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**Indicator Supporting Documentation**

**IAP00335 Patients who have had an acute stroke who spend 90% or more of their stay on a stroke unit**

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| FIELD | CONTENTS |
| IAP Code | IAP00335 |
| Title | Patients who have had an acute stroke who spend 90% or more of their stay on a stroke unit |
| Published by | Department of Health and Social Care |
| Reporting period | Annual |
| Geographical Coverage | England |
| Reporting level(s) | National |
| Based on data from | Royal College of Physicians' Sentinel Stroke National Audit (RCP SSNAP) |
| Contact Author Name | Alison Roe, Senior Service Delivery Manager, HSCIC |
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| Rating | Fit for use with caveats. |
| Assurance date | 01/12/2015 |
| Review date | 01/12/2018 |
| Indicator set | CCG Outcomes Indicator Set (OIS) 3.9 |
| Brief Description  [This appears as a blurb in search results] | This indicator is the percentage of acute stroke patients that spend 90% or more of their hospital inpatient stay on a stroke unit. |
| Purpose | Stroke units are able to offer the best quality of stroke care both acutely and in the long-term. Management of eligible patients in a stroke unit will result in long-term reductions in death, dependency and the need for institutional care.  The indicator is, therefore, an important measure to show that patients are spending the majority of their stay on a stroke unit. It should be used in conjunction with Clinical Commissioning Group Outcome Indicator Set (CCG OIS) 3.5 (People with stroke admitted to an acute stroke unit within 4 hours of arrival to hospital) to provide an overall picture of patients’ transfer and time spent on a stroke unit. |
| Definition | Of the people who have had an acute stroke, the percentage that spend 90% or more of their hospital inpatient stay on a stroke unit. |
| Data Source | RCP SSNAP |
| Numerator | Of the denominator, the number of patients who spend 90% or more of their stay on a stroke unit. |
| Denominator | The number of patients entered into the Stroke Sentinel National Audit Programme (SSNAP) with a primary diagnosis of stroke. It excludes those whose first ward of admission was Intensive Treatment Unit (ITU), Critical Care Unite (CCU) or High Dependency Unit (HDU) and those who died on the same day as arrival/onset of symptoms. |
| Calculation | The indicator is calculated by dividing the numerator by the denominator and multiplying by 100 to produce a percentage indicator value. 95% confidence intervals are then calculated using the Wilson Score method. |
| Interpretation Guidelines | A high percentage of stroke patients entered into the Stroke Sentinel National Audit Programme (SSNAP) with a primary diagnosis of acute stroke who spend 90% or more of their stay on a stroke unit is desirable.  This indicator acknowledges that for a small percentage of patients, direct admission to a stroke unit is not appropriate. It differentiates between those who admitted to an acceptable alternative location, for example intensive care, and those who go to a 'non acceptable' location, for example a generic admissions unit. Those transferred to an acceptable location are excluded form the indicator.  This indicator requires careful interpretation and should not be viewed in isolation but instead be considered alongside information from other indicators and alternative sources. Examples include Clinical Commissioning Group Outcomes Indicator Set (CCG OIS) 3.5 'People with stroke admitted to an acute stroke unit within 4 hours of arrival to hospital' and the CCG level SSNAP stroke unit key indicators. When evaluated together, these will help to provide a comprehensive view of CCG outcomes and provide a more complete overview of the impact of the CCGs’ processes on outcomes. |
| Caveats | The patterns of providing care may vary between organisations in terms of hospital inpatient admission practices and policies.  There may be variation in the prevalence of stroke due to differing levels of deprivation, for other regional or demographic reasons or between patients of different ethnic heritages. |

Section 1 Introduction /Overview

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| **1.1 Title** |  |
| **1.2 Set or domain** | CCG Outcomes Indicator Set (OIS) 3.9 |
| **1.3 Topic area** | Cardiovascular |
| **1.4Definition** | Of the people who have had an acute stroke, the percentage that spend 90% or more of their hospital inpatient stay on a stroke unit.  Technical description: Of the number of patients entered into SSNAP with a primary diagnosis of stroke (except for those whose first ward of admission was ITU, CCU or HDU and those who died on the same day as arrival/onset of symptoms), the percentage of patients who spend 90% or more of their stay on a stroke unit.  (ITU = Intensive Treatment Unit, CCU = Critical Care Unit, HDU = High Dependency Unit)  The indicator is published annually in December for each CCG in England. It was published for the first time in December 2014 (2013/14 data). |
| **1.5 Indicator owner & contact details** | Alison Roe, Senior Service Delivery Manager, HSCIC  [ccgois@hscic.gov.uk](mailto:ccgois@hscic.gov.uk) |
| **1.6Publication status** | Currently in publication |

