NED Iteration 2 Data Schema Consultation Document

July 2018

Aim

The aim of this consultation exercise is to:

- Identify and prioritise areas for the next iteration of NED and
- Clarify the data terms required to produce this next iteration

This document:

- Describes the process for consulting NED stakeholders on potential changes to NED for its next iteration
- Outlines changes that have already been suggested by stakeholders
- Opens the consultation process for NED stakeholders to make other suggestions for changes to NED

Background

- NED iteration 1 (NEDi1) is currently being rolled out 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. This is in the process of being updated. MST 4 for gastroscopy and colonoscopy have recently been released. It is envisaged that NEDi2 will accommodate MST 4 terminology
- 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
- To achieve this, we have agreed with the ERS companies that the NED committee will issue a “change request” for such revisions no more than once a year

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- This will require input from various stakeholders including the ERS companies, endoscopy stakeholder groups and information governance groups (hereafter called "NED stakeholders")

NED Stakeholders

Stakeholders to include:

- JAG Clinical Team, ESQAG and QATWG
- ACPGBI
- AUGIS
- NHS England Endoscopy Stakeholder group
- BSG Endoscopy Committee
- BSG IBD group
- BSG Small bowel group
- Gastrointestinal GIRFT team
- PHE BCSP endoscopy committee
- ERS manufacturers

Consultation process

- NEDi1 captures a core dataset and presents key data and KPIs for endoscopists and endoscopy units. For information, these outputs are summarised in Appendix A-1. As a reference, the current NEDi1 data schema is displayed in Appendix A-2. This represents all the terms recognised by the NED upload. Any other terms used by endoscopy reporting systems must map to one of the these NED terms
- The NED committee regularly receives requests for NEDi2 revisions. Appendix B summarises these suggestions. Please feel free to comment, in the appropriate column in the feedback table in Appendix C, on any of these suggestions. Not all sections may be relevant to your area of expertise, please focus on those that are most relevant
- Please add any further suggestions that you have to the form
- Please respond to this document with comments before 31 August 2018

CONSULTATION TIMELINE

The provisional timetable for the implementation of a new data scheme is:

July to 31 August 2018	Consultation with stakeholders to develop NEDi2 dataset
End October 2018	Shortlisting and prioritisation of ideas for NEDi2 by NED committee
End December 2018	Development of NEDi2 schema

End January 2018	Change control for NEDi2 issued to ERS companies
Feb 2019 – end of June 2019	Implementation and testing of NEDi2 by ERS companies
July – December 2019	Full roll-out to all services

JAG NED NATIONAL ENDOSCOPY DATABASE

Appendix A-1

The following KPIs are currently produced by NED:

Colonoscopy	Colonoscopy + Flexi Sig	Flexi Sig	OGD	ERCP
Procedure count	Digital rectal examination	Procedure count	Procedure count	Procedure count
Caecal intubation rate	Tattoo of Cancers and polyps ≥20mm	Rectal retroversion	D2 intubation rate	Average dose of Pethidine <70
Terminal ileum intubation rate	Diagnostic biopsies for unexplained diarrhoea	Polyp detection rate	J manoeuvre rate	Average dose of Pethidine ≥70
Rectal retroversion		Polyp retrieval success-percentage	Average dose of Pethidine <70	Average dose of Midazolam <70
Colonoscopy Withdrawal time		Average dose of Pethidine <70	Average dose of Pethidine ≥70	Average dose of Midazolam ≥70
Polyp detection rate		Average dose of Pethidine ≥70	Average dose of Midazolam <70	Average dose of Fentanyl <70
Polyp retrieval success-percentage		Average dose of Midazolam <70	Average dose of Midazolam ≥70	Average dose of Fentanyl ≥70
Average dose of Pethidine <70		Average dose of Midazolam ≥70	Average dose of Fentanyl <70	Cannulation rate for accessible virgin main papilla
Average dose of Pethidine ≥70		Average dose of Fentanyl <70	Average dose of Fentanyl ≥70	Brushings rate for histologically undiagnosed strictures
Average dose of Midazolam <70		Average dose of Fentanyl ≥70	Unsedated procedures	Successful clearance rate for Stones < 10mm
Average dose of Midazolam ≥70		Unsedated procedures	Sedation greater than recommended dose	Successful duct decompression for stones > 10mm
Average dose of Fentanyl <70		Sedation greater than recommended dose	Comfort score	Successful stenting of low/mid cbd strictures
Average dose of Fentanyl ≥70		Comfort scores	Adverse events*	Successful stenting of attempted hilar strictures
Unsedated procedures		Bowel preparation quality	Serious complications	Successful insertion of prophylactic pancreatic stents
Sedation greater than recommended dose		Adverse events	Interval cancer rate	Overall procedural success rate
Colonoscopy Comfort Score		Serious complications		Comfort score
Bowel preparation quality		Descending colon intubation rate		Adverse events
Polyp removal rate				Serious complications
Polyp removal success <1cm				
Adverse events				
Serious complications				
Post colonoscopy colorectal cancer rate				

Appendix A-2 NEDi1 Data Schema

The following data terms are recognised by NEDi1.

