National GI Endoscopy Quality Improvement Programme

5th National Data Report

1 JANUARY – 31 DECEMBER 2019

CONJOINT BOARD IN IRELAND OF **THE ROYAL COLLEGE OF PHYSICIANS AND ROYAL COLLEGE OF SURGEONS**

Building a Better Health Service | Seirbhís Sláinte Níos Fearr á Forbairt

National Quality Improvement Team

RCSI

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

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NEQI PROGRAMME GLOSSARY OF TERMS

NEQI Programme	National Gastrointestinal Endoscopy Quality Improvement Programme.
NQAIS-Endoscopy	National Quality Assurance and Improvement System for Endoscopy.
Endoscopy Reporting System (ERS)	A local electronic reporting system where endoscopy units enter clinical details regarding procedures performed.
Key Quality Data	Refers to the information that is to be captured for the NEQI programme. This data is captured to facilitate future audit and quality improvements.
Key Quality Indicator	Refers to a metric for which there is a sufficient evidence base to recommend a standard e.g. caecal intubation rate.
Key Quality Target	Refers to a minimum or achievable value associated with Quality Indicators.
Recommendation	Refers to a proposed course of action that should be implemented in each endoscopy unit to support quality improvement activities.
Minimum Target	This refers to the minimum acceptable value for a KQI.
Achievable Target	This refers to an additional aspirational value that should be aimed for if the minimum target is being met.
Procedure	For the purpose of this report, this refers to a colonoscopy, oesophagogastrduodenoscopy or a flexible sigmoidoscopy.
Colonoscopy (Col)	A procedure that allows the Endoscopist to look directly at the lining of the large bowel or colon.
Oesophagogastroduodenoscopy (OGD)	A procedure during which a small flexible endoscope is introduced through the mouth and advanced through the pharynx, oesophagus, stomach, and duodenum.
Flexible Sigmoidoscopy (FSIG)	A procedure used to evaluate the lower part of the large intestine.
Quality Improvement Guidelines	Guidelines for the implementation of a National GI Endoscopy Quality Improvement Programme as developed by the NEQI Programme.
QI Clinical Lead	The Clinician who has overall responsibility for the NEQI Programme in their unit.
Local Operational Manager	An endoscopy nurse responsible for the data uploading process and maintaining the local hospital NQAIS-Endoscopy account.

FOREWORD

This year marks a milestone for the National GI Endoscopy Quality Improvement (NEQI) Programme with the publication of our first National Data Report containing hospital identifiable information. The NEQI Programme is pleased to have made this step towards a more transparent method of reporting data for endoscopic services in Ireland. With the publication of this, our fifth National Data Report, the programme is proud to have collaborated with public and private hospitals in standardising data recording and data entry techniques to a level where this is now possible.

We have taken the step to identify hospitals in this report with the full support of both our funders, the HSE National Quality Improvement Team and the Speciality Quality Improvement Programmes Steering Committee, in order to further drive quality improvement nationwide. It is envisioned that this will facilitate and encourage a more open dialogue regarding identifying and sharing best practice and further embed a positive culture of quality improvement.

It is important that this information is not used to create "league tables". Given the differences in case mix and varying circumstances from hospital to hospital, comparison of any two units based on the data analysed in this report would not be accurate. In some instances, data collection issues have persisted, these instances have been noted in the report.

While we acknowledge that there may be some concerns surrounding the de-anonymising of these reports, after consultation with the participating hospitals it has been agreed that the this is an important step. We hope that this report spurs on continued improvement in endoscopic services and is seen as a positive step in national reporting.

The Irish health service has faced many challenges in 2020, the Programme is proud to have moved ahead with these constructive steps during this period. The Programme has also taken this time to review and update the NEQI Guidelines.

The data contained in this report now covers the 12-month period from 1st January to 31st December 2019, as opposed to 1 July to 30 June in previous years. Although spanning a new reporting period, the 5th National Data Report displays the trend of annual increases in the number of Endoscopists meeting targets across the vast majority of Key Quality Indicators (KQIs) when compared to the same period for previous years.

The Programme would like to take this opportunity to express its sincere thanks to the Local Operational Managers and the Clinical Leads who have led the NEQI Programme locally by continuing to collect and submit data during a challenging period.

We also wish to thank the HSE National Quality Improvement Team who provide funding for this programme, our approving bodies the Specialty QI Programme Steering Committee and to the Specialty QI Programme Management Team, RCPI for their continuous support.

In the coming year we hope to build on the improvements achieved so far. Due to the cessation of much of the endoscopic services for a considerable part of the year we accept there may be issues with regarding data collection for next year's National Data Report. However, we are hopeful that NQAIS data will assist in the examination and the formation of a response to the impact of Covid 19 on endoscopic services across the country.

Dr Jan Leyden,
Chair, NEQI Working Group

NEQI PROGRAMME ENDORSEMENTS

"The GI Endoscopy Quality Improvement Programme has continued to go from strength to strength. The strong clinical leadership at the core of the programme is key to its success. The National QI Team is delighted to be responsible for funding this crucial programme. The staff in every unit around the country deserve our sincere thanks for their commitment in collating and sharing their data on performance. The commitment of the programme and of our endoscopy community to transparency and service improvement is manifested in the support to de-anonymise all the data. This demonstrates the confidence of our endoscopy services and its commitment to improving care through open discussion on performance. This is a prime example of our staff committing to service improvement and serves as an example to staff across all our services."

Dr Philip Crowley
National Director of the National Quality Improvement Team

MESSAGE FROM A PATIENT ADVOCATE

"I had a cancer diagnosis in 2006 and I have survived because of a team of scientists and my sister who was a match for a stem-cell transplant.

What impresses me most is how engaged specialists are across the whole hospital network in improving the way they work together and the outcome improvements for patients that result from this work. I am struck by the participants' engagement in and enthusiasm for QI projects.

This is a direct contradiction to the reports and consequences of system and process failures coming to light in recent times. As a patient, my confidence in our health system grows to the extent that a QI practice becomes more embedded in the workings of our hospitals and in the practices of their staff.

There is now an even greater requirement to hold on to these initiatives while the system experiences the unprecedented pressure of the pandemic. Processes will always need improvement and renewal."

Peter Clarke
Patient Advocate
Member of the Steering Committee, National Quality Improvement Programmes

NEQI PROGRAMME ENDORSEMENTS

QI Local Operational Manager

"We in Louth County Hospital, Dundalk and Our Lady of Lourdes Hospital, Drogheda welcome this report.

All of us in healthcare aim to provide the highest quality service to our patients and to do this we need continual feedback on how we are performing and how that compares to our peers locally, nationally and internationally. This report helps ensure we are meeting and hopefully exceeding accepted standards and KQIs. This helps us all learn from best practice both around the country and beyond.

Well done to all in producing this valuable document".

Ms Judith Downey
QI Local Operational Manager, Louth County Hospital & Our Lady of Lourdes Hospital

QI Clinical Lead

"The National GI Endoscopy Quality Improvement Programme has been instrumental in improving the standard of care for patients undergoing GI endoscopy in this country. I welcome the 5th Annual NEQI report which for the first time identifies hospitals which contribute data to this important quality improvement programme. As surgeons provide 50% of the GI endoscopy service nationally, I would recommend this report to all surgeons and encourage their ongoing support for this excellent quality improvement initiative"

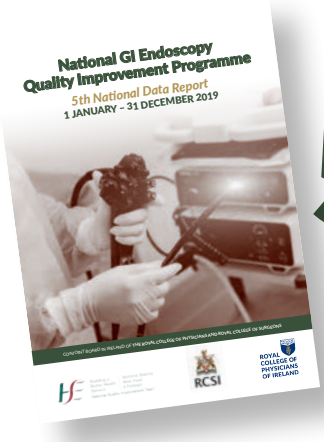
Mr Kenneth Mealy
QI Clinical Lead, Wexford General Hospital
Chair, National Office of Clinical Audit Governance Board

KEY RECOMMENDATIONS

1	Endoscopy units should consider triaging patients to left colonoscopies or flexible sigmoidoscopies instead of full colonoscopies to ensure patients receive the most appropriate procedure. This may also positively impact endoscopy waiting lists. *See Chapter 3*
2	Trainees should only perform supervised procedures until they can successfully achieve Caecal Intubation independently. *See Chapter 4, Section 1*
3	Adenoma detection rates should be reviewed in parallel with Polyp Detection rates in each hospital through local reviews by the hospital's Endoscopy Users Group *See Chapter 4, Section 2*
4	Adjunctive methods to improve Comfort Score should be considered, including use of carbon dioxide insufflation, water, and changing the patients' position. *See Chapter 4, Section 3*
5	Endoscopists should adhere to the definitions of comfort score set out in this report and the NEQI Guidelines in order to standardise data collection nationally. *See Chapter 4, Section 3*
6	Bowel Preparation scores below the minimum QI Target of ≥90% of colonoscopies with a Bowel Preparation Score of Excellent or Adequate should be used to highlight the importance of a pre-assessment nurse and good clinical triage for each unit. *See Chapter 4, Section 4*
7	Hospitals should ensure that their Endoscopy Recording System (ERS) is up to date and that the ERS requires mandatory recording of QI data. Software vendors should be engaged to ensure this functionality is present. *See Chapter 5, Section 2*
8	Lower midazolam concentration options, such as 1mg/ml, should be procured in order to facilitate the administration of lower concentrations when appropriate. *See Chapter 6, Section 1*

KEY FINDINGS

- 49% of Endoscopists performed less than 100 colonoscopies in 2019. There has not been a significant change in this figure since reporting began in 2016, when 52% of Endoscopists performed less than 100 colonoscopies. Endoscopists should perform adequate numbers of procedures to maintain skills at appropriate levels.
- 43 out of 44 hospitals met the minimum Caecal Intubation Rate target of 90% of colonoscopies reported to have reached the caecum.
- 33% of colonoscopies nationally had at least one polyp detected in 2019, this is compared to 32% for the same time period in 2018.
- In 2019, 96% of colonoscopies had a comfort score of 1 to 3 nationally. This remains unchanged from 2018.
- 84% of Endoscopists met the Duodenal Second Part Intubation Target, this is a 4% increase on the percentage who met the target in 2018. However, 6% of Endoscopists had a Duodenal Second Part Intubation rate of less than 90%.
- 79% of Endoscopists met the target median dose for midazolam usage with patients aged 70 and older. This represents a 7% increase on the percentage of Endoscopists who met the same target in 2018.



5th National Data Report

44
Hospitals
submitting data for 2019

8% FROM 2018

225,069
Procedures recorded in NQAIS-Endoscopy during 2019

2%

736
Endoscopists

8%

104,989
Colonoscopies
47%

8%

101,622
OGDs
45%

8%

18,458
FSIGs
8%

1

INTRODUCTION TO THE PROGRAMME

1. Introduction to the Programme

The Conjoint Board of the Royal College of Physicians of Ireland (RCPI) and the Royal College of Surgeons in Ireland (RCSI) launched the National GI Endoscopy Quality Improvement (NEQI) Programme in October 2011 in collaboration with the National Cancer Control Programme (NCCP). As of 2014, this programme has been funded by the HSE National Quality Improvement Team and is managed by the Specialty Quality Improvement Team, RCPI.

PURPOSE OF THIS REPORT

This report will facilitate informed decision making on future steps to be taken in support of ongoing quality improvement processes within Irish endoscopic services. The NEQI Working Group encourages Endoscopists to discuss their local performance against the targets, recommendations and national averages with colleagues, local hospital management and Quality and Patient Safety teams. Where findings suggest that there may be an area in need of improvement, findings should be discussed locally using local hospital QI data. Where patient safety related concerns exist, they should be managed locally and escalated as appropriate in line with the relevant HSE policies.

This is the first National Data Report by the NEQI Programme to utilise a January to December reporting year. Data for three previous years have been re-analysed in order to allow year on year comparisons across the same time periods. As previous National Data Reports have reported on either a July to June basis, or as the case in the 4th National Data Report, a Q3 & Q4 basis, KQIs shown in this report may vary to those presented in older reports.

WHAT THIS REPORT CANNOT DO

This report cannot and should not be used to produce league tables or to compare hospitals, as no two hospitals will have the same patient profile. Different hospitals specialise in treating patients with different and sometimes much more complex needs, invalidating comparisons between hospitals.

OUTLIER MANAGEMENT

The participating hospitals are responsible for the management of outliers and resolving issues at local level. The NEQI Programme does not engage with individual sites who may be identified as outliers in this report. Locally, participants are requested to report and manage the QI data within their unit and to ensure the necessary actions to improve quality are initiated and / or referred to the appropriate person.

The programme further requests that participating hospitals ensure QI data reports once generated and approved by the unit, are reviewed by the Quality and Patient Safety Teams or appropriate local hospital management structure, linking with relevant hospital governance and programme structures as set out in the programme QI Guidelines and taking action as appropriate.

HOSPITALS WE WORK WITH

In 2019, 44 public and private hospital endoscopy units contributed their data to the national dataset analysed in this report.

Hospital identifiable information

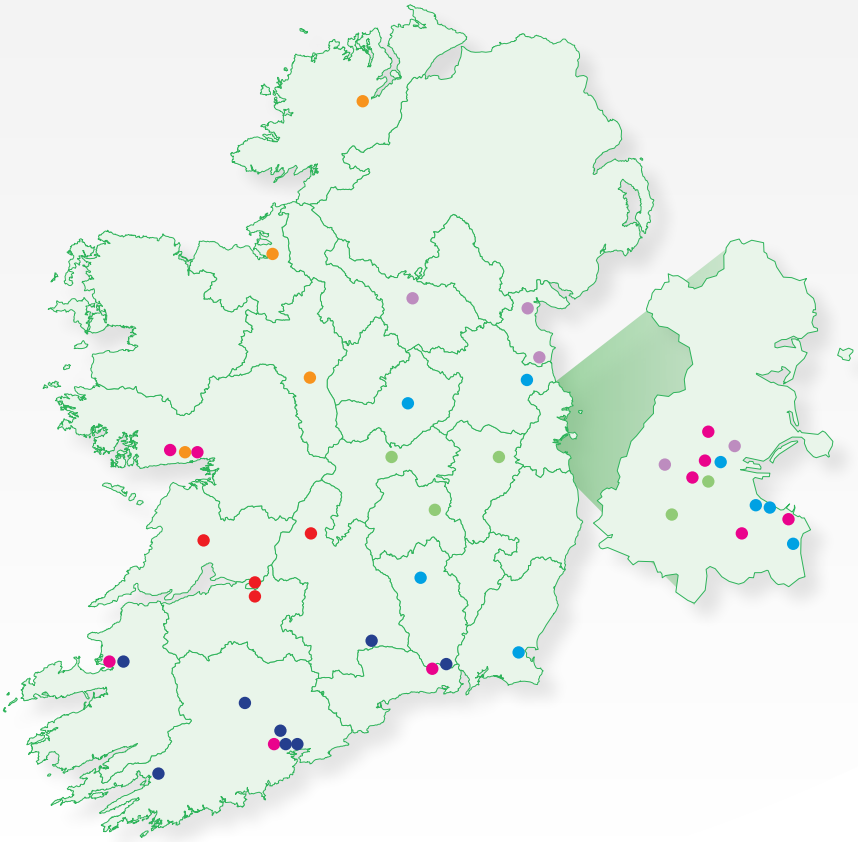
Hospital identifiable information is presented in this report. Following a comprehensive consultation process with participating hospitals, the NEQI Programme will produce National Data Reports where hospital level information is identifiable by hospital name from this point on. This contrasts with previous years where the Programme produced reports containing only pseudonymised and anonymised data. This move has been undertaken to ensure greater levels of transparency at national level reporting.

There are many reasons why a hospital may not be reaching a target for a given Key Quality Indicator, including data entry, case mix and specialisation, and as such it is important to remember that the graphs in this report are intended to act as a flag for units to inspect their own data rather than an indicator of clinical performance.

As this is the first NEQI National Data Report to contain hospital identifiable information, the NEQI Programme invited participants to review their local NQAIS-Endoscopy data for the 2019 year. In areas where units were not meeting a Key Quality Indicator (KQI) target and felt that their data was not reflective of practice, an opportunity was given to submit a brief description of the situation that contributed to them not meeting the target.

In addition, sites were also invited to submit details on local QI initiatives that took place using NQAIS QI data.

