**NHS Digital**

**Indicator Supporting Documentation**

**IAP0026 Myocardial infarction, stroke and stage 5 chronic kidney disease in people with diabetes**

Indicator Assurance Service

**Title: Myocardial infarction, stroke and stage 5 chronic kidney disease in people with diabetes**

**Set or domain: Clinical Commissioning Group Outcome Indicator Set (CCG OIS)**

**IAS Reference Code: IAP00126**

# Application Form

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| **Title** | Myocardial infarction, stroke and stage 5 chronic kidney disease in people with diabetes |
| **Set or domain** | Clinical Commissioning Group Outcome Indicator Set (CCG OIS)Domain 1: Preventing people from dying prematurely |
| **Topic area** | Endocrine, nutritional and metabolic |
| **Definition** |  This indicator calculates the ratio of people with diabetes who develop long term conditions or complications that may be exacerbated by poor management of diabetes. It is considered useful in measuring the quality of commissioning for people with diabetesSpecifically an indirectly age and sex standardised ratio of myocardial infarction, stroke and stage 5 chronic kidney disease in people with diabetes This indicator is calculated as a ratio indirectly standardised by age and sexThe data fields supplied by the National Diabetes Audit are as shown below. Details of the NDA are available from <http://content.digital.nhs.uk/nda>Derived\_GP\_Practice\_CodeComplication\_group\_AAgeDerived\_clean\_sexThe data fields are extracted as counts at patient level and are aggregated to CCG level to produce the indicator.This indicator was previously assured by IGB in January 2013. |
| **Indicator owner & contact details** | Chris Dew, Information Analysis Lead Manager, NHS Digital.clinical.indicators@hscic.gov.uk |
| **Publication status** | Currently in publication |
| **Purpose** | The intent of this indicator is to measure the proportion of people with diabetes who develop long term conditions or complications that may be exacerbated by poor management of diabetes.” This indicator is considered useful in measuring the quality of commissioning for people with diabetes.Cardiac rehabilitation supports long-term quality of life and survival for people with coronary heart disease. CCGs can influence outcomes on this measure by ensuring that cardiac rehabilitation services are available locally to an appropriate capacity and by setting out the role of such services within the overall cardiac pathway which has been commissioned. Where the numbers of patients being completing cardiac rehabilitation is low compared to the number of patients being referred, they could also take action to identify and address the causes of this.Patients who have been referred to cardiac rehabilitation should go on to complete it; therefore this indicator is a useful measure of whether CCGs are offering this service to patients and encouraging them to complete the course. This indicator avoids penalising referrals that took place outside of the 5 day limit used in the referral indicator by allowing 365 days for the referral and completion to take place.This indicator uses the codes included in the PbR Post Discharge Tariff payment in order to determine those who are eligible for cardiac rehabilitation.CCGs may use this indicator to determine how they fit with the national figure. They may choose to take action to adjust their figure if they determine it to be necessary.The indicator will be presented alongside an indicator for referrals to cardiac rehabilitation, which reports the number of referrals to cardiac rehabilitation within 5 days of a finished admission episode (FAE) with a primary diagnosis of MI or heart failure or a main operative procedure of PCI or CABG. The two indicators in conjunction aim to provide a view of the cardiac rehabilitation pathway. The referral indicator gives insight to the percentage of cases that could benefit from cardiac rehabilitation that are referred, whilst the completion indicator demonstrates the percentage of referrals that go on to complete cardiac rehabilitation.  |
| **Sponsor** | Richard Owen, Outcomes Strategy Lead, NHS Medical Directorate, NHS England |
| **Endorsement** | NICE Indicator Advisory Committee. The indicator was constructed following consultation with the following clinical and Cardiac Rehab data experts: * Professor Patrick Doherty, Project Lead, NACR.
* Corinna Petre, NACR Project Manager, NACR
* Nerina Onion, Training and Information Officer, NACR
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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 | This indicator aims to reflect the provision of high quality care as set out in the NICE Quality Standard for Chronic Heart Failure[[1]](#footnote-1), which includes a statement about the provision of cardiac rehabilitation. In April 2013 the Cardiovascular Disease Outcomes Strategy (CVD OS)[[2]](#footnote-2) introduced an ambition of 65% uptake of cardiac rehabilitation following a MI, PCI, or CABG, and an ambition of 33% uptake following heart failure. Programmes should be aiming for as many of these patients to complete as possible, as non-completion indicates a waste of time and resources, whilst failing to meet the needs of the patient. These ambitions replaced the goal set in the National Service Framework for Coronary Heart Disease (NSF CHD)[[3]](#footnote-3) for 85% of people discharged with a MI or after coronary revascularisation are to be offered cardiac rehabilitation.Cardiac rehabilitation forms an intrinsic part of the cardiac pathway set out in NSF CHD. Evidence has demonstrated that cardiac rehabilitation improves the outcomes of people for people with heart disease. The CVD OS quotes a reduction in all-cause mortality of 18% over 6-12 months, 13% over 12 months, and a 31% reduction in readmissions over 6-12 months as a result of cardiac rehabilitation.Research has suggested that cardiac rehabilitation is second only to aspirin and beta blockers in the cost effectiveness of treating the disease. The programmes are a cost effective method to help people live heathier, longer lives.However, despite these benefits the number of people accessing these services is low. Common issues include the services being insufficiently flexible and responsive to ensure that all people eligible take up the offer of cardiac rehabilitation. Services are said to be difficult to commission for by non-specialists due to the range of services, settings, people, and organisations involved. Increasing the awareness of these courses through these indicators may encourage more referrals and subsequent completion of cardiac rehabilitation[[4]](#footnote-4). There is no timeframe dictated in which a referral must complete. This indicator uses the period of 365 days between admission and completion. Analysis of the linked HES-NACR data has shown that approx. 90 per cent of records which completed within a year, completed within 6 months. This timeframe allows for delays in referral and completion and has been agreed as appropriate with NACR. The 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 outcome indicators have been chosen on the basis that they contribute to the overarching aims of the five domains in the NHS Outcomes Framework (NOF) and it is intended as a tool for CCGs to drive local improvement and set priorities <http://www.england.nhs.uk/ccg-ois/>.This indicator fits within Domain 1: Preventing people from dying prematurely.  |
