MINAP MINIMUM DATA STANDARD:

IMPLEMENTATION GUIDE

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1. Introduction

NICOR's mission is to provide accurate data on cardiovascular outcomes for the public, healthcare providers and the medical profession. While NICOR undertakes a number of manual and automated data quality control processes, the responsibility for data quality is shared with clinicians and organisations undertaking procedures in the NHS.

NICOR aims to further assist organisations in their data submissions by defining a minimum data standard (an acceptable standard for data submissions to be measured against), to provide feedback to the provider organisations on the data quality of their quarterly submissions and to give organisations the opportunity to improve and resubmit the data should improvements be required.

NICOR has implemented a Minimum Data Standard Operating Procedure (SOP) and is applicable to all audits and registries managed by NICOR. The individual audit committees have defined each minimum data standard. The deadlines are in line with the NHS England requirement to ensure national audit results are published within six months of data submission close. The implementation guidelines set out in this document are based on the NICOR Minimum Data SOP and includes guidance on case ascertainment, data completeness, data submission deadlines, reporting and the data resubmission process.

2. NICOR Minimum Data Standard

2.1. Case Ascertainment Rate Equivalent

In MINAP, work is underway to define case ascertainment using HES data. Until a reliable method is available the required submission rate for each participating hospital will be based on our current guide, which is to query case ascertainment where the numbers of cases vary by +/- 10% annually. Exceptions to this rule include changes to the services or any other valid reason responsible for this change. Hospitals are expected to inform NICOR of any local changes immediately.

2.2. Data Completeness and required fields for STEMI and nSTEMI patients

Missing data in the key fields compromise the value of the record and the analyses. In MINAP, data completeness must be a minimum of **95% completeness for each field**. Data completeness is measured against the following key fields that are required for different analyses for reporting of the process and outcomes measures. The tables below list all mandatory fields for STEMI and nSTEMI patients. The table also includes the justification for their inclusion in the minimum data standard.

2.2.1. Patients with STEMI

Field Number	Field	Explanation notes
1.03	NHS number	Necessary for linkage to ONS for vital status and HES.
1.06	DOB	Necessary to calculate age on admission also required for the GRACE score calculation/risk model
1.07	Gender	Required for analysis
1.01	Postcode	Necessary for the geographical mapping, especially with the establishment of CCGs
1.11	GP/PCT code	Part of the data validation study and data completeness analysis.
2.01	Initial diagnosis	Mandatory field to save a MINAP record
2.03	ECG determining treatment	Important validation check
2.14	Cardiac markers raised	Determinant of mortality/MI. Required for GRACE score calculation/risk model
2.20	Systolic BP	Together with pulse and age this is a very powerful predictor of 30 day mortality for AMI. Used for predictive scoring
2.21	Pulse rate	Together with BP and age this is a very powerful predictor of 30 day mortality for AMI. Used for predictive scoring e.g. GRACE
2.28	Glucose	Very powerful determinant of subsequent morbidity for diabetics and non-diabetics
2.34	Creatinine	A determinant of renal function; used for predictive scoring e.g. GRACE
2.39	Admission method	Needed for analysis to identify inter-hospital transfers and repatriation
2.40	Patient location at time of STEMI	Needed for CTB and CTN analysis and to identify patients that had STEMI in the community or whilst in hospital
2.41	Killip class on admission	A determinant of mortality; used for predictive scoring e.g. GRACE
3.01	Date and time (D/T) of symptom onset	Needed for analysis
3.02	D/T of call for help	Needed for analysis
3.05	Ambulance job number	Essential to link with the ambulance outcomes database; it also allows ambulance colleagues to identify patients that were brought to your hospital.
3.06	D/T arrival in hospital	Needed for analysis of DTN and DTB. It is also necessary to calculate 30 day mortality from admission. In MINAP a record cannot be saved without this information.
3.08	Reason reperfusion not given	Needed for analysis of patients that received no reperfusion

