

**MYOCARDIAL INFARCTION
NATIONAL AUDIT PROJECT**

**NATIONAL DATA
QUALITY ASSESSMENT**

2005

**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”.

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.

2005 Data Quality Study

For the 2005 Data Quality Study hospitals were asked to revalidate 20 cases for the following 20 fields.

Core Data Set Number:	Field Name:
1.03	NHS number
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
3.11	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 2005 to November 2005 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. The Data Quality Study 2005 was included in the Healthcare Commission's Participation in Audits programme.

Results:

221 hospitals participated in the 2005 Data Quality Study. In 2004, 201 hospitals participated and in 2003, 100 hospitals participated in the study 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 4664 cases from all 221 hospitals in the study.

4664 cases from 221 hospitals were analysed, representing cases ranging from 2-25 across all hospitals. Statistical methods to be used will be observed percentage of agreement for each field then kappa coefficient for categorical data fields. The kappa statistic was used to measure agreement between MINAP and repeat audits. Kappa values of 0.41 to 0.60 are said to indicate moderate agreement, values of 0.61 to 0.80 indicate good agreement, whilst values of over 0.80 are very good. In practice any kappa much below 0.50 will indicate inadequate agreement. Individual hospital reports were sent to the MINAP main and second contact.

The overall median score for 2005/2006 was 87, inter-quartile range 81-93, range 61-100. This compares to median 86, inter-quartile range 78-90, range 48-99 for the same 19 items in the 2004/2005 data validation exercise.

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.

Hospitals were asked to re-enter data from the case notes on the following Core Data Set Items (Application Notes, Version 4): 1.03 'NHS number' replaced 3.08 'Reason thrombolytic treatment not given'

Conclusions/lessons learnt:

More than two thirds of the validated fields achieved over 80% observed agreement and the median data quality score for all 221 hospitals was 87%. 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.

2006 Data Quality Study

The Data Quality Study will be repeated in 2006 using the Data Validation Tool. Participation will again be mandatory and hospitals' overall data quality score will appear on SHA reports and the HC Participation in Audits programme.

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Appendix A: % observed agreement between MINAP data and 2005 re-audit data

CDS No:	CDS Field Name:	Overall: (4664 cases)
3.06	Arrival at Hospital	98
2.01	Admission Diagnosis	94
2.02	Method of Admission	91
2.03	ECG Determining Treatment	94
2.04	Where was Aspirin Given	76
2.14	Cardiac Enzymes	87
2.17	Diabetes	88
3.07	Was Reperfusion Attempted	97
3.11	Where Initial Reperfusion given	91
4.01	Discharge Date	84
4.02	Discharge Diagnosis	91
4.03	Bleeding Comps	87
4.11	Echocardiography	74
4.15	Referral Date	78
3.14	Cardiac Arrest	87
4.04	Death In Hospital	89
4.07	Discharged on statin	84
4.09	Cardiac Rehabilitation	79
4.13	Coronary Angiography	64
Median Data Quality Score of 221 Hospitals:		87
Inter-quartile Range:		81-93
Range:		61-100