NED National Endoscopy Database

NED iteration two
Information for endoscopy services

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Part of the JAG programme at the RCP

JAG Joint Advisory Group on GI Endoscopy

Royal College of Physicians

Table of Contents

Introduction

The information that is captured by and shown on the National Endoscopy Database (NED) is being updated. This document sets out the data fields and key performance indicators that will be captured and shown by the national endoscopy database once the second iteration (NEDi2) is launched.

Background

JAG, supported by key stakeholders and endoscopy reporting system suppliers, has developed a system to make key endoscopy performance data available to endoscopists and services in a consistent format. This is achieved by automatically extracting data from hospital endoscopy reporting systems (ERS) into a central database (the National Endoscopy Database - NED).

This project provides a number of key benefits:

- Allows individual endsocopists to view their performance against local and national standards
- Enables trust or organisation leads to monitor procedural performance indicators and to easily compare performance against national benchmarks
- Significantly reduces the need for endoscopists to perform local audits, saving clinician time
- Provide detailed and accurate data for JAG assessors in preparation for JAG accreditation assessments, and will thus reduce the burden of local data collection
- Automatically captures trainee data, preventing the need for trainees to double-enter procedural data into JETS (JAG Endoscopy Training System)
- Supports service evaluation, endoscopy research and allows endoscopist performance to be reviewed across organisations.

NED iteration 2 (NEDi2)

The dual aims of NEDi2 are to ensure the current data schema is up to date and to expand the range of key performance indicators produced by NED.

NED iteration 1 (NEDi1) is the current basis for roll out of NED across the UK. The dataset underpinning NEDi1 was developed several years ago, at the start of the NED implementation project, based primarily on the datapoints required to calculate known BSG KPIs – at that time, only colonoscopy KPIs were established.

The majority of terms used in NEDi1 were derived from MST 3.0. This is a list of terms, or minimal standard terminology, published by the World Endoscopy Organisation. MST 4.0 for gastroscopy and colonoscopy have recently been released. It is envisaged that NEDi2 will accommodate MST 4 terminology. This will facilitate mapping to SNOMED terms. It was acknowledged at the outset that NED would be a continual evolution, expanding the dataset and moving towards more standardised terminology.

These developments will expand the number of key performance indicators NED is able to generate and increase the potential uses of the NED dataset for service evaluation and research. The changes incorporated in NEDi2 are a development on NEDi1. The minimum dataset associated with NEDi1 will continue to be required to ensure continuity of KPI generation and consistency of methodology.

NEDi2 was developed with input from stakeholders gathered during a consultation exercise which took place from July to September 2018. The following stakeholders were consulted on the scope and format of NEDi2:

- JAG clinical leadership team, including input from accreditation and training leads
- ACPGBI
- AUGIS
- NHS England endoscopy stakeholder group
- BSG endoscopy committee
- BSG IBD group

NEDi2 principles and specifications

The following principles have guided the development of the NEDi2 schema:

Built on NEDi1

The aim of this is to ensure the functionality of NEDi1 and derived key performance indicators are not affected or disrupted by the development and implementation of NEDi2.

Usability

A key requirement for the successful uptake of NED and engagement of the endoscopy community is for NED compatibility not to adversely impact on the end-user experience of entering data into a reporting system. It is strongly recommended that NED fields are populated during initial data entry in the reporting system. Double data entry or imposing extra sections to populate NED fields can prolong data entry.

Mandatory fields

In NEDi1, data fields were termed 'mandatory' or 'preferable'. This will change in NEDi2. The majority of fields will be mandatory but a small number of fields will be optional. The intention is to ensure adequate population of data uploads for KPI production.

Free text

NEDi2 will not permit the upload of free text except in the comments field. Uploading free text to NED risks disclosure of patient identifiable information.

Avoiding use of term 'other'

Certain fields in NEDi1 have high proportions of use of the term 'other' rather than containing useful clinical information. In particular, the indication and diagnosis fields have this problem. The issues stem from inadequate data term mapping, use of free text and local modification to picklists. To minimise this, NEDi2 will have further validation to prevent inappropriate use of 'other'. On an ongoing basis, the percentage of sole procedure indication = 'other' and percentage of sole diagnosis = 'other' will be measured and used as part of NED compliance process.

Key areas of development

NEDi2 will include the functionality to generate KPIs in the following areas:

- Endoscopic Retrograde Cholangio-Pancreatography (ERCP)
- Endoscopic ultrasound (EUS)
- Upper GI endoscopy

- Endoscope technical details
- Diverticulosis
- Productivity
- Enteroscopy

Accuracy and completeness

The focus of the NED project to date has been development and roll-out. With the success of this phase and the wide coverage of NED, the focus will shift to optimising uploaded data completeness and accuracy. It is expected that the onus of responsibility for this will lie with the endoscopy reporting systems and endoscopy services.

Minimising upload errors

Learning from monitoring upload errors has highlighted two frequent causes for upload failure that NEDi2 will aim to reduce:

- Registration code (such as GMC/NMC) errors - it is expected that every uploaded procedure will contain a validated registration code. ERS manufacturers should integrate a process for ensuring the uploaded endoscopist codes are accurate and in the correct format. A new metric will be measured as part of the ongoing data quality assurance process (percentage of procedures uploaded with a valid registration code).
- Single procedure per uploaded file - identifying and correcting errors is complicated if more than one procedure per file is uploaded. Software suppliers have been encouraged to move to a single procedure per uploaded file if they are not already doing this.
- Internal validation - Validating an xml internally prior to uploading can minimise data upload errors. Validation is helpful to ensure data accuracy, but it is important that procedures that fail local validation are not disregarded. They should be corrected until valid and uploaded. To encourage procedures failing internal validation to be corrected and uploaded to NED, a separate webservice will be set up for software to send a daily summary of the number and type of procedures performed at each site. This will be mandatory. This can then be compared to the number of procedures successfully reaching NED. It is recommended that software employing internal validation have a status screen to show the upload status of all procedures and a system for alerting the ERS manufacturer and a local lead if a procedure fails internal validation.

