

CCG Outcome Indicator Set

Indicator 2.6

Unplanned hospitalisation for chronic ambulatory care sensitive conditions

Domain 2

Enhancing quality of life for people with long-term conditions

Indicator specification

Version: 1.15

Date: December 2018

Author: Clinical Indicators Team

Document Management Revision History

Version	Date	Summary of Changes
1.0	March 2013	Initial release
1.1	December 2013	Updated with new data period
1.2	March 2014	Revision to Data Filter 'ADMIMETH' following HES change.
1.3	June 2014	Revision to CCG mapping methodology
1.4	September 2014	Revision to Data Filter 'ADMIMETH' following addition of new emergency admission codes.
1.5	December 2014	Clarification of extract dates for registered patient counts and details of which rolling 12 month periods will be published in each release. Clarification of confidence interval methodology
1.6	June 2015	Link to HES Analysis Guide updated.
1.7	December 2015	ONS geography code added
1.8	March 2016	Revision to Data Filter i) 'DIAG_3_01, following ICD-10 Version 5 update.
1.9	September 2016	Updated branding and reviewed text
1.10	December 2016	Updated output column names, add period of courage column
1.11	September 2017	Updated data fields
1.12	December 2017	Update to filters
1.13	March 2018	Update to data filters
1.14	June 2018	Update disclosure control
1.15	December 2018	Change to standard population, age groups and disclosure control

Indicator assurance

	Status	Date
Indicator Governance Board	Assured	20.09.2012

Contents

Overview	4
Indicator title	4
Indicator family name	4
Condition / Topic area	4
Detailed Descriptor	4
Data Sources	5
Construction	5
Calculation Methodology	5
Calculation	9
Confidence Intervals	10
Presentation	11
Breakdowns	11
Disclosure control	11
Excel and CSV output	12
Appendices	13
Appendix 1 - European standard population age groups	13
Appendix 2 - List of conditions (ICD-10)	14

Overview

Indicator title

Unplanned hospitalisation for chronic ambulatory care sensitive conditions

Indicator family name

CCG Outcomes Indicator Set (OIS) Domain 2 - Enhancing quality of life for people with long-term conditions

Condition / Topic area

Chronic ambulatory care sensitive conditions.

NHS Digital Indicator Portal code

100757

Detailed Descriptor

Plain English description

CCG OIS 2.6 measures how many people with specific long-term conditions, which should not normally require hospitalisation, are admitted to hospital in an emergency. These conditions include, for example, diabetes, epilepsy and high blood pressure.

Technical description

Directly age and sex standardised admission rate for unplanned hospitalisation for chronic ambulatory care sensitive conditions per 100,000 registered patients, 95% confidence intervals (CI)

Data Sources

Denominator

Registered patient counts by single year of age and sex from the National Health Application & Infrastructure Services (NHAIS), commonly known as 'Exeter' System.

Numerator

Hospital Episode Statistics (HES) Admitted Patient Care (APC), provided by NHS Digital.

Standard population

European Standard Population 2013.

Construction

Calculation Methodology

Introduction

This indicator reports the proportion of individuals with chronic ambulatory care sensitive conditions admitted to hospital as an emergency admission in the respective financial year.

A data period of 12 months is used to produce an annual output.

Data are shown for all persons, directly standardised by age and sex.

Data Fields

For this indicator the numerator is derived from HES APC final data with the use of HES APC provisional data where the data has not yet been finalised. Finalised annual data are usually available in the November following the year end.

The data fields and filters that are used are as follows. Details of HES fields and classifications are available in the HES Data Dictionary: https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/hospital-episode-statistics-data-dictionary

DIAG_3_01
DIAG_4_01
DIAG_3_CONCAT
OPERTN_3_CONCAT
STARTAGE
ADMIMETH
EPISTAT
ADMIDATE
SEX
EPIORDER

ADMISORC

EPITYPE CLASSPAT CCG RESPONSIBILITY

Data Filter

 Field Name DIAG_3_01, DIAG_4_01, DIAG_3_CONCAT, OPERTN_3_CONCAT

Conditions Any of (a) to (i) are true. Defined as follows:

a) DIAG_4_01 is equal to either: B18.0, B18.1AND

DIAG_3_CONCAT does not contain: D57
[where DIAG_3_CONCAT is a concatenated field containing the values of all 20 diagnosis fields separated by commas. This condition excludes episodes with a subsequent diagnosis of D57 (Sickle-cell disorders)]

b) DIAG_3_01 is equal to J45ORDIAG_4_01 is equal to J46X

1st of April 2017.]