44 HOSPITALS CONTRIBUTING DATA TO THE 5TH NATIONAL DATA REPORT



Dublin-Midlands Hospital Group
Midland Regional Hospital Portlaoise
Midland Regional Hospital Tullamore
Naas General Hospital
St James's Hospital
Tallaght University Hospital

UL Hospitals Group
Ennis Hospital
Nenagh Hospital
University Hospital Limerick
St John's Hospital, Limerick

Private Hospitals
Beacon Hospital, Dublin
Blackrock Clinic, Dublin
Bon Secours Hospital Cork
Bon Secours Hospital Dublin
Bon Secours Hospital Galway
Bon Secours Hospital Tralee
Galway Clinic
Hermitage Clinic, Dublin
Mater Private Hospital, Dublin
UPMC Whitfield Hospital, Waterford

Ireland East Hospital Group
Mater Misericordiae University Hospital
Regional Hospital Mullingar
Our Lady's Hospital Navan
St Columcille's Hospital, Loughlinstown
St Luke's Hospital, Kilkenny
St Michael's Hospital, Dun Laoghaire
St Vincent's University Hospital
Wexford General Hospital

RCSI Hospitals Group
Beaumont Hospital, Dublin
Cavan General Hospital
Connolly Hospital, Blanchardstown
Louth County Hospital
Our Lady of Lourdes Hospital, Drogheda

South/South West Hospitals Group
Bantry General Hospital
Cork University Hospital
Mallow General Hospital
Mercy University Hospital, Cork
South Infirmary Victoria University Hospital
South Tipperary General Hospital
University Hospital Kerry
University Hospital Waterford

Saolta University Healthcare Group
Letterkenny University Hospital
Roscommon University Hospital
Sligo University Hospital
University Hospital Galway

2

DATA ANALYSIS

2. Data Analysis

The information presented in this report is based on data pertaining to quality improvement activities performed in both public and private endoscopy units across Ireland. This data has been uploaded to NQAIS-Endoscopy from Endoscopy Reporting Systems (ERS) in 44 hospitals nationwide.

HOW THE NEQI PROGRAMME WORKS

Endoscopy units participating the NEQI Programme have agreed to implement continuous quality improvement measures, as outlined in the most recent Guidelines for the National GI Endoscopy Quality Improvement Programme (V.6). Endoscopy units upload their hospital's data to NQAIS-Endoscopy via a data extract obtained from the local Endoscopy Reporting System (ERS). As such, the accuracy of the data uploaded to NQAIS is fundamentally dependant on the correct input of data to each hospital's ERS. Once the data has been uploaded, a Local Operational Manager for the unit checks the data quality and maps any data, which may not be recognised by NQAIS to standardised national codes. Once data have been cleaned, a report is created which represents the unit's data in relation to Key Quality Indicators (KQIs) and national averages. This report is then reviewed and "signed off" by the Clinical Lead. This "sign off" process transfers the local data into the national repository and commits them to the national data set. Once the data resides in the national repository, Endoscopists can run reports on the data and compare their statistics to national averages and targets as set out by the NEQI Programme in the GI Endoscopy Quality Improvement Guidelines. Clinical Leads, as well as individual Endoscopists, are encouraged to run these reports at minimum on a quarterly basis.

It is recommended that local QI data reports are communicated to senior hospital management and clinical governance / Quality and Patient Safety Teams.

THE NATIONAL QUALITY ASSURANCE AND IMPROVEMENT SYSTEM FOR ENDOSCOPY (NQAIS-ENDOSCOPY)

NQAIS-Endoscopy functions as a central repository for quality improvement data from participating hospital's Endoscopy Reporting Systems (ERS). The data relating to the Key Quality Indicators (KQIs) are extracted from NQAIS and are used to produce the annual national data report on national metrics in endoscopy. Units can use the report to identify best practice and any variations, to review, improve and sustain the quality of their work in the context of national norms and targets set by the NEQI Programme Working Group as well as international best practice.

DATA SOURCE

The data analysed in this report are taken from NQAIS-Endoscopy. The data contained in NQAIS-Endoscopy comprise extracts taken from each hospital's local Endoscopy Reporting System (ERS) and uploaded to the national repository. As such, the data in this report are reliant upon accurate data entry at each endoscopy unit when procedure details are entered into the ERS.

QI Clinical Lead	The QI Clinical Lead is a Consultant Endoscopist who has overall responsibility for the NEQI Programme in their hospital. They review, sign off, and disseminate data which has been uploaded to NQAIS from the local ERS.
Local Operational Manager	The Local Operational Manager is most frequently an Endoscopy Nurse who works in collaboration with the QI Clinical Lead to ensure that data is uploaded in accordance with the quarterly data upload schedule. They create the extract from the ERS, upload it to NQAIS, clean the data and create Key Quality Data Reports to be signed off by the QI Clinical Lead.

DATA COLLECTION

Endoscopists and Endoscopy nursing staff from endoscopy units record clinical details for each procedure performed in their endoscopy unit in an ERS. Anonymised data are then uploaded from each ERS to the central data repository, NQAIS-Endoscopy, via a CSV extract, for reporting and analysis purposes by participants. Training is provided by the programme management team on the uploading of data, reporting and interpretation of the findings.

The data in this report were recorded in 44 Hospitals from 1 January 2019 to 31 December 2019. These hospitals include 34 public hospitals and 10 private hospitals and comprise the entire data population for this report.

Data were collected across nine Key Quality Indicators (KQIs), as set out in the GI Endoscopy QI Guidelines, for the following procedures:

- Oesophagogastroduodenoscopies (OGD)
- Flexible Sigmoidoscopies (FSIGs)
- Colonoscopy (COL) - (screening and symptomatic)

No patient identifiable information is collected in NQAIS-Endoscopy.

DATA PROTECTION

Each participating site is the data controller for their own data, this means that they are responsible for the integrity of that data and can authorise or deny access to it. This is performed under the direction and governance of local and hospital group management and in accordance with Data Protection Acts 2018 and the General Data Protection Regulation (GDPR). The Data Controller determines the purpose and the manner in which data pertaining to the NEQI Programme are to be processed.

DATA: ADDITIONAL CONTEXT

The information presented in this report is intended to highlight good performance and assist units in identifying areas in need of improvement, with each unit confirming any potential improvements or issues detected using their own local data. The points below should be kept in mind when reading this report:

- This report should not be used to directly compare hospitals performance.
- All targets are on a per Endoscopist basis. The analysis contained within this report reflects this wherever possible. For many KQIs, national averages and statistics based on all cases performed within hospitals are also presented.
- All Endoscopist based KQIs are calculated on an Endoscopist 1 (E1) and Endoscopist 2 (E2) basis. This means that an Endoscopist's individual statistics will take into account all cases where the Endoscopist was listed as an E1 or an E2 in their local Endoscopy Reporting System.

Definitions of Endoscopist 1 and Endoscopist 2 can be found on page 29. The analysis in this report does not include statistics where the Endoscopist has only been recorded as E2 with no E1 procedures.

It is important to note that, while the data contained in this report is considered to be mature, some data entry issues persisted for some units in 2019. As this will be evident when comparing the data in this report to ERS data, confirmation of significant findings against local hospital data remains essential.

DATA QUALITY

Here we consider the condition of the data under the following headings accuracy, reliability, relevancy, completeness, consistency and timeliness[1].

ACCURACY: Every effort is made to ensure data captured for the national data report is accurate; however, minor discrepancies may exist due to differences in data mapping and data capture in each Endoscopy Reporting System.

RELIABILITY: All efforts are made to remove any subjectivity from the input or collection of the data. Data are extracted and uploaded on a quarterly basis. Training is provided to aid the reliability of this process.

RELEVANCY: The purpose of the data is to aid decision making in the context of the endoscopic services. Detailed data are supplied on each of the KQIs by hospitals to aid visualisation of both areas of improvement and those requiring increased scrutiny.

COMPLETENESS: The programme reports high levels of data completeness, 100% where data fields are mandatory submissions. However inconsistencies persist in relation to some KQIs as a result of variation in data recording practices and varying capabilities of local reporting systems. The NEQI Programme is working to rectify these issues and have highlighted such instances within this report.

CONSISTENCY: The extraction and uploading of data are performed following agreed pathways depending on the ERS in place. The analysis of the data for this report is performed following consistent practices by the programme management team once they have been extracted from NQAIS-Endoscopy.

TIMELINESS: Units are requested to have completed their data uploads to NQAIS within two weeks of the end of each quarter. All hospitals in this report have successfully uploaded data for each quarter of 2019.

1. Health Information and Quality Authority (2018) "Guidance on a data quality framework for health and social care" https://www.hiqa.ie/sites/default/files/2018-10/Guidance-for-a-data-quality-framework.pdf

TARGETS AND RECOMMENDATIONS

Key Quality Indicator	Key Quality Target	Additional Information
COLONOSCOPY		
Caecal Intubation (CI) Rate	Minimum: ≥90% Achievable: ≥95%	CI Rate is calculated based on all colonoscopies performed as Endoscopist 1 or Endoscopist 2
Comfort Score	≥90%	90% of colonoscopies should have a comfort score of 1 to 3 on the Gloucester Scale
Polyp Detection	≥20%	N/A
Bowel Preparation	Minimum: ≥90% Achievable: ≥95%	N/A
OESOPHAGOGASTRODUODENOSCOPIES (UPPER GI)		
Duodenal 2nd Part Intubation (Duo 2)	≥95%	N/A
Retroflexion	≥95%	N/A
SEDATION		
Midazolam	**Patients Aged below 70 years:** Median dose is ≤5mg administered per Endoscopist **Patients Aged above 70 years** Median dose is ≤3mg administered per Endoscopist	This KQI applies to both Colonoscopies and OGDs.
Fentanyl	**Patients Aged below 70 years:** Median dose is ≤100mg administered per Endoscopist **Patients Aged above 70 years** Median dose is ≤50mg administered per Endoscopist	This KQI applies to both Colonoscopies and OGDs.

The NEQI Programme has set out further Key Quality Indicators which are not covered in this report and can be found in the GI Endoscopy Quality Improvement Guidelines. The KQIs not covered in this report include those that are not easily measured or those where the data may not be currently reliable.

DATA VISUALISATION AND HOSPITAL IDENTIFICATION

The 2019 data is presented on several different types of charts and tables. Hospitals have been named directly in bar charts. For funnel plot charts, a hospital identification (ID) system is used to minimise the volume of information presented in these graphs. The IDs used are the same as the IDs as listed on page 21. The IDs in this report do not reflect the IDs used in any previous reports and therefore should not be used for comparative purposes.

Note on Funnel Plots: To facilitate more intuitive and visually effective presentation of the data, the NEQI Programme uses Funnel Plots. Due to distribution of data points, the confidence intervals shown in the graphs do not always encompass the 99.7% or 95% of data points. Although not providing the same statistical analysis as funnel plots with a normal distribution, the Programme is confident that the additional information provides further context which is beneficial when interpreting the data. These funnel plots essentially act as scatter plots providing further information on the average.

APPROVAL PROCESS

This report was approved by the Working Group of the National GI Endoscopy QI Programme on 18/11/2020. The report was approved by the Specialty Quality Improvement Programme Steering Committee on 27 November 2020.

HOSPITAL LEGEND FOR GRAPHS

Hospital Name	ID*
Bantry General Hospital, Cork	1
Beacon Hospital, Dublin	2
Beaumont Hospital, Dublin	3
Blackrock Clinic, Dublin	4
Bon Secours Hospital Cork	5
Bon Secours Hospital Dublin	6
Bon Secours Hospital Galway	7
Bon Secours Hospital Tralee	8
Cavan General Hospital	9
Connolly Hospital, Blanchardstown	10
Cork University Hospital	11
Ennis Hospital, Clare	12
Galway Clinic	13
Hermitage Medical Clinic, Dublin	14
Letterkenny University Hospital, Donegal	15
Louth County Hospital	16
Mallow General Hospital, Cork	17
Mater Misericordiae University Hospital, Dublin	18
Mater Private Hospital, Dublin	19
Mercy University Hospital, Cork	20
Midlands Regional Hospital Mullingar	21
Midlands Regional Hospital Tullamore	22

Hospital Name	ID*
Midlands Regional Hospital Portlaoise	23
Naas General Hospital, Kildare	24
Nenagh General Hospital, Tipperary	25
Our Lady of Lourdes Hospital, Drogheda	26
Our Lady's Hospital, Navan	27
Roscommon University Hospital	28
Sligo University Hospital	29
South Tipperary General Hospital	30
South Infirmary Victoria University Hospital, Cork	31
St Columcille's Hospital, Loughlinstown	32
St. James's Hospital, Dublin	33
St. John's Hospital, Limerick	34
St. Luke's Hospital, Kilkenny	35
St. Michael's Hospital, Dún Laoghaire	36
St. Vincent's University Hospital, Dublin	37
Tallaght University Hospital, Dublin	38
University Hospital Galway	39
University Hospital Kerry	40
University Hospital Waterford	41
University of Limerick Hospital	42
UPMC Whitfield Hospital	43
Wexford General Hospital	44

***Important Note: The Hospital IDs assigned in this report refer to this report only. They are not reflective of any of the IDs used in previous reports. i.e. hospital 1 in this report is not the same hospital as hospital 1 in the 4th National Data Report. The IDs used in this report is to facilitate easier interpretation of graphs by reducing the amount of information presented in them.**

3

WORKLOAD

3. Workload

There is some historic evidence that suggests that endoscopic proficiency, with respect to occurrence of complications, increases with the number of procedures performed. In a population-based study of outpatient colonoscopy carried out in Canada[2] the lowest complication rate was associated with the highest number of procedures, i.e. >200 per Endoscopist per year. Notably, however, completion rates in these cohorts were at 72%. Level of experience rather than volume of procedures performed appear to show some correlation with the level of caecal intubation rates[3]. Similarly, Adenoma Detection Rate (ADR) does not appear to correlate with overall endoscopy numbers[4]. It is important to note the following:

1. Low numbers of procedures may be associated with poor performance.
2. Low numbers may mean the sample size for Key Quality Indicators (KQIs) is low and the confidence intervals around the observed performance will be wide.
3. Adequate numbers of procedures are required to provide accurate estimates of performance particularly if procedures are performed infrequently e.g. the 95% confidence interval for a completion rate of 90% for 150 colonoscopy procedures per year is 85%-95%.
4. Endoscopists who are technically proficient will likely find it easier to maintain competency with lower numbers. It may not be possible to maintain adequate performance with low numbers, although there may be exceptions to this whereby lifelong experience may reduce the requirement for high numbers. Similarly, Endoscopists who routinely receive referrals for difficult procedures may have lower numbers.
5. Endoscopy numbers in isolation may not be indicative of poor performance but should be interpreted in conjunction with other KQIs.

Key Quality Data

- Number of Oesophagogastroduodenoscopy (OGD) procedures performed by each Endoscopist
- Number of Flexible Sigmoidoscopy (FSIG) procedures performed by each Endoscopist
- Number of Colonoscopy procedures performed by each Endoscopist

TABLE 1: Number of Endoscopists per Colonoscopies performed category

Colonoscopies (COLs)						
Number of COLs	<10	11-50	51-100	101-150	>150	**Total**
Number of Endoscopists	95	128	111	74	282	**690**

TABLE 2: Number of Endoscopists per OGDs performed category

Oesophagoduodenoscopies (OGDs)						
Number of OGDs	<10	11-50	51-100	101-150	>150	**Total**
Number of Endoscopists	109	153	107	81	275	**725**

[2] Singh, Penfold, DeCoster, Kaita, Proulx and Taylor, (2009) "Colonoscopy and its complications across a Canadian regional health authority," Gastrointestinal Endosc 69, vol. 69, no. 3, pp. 665-671.
[3] GC Harewood, "Relationship of colonoscopy completion rates and endoscopist features, (2005) " Dig Dis Sci 50, vol. 50, no. 1, pp. 47-51,.
[4] Adler, Wesgscheider, Lieberman, Aminalai, Aschenbeck, Drossel, Mayr, Mroß, Scheel, Schröder, Gerber, Stange, Roll, Gauger, Wiedenmann, Altenhofen and Rosch, (2013) "Factors Determining the Quality of Screening Colonoscopy: A Prospective Study on Adenoma Detection Rates," Gut 62, vol. 62, no. 2, pp. 236-41.