Section 2 Rationale

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| **2.1 Purpose** | Stroke units are able to offer the best quality of stroke care both acutely and in the long-term. Management of eligible patients in a stroke unit will result in long-term reductions in death, dependency and the need for institutional care. The indicator is therefore an important measure to show that patients are spending the majority of their stay on a stroke unit. It should be used in conjunction with CCG OIS 3.5 (People with stroke admitted to an acute stroke unit within 4 hours of arrival to hospital) to provide an overall picture of patients’ transfer and time spent on a stroke unit. |
| **2.2 Sponsor** | NHS England, named contact TBC |
| **2.3 Endorsement** | The indicator was constructed following consultation with the following clinical and stroke data experts:   * Professor Anthony Rudd, Chair of the Intercollegiate Stroke Working Party, Associate Director for Stroke, Consultant Stroke Physician * James Campbell, Sentinel Stroke National Audit Programme (SSNAP) Intelligence Programme Manager, Royal College of Physicians (RCP) * Lizz Paley, Acting Stroke Programme Intelligence Manager – Data, RCP |
| **2.4 Evidence and Policy base**  Including related national incentives, critical business question, NICE quality standard and set or domain rationale, if appropriate | This indicator supports the Quality Standard for stroke (QS2)¹ which covers care provided to adult stroke patients by healthcare staff during diagnosis and initial management, acute-phase care, rehabilitation and long-term management.  Patients who receive organised stroke unit care are more likely to survive their stroke, return home and make a good recovery2. According to the Department of Health’s National Stroke Strategy, stroke unit care is the single biggest factor that can improve a person’s outcomes following a stroke. Successful stroke units are built around a stroke-skilled multidisciplinary team that is able to meet the needs of the individuals3.  This indicator is also supported by the RCP National Clinical Guideline for stroke which includes the following Quality Marker (QM9): ‘All stroke patients have prompt access to an acute stroke unit and spend the majority of their time at hospital in a stroke unit with high-quality stroke specialist care’4;5.  Studies that have tested the effectiveness of stroke units have found that they help in reducing mortality. Stroke unit care as provided in routine clinical practice in England, Wales, and Northern Ireland reduces case fatality by ~25%, which is in line with the figures obtained from systematic analysis of stroke unit trial data6. In routine practice, stroke unit admission is associated with a greater likelihood of discharge home and with lower mortality up to 1 year7. Similar results have also been seen in a systematic review of observational studies of stroke unit implementation8, evidence that the benefit of stroke units translates across into trials more closely approximated with usual care. Studies also show that stroke units appear to reduce the risk of death following a stroke through the prevention and treatment of complications, in particular infections9.  1.Quality Standard for Stroke (QS2), NICE, June 2010 <https://www.nice.org.uk/guidance/qs2/chapter/Introduction-and-overview>  2. Stroke Unit Trialists' Collaboration, Organised inpatient (stroke unit) care for stroke, 2007 <http://www.ncbi.nlm.nih.gov/pubmed/17943737>  3. National Stroke Strategy, Department of Health, Dec 2007 <http://clahrc-gm.nihr.ac.uk/cms/wp-content/uploads/DoH-National-Stroke-Strategy-2007.pdf>  4. National Clinical Guideline for Stroke, Intercollegiate Stroke Working Party, RCP 4th ed. 2012  [http://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf](http://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf 5)  [5](http://www.rcplondon.ac.uk/sites/default/files/national-clinical-guidelines-for-stroke-fourth-edition.pdf 5). Cardiovascular Disease Outcomes Strategy, Department of Health, March 2013 <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/214895/9387-2900853-CVD-Outcomes_web1.pdf>  6. National Sentinel Audit of Stroke, Stroke Unit Care and Outcome, Jan 2005 <http://stroke.ahajournals.org/content/36/1/103.full.pdf>  7. Journal of Neurology, Neurosurgery and Psychiatry, The impact of stroke unit care on outcome in a Scottish stroke population, taking into account case mix and selection bias, June 2014 <http://jnnp.bmj.com/content/early/2014/06/25/jnnp-2013-307478.full>  8. Seenan et al, Stroke units in their natural habitat: systematic review of observational studies, 2007 <http://www.ncbi.nlm.nih.gov/pubmed/17463308>  9. Govan et al, Does the Prevention of Complications Explain the Survival Benefit of Organized Inpatient (Stroke Unit) Care? 2007 <http://stroke.ahajournals.org/content/38/9/2536> |

