

Methodological Change Document for Obesity-related hospital admissions

Introduction

This proposed change would impact two measures for obesity-related hospital admissions within the [Statistics on Public Health](#) (SoPH) publication that include references to “Bariatric Surgery” in previous publications or “bariatric surgical procedures” in this latest publication.

Measure 3

NHS hospital finished consultant episodes (FCEs) with a primary diagnosis of obesity, and a primary or secondary procedure for bariatric surgery - referred to as **obesity-related bariatric surgery**.

Measure 4

NHS hospital finished consultant episodes (FCEs) with a primary diagnosis of obesity, and a primary or secondary procedure for bariatric surgery, but excluding maintenance, revisional, and removal procedures - referred to as **obesity-related primary bariatric surgery**. In this measure most patients would only be counted once (for their initial procedure).

Background

The term “bariatric surgery” is often used to define a group of procedures that can be performed to facilitate weight loss although these procedures can be performed for conditions other than weight loss. It includes stomach stapling, gastric bypasses, sleeve gastrectomy and gastric band maintenance. Using Hospital Episode Statistics (HES) data held at NHS England, the number of FCEs for bariatric surgery has been determined where the primary diagnosis was obesity (ICD-10 code E66) and the main or secondary procedure was for bariatric surgery, based on the OPCS code for the relevant time periods. This data includes removals and/or maintenance following an initial procedure, so the counting of the same patient is more likely (where removal and/or maintenance occurred during a later episode of care).

Counts of admissions for ‘primary bariatric surgery’ can also be made by excluding those episodes where the only bariatric surgery procedure(s) related to removals and/or maintenance. In this data, patients are likely to only be counted once, for the initial bariatric surgery procedure.

Definition of Bariatric Surgery using OPCS codes

First revision 2012/13

From 2012/13 the OPCS codes included in the bariatric surgery definition have been aligned with the methodology used for NHS Healthcare Resource Groups (HRGs) that were created as a result of work between the National Casemix Office at NHS England, the British Obesity and Metabolic Surgery Society (BOMSS) and the Chapter F Digestive System Expert Working Group (EWG). Details of that change can be found in the methodological change notice below:

https://webarchive.nationalarchives.gov.uk/20180328130852tf_/http://content.digital.nhs.uk/media/13556/Statistics-on-Obesity-Physical-Activity-and-Diet-England-2014/pdf/MethChange201402_SOPAD.pdf/

Second revision 2016/17

In 2016/17, the National Casemix office updated the definition above to remove 2 previously included OPCS codes, and so the data in this publication has been updated to reflect this, creating a break in time series from 2016/17. Based on data spanning 2015/16 to 2017/18, the change reduces the total by between 250 and 320 records per year.

More information on the change of codes in 2016/17 is included in the methodological change notice at:

https://digital.nhs.uk/binaries/content/assets/website-assets/publications/publications-admin-pages/methodological-changes/methchange20190205_sopad.pdf

The full list of codes can be found in Appendix A.

Revision to align with National Obesity Audit (NOA)

For the [National Obesity Audit](#), NHS England (previously NHS Digital) has worked closely with the British Obesity and Metabolic Surgery Society (BOMSS) and policy colleagues to develop a methodology to define how the number of people receiving bariatric surgical procedures (reported separately for primary, revisions and gastric balloons (temporary procedures)), can be most accurately derived from HES data.

The names of individual bariatric procedures in HES may not directly correspond with the names commonly used by the bariatric surgeons, so clinical input has been necessary to help overcome this. The NOA team responded to advice from BOMSS to use a more limited code list to identify primary procedures.

Whilst the methodology used to derive these statistics has been designed with this input, these numbers should be viewed as developmental until we further refine the methodology with users and stakeholders.

Full details of the methodology used are in the metadata document in the NOA publication here:

<https://digital.nhs.uk/data-and-information/publications/statistical/national-obesity-audit/bariatric-surgical-procedures-21-22-final-and-q1-q2-22-23-provisional>

The full list of codes can be found in Appendix B.