- c) (DIAG_3_01 is equal to I50 OR
 DIAG_4_01 is equal to any of: I11.0, J81X, I13.0)
 AND
 (OPERTN_3_CONCAT does not contain any of: K0, K1, K2, K3, K4, K50, K52, K55, K56, K57, K60, K61, K66, K67, K68, K69, K71, K73, K74)
 [where OPERTN_3_CONCAT is a concatenated field containing the values of all 24 operation/procedure fields, separated by commas. K73 and K74 are valid for data from
- d) DIAG_3_01 is equal to any of: E10, E11, E12, E13, E14
- e) DIAG_3_01 is equal to any of: J41, J43, J44
 OR
 DIAG_4_01 is equal to either of: J42X, J47X
 OR
 (DIAG_3_01 is equal to J20 AND DIAG_3_CONCAT contains any of: J41, J42, J43, J44, J47)
- f) DIAG_3_01 is equal to either of: I20, I25 AND OPERTN_3_CONCAT does not contain any of: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, V, W, X0, X1, X2, X4, X5
- g) DIAG_3_01 is equal to either of: D51, D52 OR

DIAG_4_01 is equal to any of: D50.1, D50.8, D50.9

h) DIAG_4_01 is equal to either of: I10X, I11.9 **AND**

(OPERTN_3_CONCAT does not contain any of: K0, K1, K2, K3, K4, K50, K52, K55, K56, K57, K60, K61, K66, K67, K68, K69, K71, K73, K74)

[where OPERTN_3_CONCAT is a concatenated field containing the values of all 24 operation/procedure fields, separated by commas. K73 and K74 are valid for data from 1st of April 2017.]

 i) DIAG_3_01 is equal to any of: I48, G40, G41, F00, F01, F02, F03

Rationale: This gives the primary diagnosis of the patient in the episode when the patient was admitted to hospital.

2. Field Name STARTAGE

Conditions Is between (inclusive): 0 and 120

OR

is between (inclusive): 7001 and 7007

Rationale This field describes the age of the patient at the start of their

spell in hospital. For children under the age of one year, codes 7001 to 7007 may be used instead of 0 to describe their age in days. This is why the further classification relating to 7000 is

needed.

3. Field Name ADMIMETH

Conditions Is equal to the following: 21, 22, 23, 24, 25, 28, 2A, 2B, 2C, 2D

Rationale This restricts the data to emergency admissions only. 25, 2A,

2B, 2C and 2D are valid for data from 1st April 2013 and

replace 28.

4. Field Name EPISTAT

Conditions Is equal to the following: 1 or 3

Rationale This includes both finished and unfinished hospital episodes.

Field Name ADMIDATE

Conditions Limited to admissions within the current rolling quarter year.

Rationale Data is presented annually with an admission date within the

year of interest.

6. Field Name SEX

Conditions Is equal to the following: 1 or 2

Rationale Data is shown for males and females separately. Data for

persons is the sum of males and females and excludes the

small number of records where sex was unknown or

unspecified.

7. Field Name EPIORDER

Conditions Is equal to: 1

Rationale This restricts the data to the first episode in a hospital spell.

8. Field Name ADMISORC

Conditions Is not equal to: 51, 52 or 53

Rationale This excludes transfers.

9. Field Name EPITYPE

Conditions Is equal to: 1

Rationale This restricts the data to general episodes (excludes birth,

delivery and mental health episodes).

10. Field Name CLASSPAT

Conditions Is equal to: 1

Rationale This restricts the data to ordinary admissions (excludes day

case, regular day/night attenders and mothers and babies

using only delivery facilities).

11. Field Name CCG RESPONSIBILITY

Conditions CCGs in England only. The list of CCGs used to calculate the

indicator may vary between reporting periods due to some CCGs merging. The CCGs used for each reporting period align

with those listed in the accompanying Excel file.

Rationale Excludes those patients who are registered with GPs outside

England.

Calculation

This indicator is calculated as a rate directly standardised by age and sex. For age groups used in the standardisation see appendix 1.

Denominator

CCG level count of patients registered with the constituent GP Practices extracted from NHAIS (Exeter) Systems.

Counts of registered patients are extracted on 1st April each year, and GP practices are mapped to CCGs using the mapping on this date. When calculating indicators, the count of registered patients and the GP to CCG mapping are taken from the 1st April within the specific time period. For example the 12 month period July 2013 to June 2014 would use the 1st April 2014 registered patient counts and the GP to CCG map as it was on this date.

Numerator

The number of finished and unfinished admission episodes, excluding transfers, for patients with an emergency method of admission and with a primary diagnosis for chronic ambulatory care sensitive conditions as shown in appendix 2.

Direct standardisation

The directly age and sex standardised rate (DSR) is the rate of events that would occur in a standard population if that population were to experience the age and sex specific rates of the subject population. The age and sex specific rates of the subject population are applied to the age and sex structure of the standard population.

$$DSR = \frac{1}{\sum_{i} w_{i}} \times \sum_{i} \frac{w_{i} O_{i}}{n_{i}}$$

where:

Oi is the observed number of events in the local or subject population in age and sex group i; ni is the number of individuals in the local or subject denominator population in age and sex group i;

wi is the number of individuals in the standard population in age and sex group i.

The standard population used for the direct method is the European Standard Population 2013.

The age groups used are: 0-4, 5-9, 10-14, 15-19, 20-24, 25-29... 85-89, 90+.