Section 3 Data

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|  | **3.1 Data source** | RCP SSNAP  The SSNAP is guided by the Intercollegiate Stroke Working Party (ICSWP) and delivered by the Stroke Programme within the Clinical Effectiveness and Evaluation Unit in the RCP. It is centrally funded by the Healthcare Quality Improvement Partnership (HQIP) on behalf of NHS England as part of the National Clinical Audit and Patient Outcomes Programme (NCAPOP).  <http://www.rcplondon.ac.uk/projects/sentinel-stroke-national-audit-programme> |
|  | **3.2Justification of source and others considered** | The SSNAP is the single source of data on stroke services, processes of care and outcomes. It provides the data for other statutory data collections in England, including the NICE Quality Standard and the five other CCG OIS stroke measures; it is also due to be used for the NHS Outcomes Framework. SSNAP metrics are aligned with those in the Cardiovascular Disease Outcomes Strategy.  Hospital Episode Statistics (HES) was considered as a data source for this indicator; however it does not contain the necessary detail required to measure stroke unit stay. |
|  | **3.3 Data availability** | CCG OIS indicators are published annually. SSNAP data for the full financial year is available to produce the indicator approximately 8 months after the financial year end; therefore the indicator is published each year in December.  CCG OIS indicators are official statistics and the publication date is pre-announced. There is no gap between the planned and actual publication date.  The RCP make this indicator, along with a number of others, accessible to the public via RCP reporting, including an Easy Access Version aimed at stroke survivors and carers. It is available via Excel spreadsheets and other formats including graphical representation. |
|  | **3.4 Data quality** | The indicator is published in the context of case ascertainment between SSNAP and HES. This is the percentage of patients with primary ICD-10 codes I61, I63 and I64 in HES who are included in SSNAP for the same time period.  The SSNAP is a mandatory collection and overall case ascertainment increased from 72% in Quarter 1 to 95% in Quarter 4, 2013/14 (Quarter 2: 83%, Quarter 3: 90%). It has further improved to 97% by Quarter 4, 2014/15. Case ascertainment is reported alongside the indicator for all CCGs in the published CCG OIS data files. 18 CCGs (8.5%) had their percentages suppressed in the published 2013/14 data due to less than 50% case ascertainment with HES.  Patient records are only included in audit analyses if they include the minimum requirements of completion of mandatory fields. The minimum includes all of the fields required to calculate this indicator. Case ascertainment is reported publicly at hospital level and therefore there is a strong incentive for hospitals to ensure they have submitted all of their patients to the audit and completed the mandatory fields. The data is received via a secure web tool which has strong built-in validation meaning that data is fully complete.  Patients are mapped to a CCG using patient postcode. National level figures are published including patients that could not be mapped to a CCG and therefore the total of the individual CCGs does not match the national level figure. Over 99% of patients are matched to a CCG across each of the CCG OIS stroke indicators. |
|  | **3.5Quality assurance** | As SSNAP data is subject to strong built-in validation via the secure web tool, it means that it is not possible for providers to enter illogical timings; however, this is double checked during analysis and therefore the accuracy of the indicator is very high. No assumptions are made regarding the arrival and discharge times, apart from when a patient died in hospital.  When submitting SSNAP data, security and confidentiality are maintained through the use of passwords and a person specific registration process. A dedicated helpdesk is in place to answer queries from SSNAP participants, helping to ensure questions are interpreted consistently (which informs updates to FAQs and data set help notes). Users can register for their team on the SSNAP web tool and input data for their team. Once records are complete and correct they can be ‘locked’ at different levels. Records can be ‘locked’ to 72 hours once this information is completed, they can then be locked to discharge once this is applicable. Locking confirms that all data have been clinically signed off and are ready for central analysis. The ‘Lead clinical contact’ role is responsible for ensuring that the overall system of data collection and entry onto the web tool is accurate, robust and functioning. The SSNAP encourage the lead to routinely check data. Only complete and locked to 72 hours records go into data analysis for the 72 hour section and complete and locked to discharge records go into data analysis for the post-72h section.  Eligibility criteria are applied to determine which records can be included in the audit. The criteria are: ICD-10 codes I61, I63, I64, but hospitals have means of checking for eligible patients other than their coding system and participants are encouraged to enter cases prospectively meaning the stroke team have more control over selecting records to be included and can also refer to their stroke register, should they have one. |
|  | **3.6Quality improvement plan**  If appropriate | N/A |
|  | **3.7Data linkage** | None. |
|  | **3.8 Quality of data linkage** | N/A |
|  | **3.9 Data fields** | The data fields supplied by the RCP are as follows:  1. Number of records in SSNAP  2. Estimated expected number (from HES)  3. Case ascertainment band  4. Numerator  5. Denominator  6. Percentage of applicable patients who spend over 90% of their inpatient stay on a stroke unit |
|  | **3.10 Data filters** | The SSNAP questions used in the construction of this indicator are as follows:  Q1.9 What was the diagnosis?  Q1.11 Date/time of onset/awareness of symptoms  Q1.13 Date/ time patient arrived at first hospital  Q1.14 Which was the first ward the patient was admitted to?  Q4.2 Which was the first ward the patient was admitted to in this hospital?  Q4.3 Date/time patient arrived on stroke unit at this hospital or Did not stay on stroke unit  Q7.1 The patient:  Q7.1.1 If patient died, what was the date of death?  Q7.1.2 Did the patient die in a stroke unit?  Q7.2 Date/time of discharge from stroke unit  Q7.3 Date/time of discharge/transfer from team  Denominator  Patients with a primary diagnosis of stroke (SSNAP Audit Question 1.9 recorded as ‘Stroke’), except those who went directly to ITU/CCU/HDU at any inpatient provider during their stay in hospital (where Q1.14 or Q4.2 is answered ‘ITU/CCU/HDU’ on any of the patient’s records) and those who died on the same day as arrival/onset of symptoms (Q7.1.1 is the same as Q1.13/Q1.11).  Numerator  Date and time of hospital discharge;  • In order to calculate the date and time of hospital discharge, the final inpatient record for each patient is used (SSNAP Audit Question 7.1 is not ‘Was transferred to another inpatient care team’).  • For patients who are discharged alive from inpatient care, the date and time of hospital discharge is Q7.3 (Date and time of discharge/transfer from team).  • For patients who die in a stroke unit (Q7.1.2 is answered ‘Yes’), the date and time of hospital discharge is calculated as the date component given in Q7.1.1 (What was the date of death?) with an assumed time component of 23:59.  • For patients who died in hospital, but not on a stroke unit (Q7.1.2 is answered ‘No’), and who were discharged from the stroke unit on the same day as the day of death (the date component of Q7.2 is the same as Q7.1.1) the date and time of hospital discharge is calculated as the date and time of stroke unit discharge (Q7.2).  • For patients who died in hospital, but not on a stroke unit (Q7.1.2 is answered ‘No’ or Q4.3 is answered ‘Did not stay on stroke unit’), and who were discharged from the stroke unit on a previous day to the day of death (the date component of Q7.2 is before Q7.1.1) the date and time of hospital discharge is calculated as the date component given in Q7.1.1 (What was the date of death?) with a time component of 00:00.  Length of stay in hospital;  • Length of stay in hospital is calculated as the difference between the date and time of hospital discharge as calculated above and either Q1.13 (date and time of arrival) or Q1.11 (date and time of symptom onset) for newly arrived patients or patients already in hospital at time of stroke, respectively minus 4 hours (which allows the inclusion of patients with short length of stays feasible for this indicator). In order to calculate the length of stay on a stroke unit, information from each inpatient record from all the teams a patient has been with must be combined.  • For patients who are discharged alive from the team, the length of stay on the stroke unit is the difference between Q4.3 (date and time the patient arrived on stroke unit at this hospital) and Q7.2 (date and time of discharge from stroke unit).  • For patients who die in a stroke unit (Q7.1.2 is answered “Yes”), the length of stay on the stroke unit is the difference between Q4.3 (date and time the patient arrived on stroke unit at this hospital) and the date component given in Q7.1.1 (What was the date of death?) with a time component of 23:59.  • For patients who died in hospital, but not on a stroke unit (Q7.1.2 is answered “No”), the length of stay on the stroke unit is the difference between Q4.3 (date and time the patient arrived on stroke unit at this hospital) and Q7.2 (date and time of discharge from stroke unit).  • For patients who did not stay on a stroke unit at a given team (Q4.3 is answered “Did not stay on a stroke unit”) the length of stay on the stroke unit is 0 minutes.  • Overall length of stay on a stroke unit per patient is calculated by summing the length of stay on stroke unit per team as calculated above. |
|  | **3.11 Justifications of inclusions and exclusions**  and how these adhere to standard definitions | See section 3.10.  As further information in regard to the denominator, some patients’ conditions are sufficiently serious that the most appropriate place to meet their needs is ITU, CCU or HDU. The reason for the audit having these exclusions is to prevent any perverse incentives to have all patients on a stroke unit even if they are better off being treated elsewhere.  The SSNAP uses the following ICD-10 diagnosis codes to identify stroke patients:   * I61 - Intracerebral haemorrhage * I63 - Cerebral infarction * I64 - Stroke, not specified as haemorrhage or infarction   The coding advice from the Clinical Classifications Service also includes I60 (Subarachnoid haemorrhage) and I62 (Other nontraumatic intracranial haemorrhage), however this advice would not be endorsed by the RCP as subarachnoid haemorrhage and other non-traumatic intracranial haemorrhage have a different care pathway and outcome.  The evidence base for the standards that informed the development of this measure are contained within the Stroke National Clinical Guidelines (4th Edition, 2012) Appendix 3 National Stroke Strategy Quality Markers QM9 Treatment: All stroke patients have prompt access to an acute stroke unit and spend the majority of their time at hospital in a stroke unit with high-quality stroke specialist care. (page 187) <http://www.rcplondon.ac.uk/resources/stroke-guidelines> |
|  | **3.12 Data processing** | The calculated CCG level indicator is provided by the RCP and includes the percentage, numerator, denominator and contextual information. It is provided with any necessary data suppression.  A 95% confidence interval is calculated by Clinical Indicators for each CCG prior to publication |