Session Type	Description
Dedicated Training List	Trainer present for >= 50% of procedures
Adhoc Training List	Trainer present for <50% of procedures
Service List	No trainer present

Procedure Type
OGD
Flexi
Colon
ERCP

Extent	
Duodenum 2nd Part	OGD
Duodenum 1st Part	OGD
Oesophagus	OGD
Stomach	OGD
Intubation failed	OGD
Caecum	Colon, Flexi
Terminal ileum	Colon, Flexi
Neo-terminal ileum	Colon, Flexi
Ileo-colon anastomosis	Colon, Flexi
Ascending	Colon, Flexi
Hepatic flexure	Colon, Flexi
Transverse	Colon, Flexi
Splenic flexure	Colon, Flexi
Descending	Colon, Flexi
Sigmoid	Colon, Flexi
Rectum	Colon, Flexi
Anus	Colon, Flexi
Pouch	Colon, Flexi
CBD & PD	ERCP
Common bile duct	ERCP
Pancreatic duct	ERCP
Papilla	ERCP
Abandoned	OGD,Colon,Flexi,ERCP
Anastomosis	OGD

Limited by

benign stricture	Colon, Flexi
inadequate bowel prep	Colon, Flexi
malignant stricture	Colon, Flexi
other, see report	Colon, Flexi
patient discomfort	Colon, Flexi
severe colitis	Colon, Flexi
unresolved loop	Colon, Flexi
clinical intention achieved	Flexi

Role

Independent	Independent: no other endoscopist present in room
Was observed	Was observed: another endoscopist observed or gave verbal assistance
Was assisted	Was assisted physically: received hands on assistance during procedure
Did observed	I observed: as a trainer you observed the procedure
Gave assistance	I assisted physically: as a trainer you gave hands on assistance

Discomfort Level

Comfortable	Comfortable: talking / comfortable throughout
Minimal	Minimal: 1 or 2 episodes of mild discomfort with no distress
Mild	Mild: More than 2 episodes of discomfort without distress
Moderate	Moderate: Significant discomfort experienced several times with some distress
Severe	Severe: Frequent discomfort with significant distress

Biopsy location

Oesophagus	OGD
Stomach	OGD
Duodenum 1st part	OGD
Duodenum 2nd part	OGD
Terminal ileum	Colon
Neo-terminal ileum	Colon
Ileo-colon anastomosis	Colon
Ascending	Colon
Hepatic flexure	Colon
Transverse	Colon, flexi
Splenic flexure	Colon, flexi
Descending	Colon, flexi

Sigmoid	Colon, flexi
Rectum	Colon, flexi
Anus	Colon, flexi
Pouch	Colon, flexi
Colonic biopsy series	Colon, flexi

Site

Oesophagus	OGD
Stomach	OGD
Duodenum 1st part	OGD
Duodenum 2nd part	OGD
Terminal ileum	Colon
Neo-terminal ileum	Colon
Ileo-colon anastomosis	Colon
Ascending	Colon
Hepatic flexure	Colon
Transverse	Colon, flexi
Splenic flexure	Colon, flexi
Descending	Colon, flexi
Sigmoid	Colon, flexi
Rectum	Colon, flexi
Anus	Colon, flexi
Pouch	Colon, flexi
Colonic biopsy series	Colon, flexi

Procedure	**Indication**
Colon	Other - see comments
Colon	Abdominal mass
Colon	Abdominal pain
Colon	Abnormal sigmoidoscopy
Colon	Abnormality on CT / barium
Colon	Anaemia
Colon	BCSP
Colon	Chronic alternating diarrhoea / constipation
Colon	Colorectal cancer - follow up
Flexi	Constipation - chronic
Flexi	Defaecation disorder
Flexi	Diarrhoea - acute
Flexi	Diarrhoea - chronic
Flexi	Diarrhoea - chronic with blood
Flexi	FHx of colorectal cancer