3.09	D/T of reperfusion treatment	Needed for CTB/CTN,DTB and DTN analysis
3.1	Delay before treatment	Needed for CTB/CTN,DTB and DTN analysis
3.11	Where was initial reperfusion given	Needed for CTN and DTN analysis
3.14	Cardiac arrest location	A determinant of mortality; used for predictive scoring e.g. GRACE
3.19	Peak troponin	All patients should have peak troponin recorded. It also forms a part of diagnostic criteria of ACS.
3.39	Initial reperfusion treatment	
3.4	Additional reperfusion treatment	
3.41	Inpatient management of hyperglycaemia	National guideline suggests treating higher levels of hyperglycaemia with insulin
3.46	Date / time of arrival at non interventional hospital	For collection in interventional hospital only
3.47	Assessment at non interventional hospital	For collection in interventional hospital only
3.48	Assessment at interventional centre	For collection in interventional hospital only
3.49	Intended reperfusion procedure	For collection in interventional hospital only
3.5	Procedure performed	For collection in interventional hospital only
3.51	Why no angiogram performed	For collection in interventional hospital only
3.52	Why no intervention performed	Important to determine the reasons behind no reperfusion.
4.01	Date of discharge	Necessary to validate vital status data NICOR receives.
4.02	Discharge diagnosis	Essential for a number of analyses including outcomes reporting.
4.04	Death in hospital	Essential for secondary prevention analysis as patients who died in hospital are excluded from that analysis. Also needed to validate death in hospital to report on in-hospital mortality.
4.05	Discharged on beta blocker	Needed for secondary prevention medication analysis. Secondary prevention is also a powerful determinant of patient outcomes. NICE guideline.
4.06	Discharged on ACEI/ARB	Needed for secondary prevention medication analysis. Secondary prevention is also a powerful determinant of patient outcomes. NICE guideline.
4.07	Discharged on statin	Needed for secondary prevention medication analysis. Secondary prevention is also a powerful determinant of patient outcomes. NICE guideline.
4.08	Discharged on aspirin	Needed for secondary prevention medication analysis. Secondary prevention is also a powerful determinant of patient outcomes. NICE guideline.

4.16	Discharge destination	Important to validate patients that died whilst in hospital. It also servers to exclude records for analyses they are not eligible for e.g. secondary prevention medication. It is the hospital discharging a patient home that is responsible for the discharge medication.
4.20	Interventional centre code	All are very important in order to track referrals.
4.21	Referring hospital	This helps receiving hospitals to identify hospitals from which a patient was referred. It will prove helpful to validate when records between hospitals are linked.
4.27	Discharged on thienopyridine inhibitor	Needed for secondary prevention medication analysis. Secondary prevention is also a powerful determinant of patient outcomes. NICE guideline.
4.28	Discharged on aldosterone antagonist	NICE guideline
4.29	What procedure was performed at the interventional hospital	Needed for analysis of no reperfusion rates, for example.

2.2.1 Patients with nSTEMI

Field No	Field	Explanation notes
1.03	NHS number	Necessary for linkage to ONS for vital status and HES.
1.06	DOB	Necessary to calculate age on admission also required for the GRACE score calculation/risk model
1.07	Gender	Required for analysis
1.01	Postcode	Necessary for the geographical mapping, especially with the establishment of CCGs
1.11	GP/PCT code	Part of data validation study and data completeness analysis.
2.01	Initial diagnosis	Mandatory field to save a MINAP record
2.03	ECG determining treatment	Important validation check
2.14	Cardiac markers raised	Determinant of mortality/MI. Required for GRACE score calculation/risk model
2.16	Smoking status	Part of data validation study and data completeness analysis
2.17	Diabetes	Included in risk adjustment and calculation of case mix
2.2	Systolic BP	Together with pulse and age this is a very powerful predictor of 30 day mortality for AMI. Used for predictive scoring
2.21	Pulse rate	Together with BP and age this is a very powerful predictor of 30 day mortality for AMI. Used for predictive scoring e.g. GRACE
2.26	Previous drug use Statin	Part of data validation study and data completeness analysis.
2.28	Glucose	Very powerful determinant of subsequent morbidity for diabetics and non-diabetics
2.33	Cardiological care during admission	Evidence suggests that patients that are cared for by cardiologist /cardiological team have considerably better outcomes than those that are not under management of a cardiologist. It is also reported in the Annual Report.
2.34	Creatinine	A determinant of mortality; used for predictive scoring e.g. GRACE
2.39	Admission method	Needed for analysis to identify inter-hospital transfers and repatriation
2.41	Killip class on admission	A determinant of mortality; used for predictive scoring e.g. GRACE
3.05	Ambulance job number	Essential to link with the ambulance outcomes database; it also allows ambulance colleagues to identify patients that were brought to your hospital.

3.06	D/T arrival in hospital	Needed for analysis of DTN and DTB. It is also necessary to calculate 30 day mortality from admission. In MINAP a record cannot be saved without this information.
3.14	Cardiac arrest location	A determinant of mortality; used for predictive scoring e.g. GRACE
3.17	Admission ward	Reported in Annual Report
3.19	Peak troponin	All patients should have peak troponin recorded. It also forms a part of diagnostic criteria of ACS.
3.22	Thienopyridine platelet inhibitor	Dual antiplatelet therapy recommended in national guidelines
3.41	Inpatient management of hyperglycaemia	National guideline suggests treating higher levels of hyperglycaemia with insulin
4.01	Date of discharge	Necessary to validate vital status data NICOR receives.
4.02	Discharge diagnosis	Essential for number of analyses including outcomes reporting.
4.03	Bleeding complication	Bleeding complication is associated with worse ischaemic outcomes, thus required for outcomes analysis. Part of data validation study and data completeness analysis.
4.04	Death in hospital	Essential for secondary prevention analysis as patients who died in hospital are excluded from this analysis. Also needed to validate death in hospital to report on in-hospital mortality.
4.05	Discharged on beta blocker	Needed for secondary prevention medication analysis. Secondary prevention is also powerful determinant of patient outcomes. NICE guideline.
4.06	Discharged on ACEI/ARB	Needed for secondary prevention medication analysis. Secondary prevention is also powerful determinant of patient outcomes. NICE guideline.
4.07	Discharged on statin	Needed for secondary prevention medication analysis. Secondary prevention is also powerful determinant of patient outcomes. NICE guideline.
4.08	Discharged on aspirin	Needed for secondary prevention medication analysis. Secondary prevention is also powerful determinant of patient outcomes. NICE guideline.
4.13	Coronary angiography	NICE guideline recommends that every high risk ACS patient has angiography as early ACS management. (It also applies to subsequent angio after pPCI in STEMI or in STEMI that did not have pPCI.)
4.14	Coronary intervention	Mandatory for interventional centres for nSTEMI. For STEMI only in another PCI following pPCI. It also applies to subsequent angio after pPCI in STEMI or STEMI that did not have pPCI.

