**NHS Digital**

**Indicator Supporting Documentation**

**IAP00517 The proportion of patients recovering to their previous levels of mobility / walking ability at 120 days (CCGOIS)**

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| **Title** | Hip fracture: proportion of patients recovering to their previous levels of mobility / walking ability at 120 days |
| **Set or domain** | CCG OIS |
| **Topic area** | Hip fracture |
| **Definition** | The indicators measure the proportion of patients aged 60 or over recovering to a level of mobility at (i) 30 and (ii) 120 days after their hip fracture, which was better, the same or only one mobility category worse than mobility category prior to the hip fracture.  The indicators are reported annually by calendar year from 2013 onwards, are reported at CCG, and national level, where national is an aggregation of all the England CCG values.  It excludes patients whose pre-fracture mobility was classified as category 4 or 5, or patients who have no pre-fracture mobility category recorded or where the mobility category at 30 or 120 days post admission was not recorded.  The indicator is calculated using data from the National Hip Fracture Database (NHFD). |

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| **Section 1** | **Rationale** |
| **Purpose** | Identifying levels of mobility at 30 and 120 days are indicators of the effectiveness of rehabilitation after discharge from the hospital admission. The time required for recovery from hip fracture surgery means that, if previous levels of mobility are likely to be regained, this will require appropriate rehabilitation services to be provided some time after discharge. The indicator is therefore an important measure of the effectiveness of rehabilitation within the wider local healthcare system outside of the inpatient setting, and the quality and availability of this are matters within the purview of CCG commissioning. CCGs can use this indicator to track their scores over time and compare themselves with other CCGs. |
| **Sponsor** | NHS England, Contact name tbc. |
| Evidence and Policy base  Including related national incentives, critical business question, NICE quality standard and set or domain rationale, if appropriate | The rapid restoration of physical and self-care functions is critical to recovery from hip fracture, particularly where the goal is to return the patient to preoperative levels of function and residence. Loss of pre-fracture mobility and independence currently results in between a quarter and one third of such patients requiring a permanent change in residence. Early surgery, good perioperative care, supported multidisciplinary rehabilitation and falls risk intervention can reduce hospital stay, improve early return to function affecting both readmission rates and the levels of Social Care or NHS Continuing care-funded care support. Mortality following hip fracture is high (as a result of comorbidities).  The indicators form part of domain 3 of the CCG OIS. The Fragility Fractures Programme at DH was initiated in 2009, clinically led by NCD for Trauma Care, Prof Keith Willett, and the NCD for Older People, Prof David Oliver. The issues the programme sought to address were the care of hip fracture patients and the prevention of fractures amongst the high risk population. The programme looked for system architecture improvements that would improve the priority given across the NHS to those at risk of fragility fractures, and reduce the effect of delays, co-morbidities and lengthy stays in hospitals or care facilities.  The Clinical Commissioning Group Outcomes Indicator Set (CCG OIS) is an integral part of NHS England’s systematic approach to quality improvement. It is intended to provide clear, comparative information for CCGs, patients and the public about the quality of health services commissioned by CCGs and the associated health outcomes. All of the CCG Outcomes indicators have been chosen on the basis that they contribute to the overarching aims of the five domains in the NHS Outcomes Framework and it is intended as a tool for CCGs to drive local improvement and set priorities. |

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|  | **Evidence and Policy base**  Including related national incentives, critical business question, NICE quality standard and set or domain rationale, if appropriate |  |

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| 1. Data |  |
| **Data source** | National Hip Fracture Database (NHFD) |
|  | The National Hip Fracture Database (NHFD) is a clinically led, web-based quality improvement initiative commissioned by the Healthcare Quality Improvement Partnership (HQIP) and managed by the Royal College of Physicians (RCP).  All 182 eligible hospitals in England, Wales and Northern Ireland are now regularly submitting data to NHFD, the largest hip fracture database in the world, with:  • a third of a million cases recorded since its launch in 2007  • over 95% of all new hip fracture cases being documented  • 5,700 records being added every month. |
| **Data availability** | The data is provided on request by Health Quality Improvement Partnership (HQIP). A data sharing agreement between the HSCIC and HQIP is set up.  Data is expected to be available 6 months after the end of the reporting period (calendar year) to allow for a follow up period of 120 days  Data is supplied at CCG level by data sharing agreement and is not publically available. |

The assumption is that more data will be submitted to NHFD. The risk is that walking ability at 120 days is timely and costly to collect.