Section 4 Construction

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|  | **4.1 Numerator** | Of the denominator, the number of patients who spend 90% or more of their stay on a stroke unit. |
|  | **4.2 Denominator** | The number of patients entered into SSNAP with a primary diagnosis of stroke, except for those whose first ward of admission was ITU, CCU or HDU and those who died on the same day as arrival/onset of symptoms.  (ITU = Intensive Treatment Unit, CCU = Critical Care Unit, HDU = High Dependency Unit) |
|  | **4.3 Computation** | The percentage *p* is given by:  where:  *O* is the numerator and *n* is the denominator. |
|  | **4.4 Risk adjustment or standardisation type and methodology** | The indicator is not standardised or risk adjusted. |
|  | **4.5 Justification of risk adjustment type and variables**  or why risk adjustment is not used | All eligible patients should spend the majority of their stay on a stroke unit. |
|  | **4.6 Confidence interval / control limit use and methodology** | Confidence Intervals  Confidence intervals are calculated using the Wilson Score method, as specified in “Commonly used public health statistics and their confidence intervals” (Public Health England (PHE), March 2008 <http://www.apho.org.uk/resource/view.aspx?RID=48617>).  The formulae for the 100(1 – α)% confidence interval limits for the proportion p are:  where:  *O* is the observed number of individuals in the sample/population having the specified characteristic (i.e., the numerator);  *n* is the total number of individuals in the sample/population (i.e., the denominator);  *q* = (1 – *p*) is the proportion without the specified characteristic;  *z* is the 100(1 – *α*/2)th percentile value from the Standard Normal distribution. For example for a 95% confidence interval, *α* = 0.05, and *z* = 1.96 (i.e. the 97.5th percentile value from the Standard Normal distribution). |
|  | **4.7Justification of confidence intervals / control limits used** | The preferred PHE confidence interval method for proportions is the Wilson Score method8 which has been evaluated and recommended by Newcombe and Altman9;10. It can be used with any data values and, unlike some methods, it does not fail to give an interval when the numerator count, and therefore the proportion, is zero11.  8. Wilson EB. Probable inference, the law of succession, and statistical inference. J Am Stat Assoc 1927.  9. Newcombe RG. Two-sided confidence intervals for the single proportion: comparison of seven methods. Stat Med 1998.  10. Newcombe RG, Altman DG. Proportions and their differences. In Altman DG et al. (eds). Statistics with confidence (2nd edn). London: BMJ Books; 2000.  11. Agresti A, Coull BA. Approximate is better than ‘exact’ for interval estimation of binomial proportions. Am Stat 1998 |

Section 5 Presentation and Interpretation

Presentation

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| **5.1 Presentation of indicator** | The indicator is presented on the HSCIC Indicator Portal in a consistent format to other CCG OIS indicators. It is accompanied by indicator specification and quality statement documents, which provide details of indicator construction, data quality, statistical methods and interpretation considerations [http://indicators.ic.nhs.uk/webview](http://indicators.ic.nhs.uk/webview/index.jsp?v=2&submode=ddi&study=http%3A%2F%2F172.16.9.26%3A80%2Fobj%2FfStudy%2FP01855&mode=documentation&top=yes).  The data is presented with a detailed header including information on the statistic presented, the reporting period, level of coverage, publication date, data source, and any further notes to be aware of. The customer is also able to make use of drop-down filtering. |