| **Data source** | Linked HES APC – NACR data<http://www.hscic.gov.uk/hes> <http://www.cardiacrehabilitation.org.uk/nacr/> <http://www.hscic.gov.uk/rehab> |
| **Justification of source and others considered** | HES contains details of all admissions to NHS hospitals in England, including private patients treated in NHS hospitals, patients who are resident outside of England, and care delivered by treatment centres (including those in the independent sector) funded by the NHS. HES is the data source for a wide variety of healthcare analysis for the NHS, Government, and many other organisations and individuals. It is likely that most patients who have a MI or heart failure, or a PCI or CABG will be admitted to hospital and therefore recorded in HES. The NACR is funded by the British Heart Foundation and is the official audit for NHS cardiac rehabilitation programmes. The data set includes fields that are collected via a set of questionnaires completed by patients before, immediately after, and 12 months after a course. The data is entered into the national database by the rehabilitation programmes. No other data sources were considered for the indicator. |
| **Data availability** | The underlying record level data from either source is not publically available. Aggregated reports of HES data are released on provisional monthly data approximately 4 months after the end of the reference month. The annual report based on final data is made available approximately 8 months after the end of the reference year and is accessible at the following link: [http://www.hscic.gov.uk/searchcatalogue?q=title% 3A%22Hospital+Episode+Statistics%2C+Admitted+patient+care+-+England%22&area=&size=10&sort=Relevance](http://www.hscic.gov.uk/searchcatalogue?q=title%3A%22Hospital+Episode+Statistics%2C+Admitted+patient+care+-+England%22&area=&size=10&sort=Relevance)Extracts and tabulations of data from HES are available to order for a charge. This is managed by the HSCIC Data Access Request Service (DARS) <http://www.hscic.gov.uk/dars>.Aggregated reports of NACR data are released approximately 20 months after the end of the financial year at the following link: <http://www.cardiacrehabilitation.org.uk/reports.htm>. Organisations are able to view an extract of their own data held by the audit.The NACR is a data set that can be continuously updated and as such has no defined timeframes in which data becomes available. |
| **Data quality** | Each release of HES APC data is accompanied by a data quality report. The 2011-12 data quality report is available at the following link: <http://www.hscic.gov.uk/catalogue/PUB08288/hosp-epis-stat-admi-pati-care-eng-11-12-qual.pdf>. The completeness of individual fields within the data set is very high. In the 2011-12 final data set; NHS Number contains 99.3% valid values and primary diagnosis contains 100% valid values. It should be borne in mind however that some valid values are more useful than others; vague categories such as ‘other’ are valid for certain fields, but not necessarily useful. For example, of the 17,465,425 finished consultant episodes with a valid primary diagnosis in 2011-12, 91,819 (0.5%) had a primary diagnosis of R69 – Unknown and unspecified causes of morbidity. NHS Number needs to be validated using the modulus 11 algorithm before it is entered into the data set, therefore users know that the number is present and of a valid format in 99.3% of records, but do not have information about the accuracy of the number entered. The NACR is not a mandatory collection but is part of the British Association for Cardiovascular Prevention and Rehabilitation (BACPR) standards and is an established data set which has reported annually on cardiac rehabilitation since 2005/6. All providers of cardiac rehabilitation are expected to take part, however some providers are missing from the data set; in addition those that do submit data may not be submitting 100% of records. In the data periods between 2008-9 and 2011-12, approximately 10% of programmes had their figures estimated. Cases where a cardiac event has occurred and a referral to, or completion of cardiac rehabilitation has taken place will not be captured if the programme does not submit data to the audit.In June 2013 the NACR moved to a new data collection system that included a revised collection record. This is expected to have the benefit of improving data quality, however due to the significant time lag between the reference period and the data reports this may take some time to become apparent. As part of this change to the new reporting system, the HSCIC has imported the previous three years of data across to the new system to allow for consistency of reporting.Previously, the NACR has been unable to extract data from suppliers using SystmOne. This is now in the process of being resolved, with the NACR taking its first successful extract of data from SystmOne, the NACR is now looking to adopt this solution nationally. No figures are available on the extent of missing data from SystmOne suppliers. In the 2011-12 NACR annual report, it states that of the 271 phase 3 providers (core rehabilitation) 241 of these returned the annual postal survey. As a result, data was estimated for 30 (11%) of providers. Estimated data is not used in this indicator. Data quality and coverage has improved over time, the reliance on estimated data in the annual reports has reduced, this is expected to reduce further in the coming years. The data quality of the NACR improves over time. As a result it is believed that the data quality of more recent data is much better than what is presented for 2011-12. This improvement of data quality will be assessed when data becomes available for the review of the indicator.A long standing issue with cardiac rehabilitation is the under-representation of women. In 2011-12, 9,800 more women would have been in cardiac rehabilitation programmes if the rehabilitation rate (30%) was the same as the case rate (39%). It is not clear if these women are not being referred or whether they are not taking up the offer of cardiac rehabilitation. This may not be an issue with the data itself, but may have implications for interpreting outcomes. This underlying issue will be noted in the indicator metadata. |
