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

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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

I00757

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)

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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/hospital-episode-statistics-data-dictionary

DIAG_3_01
DIAG_4_01
DIAG_3_CONCAT
OPERTN_3_CONCAT
STARTAGE
ADMIMETH
EPISTAT
ADMIDATE
SEX
EPIORDER
ADMISORC

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EPITYPE
CLASSPAT
CCG_RESPONSIBILITY

Data Filter

1. 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, B18.1
   AND
   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 J45
   OR
   DIAG_4_01 is equal to J46X

   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 1st of April 2017.]

   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

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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.

5. 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

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		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.

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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+.

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Confidence Intervals

95% confidence intervals are calculated using Dobson's[1] and Byar's[2] 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

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

$$Var(O) = \sum_i O_i$$

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

When O < 389 then,

$$O_{lower} = \frac{\chi^2_{lower}}{2}$$

$$O_{upper} = \frac{\chi^2_{upper}}{2}$$

where:

χ^2_{lower} is the 97.5th percentile value from the χ^2 distribution with 2O degrees of freedom;

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

When O >= 389 then,

$$O_{lower} = O\left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$

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

Where:

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

[1] 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.

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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.

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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

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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+

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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 behavioural 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

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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
I20	Angina pectoris
I25	Chronic ischaemic heart disease
I50	Heart failure
I48	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

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