Flexi	FOB +'ve
Flexi	IBD assessment / surveillance
Flexi	Melaena
Flexi	Polyposis syndrome
Flexi	PR bleeding - altered blood
Flexi	PR bleeding - anorectal
Flexi	Previous / known polyps
Flexi	Stent change
Flexi	Stent placement
Flexi	Stent removal
Flexi	Tumour assessment
Flexi	Weight loss
ERCP	Other - see comments
ERCP	Abnormal liver enzymes
ERCP	Acute pancreatitis
ERCP	Ampullary mass
ERCP	Bile duct injury
ERCP	Bile duct leak
ERCP	Cholangitis
ERCP	Chronic pancreatitis
ERCP	Gallbladder mass
ERCP	Gallbladder polyp
ERCP	Hepatobiliary mass
ERCP	Jaundice
ERCP	Pancreatic mass
ERCP	Pancreatic pseudocyst
ERCP	Pancreatobiliary pain
ERCP	Papillary dysfunction
ERCP	Pre lap choledocholithiasis
ERCP	Primary sclerosing cholangitis
ERCP	Purulent cholangitis
ERCP	Stent dysfunction
OGD	Other - see comments
OGD	Abdominal pain
OGD	Abnormality on CT / barium
OGD	Anaemia
OGD	Barretts oesophagus
OGD	Diarrhoea

OGD	Dyspepsia
OGD	Dysphagia
OGD	Haematemesis
OGD	Heartburn / reflux
OGD	Melaena
OGD	Nausea / vomiting
OGD	Odynophagia
OGD	PEG change
OGD	PEG placement
OGD	PEG removal
OGD	Positive TTG / EMA
OGD	Stent change
OGD	Stent placement
OGD	Stent removal
OGD	Ulcer healing
OGD	Varices surveillance / screening
OGD	Weight loss

Procedure	Diagnosis
OGD	Normal
OGD	Other - see comments
OGD	Achalasia
OGD	Angiodysplasia
OGD	Barrett's oesophagus
OGD	Dieulafoy lesion
OGD	Duodenal diverticulum
OGD	Duodenal polyp
OGD	Duodenal tumour – benign
OGD	Duodenal tumour – malignant
OGD	Duodenal ulcer
OGD	Duodenitis – erosive
OGD	Duodenitis - non-erosive
OGD	Extrinsic compression
OGD	Gastric diverticulum
OGD	Gastric fistula
OGD	Gastric foreign body
OGD	Gastric polyp(s)
OGD	Gastric postoperative appearance
OGD	Gastric tumour - benign
OGD	Gastric tumour - malignant
OGD	Gastric tumour - submucosal
OGD	Gastric ulcer
OGD	Gastric varices
OGD	Gastritis - erosive
OGD	Gastritis - non-erosive
OGD	Gastropathy-portal hypertensive
OGD	GAVE
OGD	Hiatus hernia
OGD	Mallory-Weiss tear
OGD	Oesophageal candidiasis
OGD	Oesophageal diverticulum
OGD	Oesophageal fistula
OGD	Oesophageal foreign body
OGD	Oesophageal polyp

OGD	Oesophageal stricture - benign
OGD	Oesophageal stricture - malignant
OGD	Oesophageal tumour - benign
OGD	Oesophageal tumour - malignant
OGD	Oesophageal ulcer
OGD	Oesophageal varices
OGD	Oesophagitis - eosinophilic
OGD	Oesophagitis - reflux
OGD	Pharyngeal pouch
OGD	Pyloric stenosis
OGD	Scar
OGD	Schatzki ring
Colon / Flexi	Normal
Colon / Flexi	Other - see comments
Colon / Flexi	Anal fissure
Colon / Flexi	Angiodysplasia
Colon / Flexi	Colitis - ischemic
Colon / Flexi	Colitis - pseudomembranous
Colon / Flexi	Colitis - unspecified
Colon / Flexi	Colorectal cancer
Colon / Flexi	Crohn's - terminal ileum
Colon / Flexi	Crohn's colitis
Colon / Flexi	Diverticulosis
Colon / Flexi	Fistula
Colon / Flexi	Foreign body
Colon / Flexi	Haemorrhoids
Colon / Flexi	Lipoma
Colon / Flexi	Melanosis
Colon / Flexi	Parasites
Colon / Flexi	Pneumatosis coli
Colon / Flexi	Polyp/s
Colon / Flexi	Polyposis syndrome
Colon / Flexi	Postoperative appearance
Colon / Flexi	Proctitis
Colon / Flexi	Rectal ulcer
Colon / Flexi	Stricture - inflammatory
Colon / Flexi	Stricture - malignant
Colon / Flexi	Stricture - postoperative
Colon / Flexi	Ulcerative colitis