FIGURE 1: National Number of Procedures by Procedure Type and Month, 2019

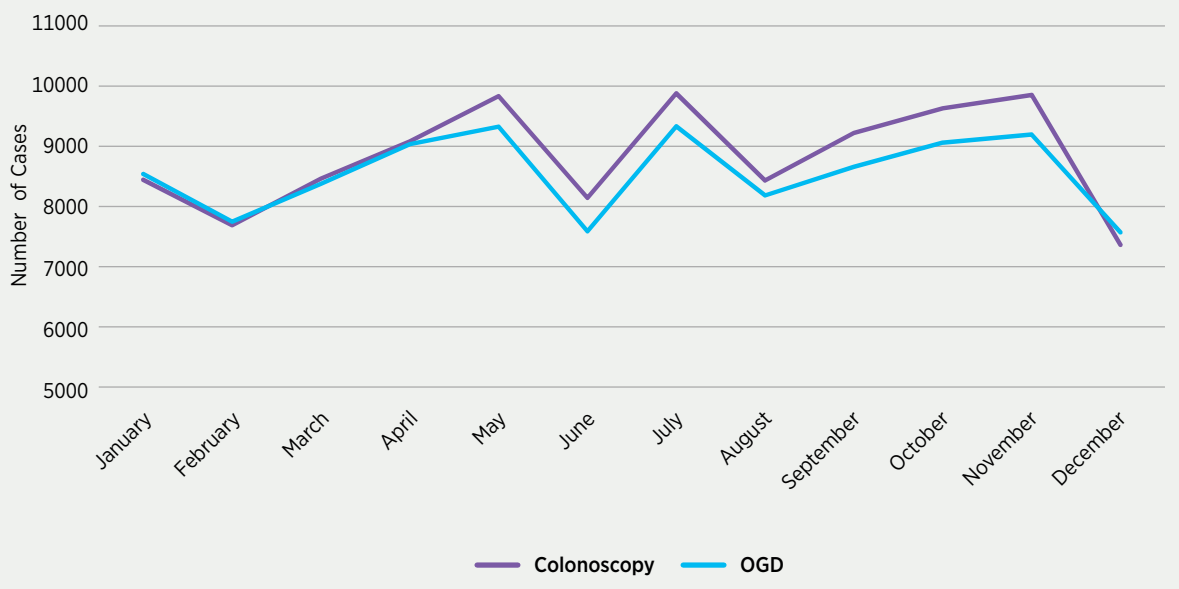


FIGURE 2: Number of Each Procedure Type by Hospital, 2019

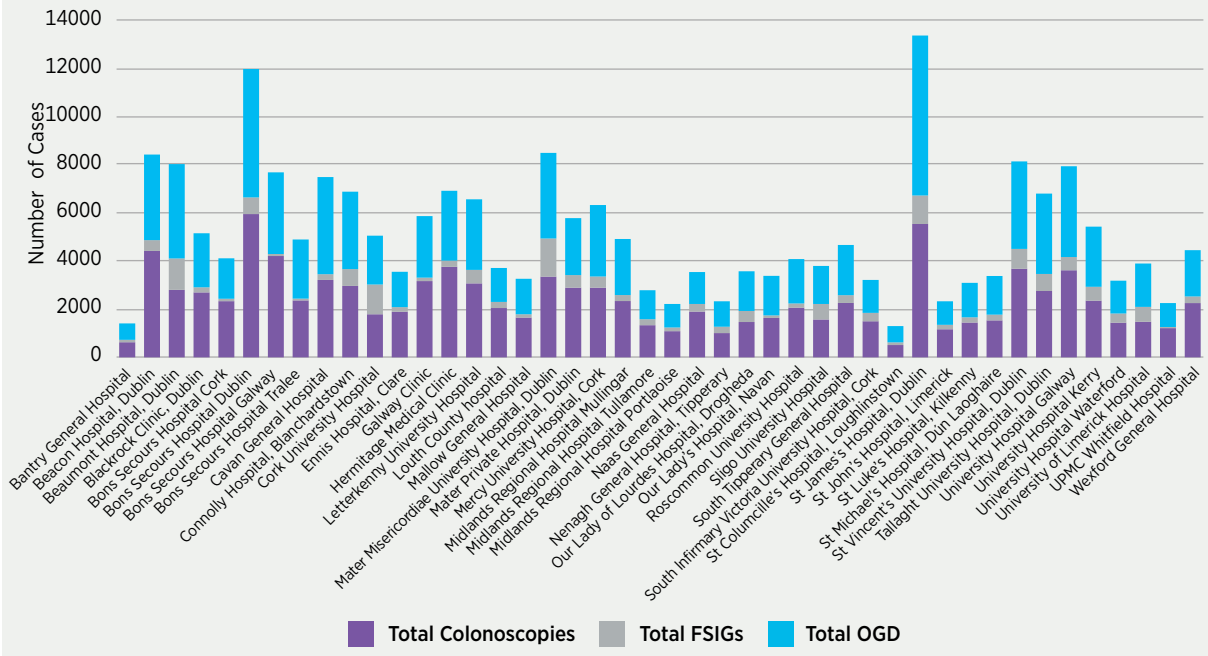


FIGURE 3: Percentage of Each Procedure Type by Hospital, 2019

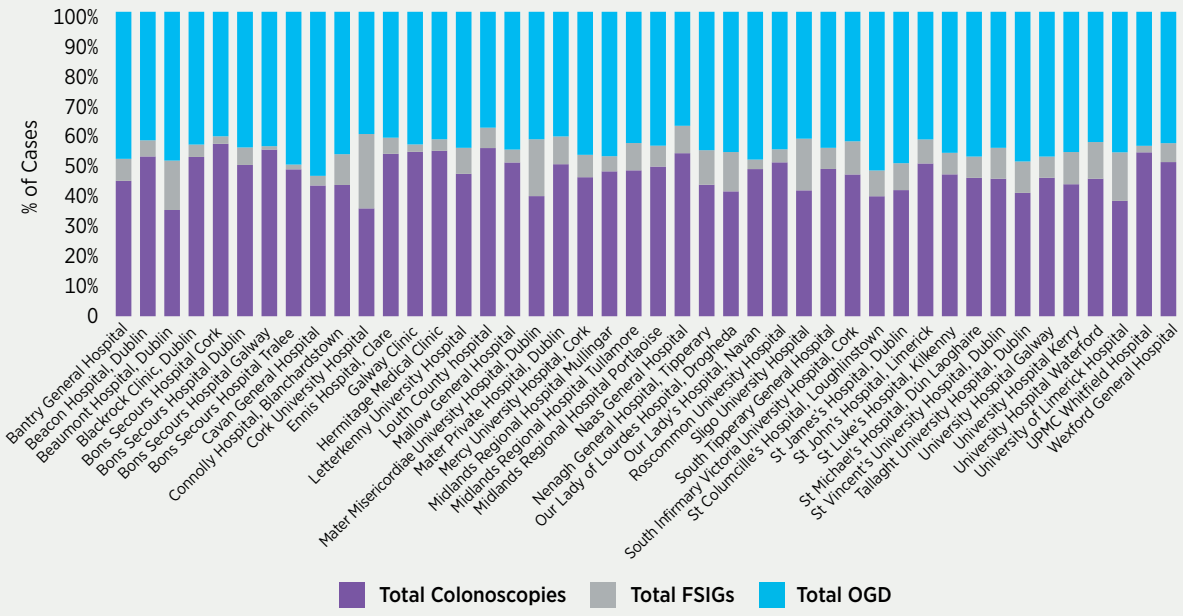
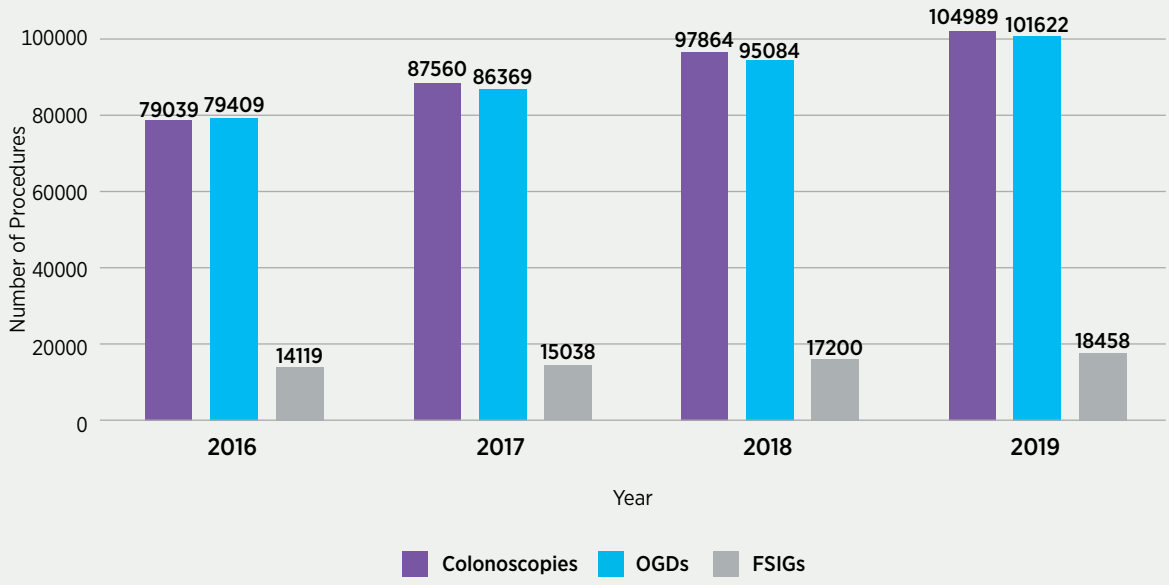


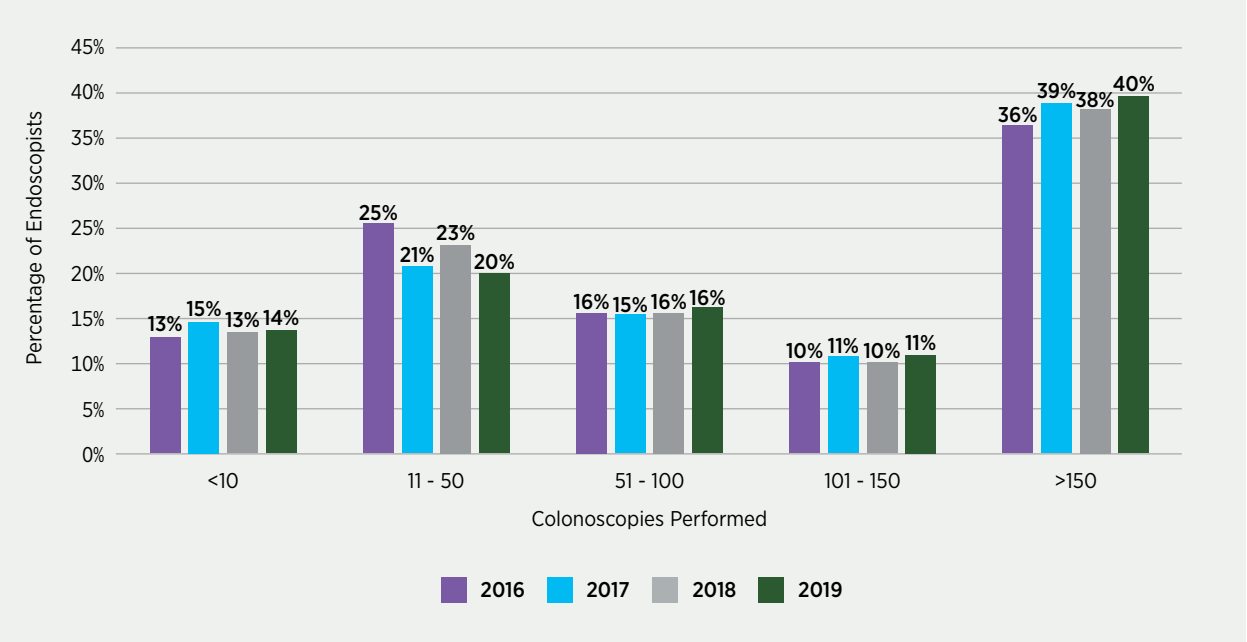
FIGURE 4: National Number of each Procedure Type, Year on Year, 2016 - 2019



The total number of procedures recorded in NQAIS-Endoscopy in 2019 was 225,069. This is an increase of 11,639 procedures in 2018, reflective of both an increase in the number of procedures performed and the three additional hospitals contributing data to this year's report.

The number of Endoscopists submitting data to NQAIS during 2019 was 736, with 690 having performed at least one colonoscopy and 725 performing at least one OGD

FIGURE 5: Number of Colonoscopies per Endoscopist, Year on Year, 2016 - 2019



There remain a large number of Endoscopists performing low numbers of procedures. As shown in **Figure 5** this has been an identified by the NEQI Programme national data reports since the programme began collecting data. Every year since 2016 approximately 50% of Endoscopists who had performed an endoscopy in that year, had performed less than 100 procedures during the calendar year.

The NEQI Programme Working Group consider that there may be a variety of reasons why such a large cohort are performing low numbers of procedures. These include the possibility of Trainees and clinicians from outside the speciality comprising a percentage of this cohort. However, the data required to explain these lower numbers is not currently collected by the Programme. As such, each hospital should continue to review their local data to investigate this issue further.

Future upgrades of NQAIS-Endoscopy and Endoscopy reporting systems will allow the NEQI Programme to further interrogate these statistics. These upgrades will ideally enable separation by Endoscopist status; e.g. Consultant, Trainee etc.

KEY FINDING

49% of Endoscopists performed less than 100 colonoscopies in 2019. There has not been a significant change in this figure since reporting began in 2016, when 52% of Endoscopists performed less than 100 colonoscopies. Endoscopists should perform adequate numbers of procedures to maintain skills at appropriate levels.

RECOMMENDATION

Endoscopy Units should consider triaging patients to left colonoscopies or flexible sigmoidoscopies instead of full colonoscopies to ensure patients receive the most appropriate procedure. This may also positively impact endoscopy waiting lists.

4

COLONOSCOPY

4. Colonoscopy

Colonoscopy is the investigation for assessment of the large bowel allowing diagnosis, biopsying, and therapy to be undertaken. Colonoscopy detects and prevents colorectal cancer and is important in the diagnosing and treatment of non-neoplastic conditions. Colonoscopy can lead to rare but serious complications and poor quality colonoscopy is associated with increased rates of interval cancers.

Key Quality Indicator	Key Quality Target	Additional Information
COLONOSCOPY		
Caecal Intubation (CI) Rate	Minimum: ≥90% Achievable: ≥95%	CI Rate is calculated based on all colonoscopies performed as Endoscopist 1 or Endoscopist 2
Comfort Score	≥90%	90% of colonoscopies should have a comfort score of between 1 and 3 on the Gloucester Scale
Polyp Detection	≥20%	N/A
Bowel Preparation	Minimum: ≥90% Achievable: ≥95%	N/A

4.1) Caecal Intubation Rate

Caecal Intubation Rate (CIR) is one of the key quality indicators for colonoscopy. Caecal intubation Rates are affected by a number of factors including age, sex, low BMI, bowel cleansing, sedation, diverticular disease and general health status. It is expected that every unit have a policy stating that Endoscopists and Endoscopy Nurses in the procedure room should agree that the relevant landmark has been reached before recording caecal intubation in the ERS.

Key Quality Indicator:

- Number of colonoscopies where the terminal ileum / caecum / anastomosis has been reached, expressed as a % of total colonoscopies performed per Endoscopist

Key Quality Target:

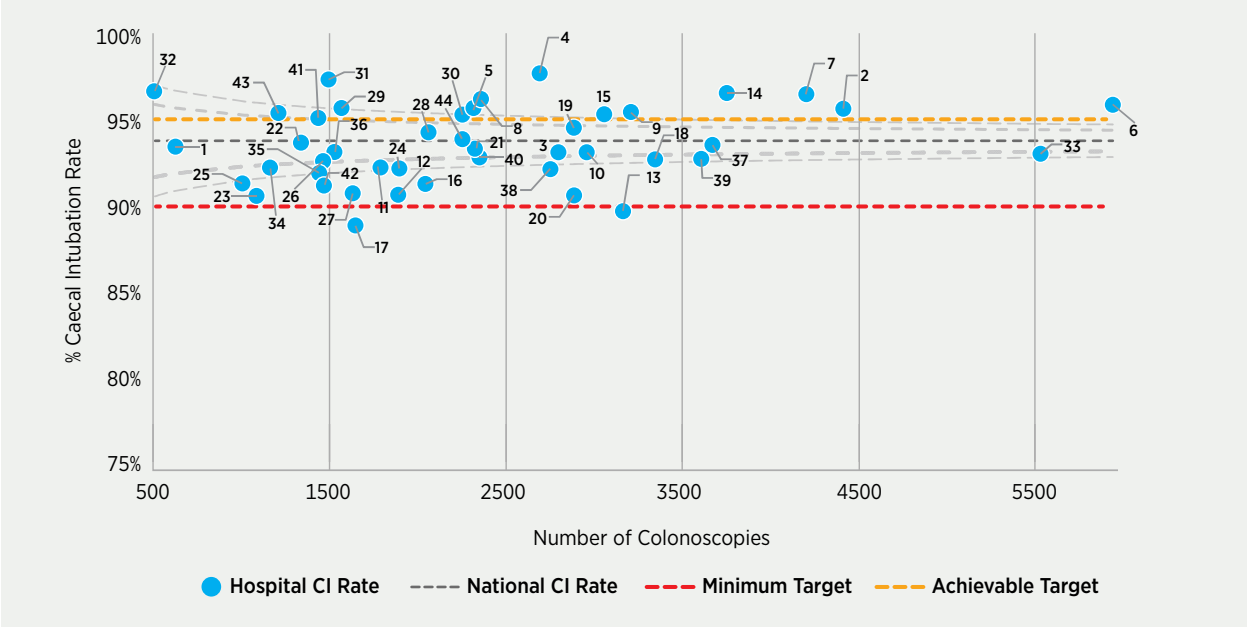
- Minimum Target: 90% of colonoscopy cases should reach the terminal ileum / caecum or anastomosis (adjusted only for obstructing lesions)
- Achievable Target: 95% of colonoscopy cases should reach the terminal ileum / caecum or anastomosis (adjusted only for obstructing lesions)

An Endoscopists CI Rate is calculated based on the number of times the caecum was intubated as Endoscopist 1 or Endoscopist 2 expressed as a percentage of the total number of colonoscopies performed as Endoscopist 1 or Endoscopist 2 combined.