**Low recording rates of mobility category**

When these indicators were previously discussed for inclusion in the NHS Outcomes Framework an issue was raised regarding low recording rates of mobility category at 30/120 days in the NHFD.

For a record to be included in either the 30 day or the 120 day analysis there must be a record of mobility status at both time of admission and at the 30/120 day point (after admission).

A sample analysis was undertaken on 2014 data to determine the numbers involved.

The results can be seen in table 1 below.

Table 1: Number of total patients with valid CCG and valid mobility categories (1, 2 or 3) from NHFD 2014

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| **Follow-up Period** | **Cases of Hip Fracture** | **Eligible for Indicator** | **Recovered (of eligible)** | **Excluded** | **Pre-fracture mobility score of 4 or 5 (filter, included in ‘Excluded’ total)** |
| **30 Days** | 57,680 | 9,880 (17.1%) | 2,375 (24%) | 47,800(82.9%) | 23,260 (40.3%) |
| **120 Days** | 57,680 | 7,172(12.4%) | 3,609 (50.3%) | 50,508(87.6%) | 23,260 (40.3%) |

Table 2: Breakdown of reasons for exclusion from hip fracture indicators 3.10.i and 3.10.ii from NHFD 2014

3.4 Data quality

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| **Exclusion reasons** | **Missing score pre-fracture** | **Missing score at pre-fracture and 30/120 days** | **Missing score at 30/120 days only** | **Missing CCG Code(exclusion)** | **Invalid CCG Code(exclusion)** |
| **30 Days** | 697 | 3,747 | **35,968** | 2,590 | 360 |
| **120 Days** | 349 | 4,095 | **27,248** | 1,574 | 360 |

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|  | **Quality assurance** | The numerator, denominator and indicator value data supplied is sense checked before we publish it on our Portal.  The confidence intervals are independently dual calculated by HSCIC analysts.  CCG rates with numerator and denominator are published by the HSCIC, with suppression of small numbers in the numerators & denominators |
|  | **Quality improvement plan**  If appropriate | Whilst the aim is to improve data quality in the recording of mobility status at 30 and120 days post fracture, while these metrics falls outside of the Best Practice Tariff, it is unlikely that quality will improve. |
|  | **Data linkage** | None |
|  | **Quality of data linkage** | N/A |
|  | **Data fields** | 1. Age 2. Date and time of admission to A&E 3. Discharge destination from acute orthopaedic ward 4. Discharge destination from hospital trust 5. Walking ability indoors 6. Walking ability outdoors 7. Accompanied to walk indoors  8. Accompanied to walk outdoors  9. Walking ability indoors at 30 days  10. Walking ability outdoors at 30 days  11. Accompanied to walk indoors at 30 days  12. Accompanied to walk outdoors at 30 days  13. Mobility at admission (derived from fields 5 to 8)  14. Mobility at 30 days (derived from fields 9 to 12) |
|  | **Data filters** | 1. Field: Age  Conditions: Between 60 and 110  Rationale: Restricts the data to patients aged 60 to 110 years inclusive.  2. Field: Hospital admission date  Conditions: Between 1 January and 31 December inclusive for the year being reported  Rationale: Selects only those admitted during the relevant calendar year.  3. Field: Pre-fracture mobility category  Conditions: Equal to 1 or 2 or 3  Rationale: Excludes patients whose pre-fracture mobility was classified as category 4 or 5, or patients who have no pre-fracture mobility category recorded.  4. Field: Mobility category 30/120 days post admission  Conditions: Is not NULL  Rationale: Excludes records where mobility category 30 days post admission was not recorded. |
|  | **Justifications of inclusions and exclusions**  and how these adhere to standard definitions | The indicator only includes patients aged 60 or over with a pre- hip fracture mobility score in either category 1, 2 or 3. This is because any patient in either category 4 or 5 cannot fall more than 1 mobility category and therefore will always be determined to have recovered. |
|  | **Data processing** | The NHFD current dataset records walking ability indoors, walking ability outdoors and whether a patient is accompanied to walk outdoors at admission and at 30 and 120 days post-admission.  For walking ability indoors the available options are:   * Regularly walked without aids * Regularly walked with one aid * Regularly walked with two aids or frame * Wheelchair or bedbound   For walking ability outdoors the available options are:   * Regularly walked without aids * Regularly walked with one aid * Regularly walked with two aids or frame * Electric buggy * Wheelchair or bedbound * Never goes outdoors   For whether the patient is accompanied to walk outdoors the available options are:   * No * Yes * Wheelchair or bedbound * Never goes outdoors   For this outcome indicator patients with the above characteristics will be placed into five categories according to a simple algorithm for mobility. A summary of the category derivations from the above is provided below. |