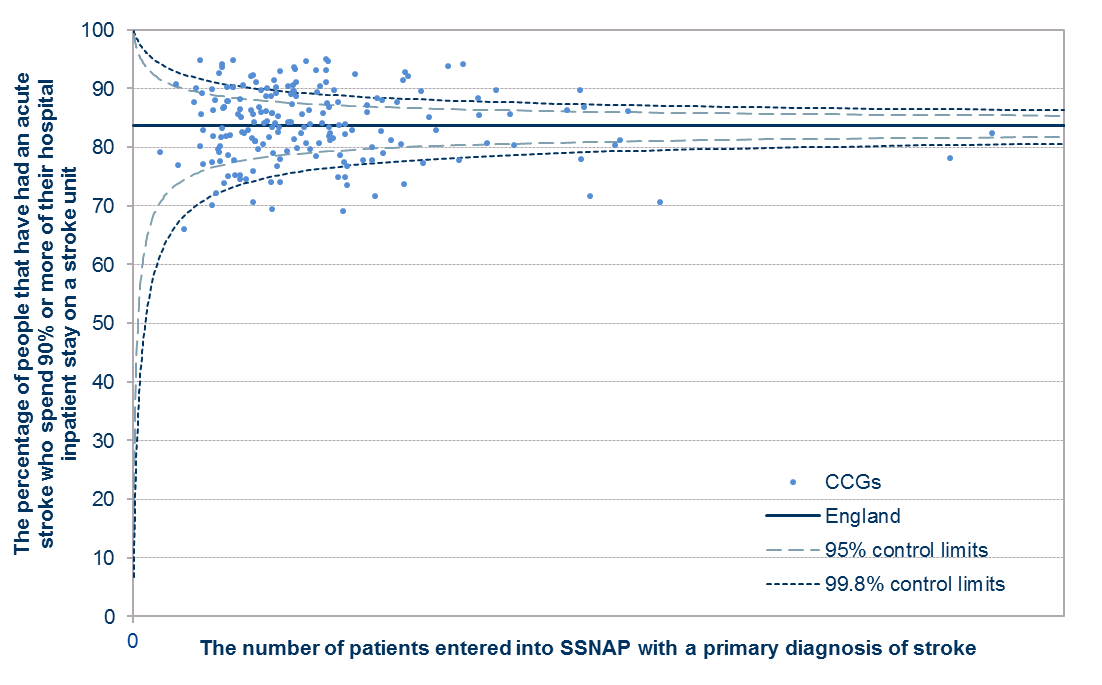
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| --- | --- |
| **Column name** | **Output** |
| Reporting period | Financial year |
| Breakdown | England, CCG |
| Level | CCG Code |
| Level description | CCG Name |
| Percentage | The indicator percentage calculation |
| CI lower | Lower 95% confidence interval |
| CI upper | Upper 95% confidence interval |
| Denominator | The number of eligible patients entered into the SSNAP audit with a primary diagnosis of acute stroke |
| Numerator | Of the denominator, the number of patients who spend 90% or more of their stay on a stroke unit. |
| Number of records in SSNAP (care delivered between 72hrs and discharge from inpatient care) | The number of cases in SSNAP for the ‘care delivered between 72hrs and discharge from inpatient care’ cohort of stroke patients |
| Estimated expected number of patients (from HES) | The number of cases in HES |
| Case ascertainment band | Case ascertainment between SSNAP and HES |

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| **5.2 Contextual information provided alongside indicator**  with justification | Alongside the numerator, denominator and percentage, the number of records in SSNAP (care delivered within first 72hrs) is provided for each CCG as contextual information.  The indicator is published in the context of case ascertainment between SSNAP and HES. This is the proportion of patients per CCG with primary ICD-10 codes I61, I63 and I64 in HES who are included in SSNAP for the same time period. Case ascertainment is reported alongside the indicator for all CCGs to highlight audit coverage against HES. MRG requested this further analysis in the original assurance process.  Case ascertainment is reported within the context of the ‘care delivered between 72hrs and discharge from inpatient care’ cohort of stroke patients for this indicator. The ‘Case ascertainment band’ column in the published output uses the following bandings:   * 90%+ * 80-89% * 70-79% * 50-69% * Less than 50%   The indicator is not reported for any CCGs with lower than 50% case ascertainment or for those with fewer than 20 patients. |
| **5.3 Calculation and data source of contextual information** | The contextual information is sourced from the SSNAP and provided by the RCP. |
| **5.4 Use of bandings, benchmarks or targets**  with justification | None. If a CCG believes their figure to be disproportionately low, the factors contributing to this can be investigated and appropriate action can be taken. |
| **5.5 Banding, benchmark or target methodology**  if appropriate | N/A |

Interpretation

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|  | **5.6 Interpretation guidelines** | A high percentage of stroke patients entered into the SSNAP audit with a primary diagnosis of acute stroke who spend 90% or more of their stay on a stroke unit is desirable.  This indicator acknowledges that for a small percentage of patients direct admission to a stroke unit is not appropriate. It differentiates between those who go to an acceptable other location (i.e. people transferred to intensive care are excluded from the indicator) compared to a ‘non acceptable’ location (e.g. generic admissions unit).  This indicator requires careful interpretation and should not be viewed in isolation but instead be considered alongside information from other indicators and alternative sources, such as CCG OIS 3.5 (People with stroke admitted to an acute stroke unit within 4 hours of arrival to hospital) and the CCG level SSNAP stroke unit key indicators. When evaluated together, these will help to provide a holistic view of CCG outcomes and provide a more complete overview of the impact of the CCGs’ processes on outcomes. |
|  | **5.7Limitations and potential bias** | The patterns of providing care may vary between organisations in terms of hospital inpatient admission practices and policies.  There may be variation in the prevalence of stroke due to differing levels of deprivation, for other geo-demographic reasons or between patients of different ethnic heritages. |
|  | **5.8 Improvement actions** | It is expected that CCGs will use this indicator to identify improvements in care and how they can be delivered.  Improvements could be made by enhancing aspects of the services CCGs commission for patients. This could come in the form of better recognition and assessment of the symptoms of stroke, particularly for those already in hospital, and an established process to transfer those people to a stroke unit in a timely manner. |
|  | **5.9 Evidence of variability** | The data within this section is taken from the December 2014 CCG OIS publication.  During the financial year 2013/14 there were 62,703 patients entered into SSNAP with a primary diagnosis of stroke (excluding those whose first ward of admission was ITU, CCU or HDU and those who died on the same day as arrival/onset of symptoms). Of these, 52,427 spent 90% or more of their stay on a stroke unit.  The data below shows the ten CCGs with the lowest and the ten CCGs with the highest percentages in 2013/14. 18 CCGs have been suppressed due to insufficient case ascertainment between SSNAP and HES and are not included within the data below. |