| **Quality assurance** | There is no other national data set to compare HES against to obtain an overall quantitative assessment of accuracy. The data are completed from administrative records recorded by each Trust on their Patient Administration Systems (PAS) with the clinical information added by clinical coders based on doctors’ notes. The trusts are required to complete this information to inform how much they are paid under PbR and the Audit Commission run a rolling programme of audits of organisations’ coding to check for accuracy.The HES Processing Cycle and Data Quality report includes and explains the data cleaning process, the provider organisation code mapping and the derivation rules which include examples of correction and validation rules and derivation is available at the following link: <http://www.hscic.gov.uk/article/1825/The-processing-cycle-and-HES-data-quality>.NACR data is subject to a number of validation rules on entry, any data that is in the incorrect format can lead to a rejection of the record, or a blanking or truncation of the data item. Quality assurance is performed by the NACR when extreme values are found in the system, common issues that arise in the data are investigated and fed back to the teams involved and data validation rules are introduced to prevent issues reoccurring. |
| **Quality improvement plan** If appropriate | The NACR is currently a non-mandatory collection. This indicator will assist in the recognition of this data set among its audience; this increase in awareness may in turn increase the quality and completeness of the data submitted. |
| **Data linkage** | Records in the NACR have been linked to the HES APC data by the HSCIC DARS team. This linkage has been performed through use of NHS Number, Postcode, Sex, and Date of Birth. Whilst the HES APC data set is recorded as a single table with a single differentiated record per episode identifier (EPIKEY), the NACR data meanwhile is a relational data set, where each contact with cardiac rehabilitation services is recorded alongside a person level identifier (StudyID). Data from a single financial year of HES data is linked to a single financial year of NACR data. The HSCIC DARS extract contains a list of StudyIDs linked to EPKIEYs. These keys are then linked back to their source data sets by the HSCIC Clinical Indicators team. This introduces a number of issues with the linkage of the datasets and subsequent analysis, for example, duplication of a StudyID means that each permutation of data will be linked to a single EPIKEY, artificially inflating figures. In order to eliminate duplicate data, the HSCIC Clinical Indicators team has attempted to select the relevant StudyIDs prior to linking the data. These relevant distinct StudyIDs are then linked to the HES data. There are a small number of cases where the same EPIKEY has been linked to multiple StudyIDs, these have been removed from the analysis. In the 2011-12 data, 61 EPIKEYs were removed, leaving 329,977 remaining for analysis.The linkage has been performed in order to obtain the number of eligible cases for cardiac rehabilitation, it also allows for the NACR data to benefit from the more complete data and robust data quality assurance that has been applied to HES whilst making use of specific fields in the NACR that allow these indicators to be constructed. Filters that are applied to the HES data set will allow for records to be excluded from the NACR data and aggregations can be performed through CCG of Responsibility from HES data rather than attempting to construct a similar field using geographical data contained in the NACR. For the period 1st April 2011 to 31st March 2012, there are 148,157 eligible FAEs in the HES data set. In the two year period 1st April 2011 to 31st March 2013, there are 150,840 distinct StudyIDs. Following linkage of the two data sets, 81,714 (54.2%) distinct StudyIDs with a referred date between 0 and 364 days from admission are retained. The number is reduced further when limited to those that are relevant to the indicator and are linked to a HES APC admission in the 2011/12 data year to 37,937. NACR records are linked to the closest HES episode within the time period. There is not enough information contained on the NACR record to ensure that it is linked with the correct source HES episode, the linkage performed here allows for an approximation of activity. Source of Referral is an available field in the NACR data set, however its completion is poor. This information is missing on over 85% of records. Of the records where this information is completed, NHS Trust is the most common response, with the other sources of referral making up only a small proportion of records. |
| **Quality of data linkage** | NHS Number is recorded on 99.3% of HES APC records in 2011-12 and on 100% of NACR records for the same period. It is expected that completion of NHS Number will be higher on the relevant HES APC records. The table below reveals the match ranks for the data linkage performed by the HSCIC DARS team for 2011-12:  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Step** | **Records**  | **%** | **NHS** | **DoB** | **Sex** | **Postcode** |  |
| **1** | 279,222 | 84.6% | Exact | Exact | Exact | Exact |  |
| **2** | 39,068 | 11.8% | Exact | Exact | Exact |   |  |
| **3** | 2,587 | 0.8% | Exact | Partial | Exact | Exact |  |
| **4** | 398 | 0.1% | Exact | Partial | Exact |   |  |
| **5** | 3,238 | 1.0% | Exact |   |   | Exact |  |
| **6** | 137 | 0.0% |   | Exact | Exact | Exact | where NHSNO does not contradict the match and DOB is not 1 January and the POSTCODE is not in the 'ignore' list |
| **7** | 0 | 0.0% |   | Exact | Exact | Exact | where NHSNO does not contradict the match and DOB is not 1 January |
| **8** | 5,312 | 1.6% | Exact |  |  |  |  |
| **0** | 137 | 0.0% |  |  |  |  | Cases were HESID has changed over time |