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| Section 3: Construction |  |
| **Numerator** | Count of all patients aged 60 or over recorded in the NHFD who have survived to 30 / 120 days and who have either:  • improved (lower mobility category after 30/120 days than pre- hip fracture)  • remained the same (same mobility category after 30/120 days as pre- hip fracture)  or deteriorated (only 1 mobility category higher after 30/120 days than pre- hip fracture). |
| **Denominator** | Count of all patients aged 60 or over recorded in the NHFD as having had a hip fracture in the designated 12 month period plus 30/120 days for their follow-up where:  • The patient has survived to 30 / 120 days  There is a completed data field for pre-hip fracture mobility and for mobility 30/120 days after the hip fracture |
| **Computation** | The indicator is aggregated by Clinical Commissioning Group (CCG) and is a numerator / denominator construct, reported as a percentage. |
| **Risk adjustment or standardisation type and methodology** | None  Variables and methodology: |
| Justification of risk adjustment type and variables  or why risk adjustment is not used | The use of risk adjustment is not applicable as eligibility criteria are contained within the audit question (i.e. non-applicable patients are excluded as part of the calculation |
| **Confidence interval / control limit use and methodology** | Confidence Intervals |
|  | The confidence intervals follow the method for proportions as stated in the APHO technical briefing 3 - Commonly used public health statistics and their confidence intervals  95% confidence intervals are calculated using Wilson Score method1,2 using the following formulae:      1 Wilson EB. Probable inference, the law of succession, and statistical inference. J Am Stat Assoc 1927; 22: 209–12.  2 Newcombe RG, Altman DG. Proportions and their differences. In Altman DG et al. (eds). Statistics with confidence (2nd edn). London: BMJ Books; 2000: 46–8.  where:  q is 1– ( /100); p  o is the numerator observed number of individuals in the sample;  n is the denominator total number of individuals in the sample. |
| **Justification of confidence intervals / control limits used** | The confidence intervals follow the method for proportions as stated in the APHO technical briefing 3 - Commonly used public health statistics and their confidence intervals |