ERCP	Normal
ERCP	Other - see comments
ERCP	Anastomotic stricture
ERCP	Biliary fistula / leak
ERCP	Biliary occlusion
ERCP	Biliary stent occlusion
ERCP	Biliary stone(s)
ERCP	Biliary stricture
ERCP	Carolis disease
ERCP	Cholangiocarcinoma
ERCP	Choledochal cyst
ERCP	Cystic duct stones
ERCP	Duodenal diverticulum
ERCP	Gallbladder stone(s)
ERCP	Gallbladder tumor
ERCP	Hemobilia
ERCP	IPMT
ERCP	Mirizzi syndrome
ERCP	Pancreas annulare
ERCP	Pancreas divisum
ERCP	Pancreatic cyst
ERCP	Pancreatic duct fistula / leak
ERCP	Pancreatic duct injury
ERCP	Pancreatic duct stricture
ERCP	Pancreatic stent occlusion
ERCP	Pancreatic stone
ERCP	Pancreatic tumor
ERCP	Pancreatitis - acute
ERCP	Pancreatitis - chronic
ERCP	Papillary stenosis
ERCP	Papillary tumor
ERCP	Primary sclerosing cholangitis
ERCP	Suppurative cholangitis

Procedure	Therapy
Colon/Flexi	None
Colon/Flexi	Other - see comments
Colon/Flexi	Argon beam photocoagulation
Colon/Flexi	Banding of haemorrhoid
Colon/Flexi	Balloon dilation
Colon/Flexi	Clip placement
Colon/Flexi	Endoloop placement
Colon/Flexi	Polyp - EMR
Colon/Flexi	Polyp - ESD
Colon/Flexi	Foreign body removal
Colon/Flexi	Injection therapy
Colon/Flexi	Marking / tattooing
Colon/Flexi	Polyp - cold biopsy
Colon/Flexi	Polyp - hot biopsy
Colon/Flexi	Polyp snare - cold
Colon/Flexi	Polyp snare - hot
Colon/Flexi	Stent change
Colon/Flexi	Stent placement
Colon/Flexi	Stent removal
Colon/Flexi	YAG laser
ERCP	None
ERCP	Other - see comments
ERCP	Balloon dilatation
ERCP	Balloon trawl
ERCP	Bougie dilatation
ERCP	Brush cytology
ERCP	Cannulation
ERCP	Combined (rendezvous) proc
ERCP	Endoscopic cyst puncture
ERCP	Diagnostic cholangiogram
ERCP	Diagnostic pancreatogram
ERCP	Haemostasis
ERCP	Manometry
ERCP	Nasopancreatic / bilary drain
ERCP	Sphincterotomy
ERCP	Stent change
ERCP	Stent placement – CBD
ERCP	Stent placement - pancreas
ERCP	Stent removal
ERCP	Stone extraction < 10mm

ERCP	Stone extraction >= 10mm
OGD	None
OGD	Other - see comments
OGD	Argon beam photocoagulation
OGD	Balloon dilation
OGD	Band ligation
OGD	Botox injection
OGD	Bougie dilation
OGD	Clip placement
OGD	EMR
OGD	ESD
OGD	Foreign body removal
OGD	Heater probe
OGD	Hot biopsy
OGD	Injection therapy
OGD	Marking / tattooing
OGD	PEG change
OGD	PEG placement
OGD	PEG removal
OGD	Polypectomy
OGD	Radio frequency ablation
OGD	Stent change
OGD	Stent placement
OGD	Stent removal
OGD	Variceal sclerotherapy
OGD	YAG laser

Appendix B

This section contains details and notes on suggested modifications to the NED schema that have been compiled from discussions with stakeholders over the last 2 years. The suggestions are largely based on 'outputs' (ie new key performance indicators) but also includes details about the data items that would need to be captured by NED to generate the output. Appendix C contains a feedback table in which you can record your comments.

1.1 ERCP

In order to generate ERCP KPIs suggested in the BSG document 'ERCP - The Way Forward. A Standards Framework', the following additional data fields will be required. Some Endoscopy Reporting Systems (ERS) have already integrated the necessary data fields into their systems:

- First ever ERCP- Yes/No
- Successful cannulation (of clinically relevant duct)- Yes/No/ not app
- Size of largest stone extracted- integer (mm)
- CBD stone clearence- Yes/ No/ not app
- Extra-hepatic Stricture Yes/No/ not app
- Extra-hepatic Stricture cytology/histology taken Yes/No/ not app
- Extra-hepatic Stricture stent successfully placed Yes/No/ not app
- Previous surgery (Bilroth 2/Roux-en-Y)- Yes/No
- Level of complexity- 1/2/3/4
- Endoscopist competence- 1/2/3/4

Proposed KPI	Data fields	Calculation	Notes
Extraction of stones >10mm in size	Size of largest stone extracted, CBD stone clearance	tbc	
Successful cannulation (of clinically relevant duct) in first ever ERCP.	Successful cannulation (of clinically relevant duct), first ever ERCP.	tbc	Exclude patients with previous surgery (Bilroth 2/ Roux-en-Y)
CBD stone clearance at first ERCP.	CBD stone clearance, first ever ERCP	tbc	Exclude patients with previous surgery (Bilroth 2/ Roux-en-Y)
Extra-hepatic stricture cytology/histology and stent placement	First ever ERCP, Extra-hepatic Stricture, Extra-hepatic Stricture	tbc	Exclude patients with previous surgery (Bilroth 2/ Roux-en-Y)

at first ERCP.	cytology/histology taken, Extra-hepatic Stricture stent successfully placed.		