Results

Outputs comparing the second revision and NOA version of OPCS codes are presented in Appendix C and are included within the latest [Statistics on Public Health](#) (SoPH) publication.

National trends of finished consultant episodes with a primary diagnosis of obesity and a main or secondary procedure of 'bariatric surgery' from 2016/17 to 2022/23 are very closely matched. The NOA version trends slightly below that from SoPH with gaps ranging from 15 to 126 less episodes in the NOA version (the drop ranges from -0.5% to -2.5%).

When broken down sub-nationally, for example, by deprivation decile in 2022/23, the NOA version is again slightly lower than that for SoPH with gaps ranging from 7 to 18 less episodes in the NOA version (the drop ranges from -1.3% to -4.8%). The rates per 100,000 population remain the same for all deprivation levels except the 6th, 8th and 9th decile where the rate drops by 1 episode per 100,000.

Please note that even though the same methodology is proposed to be used for the Statistics on Public Health publication and NOA publication, the figures presented are not a duplication as the former is based on number of bariatric surgical procedures and the latter is based on number of patients that have had a bariatric surgical procedure. NOA also reports on revisions and gastric balloons separately. NHS England will consider further alignment of the publication of bariatric surgical procedures so they may appear in one place in future.

Conclusion

The proposal is that the combination of OPCS-4 codes developed and agreed with the NOA stakeholders should be adopted for use by the two measures for obesity-related hospital admissions within the [Statistics on Public Health](#) publication. This is supported as:

- The impact of the change due to the OPCS codes used is minor.
- The NOA review has been undertaken with a similar group of stakeholders as for the [Statistics on Public Health](#) publication and is based on recent practice.
- The OPCS-4 codes used in both cases has remained consistent back to OPCS4.6 (introduced in April 2011) and so time-series can be backdated and not disrupted.

In addition, these two publications should then stay in step in the OPCS-4 codes used. Therefore, if there is a change in the OPCS-4 codes used in the NOA publication following further consultation then the [Statistics on Public Health](#) publication should also change to reflect it. (The same would apply for a change in the [Statistics on Public Health](#) publication being mirrored in the NOA.)

Appendix A – Current OPCS-4 codes

OPCS Code & Description	All Bariatric Surgery	Primary Bariatric Surgery
G01.1: Oesophagogastrectomy and anastomosis of oesophagus to stomach	Yes	Yes
G01.2: Oesophagogastrectomy and anastomosis of oesophagus to transposed jejunum	Yes	Yes
G01.3: Oesophagogastrectomy and anastomosis of oesophagus to jejunum NEC	Yes	Yes
G01.8: Other specified excision of oesophagus and stomach	Yes	Yes
G01.9: Unspecified excision of oesophagus and stomach	Yes	Yes
G02.1: Total oesophagectomy and anastomosis of pharynx to stomach	Yes	Yes
G02.2: Total oesophagectomy and interposition of microvascularly attached jejunum	Yes	Yes
G02.3: Total oesophagectomy and interposition of jejunum NEC	Yes	Yes
G02.4: Total oesophagectomy and interposition of microvascularly attached colon	Yes	Yes
G02.5: Total oesophagectomy and interposition of colon NEC	Yes	Yes
G02.8: Other specified total excision of oesophagus	Yes	Yes
G02.9: Unspecified total excision of oesophagus	Yes	Yes
G03.1: Partial oesophagectomy and end to end anastomosis of oesophagus	Yes	Yes
G03.2: Partial oesophagectomy and interposition of microvascularly attached jejunum	Yes	Yes
G03.3: Partial oesophagectomy and anastomosis of oesophagus to transposed jejunum	Yes	Yes
G03.4: Partial oesophagectomy and anastomosis of oesophagus to jejunum NEC	Yes	Yes
G03.5: Partial oesophagectomy and interposition of microvascularly attached colon	Yes	Yes
G03.6: Partial oesophagectomy and interposition of colon NEC	Yes	Yes
G03.8: Other specified partial excision of oesophagus	Yes	Yes
G03.9: Unspecified partial excision of oesophagus	Yes	Yes
G27.1: Total gastrectomy and excision of surrounding tissue	Yes	Yes
G27.2: Total gastrectomy and anastomosis of oesophagus to duodenum	Yes	Yes
G27.3: Total gastrectomy and interposition of jejunum	Yes	Yes
G27.4: Total gastrectomy and anastomosis of oesophagus to transposed jejunum	Yes	Yes
G27.5: Total gastrectomy and anastomosis of oesophagus to jejunum NEC	Yes	Yes
G27.8: Other specified total excision of stomach	Yes	Yes
G27.9: Unspecified total excision of stomach	Yes	Yes
G28.1: Partial gastrectomy and anastomosis of stomach to duodenum	Yes	Yes
G28.2: Partial gastrectomy and anastomosis of stomach to transposed jejunum	Yes	Yes
G28.3: Partial gastrectomy and anastomosis of stomach to jejunum NEC	Yes	Yes
G28.4: Sleeve gastrectomy and duodenal switch	Yes	Yes
G28.5: Sleeve gastrectomy NEC	Yes	Yes