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| Presentation |  |
|  | The calculated CCG indicators, including numerator and denominator, will be publicly available on the HSCIC indicator portal. Excel and csv files will be published for each of the indicators.  **Excel and CSV output**  **Period of coverage**  01/01 to 31/12 of the respective year  Indicator value  Percentage of admitted patients whose mobility category at 30 days was lower, the same or only one mobility category higher than the pre-fracture mobility category  Denominator  Number of admitted patients with a mobility score of 1, 2 or 3 recorded at admission, and a mobility score recorded at 30 days  Numerator  Number of patients in the extract whose mobility category at 30 days was lower, the same or only one mobility category higher than mobility category at admission |
| Contextual information provided alongside indicator  with justification | None. NHFD do not currently produce any follow-up contextual information. |
| **Use of bandings, benchmarks or targets**  with justification | None. Due to issues with data completeness it would not be appropriate to apply bandings to this indicator. Additionally, as there is no mandate to record this information it would be difficult to justify any benchmarking or banding of indicator values. |
| **Interpretation guidelines** | A high percentage is desirable to indicate that patients with a fragility fracture are receiving the best care possible for their condition.  For a patient to be eligible for inclusion in the indicator there must be a record of mobility status at both time of admission and at 30 and 120 days after admission.  Currently the data completeness for this indicator is poor. In 2013 over 57,000 patients living England were captured within NHFD as being admitted with a hip fracture. Of these, 48,749 patients met the initial indicator criteria of being aged 60 or above, having a valid CCG and a valid mobility score prior to their admission. Of these patients, 21,430 were excluded from the analysis as their pre-fracture mobility score was in either category 4 or 5 and a further 18,896 were excluded as they did not have a valid mobility score at 30 or 120 days post admission. This leaves less than 9,000 records that are eligible for inclusion in the indicator calculation.  The reliability of the indicator is therefore questionable, as there is no guarantee that the small percentage of records that are captured in the data are representative of the overall population. This fact must be kept in mind when interpreting the indicator values, as they could potentially be misleading. |
|  | None. Due to issues with data completeness it would not be appropriate to apply bandings to this indicator. Additionally, as there is no mandate to record this information it would be difficult to justify any benchmarking or banding of indicator values. |
| Interpretation | A high percentage is desirable to indicate that patients with a fragility fracture are receiving the best care possible for their condition.  For a patient to be eligible for inclusion in the indicator there must be a record of mobility status at both time of admission and at 30 and 120 days after admission.  Currently the data completeness for this indicator is poor. In 2013 over 57,000 patients living England were captured within NHFD as being admitted with a hip fracture. Of these, 48,749 patients met the initial indicator criteria of being aged 60 or above, having a valid CCG and a valid mobility score prior to their admission. Of these patients, 21,430 were excluded from the analysis as their pre-fracture mobility score was in either category 4 or 5 and a further 18,896 were excluded as they did not have a valid mobility score at 30 or 120 days post admission. This leaves less than 9,000 records that are eligible for inclusion in the indicator calculation.  The reliability of the indicator is therefore questionable, as there is no guarantee that the small percentage of records that are captured in the data are representative of the overall population. This fact must be kept in mind when interpreting the indicator values, as they could potentially be misleading. |
| **Limitations and potential bias** | Despite the inclusion of “previous” levels of mobility in the title there is no expectation within the indicator that patients will get back to the exact same level of mobility. HSCIC had recommended the description “effective” recovery.   1. **Low recording rates of mobility category** (see section 3.4)   Although the majority of trusts complete the pre-injury mobility scoring at the time of the admission, the 30 and 120 day follow-up is generally done by phone or letter. It is self-reported and some hospitals do not undertake any follow-up. However, it is hoped that with the inclusion of these indicators in the CCG OIS CCGs will 'encourage' an increase in their follow-up reporting.  It is proposed to highlight this issue in the Indicator Quality Statement. This is already being done for the NHS Outcomes indicators 3.5.i and 3.5.ii. |
|  | **Possible selection bias**  To discover whether the 15% (12% for 120 day outcome) of records eligible for inclusion in the indicator values were representative of the total number of patients in the NHFD, an analysis has been carried out on 2012 NHFD data to look at the distribution of total patients by age and gender and compare them to the distribution of patients with a valid mobility score at point of admission as well as the 30/120 day point.  The table and chart below show the results: |

This table shows the results by gender, age and % of patients by day analysis

This graph shows the age, gender and valid scores by days

The distribution of patients is similar for each of the male age groups. The proportion of females who are 90+ is higher overall than the number of eligible patients for the 2 indicator values (18% compared to 10% respectively).

This can be highlighted in the indicator quality statement.

Small numbers when broken down by CCG

After all filters have been applied to the original hip fracture data only 8,700 records or 15% of the total number of patient records (6,700 records for the 120 day analysis – 12% of total records) are included from which to calculate the overall indicator values from.