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| **Data fields** | HES APC:ADMISORC – Source or admissionCCG\_RESPONSIBILITY – CCG derived from the patient’s GP practice, or if this is not recorded, from their residence, or if this is not recorded, from the location of the hospital provider supplying careCLASSPAT – Patient Classification DISMETH – Discharge methodDIAG\_4\_01 – Primary Diagnosis, 4 characterEPIORDER – Episode number within a spellEPISTAT – Status of EpisodeEPITYPE – Type of EpisodeOPERTN\_4\_01 – Main Operative Procedure, 4 characterSEX – SexSTARTAGE\_CALC – Age at the start of the episodeNACR:ReferredDate – The date a person was referred to core cardiac rehabilitation. (From April 2015, this has been moved from initiating event to rehabilitation records)PhaseNumber – The phase number that the record relates toPhaseCompletedDate – Date the phase of rehabilitation was completedPhaseStartDate – Date the phase of rehabilitation startedAssessmentNumber – The assessment number that the record relates to.AssessmentDate – Date that the assessment took placePostRehabAssessmentDate – Date that the post-rehabilitation assessment took place. PreRehabAssessment – Date that the pre-rehabilitation assessment took place.ReasonForNotCompleting – Reason for not completing the phase of cardiac rehabilitation |
| **Numerator** | Of the denominator, the number that complete a core delivery of cardiac rehabilitation within 365 days of admission to hospital.Neither the HES APC or the NACR data sets have information on the time that an admission or activity occurred, only the date, as a result some referrals may have a slightly longer timeframe in which this completion can take place. |
| **Denominator** | The number of referrals to cardiac rehabilitation that were referred following a hospital admission with a primary diagnosis of MI or heart failure, or a main operative procedure of PCI or CABG, excluding those who died or were too ill to complete rehabilitation. Neither the HES APC or the NACR data sets have information on the time that an admission or activity occurred, only the date, as a result it cannot be said for certain that a referral occurs following an admission if they both occur on the same day. |
| **Computation** | The percentage *p* is given by: where:*O* is the numerator; the number in the denominator that complete a core delivery of cardiac rehabilitation within 365 days of referral;*n* is the denominator; the number of referrals to cardiac rehabilitation following a hospital admission with a primary diagnosis of MI or heart failure, or a main operative procedure of PCI or CABG |
| **Risk adjustment or standardisation type and methodology** | **None** |
| **Justification of risk adjustment type and variables**or why risk adjustment is not used | Cardiac rehabilitation should be offered to all eligible cases. The codes used to identify relevant diagnoses and procedures have been taken from the PbR cardiac rehabilitation post discharge tariff, suggesting that all these cases should be referred to cardiac rehabilitation.A person’s age or gender does not render them ineligible for cardiac rehabilitation, therefore to standardise for these variables may introduce a bias into the indicator. |
| **Confidence interval / control limit use and methodology** | Confidence Intervals*Methodology:*Using the Wilson Score method[[5]](#footnote-5),[[6]](#footnote-6), the 100(1– *α*)% confidence limits are given by:where: *q* is 1–*p*;*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)[[7]](#footnote-7). |
| **Justification of confidence intervals / control limits used** | Confidence intervals are used, recognising the existence of natural variation between the CCG populations.The preferred PHE confidence interval method for proportions is the Wilson Score method[[8]](#footnote-8) which has been evaluated and recommended by Newcombe and Altman[[9]](#footnote-9);[[10]](#footnote-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 zero[[11]](#footnote-11). |
| **Presentation of indicator** | The indicator is to be presented on the HSCIC Indicator Portal in a consistent format with other CCG OIS indicators. It is accompanied by a Specification and Quality Statement. The data is presented with a detailed header including information on the statistic presented, the reporting period, level of coverage, publication date, data sources, and any further notes to be aware of. Drop-down filtering is also available. The data will be reported annually. The specific fields to be presented in data are as follows: |