OPCS Code & Description	All Bariatric Surgery	Primary Bariatric Surgery
G28.8: Other specified partial excision of stomach	Yes	Yes
G28.9: Unspecified partial excision of stomach	Yes	Yes
G30.1: Gastroplasty NEC	Yes	Yes
G30.2: Partitioning of stomach NEC	Yes	Yes
G30.3: Partitioning of stomach using band	Yes	Yes
G30.4: Partitioning of stomach using staples	Yes	Yes
G30.5: Maintenance of gastric band	Yes	No
G30.8: Other specified plastic operations on stomach	Yes	Yes
G30.9: Unspecified plastic operations on stomach	Yes	Yes
G31.1: Bypass of stomach by anastomosis of oesophagus to duodenum	Yes	Yes
G31.2: Bypass of stomach by anastomosis of stomach to duodenum	Yes	Yes
G31.5: Closure of connection of stomach to duodenum	Yes	No
G31.6: Attention to connection of stomach to duodenum	Yes	No
G32.1: Bypass of stomach by anastomosis of stomach to transposed jejunum	Yes	Yes
G32.2: Revision of anastomosis of stomach to transposed jejunum	Yes	No
G32.3: Conversion to anastomosis of stomach to transposed jejunum	Yes	No
G32.4: Closure of connection of stomach to transposed jejunum	Yes	No
G32.5: Attention to connection of stomach to transposed jejunum	Yes	No
G32.8: Other specified connection of stomach to transposed jejunum	Yes	Yes
G32.9: Unspecified connection of stomach to transposed jejunum	Yes	Yes
G33.1: Bypass of stomach by anastomosis of stomach to jejunum NEC	Yes	Yes
G33.2: Revision of anastomosis of stomach to jejunum NEC	Yes	No
G33.8: Other specified other connection of stomach to jejunum	Yes	Yes
G38.7: Removal of gastric band	Yes	No
G49.1: Gastroduodenectomy	Yes	Yes
G49.2: Total excision of duodenum	Yes	Yes
G49.3: Partial excision of duodenum	Yes	Yes
G49.8: Other specified excision of duodenum	Yes	Yes
G49.9: Unspecified excision of duodenum	Yes	Yes
G51.1: Bypass of duodenum by anastomosis of stomach to jejunum	Yes	Yes
G51.3: Bypass of duodenum by anastomosis of duodenum to jejunum	Yes	Yes
G71.6: Duodenal switch	Yes	Yes
G71.7: Reversal of duodenal switch	Yes	No