When this is additionally broken down by CCG there is an issue with small numbers. As the calculation of the indicator does not involve a standardisation method this won’t be an issue for this.

However, if we would apply the appropriate disclosure controls (where the numerator is <5) a large number of indicator values for CCGs would have to be disclosed.

Please see table 2 below for further information.

Table 2

This table shows the number of CCGs by day outcomes

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**Table 2**

This table shows the number of CCGs by day outcomes

The table shows that 24% and 15% of CCGs for the 30-day and 120-day indicator respectively have no data. For another 30% (35% for the 120-day indicator) values would have to be suppressed.

Therefore only around 50% of CCGs where the numerator is 5 or greater would have an indicator value published for 2012.

**Improvement actions**

The indicators measure the proportion of patients who recover effective mobility following a hospital admission for a hip fracture. In order to be considered as recovering to previous levels of mobility in, a patient must have a mobility score at 30 or 120 days, no more than 1 category lower than their mobility score prior to the fracture. Clinically this is considered to be a good outcome.

It is expected that Clinical Commissioning Groups will use this to identify how improvements in care can be made.

**Evidence of variability**

Risks

**Similar existing indicators**

The two indicators proposed for inclusion in the CCG OIS are already part of the NHS Outcomes Framework (3.5.i and 3.5.ii).

**Coherence and comparability**

Although the calculation methodology is the same as for the already existing NHS Outcomes Framework indicators 3.5.i and 3.5.ii the inclusion in the CCG OIS means that the indicator values will be available at CCG level. The NHS Outcomes Framework indicators are currently published at national level (England) and broken down by age, gender, Deprivation quintile, lower tier local authority, region, provider (hospital) and mobility category at admission.

**Undesired behaviours and/or gaming**

Failing to record a score at either 30 or 120 days will exclude any patients and so not record a score for a CCG, or, recording patients at either mobility category 4 or 5 to begin with will also ensure any follow up scores are not used. Either of these tactics could be used to exclude cases from negatively affecting a CCGs overall score.

**Approach to indicator review**

The time period for when the indicator is to be reviewed will be set by the indicator Governance Board (IGB).

The indicator itself will be reviewed as part of NHS England’s annual CCG OIS review.

MRG Assessment Summary (23/07/2015)

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| IAS Reference Code | IAP00517 |
| Title | **Hip fracture: proportion of patients recovering to their previous levels of mobility / walking ability at 120 days** |
| Set / Framework | CCGOIS |
| Reason for assessment | Initial assurance   * Earlier application in 2014 concluded at MRG stage. Updated application put forward for re-assessment in 2015 |
| Iteration | 1st MRG meeting |

**Assurance Rating by MRG**

**Summary Recommendation**

Although the indicator adequately met most assurance criteria, the indicator was rated “Not fit for purpose” on the grounds that the data quality is very poor, with no incentive or mechanism to improve it. MRG do not endorse the indicator for inclusion in the National Library of Quality Assured Indicators.

IGB Assessment Summary (13/08/2015)

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| --- | --- |
| IAS Reference Code | IAP00517 |
| Title | **Hip fracture: proportion of patients recovering to their previous levels of mobility / walking ability at 120 days** |
| Set / Framework | CCGOIS |
| Reason for assessment | Initial assurance |

**Summary of discussion**

The indicator is put forward for use in the NHS Outcomes Framework and CCG Outcomes Indicator Set. The indicator derived for use in the NHSOF (i.e. for reporting at the national level) had been previously assured and as such was put forward for review. The indicator had not previously been presented to IGB for assurance as a CCG level indicator. IGB noted MRG’s concern around the poor data quality of the indicators and suggested that feedback was need to be given to NICE around the lack of mandate to collect some of the data fields used in the indicator. IGB accepted MRG’s conclusion that the methodology in general was fine, but requested that the overall conclusion be that the indicators are identified with a use with caution flag rather than be labelled not fit for purpose. This is on the basis that the Library’s primary purpose is to hold quality methodologies and in terms of the Library, data quality is of lesser concern.The indicators are to be included in the Library with an assurance level of “use with caution” However any associated indicator quality statement published when the indicator produced requires a clear warning of the limitations data quality has on interpretation and use. Correspondence will be sent by IGB to SCCI and NICE observing the lack of mandate to collect date in some of the fields used in the indicator methodology.