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| --- | --- |
| Column Name | Output |
| Reporting period | Period of coverage (years/rolling quarter) |
| Breakdown | National (all registered patients in England), CCG |
| ONS code | ONS geography code |
| Level | CCG code |
| Level description | CCG name |
| Percentage | Percentage of referrals to cardiac rehabilitation following a hospital admission with a primary diagnosis of MI or heart failure, or a main operative procedure of PCI or CABG who completed core delivery of cardiac rehabilitation within 365 days of referral |
| CI lower (%) | Lower 95% confidence interval |
| CI upper (%) | Upper 95% confidence interval |
| Denominator | The number of referrals to cardiac rehabilitation following a hospital admission with a primary diagnosis of MI or heart failure, or a main operative procedure of PCI or CABG, excluding those who died or were too ill to complete rehabilitation. |
| Numerator | Of the denominator, the number that complete a core delivery of cardiac rehabilitation within 365 days of referral |

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| **Contextual information provided alongside indicator**with justification | None |
| **Calculation and data source of contextual information** | N/A |
| **Use of bandings, benchmarks or targets**with justification | None.The indicator is to be presented without target or ranking. If a CCG believes their figure to be disproportionately low, for example when compared to the national figure, the factors contributing to this can be investigated and appropriate action can be taken. It is noted that the CVD OS introduced ambitions of 65% uptake of cardiac rehabilitation following a MI, PCI, or CABG, and 33% uptake following heart failure. However, these indicators do not measure uptake and as such it would be misguided to compare a CCGs referral score to these figures.  |
| **Banding, benchmark or target methodology**if appropriate | N/A |
| **Interpretation guidelines** | The indicator will be presented alongside an indicator for referrals to cardiac rehabilitation, which reports the number of admissions to hospital with a primary diagnosis of MI or heart failure, or a main operative procedure of PCI or CABG that are referred to cardiac rehabilitation.The two indicators in conjunction aim to provide a view of the cardiac rehabilitation pathway. The referral indicator gives insight to the percentage of cases that could benefit from cardiac rehabilitation that are referred, whilst the completion indicator demonstrates the percentage of referrals that go on to complete cardiac rehabilitation. The completion indicator is not a subset of the referrals to cardiac rehabilitation indicator, as the time frame in which a referral can take place is not as restrictive as a referral and completion has 365 days to take place whereas the referrals indicator only includes those referred within 5 days of the hospital admission. A CCG may have a high referral rate, but due to the set-up of the programme, its location, or an inability to cater to a user’s needs the CCG may have a low completion rate. This indicator is intended to highlight cases where a completion does not occur so that the CCG can look into the possible causes and make changes. A link to the referrals to cardiac rehabilitation indicator will be provided in the indicator metadata, these indicators can be looked at together (along with other sources of information) in order to judge a CCGs performance.A high percentage of referrals that go on to complete cardiac rehabilitation is desirable. However, this indicator makes no judgement as to what an acceptable level of completions is.The indicator requires careful interpretation and should not be viewed in isolation but instead be considered alongside information from other indicators, such as the corresponding cardiac rehabilitation referrals indicator and various sources, such as the NACR reports: <http://www.cardiacrehabilitation.org.uk/>. However, a point to note is that these reports include estimated data and as such will not be directly comparable. The data reported in this indicator does not make use of estimated figures.  |
| **Limitations and potential bias** | The NACR is not a mandatory collection and as such has an inherent issue with missing data. Data is currently provided by 70% of all cardiac rehabilitation programmes with varying degrees of data completeness. It is hypothesised that this data coverage issue will improve if the collection was mandated. There is some inconsistency in the level of reporting, it is difficult to determine whether a case is not present in the referral count due to the patient not being referred or the programme failing to submit data about the referral. This may manifest itself in the indicator as CCGs with low referral rates may actually be areas of poor coverage or data quality and will as such have consequences for the interpretation of the indicator. The NACR team, the BACPR, and the BHF regional teams are working to ensure that data entry is of the highest quality. The BACPR/NACR national accreditation scheme is helping to drive this initiative. The distribution of cardiac rehabilitation programmes is not even, some CCGs have multiple rehabilitation programmes, whilst others have few. As a result, when activity is disaggregated by CCG, the referral rate may be influenced by the proportion of cardiac rehabilitation programmes. This will be included in the indicator quality statement.For the period 1st April 2011 to 31st March 2012, there are 148,157 eligible FAEs in the HES data set. In the two year period 1st April 2011 to 31st March 2013, there are 150,840 distinct StudyIDs. Following linkage of the two data sets, 81,714 (54.2%) distinct StudyIDs with a referred date between 0 and 364 days from admission are retained. The number is further reduced when limited to those that are relevant to the indicator to 37,937. The NACR believe this data loss will be reduced with the new data system.NACR records are linked to the closest HES episode within the time period. There is not enough information contained on the NACR record to ensure that it is linked with the correct source HES episode, the linkage performed here allows for an approximation of activity. Heart failure and PCI are included as in-scope for this indicator, in 2011-12 however, patients with heart failure were deemed ineligible for 40 cardiac rehabilitation programmes, and patients who had a PCI were ineligible for 15 programmes. These exclusions may affect the referral rates for CCGs that have a larger proportion of these patients and programmes, the number of programmes that exclude these cases is reducing year on year.The ambition of 65% uptake following a MI, PCI or CABG, and 33% uptake following heart failure set out in the CVD OS may cause issues for the interpretation of this indicator. Whilst these are not targets, the ambitions reflect an improvement on current performance, which is currently much lower. CCGs with a larger proportion of heart failure patients who are fulfilling the 33% uptake ambition will have a lower rate overall than CCGs who have a lower proportion of heart failure patients who are fulfilling the 65% uptake ambition. Due to the complexities of linkage and data quality issues, it is CCGs may never reach these ambitions when measured by this indicator.A person can have multiple cardiac events, there appears to be an inconsistency in the way these cases are managed by rehabilitation programmes. Cases may return to Phase 1 of cardiac rehabilitation or be re-referred to the next stage of cardiac rehabilitation. If a person has a single admission to hospital and multiple referrals, the referral associated with the completion will be counted. If a single referral appears to have multiple completions, the completion will only be counted once. If a person has multiple admissions and a single referral associated with each admission, each referral will be counted.The codes used to identify the diagnoses and procedures been taken from the PbR cardiac rehabilitation post discharge tariff. These codes are slightly different from the ones supplied by the NHS Classification Service. The decision to use the PbR codes has been made to ensure that CCGs are being measured on what they are paid to deliver.Neither the HES APC or the NACR data sets have information on the time that an admission or activity occurred, only the date, as a result some admissions may have a slightly longer timeframe in which this referral can take place. |
| **Improvement actions** | The 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 the corresponding cardiac rehabilitation completion indicator or the source NACR publication. CCGs can use this indicator in context to identify if any improvements are needed to their delivery of service, further information will be required in order to determine what, where, and how these services should improve.If a CCG would like to increase the number of referrals to cardiac rehabilitation, it may consider commissioning additional services and reassessing its referral pathway. Improvements could be made by enhancing aspects of the services CCGs commission for patients. This could come in the form of raising awareness of cardiac rehabilitation and its benefits for people who have had a cardiac event |

**Evidence of variability**

At the national level in 2011-12, there were 37,973 referrals to cardiac rehabilitation programmes (excluding those that died or were too ill post-referral) within 365 days of admission. Of these, 12,361 completed a core delivery of cardiac rehabilitation within 365 days of admission (32.6%).

Of the unsuppressed values, the number of referrals ranges from 7 to 908, and the number of completions ranges from 0 to 317. 13 CCGs have their number of referrals suppressed, 28 CCGs have their number of completions suppressed. The rate is suppressed for 40 CCGs.

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| --- | --- | --- | --- | --- | --- |
| **CCG** | **Denominator** | **Numerator** | **%** | **CI Lower (%)** | **CI Upper (%)** |
| 00C | \* | 0 | \* | \* | \* |
| 00L | \* | 0 | \* | \* | \* |
| 00M | \* | 0 | \* | \* | \* |
| 00P | \* | 0 | \* | \* | \* |
| 02N | \* | 0 | \* | \* | \* |
| 02P | \* | 0 | \* | \* | \* |
| 05P | \* | 0 | \* | \* | \* |
| 06M | \* | 0 | \* | \* | \* |
| 06V | \* | 0 | \* | \* | \* |
| 06W | \* | 0 | \* | \* | \* |
|  |  |  |  |  |  |
| **CCG** | **Denominator** | **Numerator** | **%** | **CI Lower (%)** | **CI Upper (%)** |
| 06D | 139 | 79 | 56.8% | 48.5% | 64.8% |
| 01W | 442 | 262 | 59.3% | 54.6% | 63.8% |
| 07G | 214 | 128 | 59.8% | 53.1% | 66.2% |
| 10W | 53 | 32 | 60.4% | 46.9% | 72.4% |
| 10M | 45 | 28 | 62.2% | 47.6% | 74.9% |
| 09G | 504 | 317 | 62.9% | 58.6% | 67.0% |
| 99E | 282 | 185 | 65.6% | 59.9% | 70.9% |
| 01V | 105 | 70 | 66.7% | 57.2% | 74.9% |
| 10J | 81 | 57 | 70.4% | 59.7% | 79.2% |
| 07K | 66 | 52 | 78.8% | 67.5% | 86.9% |

It would be expected that 95% of data points would be within 2 standard deviations of the England figure. Of the 168 unsuppressed CCGs, 112 (66.7%) are outside the 2 standard deviations limit.

