0. None' or '9. Unknown' can be used. As there were a large number of blanks, there were a large number of disagreements.

Conclusions/lessons learnt:

About two thirds of the validated fields achieved over 80% observed agreement and the median data quality score for all 201 hospitals was 84%. The areas of weakness vary from hospital to hospital.

Hospitals can ensure that their data is of higher quality in a number of ways:

- Creating audit reports in Lotus Notes: Audit reports give detailed analysis of a hospital's data for a given quarter and provide a means for hospitals to examine their practice.
- Exporting data to Microsoft Excel: Lotus Notes now also contains a facility that allows hospital to export their data from Lotus Notes into Excel; this function allows hospitals to check what data has been uploaded to MINAP.
- Clinical Helpdesk: MINAP also operates a clinical helpdesk for hospitals and can assist with interpreting the core data set and also help with analysis queries.
- Technical Helpdesk: CCAD operate a technical helpdesk and can assist with any problems relating to Lotus Notes.
- 'Data Quality' view in Lotus Notes: This allows hospitals to monitor their data completeness for 11 key fields.

2005 Data Quality Study

The Data Quality Study will be repeated in 2005 using the Data Validation Tool. Participation will again be mandatory and hospitals' overall data quality score will appear on SHA reports.

If you have any queries, please contact MINAP:

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Appendix A: % observed agreement between MINAP data and 2004 re-audit data

CDS No:	CDS Field Name:	Overall: (3924 cases)
3.06	Arrival at Hospital	98
2.01	Admission Diagnosis	92
2.02	Method of Admission	87
2.03	ECG Determining Treatment	92
2.04	Where was Aspirin Given	76
2.14	Cardiac Enzymes	84
2.17	Diabetes	86
3.07	Was Reperfusion Attempted	98
3.08	Reason Thrombolytic Treatment not Given	53
3.11	Where Initial Reperfusion given	90
4.01	Discharge Date	80
4.02	Discharge Diagnosis	89
4.03	Bleeding Comps	78
4.11	Echocardiography	71
4.15	Referral Date	79
3.14	Cardiac Arrest	85
4.04	Death In Hospital	84
4.07	Discharged on statin	84
4.09	Cardiac Rehabilitation	79
4.13	Coronary Angiography	57

Median Data Quality Score of 201 Hospitals:	84
Inter-quartile Range:	77-88
Range:	46-99