Appendix B – National Obesity Audit OPCS-4 codes*

OPCS Code & Description	Primary bariatric procedures	Revision bariatric procedures
G28.1: Partial gastrectomy and anastomosis of stomach to duodenum	Yes	No
G28.2: Partial gastrectomy and anastomosis of stomach to transposed jejunum	Yes	No
G28.3: Partial gastrectomy and anastomosis of stomach to jejunum NEC	Yes	No
G28.4: Sleeve gastrectomy and duodenal switch	Yes	No
G28.5: Sleeve gastrectomy NEC	Yes	No
G30.1: Gastroplasty NEC	Yes	No
G30.2: Partitioning of stomach NEC	Yes	No
G30.3: Partitioning of stomach using band	Yes	No
G30.4: Partitioning of stomach using staples	Yes	No
G30.5: Maintenance of gastric band	No	Yes
G31.2: Bypass of stomach by anastomosis of stomach to duodenum	Yes	No
G31.5: Closure of connection of stomach to duodenum	No	Yes
G31.6: Attention to connection of stomach to duodenum	No	Yes
G32.1: Bypass of stomach by anastomosis of stomach to transposed jejunum	Yes	No
G32.2: Revision of anastomosis of stomach to transposed jejunum	No	Yes
G32.3: Conversion to anastomosis of stomach to transposed jejunum	No	Yes
G32.4: Closure of connection of stomach to transposed jejunum	No	Yes
G32.5: Attention to connection of stomach to transposed jejunum	No	Yes
G33.1: Bypass of stomach by anastomosis of stomach to jejunum NEC	Yes	No
G33.2: Revision of anastomosis of stomach to jejunum NEC	No	Yes
G38.7: Removal of gastric band	No	Yes
G71.6: Duodenal switch	Yes	No
G71.7: Reversal of duodenal switch	No	Yes

* Primary bariatric procedures are the NOA OPCS List 1 codes and revision bariatric procedures are the NOA List 3 codes, therefore, List 1 + List 3 codes are the equivalent of "All bariatric codes".

Appendix C – Comparison of Second revision and NOA version results

Summary of NHS hospital admissions related to obesity, by year (based on Table O.1) [1]



Numbers

Measure	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Admissions							
SoPH Finished consultant episodes with a primary diagnosis of obesity and a main or secondary procedure of 'bariatric surgery' [3,4,5,7]	6,492	6,627	7,011	6,740	2,074	4,749	5,099
NOA ^[8] Finished consultant episodes with a primary diagnosis of obesity and a main or secondary procedure of 'bariatric surgery' [3,4,5,7]	6,450	6,597	6,967	6,671	2,059	4,680	4,973
Change in Admissions							
Change in admissions from SoPH to NOA defined OPCS-4 codes	-42	-30	-44	-69	-15	-69	-126
% Change in admissions from SoPH to NOA defined OPCS-4 codes	-0.6%	-0.5%	-0.6%	-1.0%	-0.7%	-1.5%	-2.5%

Footnotes:

- 1 Data excludes patients resident outside of England.
- 2 Changes to the figures over time need to be interpreted in the context of improvements in data quality and coverage (particularly in earlier years), improvements in coverage of independent sector activity and changes in NHS practice. This is particularly relevant for admissions with a secondary diagnosis of drug related mental health and behavioural disorders, where some of the increases may be attributable to changes in recording practice (see Data Quality statement for more information).
- 3 A finished consultant episode (FCE) is a continuous period of admitted patient care under one consultant within one healthcare provider. FCEs are counted against the year in which they end. Figures do not represent the number of different patients, as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year.
- 4 The primary diagnosis is the first of up to 20 diagnosis fields in the Hospital Episode Statistics (HES) dataset and provides the main reason why the patient was in hospital.
- 5 Data is based on the tenth revision of the International Classification of Diseases (ICD-10), Code E66
- 6 This is a broader measure as a secondary diagnosis does not necessarily indicate obesity as a contributing factor for the admission but may instead mean that it was relevant to a patient's episode of care.