It is possible that the variation comes down to issues with data quality, unmatched records, and the uneven distribution of cardiac rehabilitation programmes.

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| **Similar existing indicators** | There are currently no indicators in the CCG OIS, the wider HSCIC Indicator Portal, or the Public Health Outcomes Framework that relate to cardiac rehabilitation. Data is available in the NACR annual reports, however these are not strictly comparable as these reports are at person level and include estimated figures. |
| **Coherence and comparability** | The ICD-10 and OPCS-4 codes that are used to identify the relevant diagnosis and procedure codes for this indicator have been taken from the PbR post discharge tariff for cardiac rehabilitation. As a result the indicators are measuring what the CCGs are being paid to offer.This indicator is not comparable with the NACR annual reports as these contain estimated data. Estimated data is not included in this indicator as it cannot be verified; this indicator may highlight awareness of the data set and improve its data quality, thus reducing the need to rely on estimated data in the annual report.  |
| **Undesired behaviours and/or gaming** | In order to remove patients from the indicator, hospitals could record patients as having a diagnosis or procedure in a secondary position, rather than a primary one. This may have the effect of increasing the proportion of referred cases, but may also affect the payment a hospital receives. The financial incentives associated with the PbR are likely to be greater than any potential bias due to being part of the CCG OIS. |
| **Approach to indicator review** | The time period for when the indicator is to be reviewed will be set by the Indicator Governance Board (IGB). This indicator will be reviewed by the HSCIC Clinical Indicators team in accordance with this timeframe. Use feedback and comments on this indicator are welcomes via HSCIC Enquiries enquiries@hscic.gov.uk or the CCG OIS mailbox  clinical.indicators@hscic.gov.uk |
| **Disclosure control** | When publishing the data, if the indicator is calculated from a value of 1 to 5, the value and percentage is suppressed to ensure an individual’s identity is not at risk of being disclosed. If there is only one value suppressed in this way, the rate based upon the next lowest numerator is also suppressed; this reduces the risk of the first suppressed number being identifiable in isolation.Percentages are rounded to one decimal place before publication. |
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| --- | --- |
| **IAS Ref Code** | **Myocardial infarction, stroke and stage 5 chronic kidney disease in people with diabetes** |
| **Indicator Title** |  |
| **Indicator Set** |  |

**Assurance Summary**

|  |  |
| --- | --- |
| **IAS Ref Code** | Myocardial infarction, stroke and stage 5 chronic kidney disease in people with diabetes |
| **Indicator Title** |   |
| **Indicator Set** |  |

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| --- | --- | --- | --- |
| Assurance Stage |  | Date(s) | Comments |
| Application Received |[x]   |  |
| Initial Appraisal Completed |[x]   |  |
| Peer Review Appraisal |[ ]   |  |
| Methodology Review Group Discussion |[x]  09/08/12, 26/10/12 |  |
| Indicator Governance Board Discussion |[x]  18/1/13 |  |
| Signed-off |[ ]   |  |

Peer Review

*Outcome of Peer Review consideration:*

|  |
| --- |
| 1. **Proposal signed off, with or without caveats**
 |
| 1. **Minor changes recommended**
 |
| 1. **Declined to sign-off**
 |

Methodology Review Group (MRG)

*Outcome of MRG consideration:*

|  |
| --- |
| 1. **No significant issues identified**
 |
| 1. **No significant issues on basis of completion of outstanding actions**
 |
| 1. **Some concerns expressed as caveats or limitations**
 |
| 1. **Significant reservations**
 |
| 1. **Unresolved issues**
 |

Indicator Governance Board (IGB)

*Final Appraisal Status*

|  |
| --- |
| 1. **Assured with Comments**
 |

**Indicator Methodology for Consideration - Methodology Review Group**

[Indicator title submitted pre - MRG discussion]

**COF 1.24 - Myocardial infarction, stroke and end stage kidney disease in people with diabetes**

The NHS Commissioning Board is developing the CCG Outcomes Indicator Set to measure the health outcomes and quality of care (including patient reported outcome measures and patient experience) achieved by clinical commissioning groups. The CCG Outcomes Indicator Set will allow the NHS Commissioning Board to identify the contribution of clinical commissioning groups to achieving the priorities for health improvement in the NHS Outcomes Framework, while also being accountable to patients and local communities. It will also enable the commissioning groups to benchmark their performance and identify priorities for improvement.

The purpose of the Framework is as follows:

“The purpose of the [CCG] Outcomes Framework will be to:

drive local improvements in quality and outcomes for patients

hold CCGs to account for their progress in delivering these outcomes

provide clear, publicly available information on the quality of healthcare services commissioned by CCGs.”

*Reference: Commissioning Outcomes Framework: Engagement Document, NHS Commissioning Board*

**COF Complications Associated with Diabetes Indicators 2.61, 2.62, 1.24**

2.61 Complications associated with diabetes

2.62 Lower limb amputation in people with diabetes

1.24 Myocardial infarction, stroke and stage 5 chronic kidney disease in people with diabetes

Indicators 2.61, 2.62 and 1.24 relate to treatment of complications associated with diabetes. Indicators 2.61 and 2.62 were reviewed at MRG on 14 March 2012 and additional work was requested; indicator 1.24 is a newly proposed indicator.

Indicators 2.61 and 1.24 can each be presented as a single composite indicator or broken down by condition;

Clinically it makes little sense to report these complications as a composite.

Also, because of the differences in scale of the complications wild variation in where numbers are small could be masked by smaller fluctuations with greater occurrences, e.g. great changes in the number of major amputations could be concealed by small changes in occurrences in angina.

The following sample figures were taken from the 2009-10 NDA.