Definitions

Endoscopist 1 (E1):
The clinician who performs the majority of the procedure.
Endoscopist 2 (E2):
A clinician present in the procedure room during the procedure and who also provides some support to the primary Endoscopist (verbal or physical).

FIGURE 6: Caecal Intubation Rate by Hospital*, 2019



**Please Note: IDs shown in this graph refer to the IDs as listed on page 21 of this report and do not reflect IDs used in any previous National Data Reports.*

A NOTE FROM MALLOW GENERAL HOSPITAL

"A caecal intubation rate of 89% was reported for 2019, which is marginally below the 90% minimum target rate. Since the collection and analysis of the 2019 data, this short falling has been addressed and performance has been improved. We are now pleased to state that data for the following reporting period is on course to reflect these local improvements. As a matter of fact, caecal intubation rates in Mallow Hospital for this year, have so far been satisfactory, despite disruptions to the service caused by Covid 19."

Figure 6 shows that 43 of 44 hospitals met the minimum target of 90% of colonoscopies reported to have reached the caecum.

KEY FINDING

43 of 44 hospitals met the minimum target of 90% of colonoscopies reported to have reached the caecum

It has come to the Programme's attention that there were some data coding differences between NQAIS-Endoscopy and the local ERS in at least two sites. This led to "left colonoscopies" being coded as Colonoscopies in NQAIS rather than Flexible Sigmoidoscopies. As is the nature of the procedure, left colonoscopies will not reach the caecum, and statistics for these units will have an artificially low caecal intubation rate. These issues have now been addressed and will further standardise data recording across the country going forward.

The percentage of hospitals reaching the minimum target for caecal intubation rate rose from 83% in 2018 to 98% in 2019, this was notable considering the ongoing process of resolving data collection irregularities. Thirty-five of the 42 hospitals submitting data for 2018 report having reached the minimum target for that year in comparison to the 43 out of 44 hospitals meeting target in 2019.

Fifteen of 44 hospitals reported meeting the achievable target of 95%. This represents 34% of hospitals submitting data for 2019, an increase of 11% on the previous year.

FIGURE 7: Percentage and Number of Endoscopists by Caecal Intubation Rate, 2019

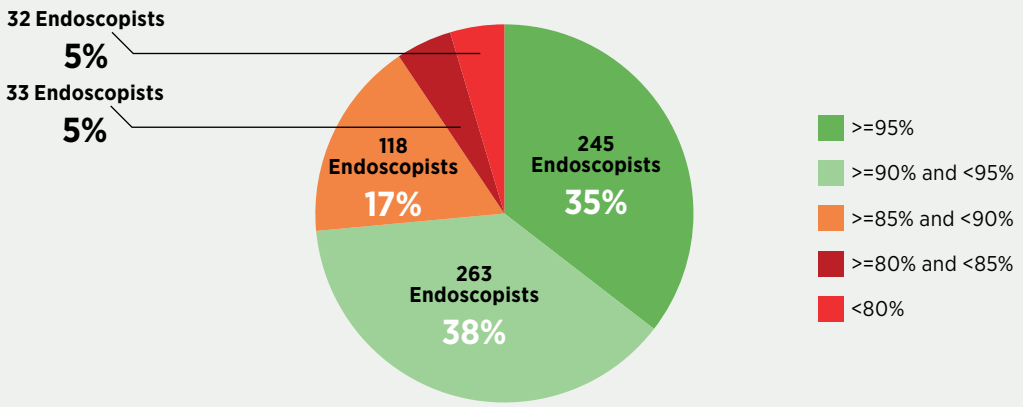
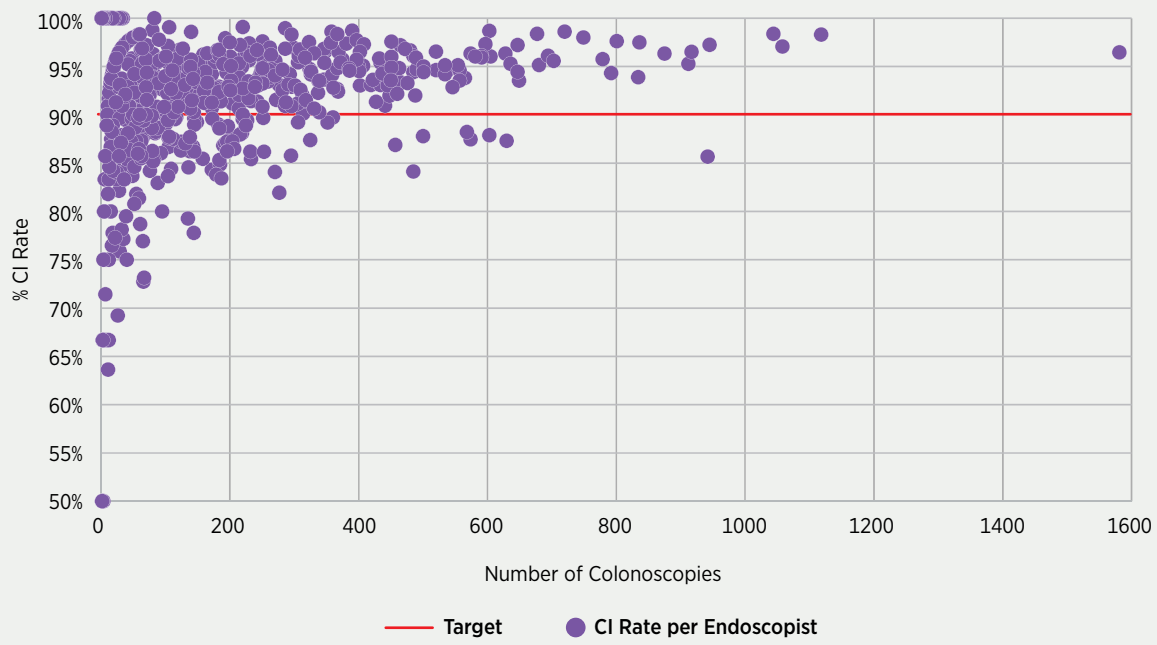


FIGURE 8: Endoscopists by Case Volume and CI Rate*, 2019

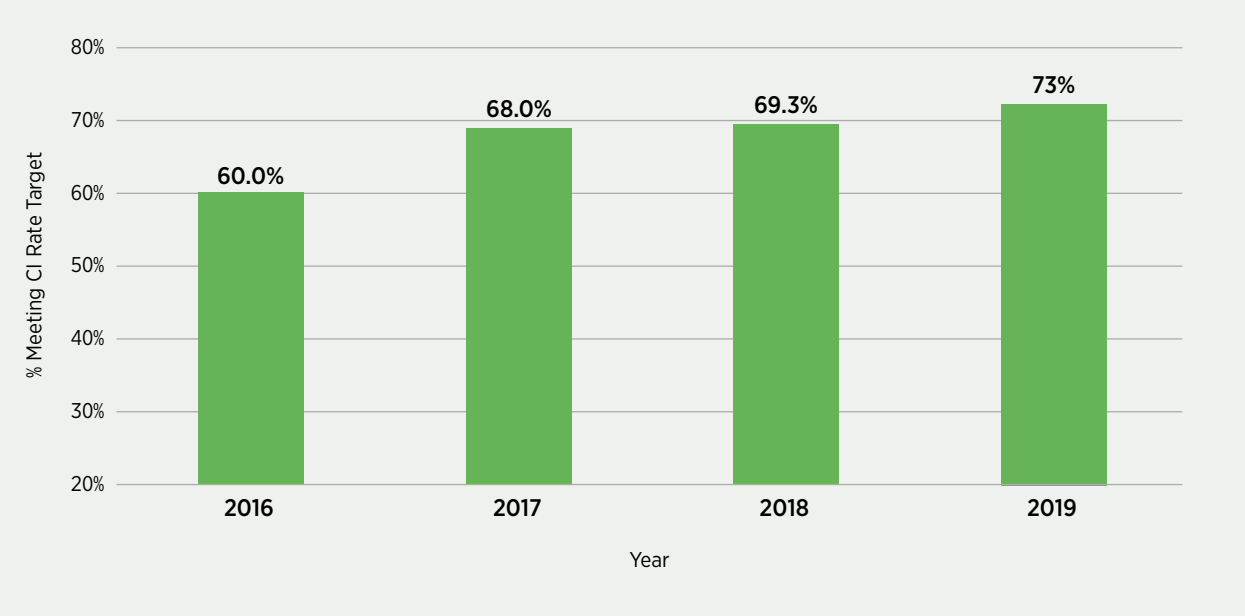


** This graph excludes 2 data points below 50% on the Y-Axis. Both of which have less than 7 procedures on the X-Axis and CI Rates of 10% and 0%.*

The findings reveal that 27.5% of Endoscopists are not reaching the minimum target for this KQI. It is the opinion of the NEQI Working Group that, although this figure is decreasing each year, this continues to represent a significant percentage of Endoscopists. As there is a correlation between the number of procedures performed and the likelihood of meeting the minimum target, the NEQI Working Group suggests that a percentage of this figure is made up of Trainees. For this reason, the Working Group recommends that Trainees should only perform supervised procedures until they can achieve Caecal Intubation independently.

NQAIS-Endoscopy is currently in the process of further development to enable differentiation between Trainees and Consultants.

FIGURE 9: Percentage of Endoscopists Meeting CI Rate Target – Year on Year, 2019



The percentage of Endoscopists reaching the minimum target has risen each year from 2016 to 2019. As shown in **Figure 9**, 73% of Endoscopists have now reached this target, an increase of just over 3% from 2018.

Although it is encouraging that the number of Endoscopists reaching the target for this KQI continues to increase, it is important to remember that while the intubation of the caecum is a good marker of the completeness of a procedure, it does not indicate quality in and of itself. The achieving of this marker can be said to be the foundation of a quality procedure.

This KQI should be viewed in combination with the other KQIs in this report in order to achieve a more accurate picture on the overall quality of procedures performed.

RECOMMENDATION

Trainees should only perform supervised procedures until they can successfully achieve Caecal Intubation independently

4.2) Polyp Detection Rate

Internationally accepted guidelines on colonoscopy performance indicators recommend monitoring direct or proxy markers for detection of suspicious lesions including polyps and adenomas. Due to the inability to link endoscopy and histology reporting systems at this time, the NEQI Programme measures Polyp Detection Rates rather than measuring direct adenoma detection rates. International standards suggest that polyps can be expected in at least 20% of cases.

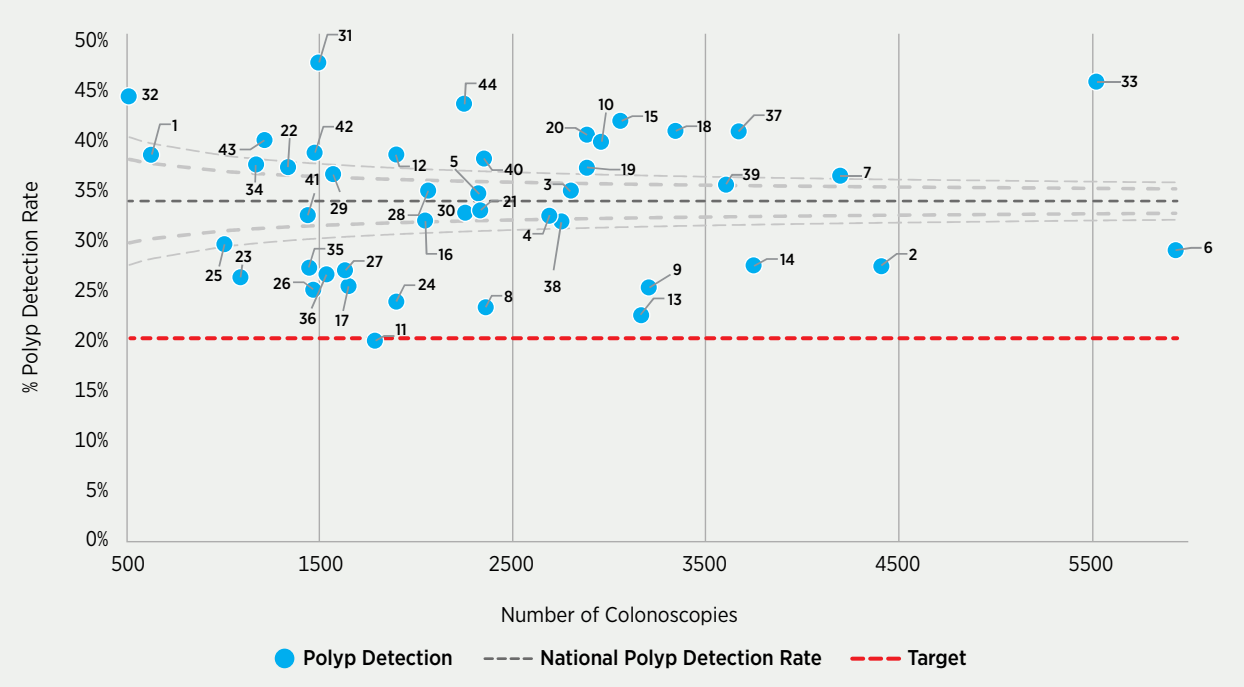
Key Quality Indicator:

- Number of colonoscopies with polyps detected expressed as a percentage of total colonoscopies per Endoscopist

Key Quality Target:

- ≥ 20% of all colonoscopies should have a polyp(s) detected

FIGURE 10: Polyp Detection Rate by Hospital*, 2019



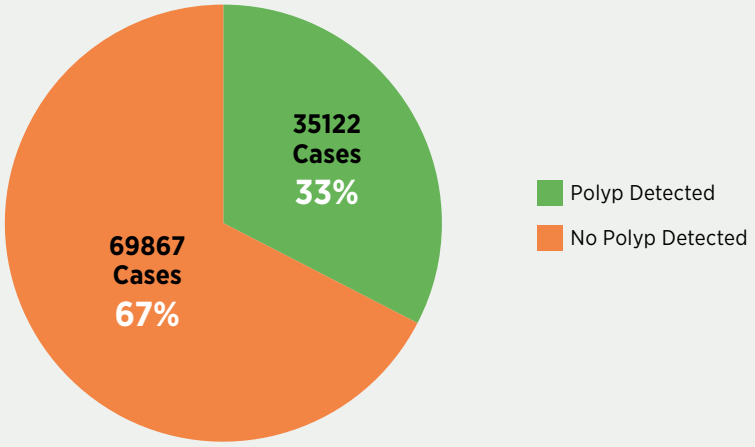
**Please Note: IDs shown in this graph refer to the IDs as listed on page 21 of this report and do not reflect IDs used in any previous National Data Reports.*

Figure 10 illustrates that all 44 hospitals submitting data for 2019 are meeting the Polyp Detection target of at least 20% of colonoscopies having a polyp detected. This represents an increase from 2018 when one unit did not meet the target.

In the first year of national reporting in 2016, three hospitals were not meeting the target. Over the past four years each of these hospitals have now progressed to meet the target.

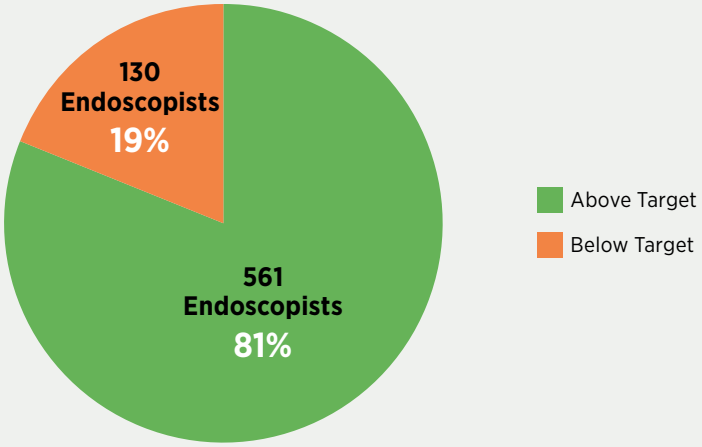
This may represent a quality improvement in the standardisation of data recording techniques. It had previously been reported that some versions of Endoscopy Reporting Systems did not have the fields required to calculate this KQI as mandatory selections. It appears that this has now been rectified as data recording standards continue to improve as units become more familiar with the Programme's requirements.

FIGURE 11: Percentage and Number of Cases Where at least one Polyp Was Detected, 2019



Due to the current inability to link endoscopy and histology reporting systems, the NEQI Programme measures Polyp Detection Rates rather than measuring direct adenoma detection rates.