Confidence Intervals

95% confidence intervals are calculated using Dobson's¹ and Byar's² methods. Byar's method is recommended for larger counts whereas for smaller numerators (less than 389) a more exact method based on the Poisson distribution (Dobson's method) is used:

$$DSR_{lower} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}}(O_{lower} - O)$$

$$DSR_{upper} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} (O_{upper} - O)$$

where: O is the total number of observed admissions in the subject population

$$Var(DSR) = \frac{\sum_{i} \frac{w_i^2 O_i}{n_i^2}}{(\sum_{i} w_i)^2}$$

$$Var(0) = \sum_{i} O_i$$

Olower and *Oupper* are the lower and upper confidence limits for the observed number of events;

When O < 389 then,

$$O_{lower} = \frac{\chi_{lower}^2}{2}$$

$$O_{upper} = \frac{\chi_{upper}^2}{2}$$

where:

 χ^2 _{lower} is the 97.5th percentile value from the χ^2 distribution with 20 degrees of freedom; χ^2 _{upper} is the 2.5th percentile value from the χ^2 distribution with 20+2 degrees of freedom.

When O >= 389 then,

$$O_{lower} = O\left(1 - \frac{1}{90} - \frac{z}{3\sqrt{0}}\right)^3$$

$$O_{upper} = (0+1)\left(1 - \frac{1}{9(0+1)} + \frac{z}{3\sqrt{0+1}}\right)^3$$

Where:

z is the 97.5th percentile value from the Standard Normal distribution.

Dobson A et al. Confidence intervals for weighted sums of Poisson parameters. Stat Med 1991;10:457-62

² Breslow NE, Day NE. Statistical methods in cancer research, volume II: The design and analysis of cohort studies. Lyon: International Agency for Research on Cancer, World Health Organization; 1987: 69.

Presentation

Breakdowns

Time periods

Financial year data from 2013/14 onwards, with rolling quarters on a 3 month lag. The table below provides details about which data periods will be published in each quarterly release. For example, the December 2018 publication contains data for October 2017 to September 2018.

Quarterly Publication	Indicator Time Period (3 month lag)
March	January to December
June	April to March
September	July to June
December	October to September

Demographic

Gender

Geographic

All registered patients in England

CCG

Disclosure control

When publishing the data, numerator and denominator values of 1 to 7 are suppressed, indicator values calculated from a numerator or denominator of 1 to 7 are also suppressed. In addition, CCG level numerator values are rounded to the nearest 5. Indicator values are calculated prior to rounding.

Rates are rounded to one decimal place before publication.

Excel and CSV output

Column name	Output
Reporting period	Period of coverage (years/rolling quarters)
Period of coverage	Start and end dates for the reporting period
Breakdown	National (All registered patients in England), CCG
ONS code	ONS geography code
Level	Clinical Commissioning Group codes
Level description	Clinical Commissioning Group names
Gender	Person, Female, Male
Indicator value	Directly standardised rate (DSR) per 100,000 registered patients
CI lower	DSR lower 95% confidence interval
CI upper	DSR upper 95% confidence interval
Denominator	The count of registered patients (denominator)
Numerator	The number of unplanned hospitalisations for chronic ambulatory care sensitive conditions

Appendices

Appendix 1 - European standard population age groups

Age groups used in the standard population methodology.

Age group
0-4
5-9
10-14
15-19
20-24
25-29
30-34
35-39
40-44
45-49
50-54
55-59
60-64
65-69
70-74
75-79
80-84
85-89
90+

Appendix 2 - List of conditions (ICD-10)

Infections		
B18.1	Chronic viral hepatitis B without delta-agent	
B18.0	Chronic viral hepatitis B with delta-agent	
Nutritional, endocrine and metabolic		
E10	Insulin-dependent diabetes mellitus	
E11	Non-insulin-dependent diabetes mellitus	
E12	Malnutrition-related diabetes mellitus	
E13	Other specified diabetes mellitus	
E14	Unspecified diabetes mellitus	
Diseases of the blood		
D50.1	Sideropenic dysphagia	
D50.8	Other iron deficiency anaemias	
D50.9	Iron deficiency anaemia, unspecified	
D51	Vitamin B12 deficiency anaemia	
D52	Folate deficiency anaemia	
Mental and beha	avioural disorders	
F00	Dementia in Alzheimer disease	
F01	Vascular dementia	
F02	Dementia in other diseases classified elsewhere	
F03	Unspecified dementia	
Neurological disorders		
G40	Epilepsy	
G41	Status epilepticus	

Cardiovascular diseases		
I10X	Essential (primary) hypertension	
I11.0	Hypertensive heart disease with (congestive) heart failure	
I11.9	Hypertensive heart disease without (congestive) heart failure	
I13.0	Hypertensive heart and renal disease with (congestive) heart failure	
120	Angina pectoris	
125	Chronic ischaemic heart disease	
150	Heart failure	
148	Atrial fibrillation and flutter	
J81X	Pulmonary oedema	
Respiratory diseases		
J20	Acute bronchitis	
J41	Simple and mucopurulent chronic bronchitis	
J42X	Unspecified chronic bronchitis	
J43	Emphysema	
J44	Other chronic obstructive pulmonary disease	
J45	Asthma	
J46X	Status asthmaticus	
J47X	Bronchiectasis	