There were 1,929,985 registrations from primary and secondary care.

|  |  |  |
| --- | --- | --- |
| **Incidence of complication** | **Incidence per 100** | **Number of incidents +/-** |
| Ketoacidosis | 1.00 | 19,300 |
| Myocardial Infarction | 1.23 | 23,739 |
| Stroke | 1.50 | 28,950 |
| Diabetic Retinopathy treatments | 0.65 | 12,545 |
| Amputation minor | 0.15 | 2,895 |
| Amputation major | 0.07 | 1,351 |

|  |  |  |
| --- | --- | --- |
| **Prevalence of complication** | **Prevalence %** | **Number of people +/-** |
| Ketoacidosis | 0.480 | 9,264 |
| Angina (prev only) | 3.130 | 60,409 |
| Myocardial Infarction | 0.600 | 11,580 |
| Cardiac Failure (prev only) | 1.580 | 30,494 |
| Stroke | 0.690 | 13,317 |
| Renal Failure (prev only) | 0.380 | 7,334 |
| Diabetic Retinopathy treatments | 0.420 | 8,106 |
| Amputation minor | 0.130 | 2,509 |
| Amputation major | 0.070 | 1,351 |

**Recommendation**

1. The NDA proposes that these conditions be reported separately. It is likely that the numbers will not support direct standardisation so the NDA recommends reporting crude rates. It is recognised that a single composite indicator would give larger numbers, making it easier to report, but there is a risk that the rarer complications could be masked by the more common conditions.

In addition, the construction of a single indicator would not be sufficient to support effective targeting of health care services and would not help achieve its objective in terms of measuring the quality of commissioning for people with diabetes

Indicator 2.52 reports on patients receiving the nine key processes each year which are intended to help in the prevention of these complications. It is suggested that separate reporting of these complications is logical. This would make indicators 1.24 and 2.62 superfluous.

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| --- | --- |
| **Prevalence of complication** | **Average per CCG per year** |
| Ketoacidosis | 44  |
| Angina (prev only) | 285  |
| Myocardial Infarction | 55  |
| Cardiac Failure (prev only) | 144  |
| Stroke | 63  |
| Renal Failure (prev only) | 35  |
| Diabetic Retinopathy treatments | 38  |
| Amputation minor | 12  |
| Amputation major | 6  |

1. It is recommended that the title of the indicator be amended to include the phrase “of the patients included in the audit…”
It is recognised that some complications are widespread in the England population but that only 60% of HES records tend to include a diabetes diagnosis.
It is proposed that patients with diabetes be identified using the NDA and matched to HES for the complications.
2. MRG’s views are sought on whether to report prevalence of a complication rather than incidence for chronic conditions that cannot recur e.g. angina.

**Potential issues**

The NDA currently audits only those patients who are alive at the end of the audit period. This is a great concern in terms of the quality of data when reporting complications with high mortality rates, (particularly myocardial infarction), as those cases ending in death are excluded from the dataset. 23% of people suffering MI die before reaching hospital.

The NDA intends to resolve this issue but since this will require a change in the way the data are collected, it will be two years before the data are available.

NDA therefore recommends that the indicators for those conditions with high mortality be published with appropriate health warnings.

In the worst case this opens opportunities for gaming and gives CCGs a perverse incentive when it comes to survival of their patients.

**Indicator Details - Initial MRG Submission**

**Date of Initial Discussion: 09/08/12**

|  |  |
| --- | --- |
| Rationale / usefulness Evidence and action ability of indicator [take this directly from the application if possible] | The indicator supports the NHS Outcomes Framework and has been identified by the NICE COF Advisory Committee for use in the Commissioning Outcomes Framework. “The intent of indicator 1.24 is to measure the proportion of people with diabetes who develop long term conditions or complications that may be exacerbated by poor management of diabetes.” This indicator is considered useful in measuring the quality of commissioning for people with diabetes.The NDA MI, stroke and end stage kidney disease complications indicator was developed to assess the complication rates in the diabetic population. |
| Data source | National Diabetes Audit & HES |
| Construction | ***Summary description of the calculation:*** |
| Construction | ***Calculation type:*** Indicator will be reported annually for the audit period.This indicator will be a rate. |
| Construction | ***Denominator:***Number of people with diabetes identified by the NDA.***Numerator:*** Number of people collected by the NDA who have a HES primary or secondary diagnosis during the reporting period of MI, stroke or end stage kidney disease.A list of NHS numbers of patients with diabetes will be provided by NDA and matched to HES data. Anyone with a primary or secondary diagnosis on the list below is identified.ICD-10 CodesMyocardial infarction  - I21.0 Acute transmural myocardial infarction of anterior wall  - I21.1 Acute transmural myocardial infarction of inferior wall  - I21.2 Acute transmural myocardial infarction of other sites  - I21.3 Acute transmural myocardial infarction of unspecified site  - I21.4 Acute subendocardial myocardial infarction  - I21.9 Acute myocardial infarction, unspecified  - I22.0 Subsequent myocardial infarction of anterior wall  - I22.1 Subsequent myocardial infarction of inferior wall  - I22.8 Subsequent myocardial infarction of other sites  - I22.9 Subsequent myocardial infarction of unspecified site Stroke  - I61.0 Intracerebral haemorrhage in hemisphere, subcortical  - I61.1 Intracerebral haemorrhage in hemisphere, cortical  - I61.2 Intracerebral haemorrhage in hemisphere, unspecified  - I61.3 Intracerebral haemorrhage in brain stem  - I61.4 Intracerebral haemorrhage in cerebellum  - I61.5 Intracerebral haemorrhage, intraventricular  - I61.6 Intracerebral haemorrhage, multiple localized  - I61.8 Other intracerebral haemorrhage  - I61.9 Intracerebral haemorrhage, unspecified  - I63.0 Cerebral infarct due to thrombosis of precerebral arteries  - I63.1 Cerebral infarction due to embolism of precerebral arteries  - I63.2 Cereb infarct due unsp occlusion or stenos precerebrl arts  - I63.3 Cerebral infarction due to thrombosis of cerebral arteries  - I63.4 Cerebral infarction due to embolism of cerebral arteries  - I63.5 Cerebrl infarct due unspec occlusion or stenos cerebrl arts  - I63.6 Cereb infarct due cerebral venous thrombosis, nonpyogenic  - I63.8 Other cerebral infarction  - I63.9 Cerebral infarction, unspecified  - I64.X Stroke, not specified as haemorrhage or infarction  - I67.9 Cerebrovascular disease, unspecified Renal failure  - N18.0 End-stage renal disease  - Z49.0 Preparatory care for dialysis  - Z49.1 Extracorporeal dialysis  - Z49.2 Other dialysis  - Z99.2 Dependence on renal dialysis  - M01.1 Autotransplantation of kidney  - M01.2 Allotransplantation of kidney from live donor  - M01.3 Allotransplantation of kidney from cadaver NEC  - M01.4 Allotransplantation of kidney from cadaver heart-beating  - M01.5 Allotransplantation of kidney from cadaver non-heart-beating  - M01.8 Transplantation of kidney, Other specified  - M01.9 Unspecified transplantation of kidney |
| Construction | ***Statistical Methods / Risk adjustment variables:*** |
| Construction | ***Other (Quality assurance/interpretation/known limitations):***  |
| Potential IssuesHighlight any of the following that apply-data source(s) do not collect 100% of events-data source(s) organisation or geographic coverage shortfalls-codes or filters not matching the policy question-data source(s) definitions not meeting policy question-data source(s) quality problems or inconsistency of reporting-statistical methods not appropriate for test or audience-risk adjustment not considered-long term security of the data source(s)-timing of data availability for use in indicatorpresentation of data likely to mislead or give false confidence in findings | For primary care, participation in the NDA is voluntary. The NDA 2010-2011 achieved 82.8% participation rate for 6,774 GP Practices in England and reported on 2,150,634 patients.For secondary care, participation in the audit is mandatory under the NHS Standard Contract. In the NDA 2010-2011, 75 secondary care units submitted data. |
| Supporting DocumentsProvide links to any additional documentation used to support discussion at MRG |  |