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| **CCG** | **%** | **LCI** | **UCI** | **Den** | **Num** | **Records in SSNAP** | **Records in HES** | **Case ascertainment** |
| **CCG1** | 65.9 | 55.5 | 75.0 | 88 | 58 | 93 | 147 | 50-69% |
| **CCG2** | 69.0 | 64.0 | 73.5 | 361 | 249 | 362 | 536 | 50-69% |
| **CCG3** | 69.5 | 63.4 | 74.9 | 239 | 166 | 241 | 274 | 80-89% |
| **CCG4** | 70.1 | 61.9 | 77.1 | 137 | 96 | 144 | 161 | 80-89% |
| **CCG5** | 70.5 | 64.0 | 76.3 | 207 | 146 | 211 | 195 | 90%+ |
| **CCG6** | 70.6 | 67.5 | 73.4 | 907 | 640 | 915 | 878 | 90%+ |
| **CCG7** | 71.6 | 67.1 | 75.8 | 416 | 298 | 418 | 371 | 90%+ |
| **CCG8** | 71.7 | 68.4 | 74.7 | 787 | 564 | 838 | 1401 | 50-69% |
| **CCG9** | 72.0 | 64.2 | 78.7 | 143 | 103 | 155 | 230 | 50-69% |
| **CCG10** | 73.4 | 68.7 | 77.7 | 369 | 271 | 373 | 463 | 80-89% |
|  |  |  |  |  |  |  |  |  |
| **CCG** | **%** | **LCI** | **UCI** | **Den** | **Num** | **Records in SSNAP** | **Records in HES** | **Case ascertainment** |
| **CCG184** | 93.5 | 90.0 | 95.9 | 278 | 260 | 279 | 300 | 90%+ |
| **CCG185** | 93.5 | 88.5 | 96.4 | 154 | 144 | 157 | 267 | 50-69% |
| **CCG186** | 93.7 | 91.4 | 95.5 | 543 | 509 | 552 | 648 | 80-89% |
| **CCG187** | 94.0 | 91.7 | 95.7 | 568 | 534 | 574 | 692 | 80-89% |
| **CCG188** | 94.2 | 89.3 | 96.9 | 154 | 145 | 155 | 203 | 70-79% |
| **CCG189** | 94.6 | 91.7 | 96.6 | 336 | 318 | 341 | 431 | 70-79% |
| **CCG190** | 94.6 | 91.5 | 96.7 | 298 | 282 | 306 | 470 | 50-69% |
| **CCG191** | 94.8 | 90.4 | 97.2 | 172 | 163 | 175 | 307 | 50-69% |
| **CCG192** | 94.8 | 89.2 | 97.6 | 116 | 110 | 117 | 142 | 80-89% |
| **CCG193** | 94.9 | 92.0 | 96.8 | 333 | 316 | 336 | 428 | 70-79% |



Section 6 Risks

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| --- | --- |
| **6.1 Similar existing indicators** | This indicator is published in different formats at CCG, trust and stroke team level on the SSNAP results portal <http://www.strokeaudit.org/results/Clinical-audit/National-Results.aspx>  The Accelerating Stroke Improvement National Plan was a national initiative designed to ensure that maximum implementation of the Quality Markers in the National Stroke Strategy were achieved before the end of the 2010/11 financial year. One of the measures (measure 4) looked at the proportion of patients spending 90% of their stay on a stroke unit, with the aim of 80% by April 2011 <http://www.stroke-in-stoke.info/otherfiles/Accelerating%20Stroke%20Improvement%20National%20Plan.pdf> |
| **6.2 Coherence and comparability** | The methodology and results for this indicator are consistent with the same indicator published on the SSNAP results portal. |
| **6.3 Undesired behaviours and/or gaming** | Undesired behaviours have been addressed within this indicator by excluding those whose first ward of admission was ITU, CCU or HDU. This is to prevent any perverse incentives to have all patients on a stroke unit even if they are better off being treated elsewhere. Some patients’ conditions are sufficiently serious that the most appropriate place to meet their needs may not be a stroke unit. |
| **6.4 Approach to indicator review** | The Indicator Governance Board (IGB) set a review period of one year when the indicator was originally assured, due to the relative immaturity of the SSNAP data set at that time. The time period for the next review will again be set by IGB.  User feedback and comments on this indicator are welcomed via HSCIC Enquires [enquiries@hscic.gov.uk](mailto:enquiries@hscic.gov.uk) or the CCG OIS mailbox [ccgois@hscic.gov.uk](mailto:ccgois@hscic.gov.uk) |
| **6.5 Disclosure control** | Case ascertainment used is the proportion of patients per CCG with primary ICD-10 codes I61, I63 and I64 in HES data who are included in SSNAP for the same time period.  Case ascertainment is reported alongside the indicator for all CCGs. The indicator is not reported for any CCGs with lower than 50% case ascertainment or for those with fewer than 20 patients, instead replacing the percentage with ‘\*’.  Percentages are rounded to one decimal place before publication. |
| **6.6 Copyright** | There are no restrictions on the use of these data. Any subsequent use or publishing of these data should reference the RCP SSNAP |

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| Logo of indicator governance board |
| Indicator Assurance Report |
|  |
| **IAP00335** |



**Final Assurance Rating from the Indicator Governance Board**

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| --- | --- |
| **Clarity** | **Fit for use** |
| **Rationale** | **Fit for use with caveats** |
| **Data** | **Fit for use with caveats** |
| **Construction** | **Fit for use** |
| **Presentation and Interpretation** | **Fit for use with caveats** |
| **Risks and Usefulness** | **Fit for use** |
| **Overall rating** | Fit for use with caveats |

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| **This indicator has been approved for inclusion in the National Library of Quality Assured Indicators** |

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| **Key findings from Assurance** |
| * No additional comments were raised by IGB who accepted the conclusions presented by MRG. The review date for this indicator has been set at 3 years, at which point IGB will re-consider the indicator’s suitability for inclusion in the Library of Assured indicators. |

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| **Approval date** | 14/12/2015 |
| **Review date** | 14/12/2018 |

**Details of Methodology Appraisal - 10/09/2015**

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| --- | --- |
| **Methodology appraisal body** | HSCIC's Indicator & Methodology Assurance Service |
| **Reason for assessment** | Unscheduled review (similar indicator submitted) |
| **Iteration** | 1st MRG meeting |

**Suggested Assurance Rating by Methodology Appraisal Body**

|  |  |
| --- | --- |
| **Clarity** | **Fit for use** |
| **Rationale** | **Fit for use with caveats** |
| **Data** | **Fit for use with caveats** |
| **Construction** | **Fit for use** |
| **Presentation and Interpretation** | **Fit for use with caveats** |
| **Risks and Usefulness** | **Fit for use** |
| **Overall rating** | Fit for use with caveats |

**Summary Recommendation to Applicant:**

MRG noted that the indicator has been previously assured as suitable for inclusion in the Library of Quality Assured Indicators, however this was under an earlier iteration of the assurance process. Members thanked the applicant for the “uplift” in documentation which has allowed the indicator to be assessed against the standard criteria assessment and “levels of assurance”.   
  