FIGURE 12: Percentage and Number of Endoscopists Above and Below Polyp Detection Target, 2019

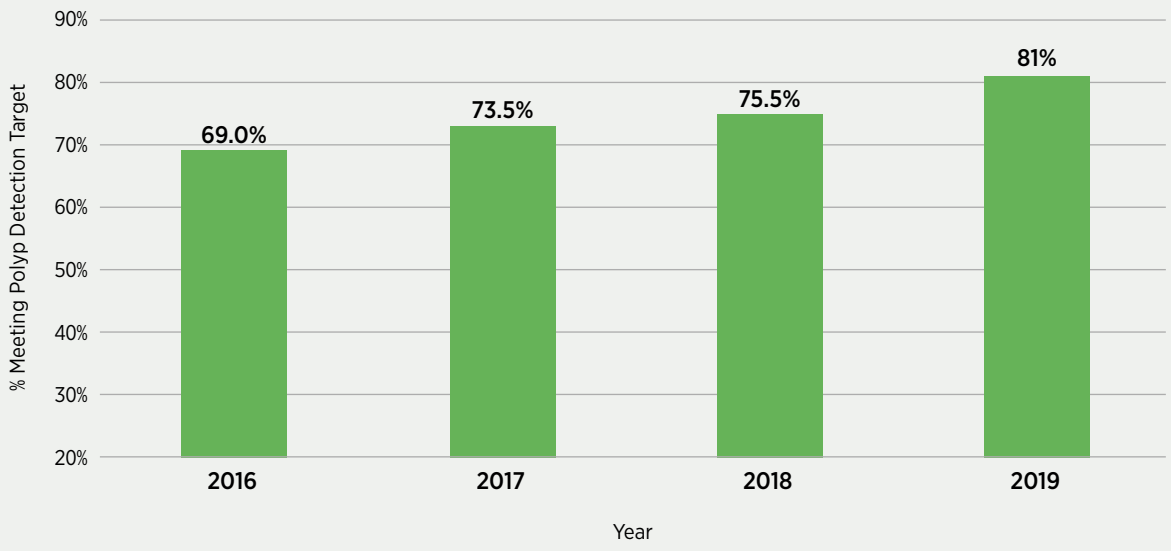


The high proportion of hospitals reaching the minimum target for Polyp Detection is reflected in the number of individual Endoscopists who are meeting the target for this KQI. This figure now stands at 81%, up 5% from 76% in 2018 (**Figure 13**). This figure has continuously increased from the first National Data Report in 2016 when 69% of Endoscopists were meeting this target.

KEY FINDING

33% of colonoscopies nationally had at least one polyp detected in 2019, this is compared to 32% for the same time period in 2018

FIGURE 13: Percentage of Endoscopists Meeting Polyp Detection Target – Year on Year, 2016 - 2019



The NEQI Programme advises the use of Polyp Detection as a proxy indicator of quality with the current systems inability to record national adenoma detection rates. This will not be possible until hospital systems for endoscopy and histology are integrated. Studies suggest that Polyp Detection is a good proxy marker in the current situation and hospitals are encouraged to review their local adenoma detection rate figures against Polyp Detection statistics from NQAIS-Endoscopy to confirm the correlation.

RECOMMENDATION

Adenoma detection rates should be reviewed in parallel with Polyp Detection rates in each hospital through local reviews by the hospital's Endoscopy Users Group.

4.3) Comfort Score

Patient comfort during a colonoscopy, is central to the NEQI programme objective of enhancing the provision of quality care to patients. The Programme proposes using the modified Gloucester Scale as shown below in order to measure Comfort Score.

Gloucester Scale

1 - No discomfort - resting comfortably throughout.
2 - Minimal - One or two episodes of mild discomfort, well tolerated.
3 - Mild - More than two episodes of discomfort, adequately tolerated.
4 - Moderate - Significant discomfort, experienced several times during the procedure.
5 - Severe - Extreme discomfort, experience frequently during the procedure.

Updated Key Quality Indicator:

From January 2021 Comfort Score will be calculated using the number of colonoscopies with a Comfort Score of one, two or three expressed as a percentage of the total number of colonoscopies performed by each Endoscopist.

This is a change from the previous comfort score target of 80% of colonoscopies with a comfort score of 1 or 2. This change has been undertaken to bring the QI Guidelines in line with international standards.

The Comfort Score target is now ≥90% of colonoscopies with Comfort Score of one to three.

Update to Key Quality Indicator

In accordance with the latest version of the NEQI Guidelines, Comfort Score is now calculated by expressing the number of colonoscopies performed with a Comfort Score of 1 to 3 as a percentage of the total number of colonoscopies performed by an Endoscopist (as Endoscopist 1 or Endoscopist 2).

Data are also presented based on a combined Comfort Score for all procedures performed within each hospital. Comfort Score should be provided by an Endoscopy nurse at the time of the procedure and agreed with the Endoscopist before submission to the ERS. In cases where there is a difference of opinion regarding the score, an additional healthcare professional present will be consulted.

Key Quality Indicator:

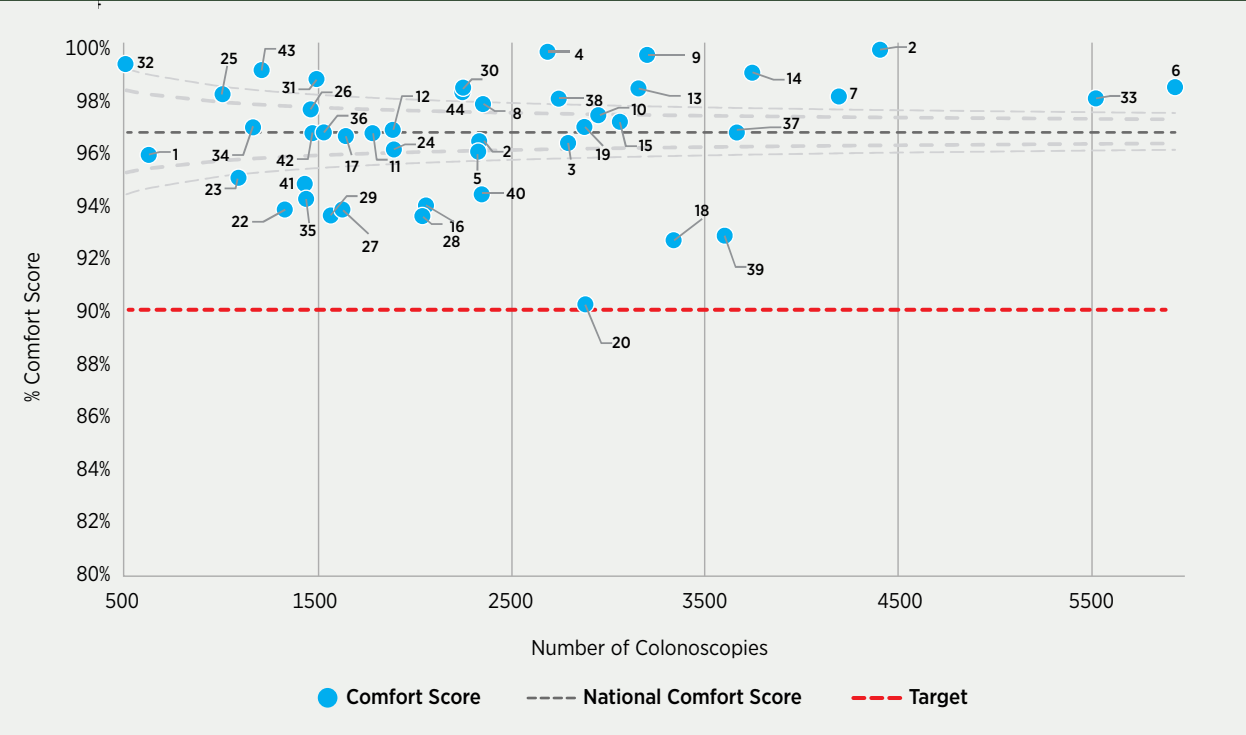
- Percentage of colonoscopies performed with a comfort score of 1 to 3 per Endoscopist

Key Quality Target:

- ≥90% of colonoscopies performed should have a comfort score of 1 to 3

Comfort Score should be provided by an Endoscopy Nurse at the time of the procedure and agreed with the Endoscopist before submission to the Endoscopy Reporting System.

FIGURE 14: Comfort Score by Hospital*, 2019



**Please Note: IDs shown in this graph refer to the IDs as listed on page 21 of this report and do not reflect IDs used in any previous National Data Reports.*

All 44 hospitals have met the revised Comfort Score target for 2019 (**Figure 14**). Due to differences in case mix and demographics Comfort Score should not be directly compared between hospitals. Where hospitals are scoring well outside the national average it is important that each unit check their scores against local practice and data recording methods in order to verify their scores. Hospitals should ensure that their Comfort Score definitions are aligned with the modified Gloucester Scale outlined on page 36.

The national aggregated Comfort Score is 96%. **Figure 15** shows that 96% of colonoscopies performed in Ireland in 2019 had a Comfort Score of one, two or three. This remains unchanged from the same period in 2018.

FIGURE 15: Percentage and Number of Cases by Comfort Score, 2019

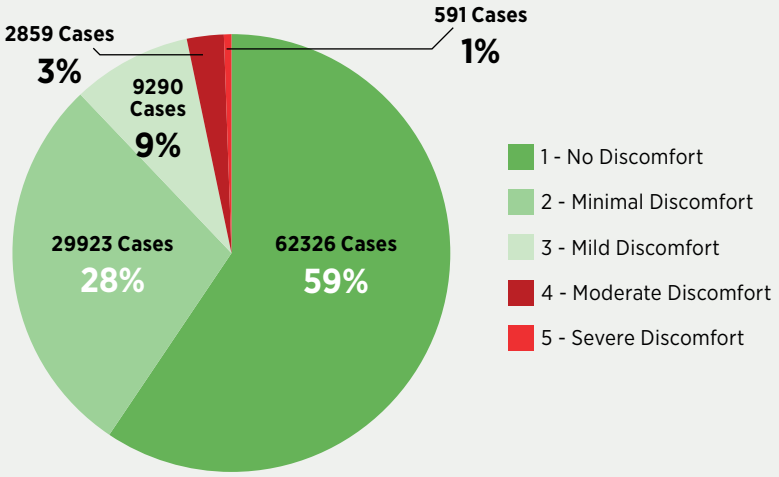
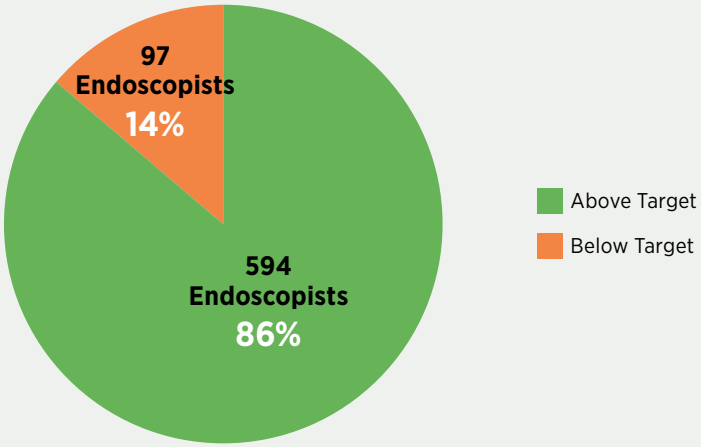


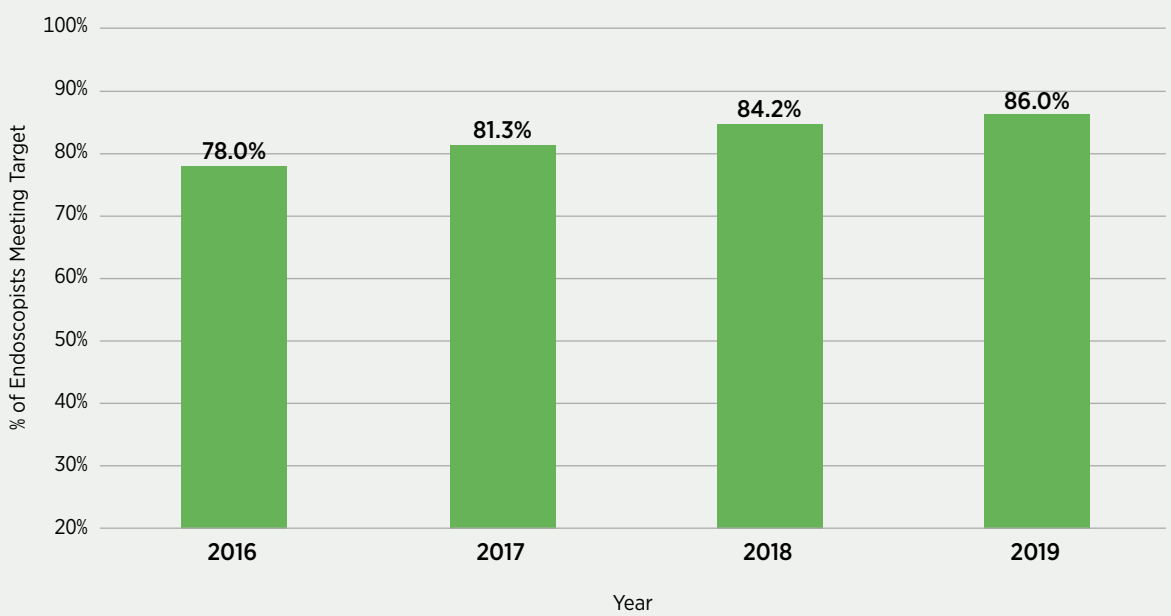
FIGURE 16: Percentage and Number of Endoscopists Above and Below Comfort Score Target, 2019



Over the previous four years the number of Endoscopists meeting the target has increased by 8%, from 78% in 2016 to 86% in 2019 (**Figure 17**). This represents an increase of 2% from the previous year. Comfort Score has seen a small increase year on year from 2016 onwards.

It is the recommendation of the NEQI Working Group that Endoscopists should endeavour to adhere to the definitions of comfort set out in this report and the NEQI Guidelines. It is also recommended that adjunctive methods can be utilised by Endoscopists to increase Comfort Score and enhance the patient experience. These include the use of carbon dioxide, water, insufflation and changing the patient's position.

FIGURE 17: Percentage of Endoscopists Meeting Comfort Score Target*, Year on Year, 2016 - 2019



**The year on year analysis in this graph uses the updated Comfort Score target and is compared to the same updated Comfort Score data for the corresponding period of previous years.*

KEY FINDING

In 2019 96% of colonoscopies had a comfort score of 1 to 3 nationally. This remains unchanged from 2018.

RECOMMENDATION

Adjunctive methods to improve Comfort Score should be considered, including use of carbon dioxide insufflation, water, and changing the patient's position.

RECOMMENDATION

Endoscopists should adhere to the definitions of Comfort Score set out in this report and the NEQI Guidelines in order to standardise data collection nationally.

4.4) Bowel Preparation

Effective bowel preparation is critical to ensure a detailed visual examination of the bowel. To date no single bowel preparation for colonoscopy has emerged as consistently superior over another. Good bowel preparation supports improved polyp detection and caecal intubation. Poor bowel preparation is associated with failure to reach the caecum and hinders the detection of lesions.