ERCP Questions:

1. Are there any other ERCP KPIs that may become relevant in the near future
2. Are there any EUS KPIs we should include at this point

1.2 UGI KPI

It is desirable to align future NED KPI outputs with BSG[1] and ESGE[2] UGI key performance indicators.

In order to generate the KPIs outlined in the most recent BSG UGI endoscopy document, the following data fields would be required:

- Photos of specific landmarks/ lesions
  - Upper Oes, GOJ, Fundus in retroflexion, Gastric body, incisura in retroflexion, antrum, bulb, D2
- Quality of mucosal visualisation
- Total inspection time (not defined) in 'high risk and surveillance procedures' (Barrets, Gastric Atrophy)
- Paris Classification of Oesophageal lesions
- Prague description of Barrets (C,M)
- LA classification of oesophagitis
- Biopsy location (Seattle protocol y/n)
- Oesophageal/ Gastric varices classification (size, site- Sarin)
- 2 biopsy sites in suspected Eosinophilic Oesophagitis (dysphagia/ food bolus obstruction)
- Biopsy and follow up of GU (6-8 weeks), Oes ulcer or Grade D oesophagitis (4-6 weeks)
- Gastric atrophy- biopsy antrum and body
- Gastric polyps – number, size, location, morphology, representative biopsy
- Iron deficiency anaemia- Gastric antral and D2 biopsies (if coeliac serology –ve)
- Coeliac biopsies- 3xD2 and 1x bulb

Additional data fields to produce the ESGE KPIs would include:

- Proper instructions for fasting prior to endoscopy
- Duration of the procedure from intubation to extubation

- Procedure duration >7mins where the indication is gastroscopy for gastric intestinal metaplasia.
- Accurate application of standardised disease-related terminology. To include:

[1] Beg S, Ragunath K, Wyman A*, et al.* Quality standards in upper gastrointestinal endoscopy: a position statement of the British Society of Gastroenterology (BSG) and Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS). *Gut*Published Online First: 18 August 2017. doi: 10.1136/gutjnl-2017-314109

[2] Bisschops Raf et al. Performance measures for UGI endoscopy…Endoscopy 2016; 48

  - Los Angeles classification for erosive esophagitis
  - Zargar classification for caustic esophagitis
  - Prague classification for Barrett's esophagus
  - Forrest classification for bleeding ulcers
  - Spigelman classification for duodenal adenomas in patients with familial adenomatous polyposis (FAP)
  - Paris classification for visible lesions in the stomach and esophagus
  - Baveno classification for varices
- Barrett's inspection time of > 1 minute per cm of circumferential Barrett's epithelium
- Use of Lugol chromoendoscopy in procedures where the indication is endoscopy performed for screening for a second primary tumour after curative treatment of ENT or lung cancer
- Accurate application of the MAPS guidelines identifies patients at risk for gastric cancer
- Monitoring of complications

The following table outlines the data fields required for calculating the BSG UGI KPIs with some additional notes and considerations. We are keen for stakeholders to comment on which KPIs to integrate with NED as priorities.

Proposed KPI	Data fields	Calculation	Notes
Photos obtained of UO, GOJ, fundus in RF, gastric body, incisura in RF, antrum, bulb, D2	Photo taken of UO, Photo taken of GOJ, Photo taken of fundus in RF, Photo taken of gastric body, Photo taken ofincisura in RF, Photo taken of bulb, Photo taken of D2.		
Total UGI inspection time in high risk and surveillance patients	Oesophageal inspection time, Gastric inspection time		Vague KPI, with these fields we could produce Oes inspection time in Barretts or gastric inspection time in atrophic gastritis.
Paris classification of oesophageal lesions	Paris classification of oesophageal lesion	Oesophageal lesions where Paris classification recorded	
Quality of mucosal visualisation	UGI Mucosal visualisation quality		Scale not defined
Use of mucosal cleansing techniques	Mucosal cleansing techniques (water, NAC, other)	Procedures in which mucosal cleansing technique used	