Upon review the indicator has been given an overall rating of “fit for purpose with caveats” and as such MRG are endorsing its inclusion in the Library of Quality Assured Indicators. However, there are improvements which could be made to the indicator, which can be found in the appraisal log below.

**Summary Recommendation to IGB:**

MRG endorse the indicator for inclusion in the Library, however there are small improvements which could be made to the metadata, specifically around the justification of measuring more than 90% specifically, justification of the data source, how and why HES is used to measure case ascertainment, and the interpretation guidelines. In addition, there is currently no named sponsor for the indicator.

**Please find a detailed description of recommendations and actions in the appraisal log at the end of the document.**

**What do the Assurance Ratings mean?**

|  |  |
| --- | --- |
| **Rating** | **Description** |
| **Fit for use** | This indicator can be used with confidence that it is constructed in a sound manner that is fit for purpose. |
| **Fit for use with caveats** | The indicator is fit for use, however users should be aware of caveats and/or recommendations for improvement that have been identified during the assurance process. |
| **Use with caution** | The indicator is based on a sound methodology for which the assurance process endorse the use, however issues have been identified with the national data source which have implications for its use as an indicator. |
| **Not fit for use** | Issues have been identified with the indicator which have resulted in the assurance process currently not endorsing its use as a quality indicator. |
| **Not enough information provided** | There has not been enough information supplied to the assurance process to be able to accurately give the indicator a level of assurance. |

**Appraisal Log**

**Clarity**

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| --- | --- | --- | --- | --- | --- | --- |
| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
| 1a | Ensure the documentation is consistent and uses “end diagnosis of stroke” OR “primary diagnosis of stroke”. | MRG  18/10/13 | The indicator specification and quality statement documents are consistent and refer to ‘primary diagnosis of stroke’. | During initial assurance |  | MRG  10/09/15 |
| 1b | Explanations of the principles would be helpful and should be included in the metadata, for example when discharge times have to be inferred when a patient has died. | MRG  18/10/13 | An explanation of arrival and discharge times is included in the Indicator Quality Statement:  ‘The data is received via a secure web tool which has strong built-in validation meaning that data is fully complete. No assumptions are made regarding the arrival and discharge times, apart from when a patient died in hospital. When calculating hospital discharges the indicator uses an assumed time component for time of death, for example 23:59. Firstly, this is due to information governance reasons as it was felt that it would be excessive to capture the exact time of death of patients. Secondly, clinicians need to feel confident that there will not be any negative consequences to providing the most suitable care when their patient is dying. Clincially, it may be best for the patient to be on another ward for their last few hours, which would negatively impact on the indicator if exact times were used.’ | 13/08/15 |  | MRG  10/09/15 |

**Rationale**

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| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
| 2a | A sponsor for the indicator needs to be identified. | MRG  10/09/15 | The sponsor of the CCG OIS is Richard Owen, Outcomes Strategy Lead, NHS Medical Directorate, NHS England. |  |  |  |
| 2b | The definition should be clear as to the types of stroke included in the indicator. | MRG  10/09/15 | A sentence is included in the definition section of the IAS application form and Indicator Quality Statement, stating: Stroke is defined within this indicator as intracerebral haemorrhage (ICD-10 code: I61), cerebral infarction (I63) and stroke, not specified as haemorrhage or infarction (I64). |  |  |  |
| 2d | Section 2 of the application form should state why the indicator is measuring the proportion of stroke patients who spend specifically **more than 90%** of their time on the stroke ward. | MRG  10/09/15 | The measurement of 90% of a patient’s stay is on a stroke unit is a legacy indicator and has clinical currency, which is based upon clinical expertise. It reflects the idea that patients should be spending the majority of their time on a stroke unit but that there are legitimate periods of time, such as transfer from an emergency department and being seen on other wards, which may be spent off the unit. |  |  |  |