Validation

Software will undergo validation before it is used by services. Once software has met the required standards it will be subject to ongoing data quality checks to ensure data is being accurately uploaded to NED. Software compliance will be shown on the NED website supplier status page.

NEDi3

The NEDi2 consultation process has identified further areas of development that are not included in NEDi2. Service will be kept updated of future developments.

NED i2 key performance indicators

The below details the data that will be collected and available via NED once services are using a NEDi2 compliant system. It shows the fields currently available in NED (in black) and the additional data points that will be captured in NEDi2 (in green).

OGD

- Procedure count
- D2 intubation rate
- Intubation success rate
- J manoeuvre rate
- Median dose (age <70) Midazolam
- Median dose (age ≥70) Midazolam
- Median dose (age <70) Pethidine
- Median dose (age ≥70) Pethidine
- Median dose (age <70) Fentanyl
- Median dose (age ≥70) Fentanyl
- Unsedated procedures
- Greater than recommended dose
- Comfort score
- Checklist completion
- Photo documentation (photo obtained of UO, GOJ, fundus in RF, gastric body, incisura in RF, antrum, bulb, D2)
- Number performed Transnasal
- Mucoscal cleansing technique used
- Prague classification completed for Barretts
- Barrett`s inspection time
- LA classification used for oesophagitis
- Procedure time
- Mucosal visualisation quality
- Total inspection time in high risk and surveillance procedures
- Paris classification of oesophageal lesion
- 2 biopsy sites in suspected eosinophilic Oesophagitis
- Follow up of GU, oesophageal ulcer or grade D oesophagitis at 6 weeks
- Gastric antral and body biopsies in gastric atrophy
- Coeliac biospsies form duodenum and bulb

Combined flexible sigmoidoscopy and colonoscopy

- Procedure count
- Digital rectal examination rate
- Checklist completion
- Rectal retroversion rate
- Polyp detection rate
- Polyp retrieval rate
- Median dose (age <70) Midazolam

- Median dose (age ≥70) Midazolam
- Median dose (age <70) Pethidine
- Median dose (age ≥70) Pethidine
- Median dose (age <70) Fentanyl
- Median dose (age ≥70) Fentanyl
- Unsedated procedures
- Greater than recommended dose
- Tattoo of Cancers and polyps ≥20mm
- Diagnostic biopsies for unexplained diarrhoea
- Comfort score
- Boston Bowel prep Score
- Distal attachment use
- Proportion CO2 insufflation
- Proportion by insertion technique
- DICA score for diverticulosis
- AI system use
- UCEIS or Mayo score in UC
- CDEIS score in Crohns
- Rutgeerts score in Crohns with previous resection

Colonoscopy

- Caecal intubation rate
- TI intubation rate
- Bowel prep quality by regime

Flexible sigmoidoscopy

- Descending colon intubation rate
- Splenic flexure intubation rate

ERCP

- Number
- Median dose (age <70) Midazolam
- Median dose (age ≥70) Midazolam
- Median dose (age <70) Pethidine
- Median dose (age ≥70) Pethidine
- Median dose (age <70) Fentanyl
- Median dose (age ≥70) Fentanyl
- Greater than recommended dose
- Comfort Score
- Extraction of stones >10mm in size
- Successful cannulation (of clinically relevant duct) in first ever ERCP.
- CBD stone clearance at first ERCP.
- Extra-hepatic stricture cytology/histology and stent placement at first ERCP
- Prohylactic rectal NSAID use

- Prophylactic antibiotic use
- Checklist completion

EUS

- Number
- Median dose (age <70) Midazolam
- Median dose (age ≥70) Midazolam
- Median dose (age <70) Pethidine
- Median dose (age ≥70) Pethidine
- Median dose (age <70) Fentanyl
- Median dose (age ≥70) Fentanyl
- Greater than recommended dose
- Comfort Score
- Prophylactic antibiotics before puncture of cystic lesion
- Successful acquisition of tissue (FNA or FNB) from solid lesions
- Tissue adequacy of EUS FNA/B (not mandatory)
- Checklist completion

Enteroscopy

- Procedure count
- Intubation success rate
- Median dose (age <70) Midazolam
- Median dose (age ≥70) Midazolam
- Median dose (age <70) Pethidine
- Median dose (age ≥70) Pethidine
- Median dose (age <70) Fentanyl
- Median dose (age ≥70) Fentanyl
- Proportion with GA or propofol
- Greater than recommended dose
- Comfort score
- Checklist completion
- Proportion by technique
- Maximum depth of insertion recorded
- Tattoo placed at maximum depth of insertion

Productivity Metrics

- Points per session
- Time per procedure type
- Time per point
- Provider sector
- Provider organisation

System data (provided in a separate feed from ERS)

- Number of procedures per day

- Number of OGD’s
- Number of colonoscopies
- Number of Flexible sigmoidoscopies
- Number of EUS’
- Number of Enteroscopies

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