4.16	Discharge destination	Important to validate patients that died whilst in hospital. It also serves to exclude records from analyses for which they are not eligible e.g. secondary prevention medication. It is the hospital from which the patient is discharged home that is responsible for the discharge medication.
4.18	Angio date/time	Not all required in every case. This field enables us to report on delays to angiography.
4.19	Local intervention date	Likely to be same as 4.18; follow up procedure in STEMI, not pPCI.
4.20	Interventional centre code	All are very important in order to track referrals.
4.21	Referring hospital	This helps receiving hospitals to identify hospitals from which a patient was referred. It will be helpful to validate when records between hospitals are linked.
4.27	Discharged on thienopyridine inhibitor	Needed for secondary prevention medication analysis. Secondary prevention is also powerful determinant of patient outcomes. NICE guideline.
4.28	Discharged on aldosterone antagonist	NICE guideline
4.30	Delay to performance of angiogram	Applies to all patients that received angiography other than as primary PCI. It will serve to identify the most common delays to angiography at referring or at performing sites.

3. Monitoring

Each hospital is responsible for submitting data that meets the minimum data standard. The MINAP audit will support hospitals in the following ways:

- The MINAP database will generate automatic emails to hospitals that have not submitted data in more than 4 weeks. The emails will be sent to the nominated key contact. Hospitals must notify the NICOR Technical Helpdesk of any staff changes (nicor.helpdesk@nhs.net).
- NICOR will provide each hospital with a MINAP Data Quality Report on a quarterly basis. The reports will be disseminated on the 2nd Monday of the month following the data submission deadline. A summary of the reporting schedule is provided on Appendix 1.
- NICOR is in the process of developing a comprehensive tool that will enable hospitals to monitor case ascertainment and all key fields on an ongoing basis. The MINAP database provides a number of views that assist in monitoring the quality of real time data although these do not cover all fields listed within the minimum data standard. In the meantime, hospitals can monitor data quality on real time data by exporting data into excel and applying filters to identify blanks and illegal values.
    - To select the STEMI cohort of patients filter by '2.01 Diagnosis and 1. Definite myocardial infarction'. NICOR do not currently include repatriated patients in this analysis and it would be appropriate to also filter the data by field 2.39 'Admission method: 5. Repatriation.
    - To select the nSTEMI cohort, filter by 2.01 Diagnosis and 3. Acute Coronary Syndrome. NICOR do not currently include repatriated patients in this analysis so it would be appropriate to also filter the data by field 2.39 'Admission method: 5. Repatriation.'

4. Deadlines and quarterly reporting

Each hospital is expected to submit the minimum data standard to NICOR on a quarterly basis. Each submission should occur by the end of the subsequent quarter's end. For example, April - June (Quarter 1) data must be submitted by the end of September (Quarter 2). In the final quarter prior to the annual report, Quarter 4 (Jan-March) data should be submitted within 6 weeks of the end of quarter. The actual annual data deadline date will be confirmed each year by the MINAP project manager via the NICOR website (https://www.nicor.org.uk/data-collection/) and directly via email to each hospital.

Please note: The MINAP database analysis views show calendar years quarters e.g. Q1 is Jan –March. Therefore the NICOR Minimum Dataset Standard Q1 (April to June) = Q2 (April to June) in the MINAP on-line views.

5. Resubmission

NICOR will disseminate quarterly Data Quality Reports and any centres not meeting the required standard will be notified. In these circumstances, the medical director, audit clinical lead and database manager will be informed of next steps and will have an opportunity to resubmit the data. If the data resubmission is submitted within the required time-frame and meets the minimum data standard, the data will be included in the analysis for the annual report. If the resubmission does not meet the time frame or standard, only descriptive data will be included in the MINAP Annual report and the hospital will be named as not meeting the minimum data standard. Hospitals who fail to meet the minimum standard will be considered to be non-participating for NICORs reporting requirements to CQC.

6. Further information

For further information on the Minimum Data Standard please contact - nicor.auditenquiries@nhs.net