Indicator Assurance Report

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

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

Final Assurance Rating from the Indicator Governance Board

| Clarity | ⭐️ |
| Rationale | ⬤ |
| Data | ⬤ |
| Construction | ⭐️ |
| Presentation and Interpretation | ⬤ |
| Risks and Usefulness | ⭐️ |

Fit for use with caveats

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

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 reconsider the indicator’s suitability for inclusion in the Library of Assured indicators.

Approval date 14/12/2015
Review date 14/12/2018
Patients who have had an acute stroke who spend 90% or more of their stay on a stroke unit

Details of Methodology Appraisal - 10/09/2015

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

<table>
<thead>
<tr>
<th>Clarity</th>
<th>Rationale</th>
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<th>Presentation and Interpretation</th>
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</tr>
</thead>
<tbody>
<tr>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>⬤</td>
<td>★</td>
</tr>
</tbody>
</table>

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

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

**What do the Assurance Ratings mean?**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>★</td>
<td><strong>Fit for use</strong>&lt;br&gt;This indicator can be used with confidence that it is constructed in a sound manner that is fit for purpose.</td>
</tr>
<tr>
<td>★☆</td>
<td><strong>Fit for use with caveats</strong>&lt;br&gt;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.</td>
</tr>
<tr>
<td>!</td>
<td><strong>Use with caution</strong>&lt;br&gt;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.</td>
</tr>
<tr>
<td>❌</td>
<td><strong>Not fit for use</strong>&lt;br&gt;Issues have been identified with the indicator which have resulted in the assurance process currently not endorsing its use as a quality indicator.</td>
</tr>
<tr>
<td>❌☆</td>
<td><strong>Not enough information provided</strong>&lt;br&gt;There has not been enough information supplied to the assurance process to be able to accurately give the indicator a level of assurance.</td>
</tr>
</tbody>
</table>
## Assurance Record

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

### Appraisal Log

<table>
<thead>
<tr>
<th>Clarity</th>
<th>Issue or recommendation</th>
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<tr>
<td>1a</td>
<td>Ensure the documentation is consistent and uses “end diagnosis of stroke” OR “primary diagnosis of stroke”.</td>
<td>MRG 18/10/13</td>
<td>The indicator specification and quality statement documents are consistent and refer to ‘primary diagnosis of stroke’.</td>
<td>During initial assurance</td>
<td>✔️</td>
<td>MRG 10/09/15</td>
</tr>
<tr>
<td>1b</td>
<td>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.</td>
<td>MRG 18/10/13</td>
<td>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. Clinically, it may be best for the patient to be on another ward for their last few hours, which</td>
<td>13/08/15</td>
<td>✔️</td>
<td>MRG 10/09/15</td>
</tr>
</tbody>
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Patients who have had an acute stroke who spend 90% or more of their stay on a stroke unit

### Rationale

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<tr>
<td>2a</td>
<td>A sponsor for the indicator needs to be identified.</td>
<td>MRG 10/09/15</td>
<td>The sponsor of the CCG OIS is Richard Owen, Outcomes Strategy Lead, NHS Medical Directorate, NHS England.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2b</td>
<td>The definition should be clear as to the types of stroke included in the indicator.</td>
<td>MRG 10/09/15</td>
<td>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).</td>
<td></td>
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<tr>
<td>2d</td>
<td>Section 2 of the application form should state why the indicator is measuring the proportion of stroke patients who spend specifically <strong>more than 90%</strong> of their time on the stroke ward.</td>
<td>MRG 10/09/15</td>
<td>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.</td>
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| 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. | 13/08/15 | ✔ | MRG 10/09/15 |
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The rationale for selecting the ICD-10 codes used to identify stroke patients should be clearly stated in the documentation for each indicator.

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.
**Assurance Record**

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

### Construction

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| 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:  
\[
P_{\text{lower}} = \frac{2O + z^2 - z \sqrt{z^2 + 4Oq}}{2(n + z^2)}
\]
\[
P_{\text{upper}} = \frac{2O + z^2 + z \sqrt{z^2 + 4Oq}}{2(n + z^2)}
\]

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; | 13/08/15 | ✓        | MRG 10/09/15 |

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

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| 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 | 13/08/15 | ☑ | MRG 10/09/15 |

### z is the 100(1 – α/2)th percentile value from the Standard Normal distribution. For example for a 95% confidence interval, \( \alpha = 0.05 \), and \( z = 1.96 \) (i.e. the 97.5th percentile value from the Standard Normal distribution).

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

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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
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Website: http://www.hscic.gov.uk/article/1674/Indicator-Assurance-Service