Data

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| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
| 3a | Further detail is requested as to how the exclusion criteria was devised with evidence of the policy / standards that informed the developers decisions around exclusions. | IGB  16/1/14 | The exclusion criteria are stated in the denominator, which is defined as follows:  “*All patients entered into SSNAP with a primary diagnosis of stroke, except for those whose first ward of admission was ITU, CCU or HDU and those who died on the same day as arrival/onset of symptoms*.”  *(ITU = Intensive Treatment Unit, CCU = Critical Care Unit, HDU = High Dependency Unit)*  The RCP have confirmed that the reason for these exclusions are that some patients’ condition is sufficiently serious that the most appropriate place to meet their needs is  ITU, CCU or HDU. The reason for the audit having these exclusions is to prevent any perverse incentives to have all patients on a stroke unit even if they are better off being treated elsewhere.  The evidence base for the standards that informed the development of this measure are contained within the Stroke National Clinical Guidelines (4th Edition, 2012) Appendix 3 National Stroke Strategy Quality Markers QM9 Treatment : All stroke patients have prompt access to an acute stroke unit and spend the majority of their time at hospital in a stroke unit with high-quality stroke specialist care.  (page 187)  <http://www.rcplondon.ac.uk/resources/stroke-guidelines> | 13/08/15 |  | MRG  10/09/15 |
| 3c | The rationale for selecting the ICD-10 codes used to identify stroke patients should be clearly stated in the documentation for each indicator.  Update:  There is a discrepancy between what SSNAP and the clinical classifications service consider a stroke, therefore further justification for the codes used is required and the definition should be updated (as stated in recommendation 2b). | MRG - During initial appraisal of similar indicators  MRG  10/09/15 | The SSNAP uses the following ICD-10 diagnosis codes to identify stroke patients:   * I61 - Intracerebral haemorrhage * I63 - Cerebral infarction * I64 - Stroke, not specified as haemorrhage or infarction   The coding advice from the Clinical Classifications Service also includes I60 (Subarachnoid haemorrhage) and I62 (Other nontraumatic intracranial haemorrhage), however this advice would not be endorsed by the RCP as subarachnoid haemorrhage and other non-traumatic intracranial haemorrhage have a different care pathway and outcome.  Update:  Subarachnoid haemorrhages and other non-traumatic intracranial haemorrhages are routinely and nearly always managed entirely outside of the stroke unit by neurosurgeons or by interventional neuroradiologists, which is what is recommended in national guidelines for these cases. The indicators need to reflect the care given on appropriate clinical pathways, not arbitrary groupings. | During initial appraisal of similar indicators |  |  |
| 3d | The narrative around why SSNAP is being used as opposed to HES should be strengthened. The application states that over-coding occurs in HES, however the results in section 5.9 show that case “ascertainment” against HES is over 100%. | MRG  10/09/15 | The application for this indicator did not state that over-coding occurs in HES. The application stated that HES does not contain the necessary detail required to measure this indicator. |  |  |  |
| 3e | The applicant should consider how useful it is to provide case ascertainment against HES data, since it is recognised that over-coding occurs in HES, making the figure hard to interpret. If the figure is to be presented, MRG recommend changing the name from “case ascertainment” to “case comparison” and to present bands above 90+%. | MRG  10/09/15 | This contextual case ascertainment information aligns to the information and bandings presented in the RCP SSNAP publication. The RCP view is that it is not case comparison as it is not comparing the same year’s HES with SSNAP. Since the purpose of including case ascertainment is to highlight CCGs with low case ascertainment indicating that hospitals within the CCG have not been entering in all their patients onto SSNAP (and the results may therefore not reflect the care that all the CCGs patients received), having bands above 100% would not be useful. HES is not the ‘gold standard’, but it is a useful indication of case selection.  The HES case ascertainment figure (‘Estimated expected number of patients from HES’) is the number of patients who have been coded as a primary diagnosis of stroke during their admission in a year’s worth of HES, split by the patient’s CCG recorded in the HES record. The indicator is not reported for CCGs with less than 50% case ascertainment. |  |  |  |

**Construction**

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| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
| 4a | Reference to confidence interval methodology needed. | MRG  18/10/13 | Confidence intervals are calculated using the Wilson Score method, as specified in “Commonly used public health statistics and their confidence intervals” (Public Health England (PHE), March 2008 <http://www.apho.org.uk/resource/view.aspx?RID=48617>).  The formulae for the 100(1 – α)% confidence interval limits for the proportion p are:  where:  *O* is the observed number of individuals in the sample/population having the specified characteristic (i.e., the numerator);  *n* is the total number of individuals in the sample/population (i.e., the denominator);  *q* = (1 – *p*) is the proportion without the specified characteristic;  *z* is the 100(1 – *α*/2)th percentile value from the Standard Normal distribution. For example for a 95% confidence interval, *α* = 0.05, and *z* = 1.96 (i.e. the 97.5th percentile value from the Standard Normal distribution). | 13/08/15 |  | MRG  10/09/15 |
| 4b | Further information is requested as to the detail of the length of stay calculation, again with reference to any standard practice followed | IGB  16/1/14 | The following points provide details of the length of stay calculation as supplied by the RCP SSNAP. This information was provided in the MRG papers for assurance of this indicator:  Length of stay in hospital  Length of stay in hospital is calculated as the difference between the date and time of hospital discharge as calculated above and either Q1.13 (date and time of arrival) or Q1.11 (date and time of symptom onset) for newly arrived patients or patients already in hospital at time of stroke, respectively minus 4 hours (which allows the inclusion of patients with short length of stays feasible for this indicator). In order to calculate the length of stay on a stroke unit, information from each inpatient record from all the teams a patient has been with must be combined.  For patients who are discharged alive from the team, the length of stay on the stroke unit is the difference between Q4.3 (date and time the patient arrived on stroke unit at this hospital) and Q7.2 (date and time of discharge from stroke unit).  For patients who die in a stroke unit (Q7.1.2 is answered “Yes”), the length of stay on the stroke unit is the difference between Q4.3 (date and time the patient arrived on stroke unit at this hospital) and the date component given in Q7.1.1 (What was the date of death?) with a time component of 23:59.  For patients who died in hospital, but not on a stroke unit (Q7.1.2 is answered “No”), the length of stay on the stroke unit is the difference between Q4.3 (date and time the patient arrived on stroke unit at this hospital) and Q7.2 (date and time of discharge from stroke unit).  For patients who did not stay on a stroke unit at a given team (Q4.3 is answered “Did not stay on a stroke unit”) the length of stay on the stroke unit is 0 minutes.Overall length of stay on a stroke unit per patient is calculated by summing the length of stay on stroke unit per team as calculated above. | 13/08/15 |  | MRG  10/09/15 |

**Presentation and Interpretation**

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| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
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**Risks and Usefulness**

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| --- | --- | --- | --- | --- | --- | --- |
| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
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**Any complaints or appeals against the decisions made during the assurance process should be made to the Indicator & Methodology Assurance Service (IMAS) Team at HSCIC. Likewise, if you are unclear regarding any of the recommendations in this report, or have any queries about the assurance process in general, please contact the IMAS team.**

**Indicator and Methodology Assurance Service**

**Health and Social Care Information Centre**

**1 Trevelyan Square, Boar Lane,**

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**LS1 6AE.**

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