Prague description of Barretts oesophagus	Total circumferential length of Barretts, maximum length of Barretts. Diagnosis= Barretts.	Procedures where Barretts detected and Prague classification recorded	
Barretts segment biopsies (using Seattle protocol)	Diagnosis=Barretts, biopsies taken (see notes), no lesion detected in Barretts segment		Options: Binary field- 'biopsies taken as per Seattle protocol Y/N)' Or a ratio- [Number of biopsies / maximal length of Barretts segment] >1.6
Oesophageal Barrets for eosinophilic oesophagitis	Indication= dysphagia, biopsies taken from >1 oesophageal site	Exclude other oesophageal pathology (eg cancer, stricture)	Currently don`t record sections of oesophagus, may need to add additional site fields- lower, mid, upper oesophagus. Do we need to add 'food bolus obstruction' as an indication?
Oesophageal ulcer or grade D oesophagitis biopsy	Diagnosis= Oesophageal Ulcer or Oesophagitis (grade D). Biopsy taken.		Currently don`t capture LA grade of oesophagitis
Oesophageal ulcer or grade D oesophagitis follow up in 4-6 weeks	Diagnosis= Oesophageal Ulcer or Oesophagitis (grade D).		Similar proposed methodology as GU follow up. Need to link to index procedure.
Gastric ulcer or grade D oesophagitis biopsy	Diagnosis= Gastric Ulcer. Biopsy taken.		
Gastric ulcer follow up in 6-8 weeks	Diagnosis= Oesophageal Ulcer or Oesophagitis (grade D).		Need to link to index procedure.
Gastric Polyps assessment	Diagnosis= Gastric Polyp(s); number, size, location and morphology		Would need to capture Paris classification of gastric polyps

	described. Representative biopsies taken		

Biopsies where gastric atrophy or intestinal metaplasia suspected			Gastric atrophy and intestinal metaplasia are not in the diagnosis schema
Biopsies in iron deficiency	Indication= anaemia. Biopsies taken from gastric antrum, duodenum (where applicable).		Stomach sub-sites not currently in schema- do we need to add fundus, body, incisura, antrum, pylorus.
H. pylori testing where gastric ulcer or duodenal ulcer detected	Diagnosis= GU or DU. Biopsy for H pylori taken		Biopsy for H pylori/ clo not currently a defined field.
Biopsies for coeliac disease	Biopsies taken 'duodenum 2nd part x 4' and 'duodenum 1st part x1'		How do we record if coeliac disease is suspected? Schema currently has 'duodenum 1st part, duodenum 2nd part'. Should we change to or add 'duodenum cap'?
UGI interval cancer rate	Proportion of times outcome of second OGD within 3 or 5 years has an outcome of cancer which wasn`t present at the first	Numerator- First OGD- {DiagnosisEnum} is not [oesophageal tumour-malignant] or [gastric tumour-malignant] Second OGD- {DiagnosisEnum} = [oesophageal tumour-malignant] or [gastric tumour-malignant] Possible minimum time period between first and second procedure under discussion. Ie event occurs between 1 and 3 (or 5) years after the index procedure Denominator- {procedureName}=[OGD]	

1.3 Paediatric data

Additional data points, such as patient weight and terminal ileal intubation (attributed to trainer/trainee) have been suggested by potential users of NED performing paediatric endoscopy. We are keen to learn from stakeholders if any additional KPIs are envisaged.

Proposed KPI	Data fields	Calculation	Notes
Terminal ileal intubation rate	Terminal ileal intubation	Numerator: {procedureName}=[COLON], {ExtentTypeEnum}=[Caecum] or [terminal ileum] or [neo-terminal ileum] Denominator: {procedureName}=[COLON] Levels: By {site}=[x] or By {professionalbodycode}=[x] In time period {Ukdatetype}=[x]to[y]	Percentage of colonoscopies where terminal ileum reached by a stated endoscopist or at a stated site in a stated period
n/a	Patient weight (kg)		Only relevant if age ≤16 years

1.4 Identifiable data

Future development of NED may facilitate integration with other datasets. This will require a patient identifiable field such as NHS number. Pseudoanonymisation may subsequently be performed. The NEDi2 will not have the capacity to upload a patient identifier pending implementation of the necessary information governance requirements and piloting of the process. Consideration of information governance and consent issues regarding identifiable data is ongoing.

1.5 Data terms

1. Compatibility with SNOMED
   NEDi1 terms (based on MST3.0) are being mapped to SNOMED terms.
   It is envisaged NEDi2 will be compatible with SNOMED

2. MST 4.0
   Data 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. This is in the process of being updated. MST 4.5 for gastroscopy and colonoscopy have recently been released. It is envisaged that NEDi2 will accommodate MST 4.0 terminology.The most recently released version of MST 4.5 (for OGD and colonoscopy) are attached with this document as excel spreadsheets for review.

3. Feedback from ERS companies and NED users

It may be necessary to incorporate a number of terms to the NED schema to facilitate integration with other ERS schema. Please let the NED team know if you have any suggestions for terms to be added to the data schema. For ERS companies- these may be terms that you have had to map to existing NED terms or terms that you have mapped to 'other'.

1.6 Other suggested areas for consideration

The following areas of terminology have been previously suggested for integration into NED. We are keen to hear from stakeholders further views on the priority of these area and additional comments on how NED could capture and present data.