Bowel Preparation Definitions

Excellent: No or minimal solid stool and only clear fluid requiring suction
Adequate: Collections of semi-solid debris that are cleared with washing/suction
Poor: solid or semi-solid debris that cannot be cleared

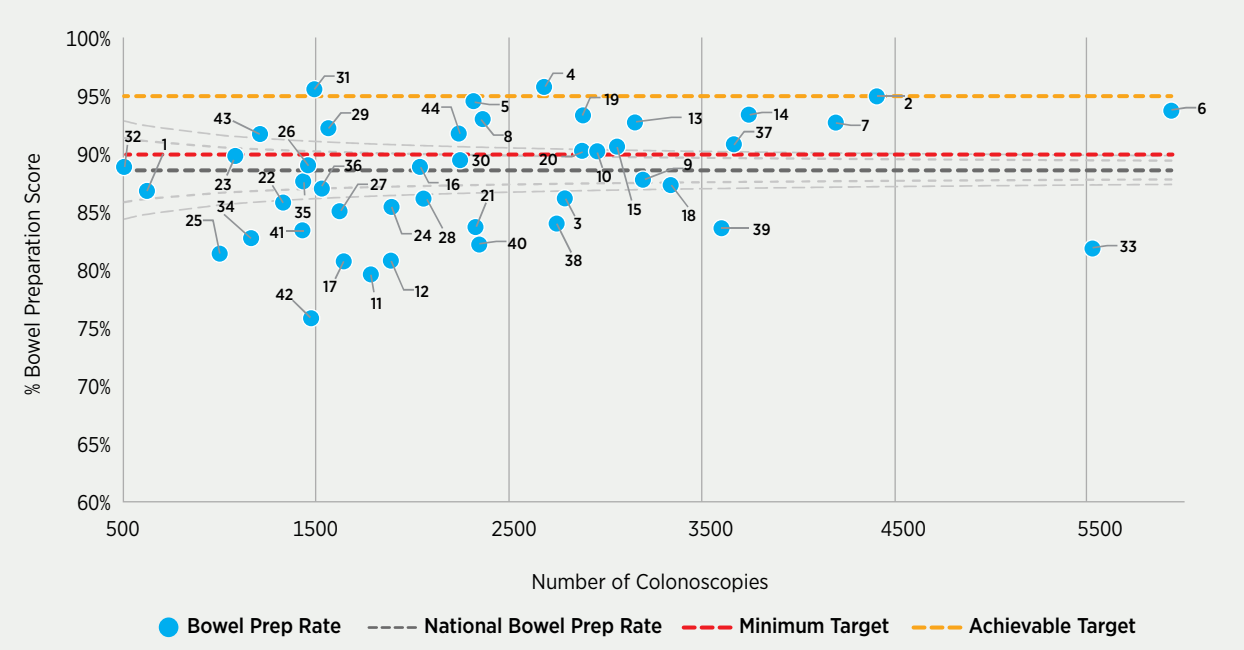
Key Quality Indicator:

- Total number of colonoscopies with Adequate and Excellent scores, as defined above, expressed as a % of all colonoscopies performed

Key Quality Target:

- Minimum: Bowel preparation described as excellent or adequate, as defined above in ≥90% of colonoscopies
- Achievable: Bowel preparation described as excellent or adequate, as defined above in ≥95% of colonoscopies

FIGURE 18: Bowel Preparation Score by Hospital*, 2019



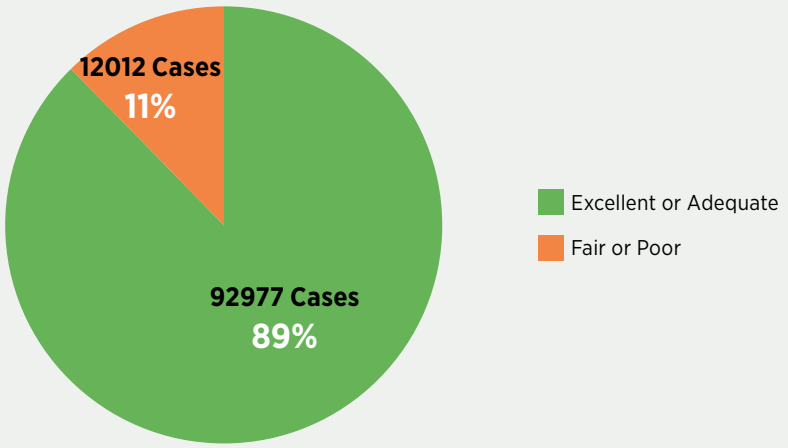
**Please Note: IDs shown in this graph refer to the IDs as listed on page 21 of this report and do not reflect IDs used in any previous National Data Reports.*

In 2019, 17 of 44 hospitals met the NEQI Programme target for Bowel Preparation (**Figure 18**). This represents 39% of hospitals in the Programme in comparison to 33% (14/42) of hospitals meeting the target in 2018 and 39% (15/38) in 2017.

Approximately two thirds of hospitals are not meeting the target for Bowel Preparation each year since 2017.

This KQI can be regarded as subjective in nature however, it is the opinion of the Working Group that low bowel preparation scores could potentially be attributed to a wide range of factors. These factors vary from data entry, differences in practice to differences in patient demographic. As with the other KQIs, direct comparisons should not be made between hospitals' scores for these reasons.

FIGURE 19: Percentage and Number of Cases by Bowel Preparation Score (01/01/2019 to 31/12/2019)



When viewed from the perspective of the overall number of national cases **(Figure 19)** we see that 89% of colonoscopies have a bowel preparation score of "excellent" or "adequate". This puts the national Bowel Preparation Rate one percent below the NEQI Programme minimum target of 90%.

It is the recommendation of the NEQI Programme that low bowel preparation scores should be investigated locally. As the majority of hospitals are not meeting the target for this KQI, the NEQI Working Group believes that these low bowel preparation scores highlight the need for pre-assessment.

With almost two thirds of hospitals not meeting the target for this KQI, the national Bowel Preparation rate is 1% below the minimum KQI Target of ≥90% of colonoscopies with a Bowel Preparation rating of Excellent or Adequate

RECOMMENDATION

Bowel Preparation scores below the minimum target of ≥90% of colonoscopies with a Bowel Preparation Score of Excellent or Adequate should be used to highlight the importance of a pre-assessment nurse and good clinical triage for each unit.

FOCUS ON: BOWEL PREPARATION QUALITY IMPROVEMENT INITIATIVES

WEXFORD GENERAL HOSPITAL - *Rolling Audit on Bowel Preparation Quality 2013-2019*

An annual rolling audit on the quality of Bowel Preparation has been carried out over 7 years using NQAIS-Endoscopy data. Good bowel preparation supports improved polyp detection and caecal intubation. Poor bowel preparation is associated with failure to reach the caecum and hinders the detection of lesions. (QI Guidelines for NEQI Programme, 2017)

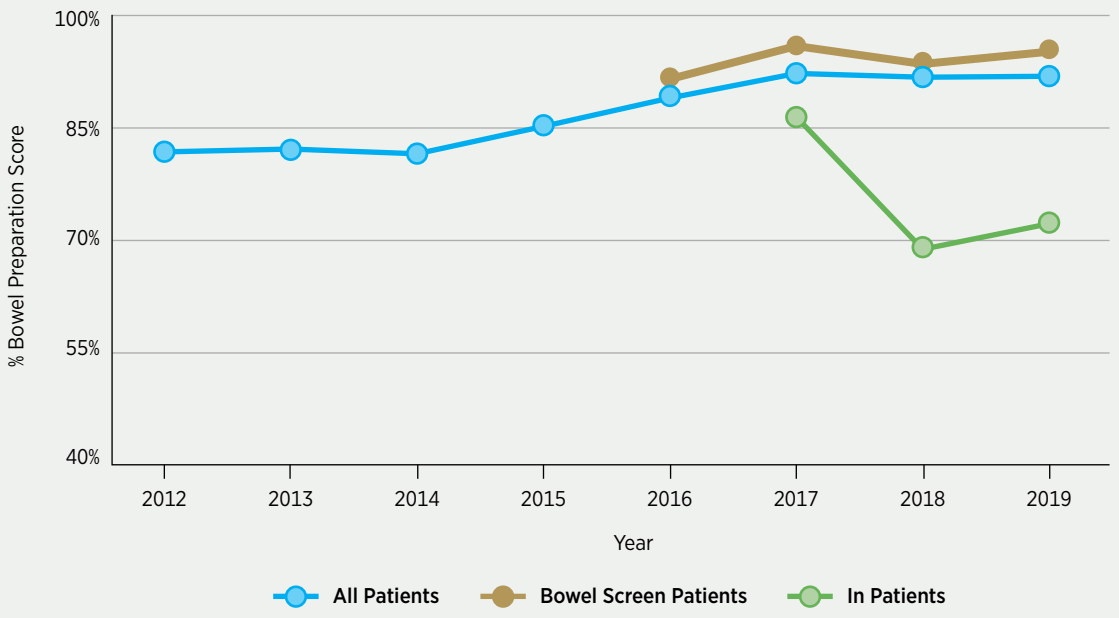
An overall 10% improvement in the quality of bowel preparation has been achieved.

Aims/Objectives: To achieve the minimum target of 90% of Bowel preparation described as excellent or adequate subsequently leading to improved polyp detection rates and caecal intubation rates.

Implementation: NQAIS–Endoscopy data was compiled and evaluated on an annual basis. It was recognised that the minimum target of excellent or adequate bowel preparation results were not reached in 2013. Patients were analysed in 3 groups: Inpatient group, BowelScreen group and symptomatic service group. A number of improvements were implemented since 2013 including changes of preparation product, preparation administration regime, information and education for patient and staff.

Evaluation/Outcomes: An overall improvement rate of 10% was achieved reaching excellent or adequate bowel preparation quality. Inpatient bowel preparation quality remains poor. This is well recognised due to likely multiple comorbidities and current acute medical condition in this group. Going forward the aim is to achieve the minimum target in the inpatient group, achievable target of >95% in the symptomatic group and maintain >95% in the BowelScreen group. Furthermore, this data may support the value of one to one advice on Bowel preparation that BowelScreen patients receive in addition to written information.

FIGURE 20: Excellent & Adequate Bowel Preparation Quality Comparison of Patient Groups: All Patients, BowelScreen Patients, In- Patients



Conclusion: The use of NQAIS-Endoscopy data aids us to audit, analyse and implement improvements resulting in mastering our KPI's ultimately enhancing patient and service outcomes

UL HOSPITALS GROUP

In terms of quality improvement at ULHG we have introduced pre-screening for endoscopy patients as part of the COVID management strategy. This initiative has led to the welcome additional benefits of improved bowel preparation, reduction in both non-attendance and in medication related problems on the day of procedures. We hope to make this a permanent feature. Also of note is that Ennis Hospital and Nenagh Hospital are having their existing endoscopes replaced with the latest endoscopes which we hope will bring about a further incremental improvement in endoscopy quality at ULHG.

5

UPPER GI ENDOSCOPY

5. Upper GI Endoscopy

An Upper GI Endoscopy or Oesophagogastroduodenoscopy (OGD) is a procedure used to diagnose and treat problems in the upper GI (gastrointestinal) tract. The upper GI tract includes the oesophagus, stomach, and the duodenum. A number of hospitals are referral centres for oesophageal and gastric disorders, where reaching the landmarks required for KQIs in this report is not the intention of the procedure. Endoscopy Reporting Systems are currently unable to differentiate these procedures and as such the NQAIS-Endoscopy data will include this data. This further highlights the importance of not directly comparing hospitals in this report.

OESOPHAGOGASTRODUODENOSCOPIES (UPPER GI)	
Duodenal 2nd Part Intubation (Duo 2)	≥95%
Retroflexion	≥95%

5.1) Duodenal Second Part Intubation

Duodenal Second Part (Duo2) Intubation is an important quality measure of the completeness of this procedure. In order to perform an upper GI Endoscopic procedure, the endoscope should be passed through the pylorus to examine the first and second parts of the duodenum.

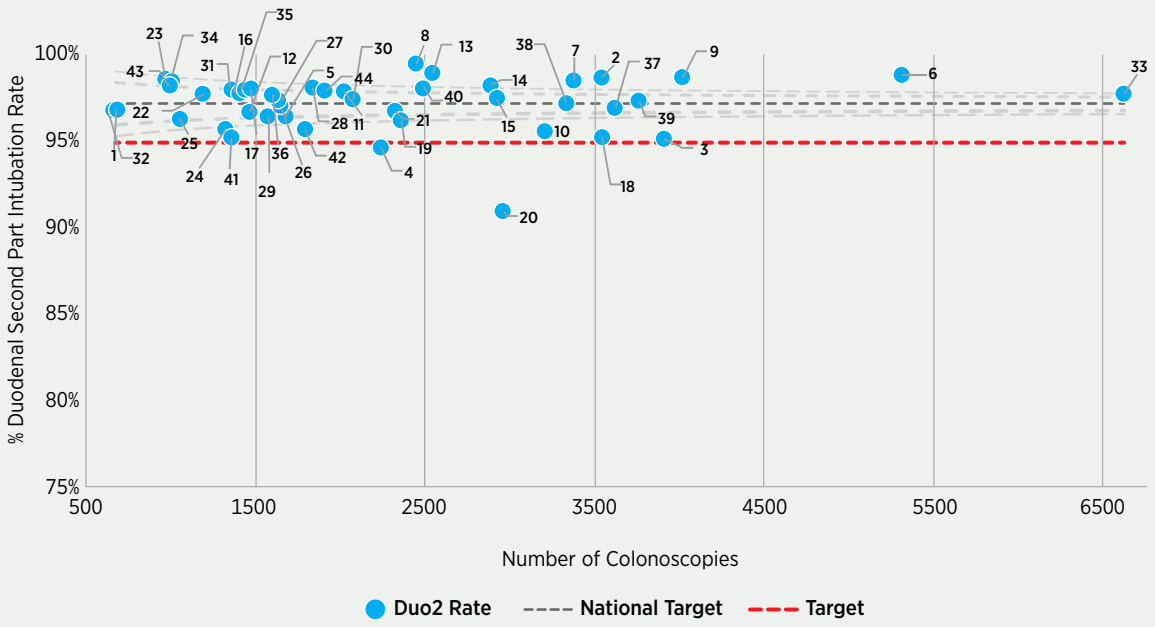
Key Quality Indicator:

- Number of cases in which Duodenal Second Part Intubation was achieved, expressed as a % of total OGD cases per Endoscopist

Key Quality Target:

- Intubation of Duodenum Second Part in ≥95% of cases

FIGURE 21: Duodenal Second Part Intubation Rate by Hospital*, 2019



**Please Note: IDs shown in this graph refer to the IDs as listed on page 21 of this report and do not reflect IDs used in any previous National Data Reports.*

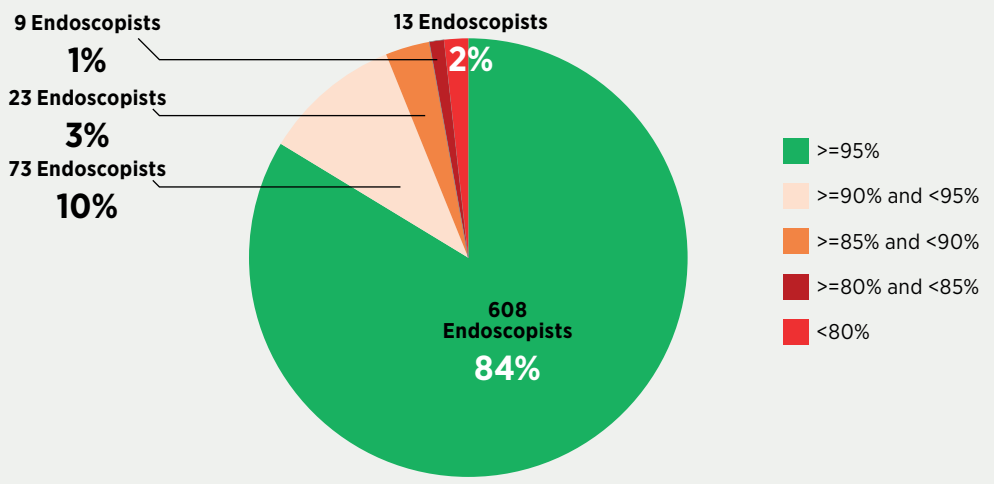
A NOTE FROM MERCY UNIVERSITY HOSPITAL CORK (MUHC)

The MUHC quality improvement data for the 2019 year will not be reflective of practice for the Retroflexion and Duodenal Second Part Intubation KQIs. The Endoscopy Reporting System currently in use permits the completion of a data entry without marking the fields for Retroflexion and Duodenal Second Part Intubation. Given the routine nature of these manoeuvres we believe that that the scores for these KQIs reflect a data collection issue. We intend to rectify this issue ahead of future reports.

Figure 21 reveals that 43 of 44 (98%) hospitals met the target for Duodenal Second Part Intubation in less than or equal to 95% of OGDs performed in 2019. This is an increase from 90% (38/42 hospitals) in 2018 and 84% (32/38 hospitals) in 2017.

As outlined in previous reports, certain issues persist in relation to data collection as some ERS do not require mandatory selection of the duodenal second part intubation section. Consequently, the Working Group acknowledges that units remaining below the target may be encountering similar issues and this is unlikely to be reflective of clinical practice in that unit.

FIGURE 22: Percentage and Number of Endoscopists by Duodenal Second Part Intubation Rate, 2019



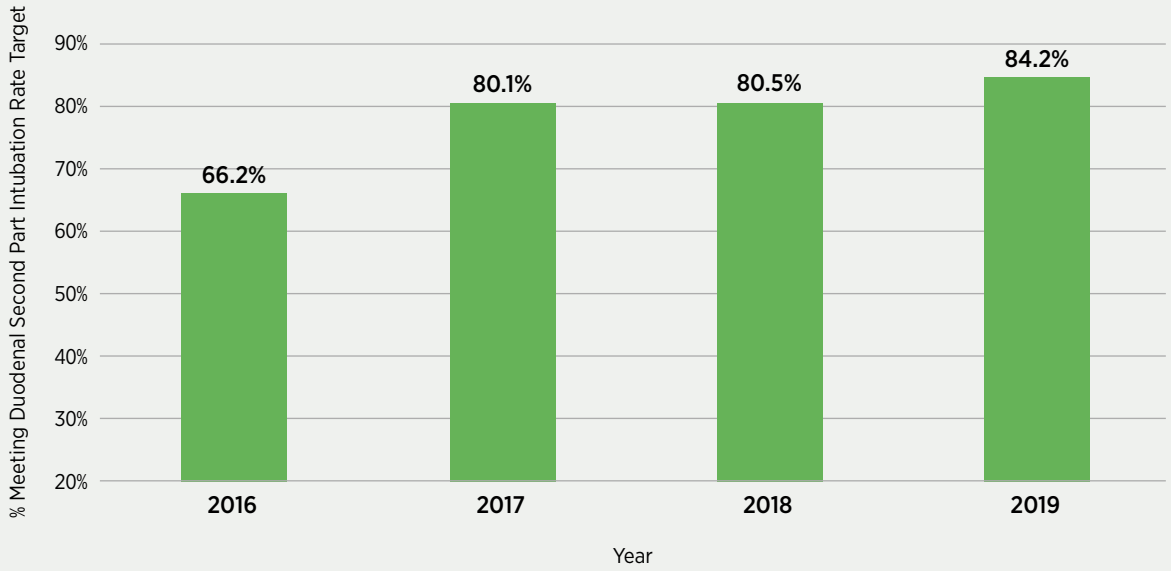
In 2019, 84% of Endoscopists met the target for Duodenal Second Part Intubation. This is an increase of 3.5% from 80.5% in 2018 and 80% in 2017. However, this report reveals that 6% of Endoscopists had a Duodenal Second Part Intubation Rate of less than 90%.