- 7 The term 'bariatric surgery' is often used to define a group of procedures that can be performed to facilitate weight loss (although these procedures can be performed for conditions other than weight loss) and includes stomach stapling, gastric bypasses, and sleeve gastrectomy. As this also includes associated maintenance/revisional procedures, the same patient may be counted more than once over time.

These figures represent the number of episodes where the procedure (or intervention) was recorded in any of the 24 operative procedure fields in a Hospital Episode Statistics (HES) record. A record is only included once in each count, even if the procedure is recorded in more than one operative procedure field of the record. Please note that more procedures are carried out than episodes with a main or secondary procedure. For example, patients undergoing a 'cataract operation' would tend to have at least two procedures – removal of the faulty lens and the fitting of a new one – counted in a single episode.

- 8 Based on definition of "bariatric surgery" using NOA List 1 + List 2.

NHS hospital admissions related to obesity, by level of deprivation (based on Table O.5) [1]

Numbers / rates

Measure	SoPH		NOA		Change in Admissions	
	Number	Rate per 100,000 population [8]	Number	Rate per 100,000 population [8]	Number	%
Index of multiple deprivation (IMD) decile [2]						
1 - most deprived areas	636	12	628	12	-8	-1.3
2	710	13	692	13	-18	-2.5
3	692	12	677	12	-15	-2.2
4	621	11	608	11	-13	-2.1
5	549	10	532	10	-17	-3.1
6	484	9	469	8	-15	-3.1
7	474	9	467	9	-7	-1.5
8	359	7	346	6	-13	-3.6
9	347	7	338	6	-9	-2.6
10 - least deprived areas	227	4	216	4	-11	-4.8

Footnotes:

- 1 Data excludes patients resident outside of England.
- 2 IMD deciles based on 2019 deprivation scores for English lower super output areas produced by the Ministry of Housing, Communities & Local Government. IMD decile breakdown excludes admissions where there was insufficient information to map to an IMD decile. More information on IMD data can be found at the following link:
<https://www.gov.uk/government/collections/english-indices-of-deprivation>
- 3 A finished consultant episode (FCE) is a continuous period of admitted patient care under one consultant within one healthcare provider. FCEs are counted against the year in which they end. Figures do not represent the number of different patients, as a person may have more than one episode of care within the same stay in hospital or in different stays in the same year.

- 4 The primary diagnosis is the first of up to 20 diagnosis fields in the Hospital Episode Statistics (HES) dataset and provides the main reason why the patient was in hospital.
- 5 Data is based on the tenth revision of the International Classification of Diseases (ICD-10), Code E66
- 6 As well as the primary diagnosis, there are up to 19 secondary diagnoses. This is a broader measure as a secondary diagnosis does not necessarily indicate obesity as a contributing factor for the admission but may instead mean that it was relevant to a patient's episode of care.
- 7 The term 'bariatric surgery' is often used to define a group of procedures that can be performed to facilitate weight loss (although these procedures can be performed for conditions other than weight loss) and includes stomach stapling, gastric bypasses, and sleeve gastrectomy. As this also includes associated maintenance/revisional procedures, the same patient may be counted more than once over time.
These figures represent the number of episodes where the procedure (or intervention) was recorded in any of the 24 operative procedure fields in a Hospital Episode Statistics (HES) record. A record is only included once in each count, even if the procedure is recorded in more than one operative procedure field of the record. Please note that more procedures are carried out than episodes with a main or secondary procedure. For example, patients undergoing a 'cataract operation' would tend to have at least two procedures – removal of the faulty lens and the fitting of a new one – counted in a single episode.
- 8 Admissions per 100,000 population are age standardised using the European Standard Population. Population data are taken from Office for National Statistics (ONS) resident population estimates.