1. Error related terminology
   NED is keen contribute to projects aimed at improving safety and reducing error in endoscopy (ISREE). Work is planned, facilitated by JAG, to define terms relevant to this field that may be incorporated in a reporting system and captured by NED.
   For example, it would be desirable to capture if a safety checklist has been completed prior to endoscopy. A mandatory field ('Checklist completed'- Y/N) could be included in the NED schema.

2. ERS version identifier
   ERS companies are requested to include an identifier for the version of their software from which a report is uploaded. This will help identify and remedy data upload issues.

3. Patient reported outcome measure
   NED could conceivably support a switch to outcome data originating from the patient and reflecting the patient`s experience.

4. Diathermy settings
   It would be desirable to record the diathermy settings for each therapeutic procedure utilising diathermy (polypectomy, gold probe, APC, sphincterotomy).
   The ERS would firstly need to capture the make and model of diathermy unit used and then record the settings used for each procedure. More than one setting may be used during each procedure.

5. Polyp characteristics
   The current NED schema captures information about polyps based on procedure performed.
   Developing the schema to capture polyp level data such as location and other characteristics (Paris classification, Kudo classification) would enable additional KPI

development and analysis. This would facilitate service evaluation and potentially facilitate improvements in polyp interrogation and description.

It has been suggested that lateral spreading type (LST) should be included as an additional data term.

6. Small bowel KPIs
   Enteroscopy data are not currently captured. A separate small bowel dataset could be developed. Initially this could capture number and type of procedure performed. Additional data fields such as depth of intubation or placement of a tattoo could be captured.

7. Large Non Pedunculated Colonic Polyp KPIs
   BSG guidelines on LNPCPs[3] included a number of key performance indicators:
   - Recurrence/residual polyp at 12 months in endoscopically managed LNPCPs
   - Surgery rate for LNPCPs
   - Recurrence/residual polyp at 12 months in endoscopically managed LNPCPs
   - Endotherapy perforation rate
   - Post-polypectomy bleeding rate
   - Time from detection to referral for therapy
   - Time from referral to definitive therapy
   - Number of NPCPs of ≥20 mm in size removed per endoscopist per year

   With development of the NED schema and potential linkage with other datasets, some of these KPIs could be produced by NED.

8. ESD dataset
   ESD is included in the current dataset as a therapeutic option in lower GI endoscopy. This dataset could be developed to capture additional information about the procedure.

9. Chromoendoscopy

   NED does not currently capture whether chromoendoscopy is performed. The following data terms could be added to the schema in the therapeutic fields:
   - Lugols
   - Indigo carmine
   - Methylene blue

10. Image quality of endoscope

    Use of HD image technology is associated with increased lesion detection. It would be desirable to capture if an endoscopy is performed in HD quality. A number of additional considerations include:
    - Definition of high definition

[3] Rutter MD, et al. Gut 2015;0:1–27. doi:10.1136/gutjnl-2015-309576

- Which endoscopy components are being used
- How does the endoscopist know if it is HD quality?

11. Water-assisted intubation
    Use of water assisted techniques for colonoscopic intubation is not currently captured. This could be added to the therapeutic dataset.

12. Diverticulosis
    Is there a validated scoring system that can be used to assess the severity/ extent of diverticulosis.

13. Productivity data
    Automated capture of procedure start and finish time would allow metrics such as procure start time, duration, list utilisation, downtime and overrun to be generated.

14. ESGE performance measures
    Capture data to permit calculation of ESGE endoscopy performance measures

15. Endoscopic accessories
    Capture use of endoscopic accessories including Endocuff, Endoring etc

16. Bowel prep
    Shift from Aronchik to Boston Bowel Prep Scale

17. Mandatory fields
    Review and increase the number of mandatory fields, including upload to previous procedure code (to permit daisy-chaining of procedures so that KPIs such as follow-up of gastric ulcers can be calculated)

18. Enhance capture of information on “planned limited examination”
    So that not reaching D2/caecum does not count as a “fail” for such procedures

19. Expand/mandate terminology so that use of “other” field is minimised

20. Capture ISREE data

21. Increase capture of data for ISREE, for example completion of endoscopy checklist

1.7 Hierarchy of access

The current arrangements for access to NED KPI data are as follows, stakeholders are invited to suggestion addition levels or types of access to data:

Name	Level of access
NED Administrator	Top level administrator access - can see all data (highly restricted to permit full functionality of NED. Not for QA/research purposes)
JAG Administrator	Access set to site being visited. Endoscopist names cannot be viewed.
NED Trust Lead	Can view endosocpist data and names in that trust only
NED Trust Training Lead	Can view named endoscopist data relating to procedures with a trainee present only
NED user	Individual Endoscopist Level. Cannot see the names of other users.