As the intubation of the second part of the duodenum is seen to be a routine manoeuvre in Upper GI procedures, the target of 95% aims to take into account the minimal circumstances whereby the second part of the duodenum would not be intubated. As such, any scores less than the target should be checked against local hospital data and acted upon according to local hospital policy.

KEY FINDING

84% of Endoscopists met the Duodenal Second Part Intubation Target, this is a 4% increase on the percentage who met the target in 2018. However, 6% of Endoscopists had a Duodenal Second Part Intubation rate of less than 90%.

FIGURE 23: Percentage of Endoscopists Meeting Duodenal Second Part Intubation Target, Year on Year, 2016 - 2019



5.2) Retroflexion

Retroflexion, also known as the J manoeuvre, allows for a full view and inspection of the cardia and fundus of the stomach during an OGD. It is an important indicator of the quality and completeness of an upper GI endoscopic procedure.

Key Quality Indicator:

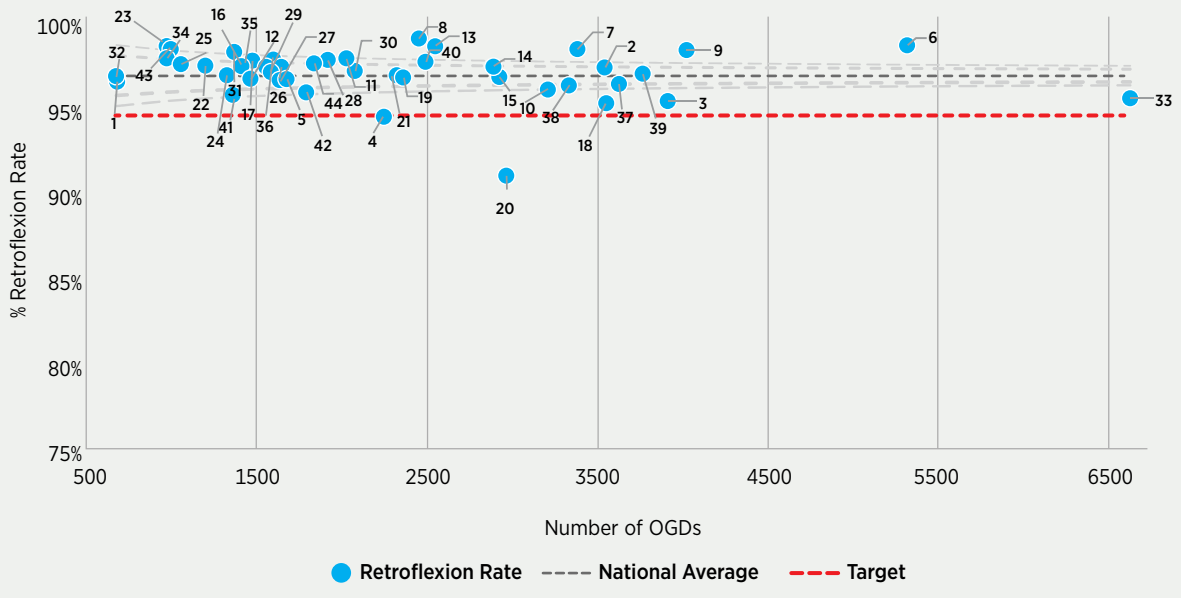
- Number of cases in which retroflexion was performed expressed as a percentage of all OGD cases per Endoscopist

Key Quality Target:

- Retroflexion (J manoeuvre) in stomach to visualise fundus in ≥ 95% of cases

Similar to the statistics presented in the previous section, 43 of 44 hospitals met the target of more than or equal to 95% of OGDs having recorded a retroflexion or J-Manoeuvre (**Figure 24**).

FIGURE 24: Retroflexion Rate by Hospital*, 2019



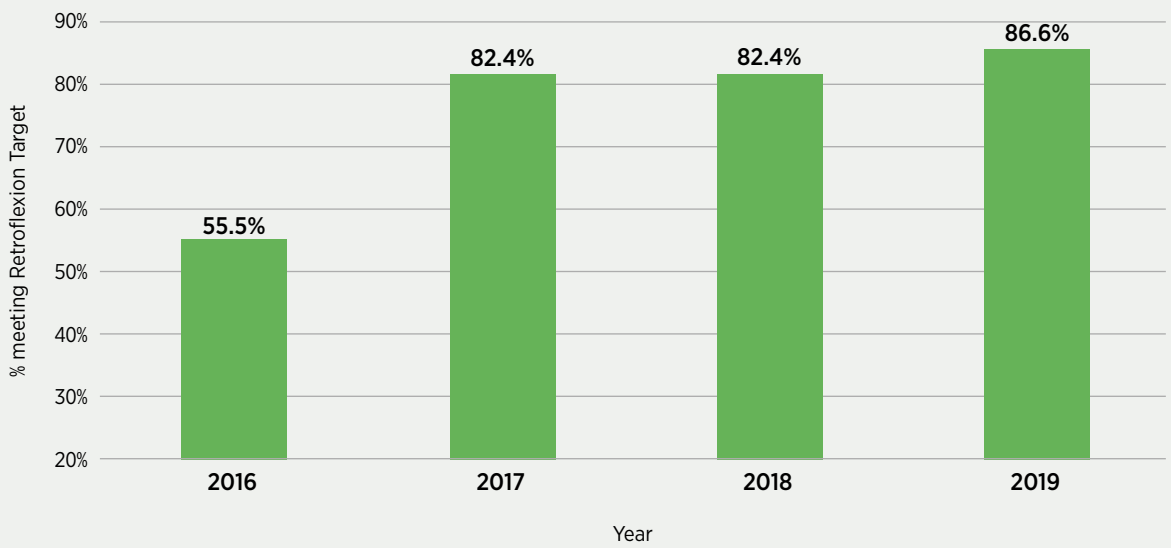
**Please Note: IDs shown in this graph refer to the IDs as listed on page 21 of this report and do not reflect IDs used in any previous National Data Reports.*

It is recommended that all units ensure that their Endoscopy Reporting Systems are up to date and are collecting the QI data required for the National GI Endoscopy Quality Improvement Programme.

Data has matured considerably since the 2016 National Data Report when only 13 of 35 hospitals participating in the Programme met the target for that year.

Report findings reveal that 87% of Endoscopists met this target in 2019, an increase of 5% from 2018 and in 2017 when 82% of Endoscopists were recorded as having met the target (**Figure 25**).

FIGURE 25: Percentage of Endoscopists Meeting Retroflexion Target, Year on Year, 2016 – 2019



RECOMMENDATION

Hospitals should ensure that their Endoscopy Recording System (ERS) is up to date and that the ERS requires mandatory recording of QI data. Software vendors should be engaged to ensure this functionality is present.

6

SEDATION

6. Sedation

SEDATION	TARGET	ADDITIONAL INFORMATION
Midazolam	**Patients Aged below 70 years:** Median dose is ≤5mg administered per Endoscopist **Patients Aged above 70 years** Median dose is ≤3mg administered per Endoscopist	This KQI applies to both Colonoscopies and OGDs.
Fentanyl	**Patients Aged below 70 years:** Median dose is ≤100mg administered per Endoscopist **Patients Aged above 70 years** Median dose is ≤50mg administered per Endoscopist	This KQI applies to both Colonoscopies and OGDs.

The discomfort experienced by patients during an endoscopy procedure can be minimised by careful patient preparation and sedation. Sedation improves the patient's tolerance of an endoscopy procedure, however, excessive sedation is considered a leading contributor to cardio-respiratory deaths following endoscopy in high-risk patients. This is particularly relevant for older patients (those greater than or equal to 70 years of age) where the median level of sedation should be approximately half the dose of that administered to patients under the age of 70.

Pain control requires the administration of specific analgesic agents; most commonly fentanyl or pethidine.

In cases where a patient has multiple endoscopy procedures in one patient visit, the following recording practices should be employed:

1. Procedure A's record should have the type and quantity of sedation that was administered at the time of the Procedure A.
2. Procedure B's record should have the type of sedation administered for Procedure A AND the type and quantity of sedation that was administered for Procedure B.

KEY FINDING

79% of Endoscopists are meeting the median target administered dose with midazolam usage with patients aged 70 and older. This represents a 7% increase in the percentage of Endoscopists who met the target in 2018.

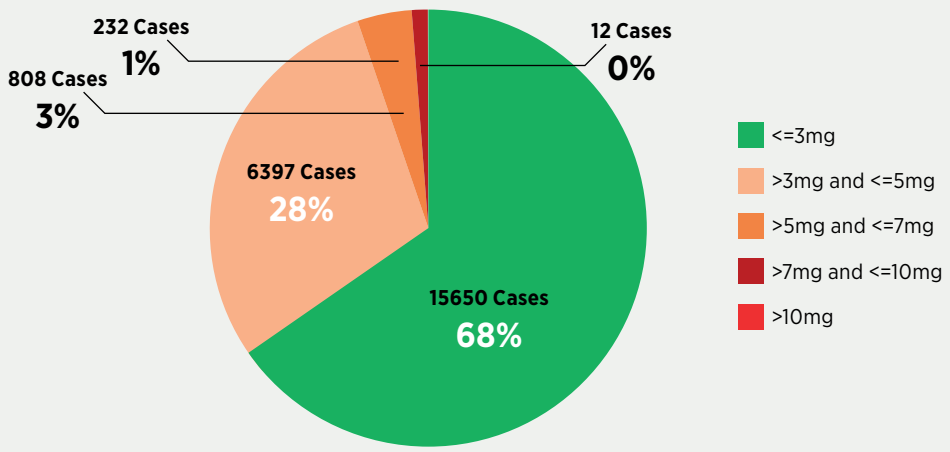
6.1) Sedation – Colonoscopy

As the most common type of sedative used in colonoscopies, midazolam usage is the main focus of the sedation chapter of this report.

When analysing the sedation data, it is important to remember that sedation targets are set on a median basis and not an average as per other Key Quality Indicators. The NEQI Programme utilises the median value for these KQIs as the average for these statistics is easily skewed by extreme and unusual cases and can more effected by case mix. For this reason, the Programme looks at the median value rather than the average when reporting on this KQI.

Given that sedation presents increased risk for older patients, the analysis here focuses on patients aged 70 years and over.

FIGURE 26: National midazolam Doses for Colonoscopies with Patients Aged 70 Years and Older, 2019



In 2019, 68% of colonoscopies performed on patients aged 70 years and older received the median target dose of less than or equal to 3mg of midazolam **(Figure 26)**.

FIGURE 27: Median Doses in Patients Aged 70 Years and Older – Percentage of Colonoscopies per Hospital, 2019

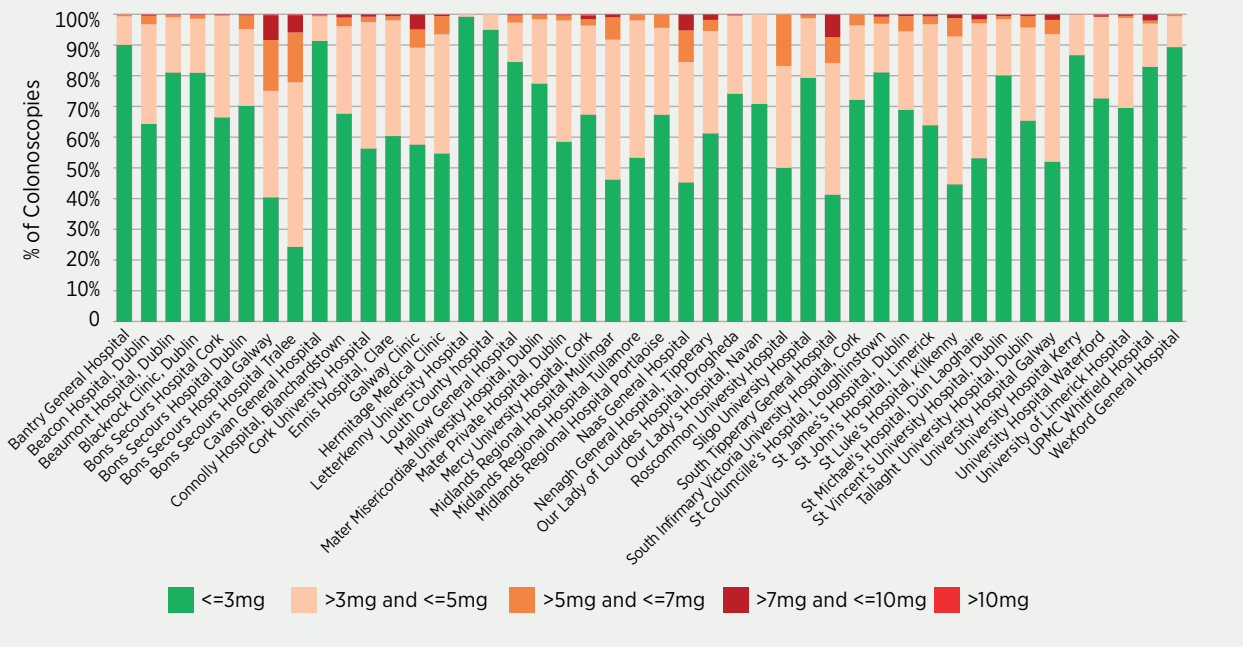
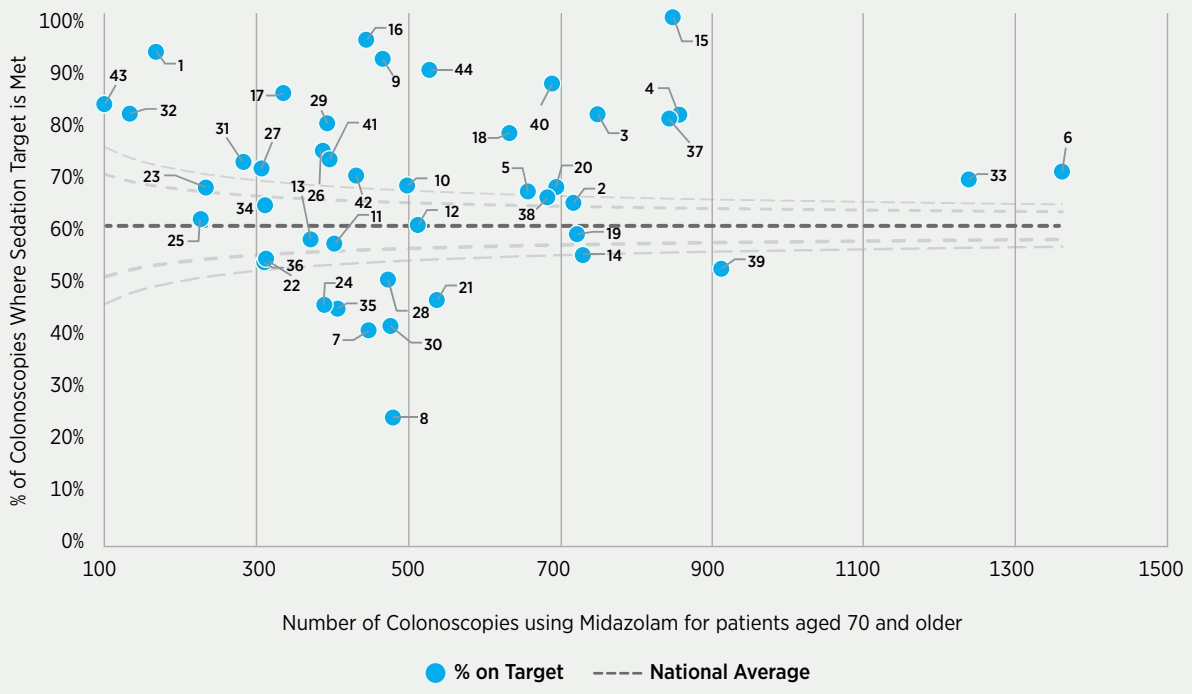


Figure 27 shows each hospitals midazolam use by midazolam dose as a percentage of colonoscopies where midazolam was used. In this graph the green bars represent the percentage of colonoscopies where patients aged 70 years and older received less than or equal to 3mg of midazolam.