**IGB Actions**

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| Sign off of MRG assessment | Yes - with minor ammendments |
| Library status | Published in the Library |
| Review date | **13/08/2018** |

**Final IGB Assurance Rating**

Use with caution

Appraisal Log

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| Number | Issue or recommendations | Raised by/ Date | **Response / Action taken (if appropriate)** | **Response date** | **Resolved** | **Checked by / Date** |
| **Criterion: CLARITY** | Recommendation made during the assurance of the NHS OF equivalent indicator:  The description of indicator needs to be re-worded to better match what is being calculated – i.e. not just patients who recover to their previous levels of mobility but also those who have dropped by no more than one mobility category. DH to be approached for an alternative title.  IGB commented that the titling of the indicator does not reflect the description of the construction (i.e. numerator). It is recommended the definitions and descriptions used in the indicator are reviewed ahead of the Autumn 2013 publication. | MRG  8/11/12  IGB  30/11/12 | As this indicator is defined within the NHS Outcomes Framework we are unable to change the actual title. However, we have updated the definition of the indicator to make it clear that it also covers those patients who were one mobility category worse than previously. The definition is now:  “The indicator measures the proportion of patients, expressed as a percentage, aged 60 or over recovering to a level of mobility at 30 days after their hip fracture, which was better, the same or only one mobility category worse than the mobility category prior to the hip fracture.” | 17/7/15 | Yes | MRG  23/07/15 |
| **Criterion: RATIONALE** | The evidence/policy base for measuring patients at 30 and 120 days should be added to the paperwork. | MRG  23/07/15 |  |  |  |  |
| **Criterion: DATA** | Recommendation made during the assurance of the NHS OF equivalent indicator:  Clarification should be provided on the rationale for the exclusion of patients aged under 60 | MRG  8/11/12 | Data for the under 60s isn’t collected as part of the NHFD. | 17/07/15 | Yes | MRG  23/07/15 |
|  | The percentage of cases included in the indicator is very low, which makes sample bias very likely. In addition, due to small numbers, a large percentage of results are suppressed. | MRG  23/07/15 |  |  |  |  |
|  | Related to the point above, there are no incentives to improve the data quality, and as the mobility levels are self-reported, there is no clear mechanism for improvement. | MRG  23/07/15 | IGB noted MRG’s concern around the poor data quality of the indicators and suggested that feedback was need to be given to NICE around the lack of mandate to collect some of the data fields used in the indicator. |  |  |  |
| **Criterion: CONSTRUCTION** | The mobility scale used is not sensitive, as it is only a 5 point scale. Due to the nature of the measure, patients with a pre-acident score of 4 or 5 have to be excluded from the indicator, as these will be seen as an automatic success if included (as it is not possible to drop two points). The group were concerned that due to the crude nature of the scale, they were unsure as to whether patients who dropped on mobility point should be included as a positive result. | MRG  23/07/15 |  |  |  |  |
| **Criterion: INTERPRETATION** | Interpretation of the indicator is difficult due to the likely sample bias and that it is not possible for the confidence intervals to take this into consideration. Due to construction including patients who drop one mobility point being included as a positive result, providers may think they are performing well when they are not. | MRG  23/07/15 |  |  |  |  |
| **Criterion: RISKS AND USEFULNESS** | MRG asked for clarity on whether the self-reporting of mobility levels by patients was staff-lead, as this may introduce a risk of gaming. |  | At the end of the audit tool in the link below there are a standard set of questions with fixed answers. Our understanding is that these are the questions asked to the patients but this can be done via phone or questionnaire/letter: |  | Yes | MRG  via email  03/08/15 |

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