1.8 NED KPI Interface

Thinking of developments to the schema in reverse, stakeholders are invited to suggest any adjustments or improvements to the way NED data is presented to users. These changes may then inform developments to the Schema. The current interface can be viewed at https://ned.jets.nhs.uk/KPI/Default.aspx using JETS username and password.

Appendix C

Name:…… Organisation:…….

Please use this summary table to provide (a) feedback on the NEDi2 suggestions, and (b) any further suggestions you may have. You may focus on the areas that are relevant to your area of expertise. You can use this response form electronically- type in your comments in the table below and return by email before 31 August 2018 to askjag@rcp.ac.uk. Please add your name and the organisation you are representing.

Category	Suggested Output/ KPI	Data points (input) required	Calculation- how is the KPI calculated?	Reason why desirable (eg is there a published national standard?)	Further comments
1.1 ERCP KPIs	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.				
	Other				
Category	**Suggested Output/ KPI**	**Data points required**	**Calculation- how is the KPI calculated?**	**Reason why output is desirable** (eg is there a published national standard?)	**Comments**
1.2 UGI	Photo taken of UO, Photo taken of GOJ, Photo taken of fundus in RF, Photo taken of gastric body, Photo taken of incisura in RF, Photo taken of bulb, Photo taken of D2.				
	Oesophageal inspection time				
	Gastric inspection time				
	Paris classification of oesophageal lesion				
	UGI Mucosal visualisation quality				

	Mucosal cleansing techniques (water, NAC, other)				
	Total circ. length of Barrett's, maximum length of Barrett's				
Category	**Suggested Output/ KPI**	**Data points required**	**Calculation- how is the KPI calculated?**	**Reason why output is desirable** (eg is there a published national standard?)	**Comments**
	Barrett's, biopsies taken as per Seattle protocol				
	If EoE suspected (dysphagia), biopsies taken from >1 oesophageal site				
	If oesophageal ulcer or Oesophagitis (grade D) present, biopsy taken				
	Gastric Ulcer. Biopsy taken				
	Gastric ulcer follow up in 6-8 weeks				
	Gastric Polyp(s);				

	number, size, location and morphology described. Representative biopsies taken				

Category	Suggested Output/ KPI	Data points required	Calculation- how is the KPI calculated?	Reason why output is desirable (eg is there a published national standard?)	Comments
	GU or DU. Biopsy for H pylori taken				
	If Coeliac suspected, Biopsies taken 'duodenum 2nd part x 4' and 'duodenum 1st part x1'				
	UGI interval cancer rate				
	Other UGI KPIs				
1.3 Paediatric endoscopy	Terminal ileal intubation				
	Patient weight (kg)				
	Other Paediatric KPIs				

Category	Suggested Output/ KPI	Data points required	Calculation- how is the KPI calculated?	Reason why output is desirable (eg is there a published national standard?)	Comments
1.4 Identifiable data	Not to be included in NEDi2				
1.5.1 SNOMED compatibility					
MST 4.0 Compatibility	Please comment about planned adoption of MST 4 terminology (see attached docs)				
1.5.2 Additional data terms added to or removed from Schema	e.g addition of term 'duodenal cap'				
Please attach a further document if additional terms suggested					
1.6.1	Error related terminology				
1.6.2	ERS version identifier				
1.6.3	Patient reported outcome measure				
1.6.4	Diathermy settings				
Category	**Suggested Output/ KPI**	**Data points**	**Calculation- how is**	**Reason why**	**Comments**

		required	the KPI calculated?	output is desirable (eg is there a published national standard?)	
1.6.5 Polyp characteristics	Paris classification				
	Kudo classification				
1.6.6 Small bowel procedures	Procedure type				
	Tattoo placement				
	Depth of intubation				
	Other small bowel KPIs				
1.6.7	LNPCP data				
1.6.8	ESD data				
1.6.9 Chromoendoscopy	Lugols				
	Indigo carmine				
1.6.10	Image quality of endoscopy				
1.6.11	Water assisted intubation				
1.6.12	Diverticulosis				
1.6.13	Productivity data				
1.6.14	ESGE performance measures				
1.6.15	Endoscopic accessories				
1.6.16	Shift from Aronchik to Boston Bowel Prep Scale				
1.6.17	Increase Mandatory fields				
1.6.18	Enhance capture of information on “planned limited examination”				

1.6.19	Expand/mandate terminology so that use of “other” field is minimised				
1.6.20	Capture ISREE data				
1.7 Hierarchy of access	Suggested changes to current arrangements				
1.8 NED KPI interface	Suggested changes to the KPI webpage				
Category	**Suggested Output/ KPI**	**Data points required**	**Calculation- how is the KPI calculated?**	**Reason why output is desirable** (eg is there a published national standard?)	**Comments**
1.9 Additional comments or suggestions					