The NEQI Working Group recommend that Endoscopists should endeavour to administer a lower dose of midazolam to patients aged 70 years and older, approximately half the dose administered to patients under the age of 70, as per NEQI Guidelines. This continues to present an opportunity to improve practice by standardising the approach to administration of midazolam.

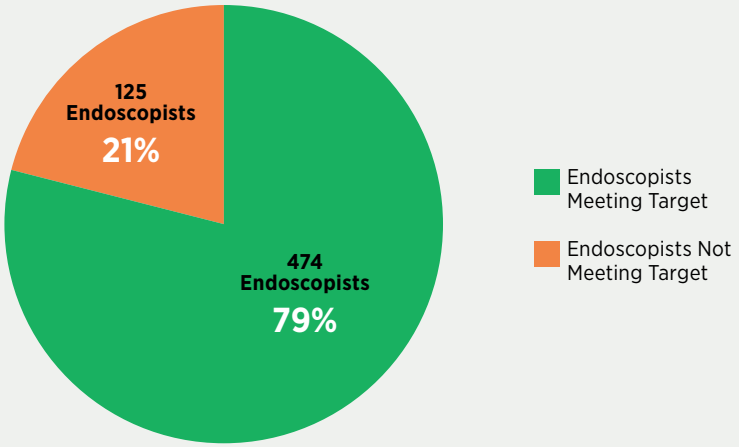
FIGURE 28: Percentage of Colonoscopies for Patients Aged 70 and Older Where Sedation Target is Met per Hospital*, 2019



**Please Note: IDs shown in this graph refer to the IDs as listed on page 21 of this report and do not reflect IDs used in any previous National Data Reports.*

Figure 28 shows the percentage of colonoscopies performed with patients aged 70 years and older where the dose of midazolam administered was less than or equal to 3mg, calculated as a percentage of all colonoscopies performed on that cohort, per hospital. This graph shows similar statistics to those presented in **Figure 27** while taking the number of procedures performed in each hospital into account. **Figure 28** highlights the variation in the percentage of cases meeting target for this KQI in each hospital. Although the national average of procedures where the median target dose was administered is 60%, the range of individual hospital scores varies from 24% to 99%.

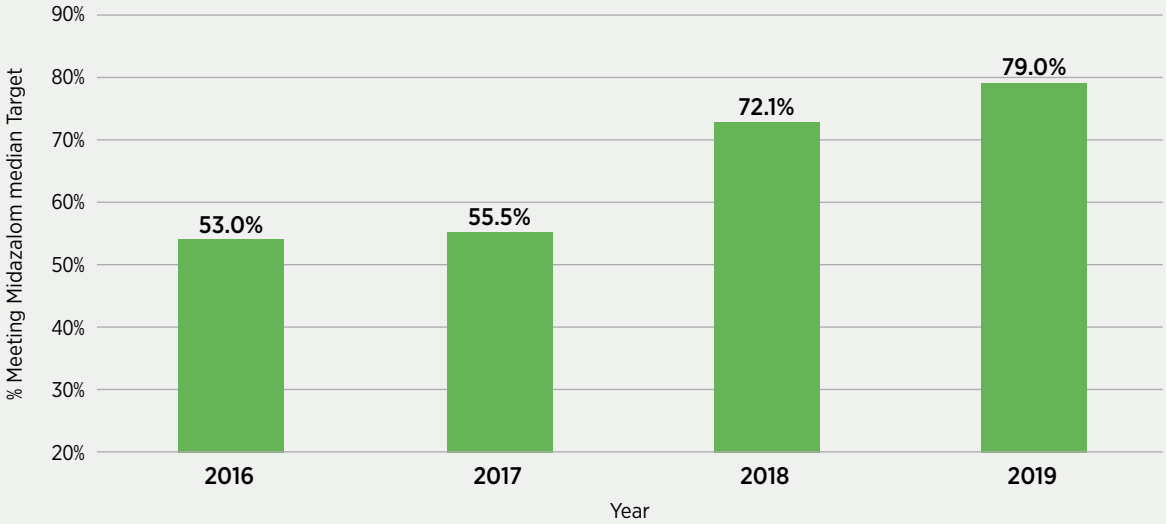
FIGURE 29: The Numbers and Percentages of Endoscopists Meeting the Median Dose of Less Than or Equal to 3mg of Midazolam for Colonoscopies for Patients Aged 70 Years and Older, 2019



The report reveals that 79% of Endoscopists met the median target of ≤3mg for midazolam administered during colonoscopies. This represents a 7% increase from the data collected in NQAIS-Endoscopy during 2018 and an overall improvement of 26% from 2016 **(Figure 30)**.

The Working Group acknowledges that one of the factors contributing to high sedation doses in some cases is the lack of availability of lower dose options. It is believed that lower concentrations, such as 1mg/ml, could be used in some instances if available.

FIGURE 30: Percentage of Endoscopists Meeting Midazolam Median Target for Colonoscopies for Patients Aged 70 Years and Older, Year on Year, 2016 - 2019



RECOMMENDATION

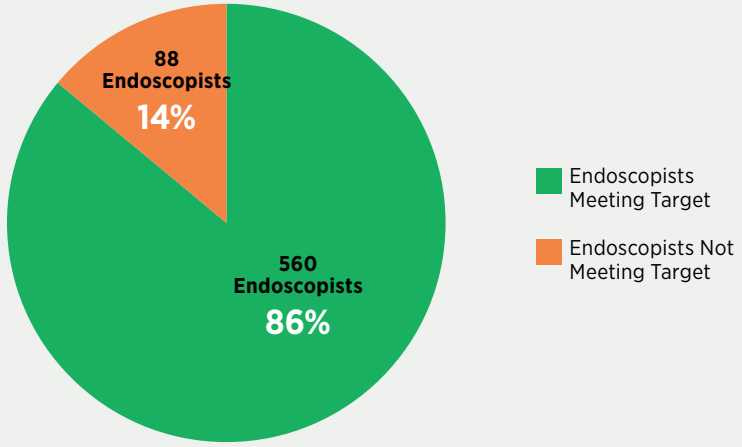
Lower midazolam concentration options, such as 1mg/ml, should be procured in order to facilitate the administration of lower concentrations when appropriate.

6.2) Sedation – Upper GI Endoscopy

This report also looks at the midazolam administered to patients aged 70 years and over for Upper GI Endoscopy procedures.

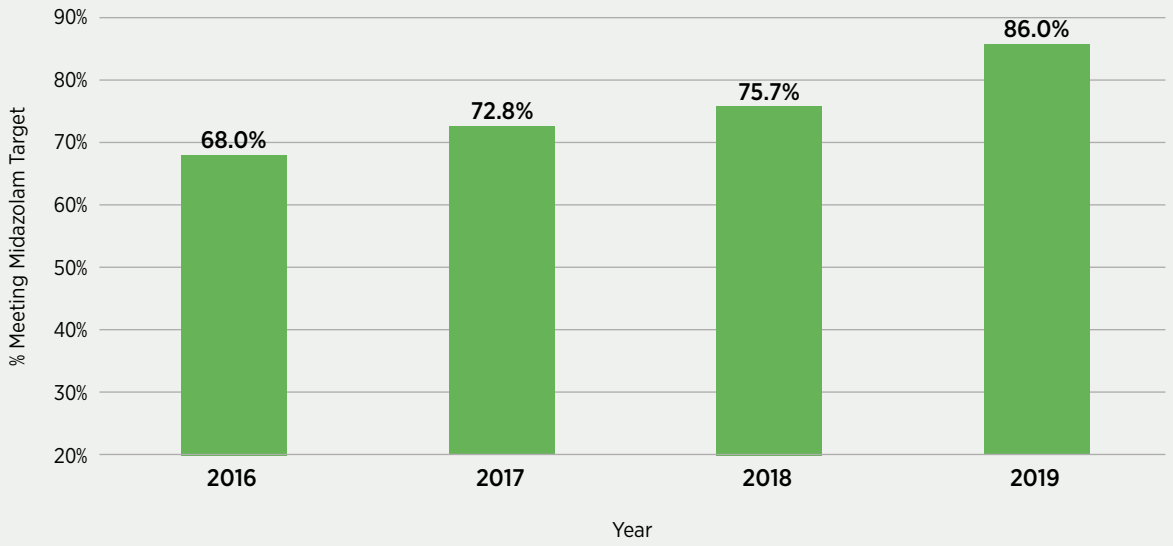
As can be seen in **Figure 31** below, Endoscopists are more likely to meet the median target for sedation dose for Upper GI procedures than for colonoscopies. In 2019, 86% of Endoscopists met the median target for midazolam doses administered during upper GI Endoscopy with patients aged 70 years and older. This is in part due to OGDs being a less complex procedure than colonoscopies and therefore requiring less sedation.

FIGURE 31: The Numbers and Percentages of Endoscopists Meeting the Median Dose Target of Less than or Equal to 3mg of Midazolam for OGDs for Patients Aged 70 and Older, 2019



The number of Endoscopists meeting the target for midazolam doses administered in procedures for patients aged 70 years and older has risen year on year from 68% in 2016 to 86% in 2019 **(Figure 32)**.

FIGURE 32: Percentage of Endoscopists Meeting Midazolam Median Target for OGDs for Patients Aged 70 Years and Older, Year on Year, 2016 – 2019



6.3) Sedation – Fentanyl

TABLE 3: Number and Percentage of Cases by Fentanyl Dose per Procedure Type* (01/01/2019 to 31/12/2019)

NUMBER AND PERCENTAGE OF CASES BY FENTANYL DOSE*				
Fentanyl Dosage	**Colonoscopy**		**OGD**	
No Fentanyl Used	26572	25.92%	64643	64.03%
25mcg or 50mcg	49244	48.03%	31004	30.71%
75mcg or 100mcg	26499	25.85%	5250	5.20%
125mcg or 150mcg	119	0.12%	19	0.02%
175mcg or 200mcg	24	0.02%	2	0.00%
>200mcg	55	0.05%	31	0.03%
Unreliable Data	4	0.00%	3	0.00%
TOTAL	**102517**	**100.00%**	**100952**	**100.00%**

**Due to variation in data recording techniques, some fentanyl data has been transformed. For example, where a case has reported ".25 mcg" of fentanyl, the analysis has accepted this to mean 25mcg as 0.25mcg is not an available dose for this sedative.*

Of procedures performed using fentanyl, the vast majority of Endoscopists, 99.8 % for colonoscopies and 99.8% for OGDs, administered the recommended fentanyl dose of ≤100 mcg **(Table 3)**.

As per the NEQI Guidelines V6, the median fentanyl target is determined using the age of the patient as per below:

FENTANYL	**Patients aged below 70 years:** Median dose is ≤100mg administered per Endoscopist **Patients aged above 70 years** Median dose is ≤50mg administered per Endoscopist

The national median dose for fentanyl is on target for both colonoscopy and OGD for both patient cohorts with 50mg being the median dose for all categories.

7

A REVIEW OF KEY QUALITY INDICATORS FROM 2016 TO 2019

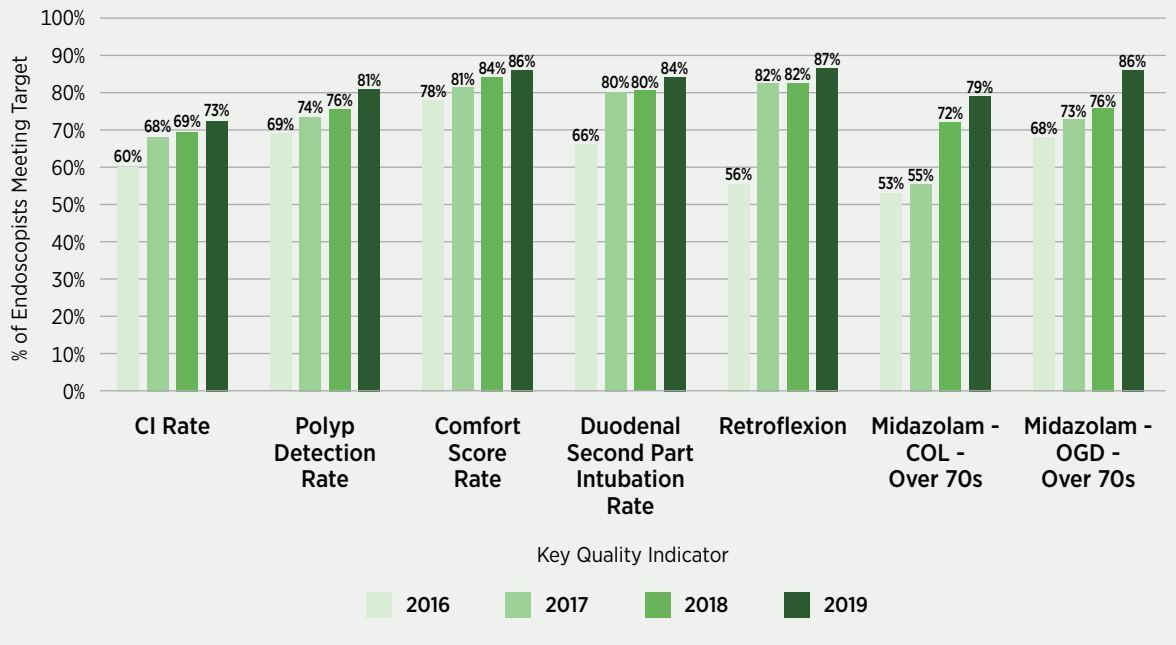
7. A Review of Key Quality Indicators from 2016 to 2019

One of the key markers of quality for the National GI Endoscopy Quality Improvement Programme is the number of Endoscopists achieving the target for each KQI. As this is the first National Data Report to cover the January to December reporting year, previous years' data was analysed once again in order to compare this year's statistics against the same period for previous years.

Each of the seven KQIs shown in **Figure 33** below have seen an incremental increase year on year in the percentage of Endoscopists meeting the targets. This graph summarises the data from each year, 2016 to 2019 contained in previous chapters. Bowel Preparation is not represented in this graph however, as we do not measure this on a per Endoscopist basis.

The NEQI Working Group believes that the increase in the percentage of Endoscopists meeting targets reflects an increasing awareness of the Programmes objectives and the importance of recording QI data accurately. A major increase can be seen in the number of Endoscopists meeting the median target for sedation doses in patients aged 70 years and older since 2016. This has seen the number of Endoscopists meeting target rise from 53% in 2016 to 79% in 2019, an increase of 26%.

FIGURE 33: Percentage of Endoscopists Meeting Target Nationally per Key Quality Indicator – Year on Year, 2016 – 2019



8

CONCLUSION

8. Conclusion

The NEQI Programme is proud to have taken the step towards increased transparency of reporting in this, the 5th National Data Report. This move has been undertaken with the support of the participating hospitals, the HSE National Quality Improvement Team and the Speciality Quality Improvement Steering Committee. The identification of hospitals in this report marks a significant milestone for the NEQI Programme and Irish Endoscopy Services.

As outlined throughout the report, hospitals should not be directly compared against one another or with previous reports. Where hospitals are below target or significantly below the national average, these findings should be confirmed locally and acted upon accordingly.

This year's report highlights several areas in need of improvement nationally:

- There remains a significant proportion of Endoscopists performing less than 100 procedures per year. As NQAIS-Endoscopy develops a clearer picture should emerge of why this is.
- Data collection issues persist in some units. It is essential that all units ensure their Endoscopy Reporting Systems are up to date and units are using the latest version of the software in order to ensure that quality improvement data is being collected accurately.

Over the past year the Programme has been working towards upgrading and streamlining NQAIS-Endoscopy and the processes by which national data is collected. A considerable amount of work has been completed to put into place the necessary structures to ensure this and future developments, go ahead in a timely manner.

The Covid 19 pandemic has presented many challenges to endoscopy services in Ireland, not least the postponement (or extension) of the aforementioned development. It is envisaged that when in place the new system will be futureproofed to allow it to adapt to the needs of its users as they evolve. Any changes made to the targets in the NEQI Guidelines, as a consequence of this work will be updated in NQAIS-Endoscopy at the start of 2021.

The 2021 report will present year on year findings for each unit with the hospital identification visible. This presents an opportunity to highlight and identify quality improvement in each endoscopy unit.

As per this year's report, we will be inviting participants to submit examples of quality improvement initiatives, as well as challenges faced in the collection of QI data and the initiation of QI activity throughout the year. These examples will be included in the next National Data Report to facilitate acknowledgment of the QI work being carried out across the country and the role that the data collected by the NEQI Programme plays.

We would like to sincerely thank all the QI Clinical Leads and Local Operation Managers for their efforts, commitment and continued support throughout the year. We hope to move forward into the next reporting period with a reinforced focus on the importance of quality improvement in endoscopy services in Ireland.

Notes

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