Additional Information / Sample Data:

Provisional NDA analysis suggests that the data can support the construction of this indicator. Dummy practice data available on request by emailing indicators@nice.org.uk.

Revisions:

|  |  |
| --- | --- |
| Revision Date: |  |
| General Comments / Reasoning: |  |
| Revisions: |  |
| Indicator Title |  |
| Data source |  |
| Construction |  |
| Updated Potential Issues |  |

MRG Recommendations, Comments & Updates:

|  |  |
| --- | --- |
| Ref code**Rec 2012/181**Made: 09/08/12 | MRG noted that this indicator overlapped with COF 2.61 – Complications associated with diabetes as it had earlier been agreed that 2.61 would be a composite indicator covering multiple conditions, rather than a separate indicator for each complication. MRG recommended that it be reviewed whether or not both indicators needed to be included. MRG suggested providing a breakdown by condition of the composite indicator 2.61 as contextual information should be investigated.  |
| Update: Made: 26/10/12 | The method for this indicator is the same as that for indicator 2.61, however this indicator is more likely to have small number issues as it only looks at 3 types of complications.  |
| Rec Status: | **Resolved / No Action Required** |

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| Ref code**Rec 2012/282**Made: 09/08/12 | It was recommended that the denominator be changed to better reflect the period of risk. This would mean that someone alive for half the numerator time period (1 year) would be counted as 0.5, rather than 1. |
| Rec Status: | **Resolved / No Action Required** |

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| Ref code**Rec 2012/283**Made: 09/08/12 | MRG agreed with the recommendation to use indirect standardisation |
| Rec Status: | **Resolved / No Action Required** |

**Record of Assurance provided by Indicator Governance Board**

|  |  |
| --- | --- |
| **Indicator Title** |  |
| Indicator Set |  |
| IAS Ref Code: | Myocardial infarction, stroke and stage 5 chronic kidney disease in people with diabetes |
| Construction Summary | *Denominator:* Number of people with diabetes identified by the NDA.*Numerator:* Number of people collected by the NDA who have a HES primary or secondary diagnosis during the reporting period of MI, stroke or end stage kidney disease. |

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| --- | --- |
| Initial IGB discussion  | 18/01/13 |

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|  | **Strategic Considerations & Implications** |
| Applicant / Sponsor Organisation | Primary Medical Care Branch, DH\*Costing for assurance appraisal included in development cost |
| Assurance process funded? | Yes |
| Indicator rationale  | The indicator is based on a NICE Quality Standard and has been identified by the NICE COF Advisory Committee for use in the Commissioning Outcomes Framework.  |
| Basis for rationale [Details of quality statement, policy etc] | This indicator is considered useful in measuring the quality of commissioning for people with diabetes. |
| Risks & assumptions | * For primary care, participation in the NDA is voluntary. The NDA 2010-2011 achieved 82.8% participation rate for 6,774 GP Practices in England and reported on 2,150,634 patients.
* For secondary care, participation in the audit is mandatory under the NHS Standard Contract. In the NDA 2010-2011, 75 secondary care units submitted data.
* The method for this indicator is the same as that for indicator 2.61, however this indicator is more likely to have small number issues as it only looks at 3 types of complications.
 |
| IG Considerations [e.g release of under-lying data, intermediaries access to data, data ownership impact on production] | *Data Source:* *National Diabetes Audit* NDA is collected by the HSCIC by automated and manual data extraction from GP Practices, using various clinical systems (Apollo, TPP SystmOne, Informatica and Miquest) via Open Exeter |
| Potential impacts on other business areas [inc outstanding generic issues] | None Identified |
| Implementation Method[inc production funding] | Funding being sought.* Costs for the production of the CCG indicators are being included in the COF/CQRS project business case. The requirements for publication of the indicators by HSCIC is yet to be agreed with DH and the NHS Commisioning Board.
 |

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| --- | --- |
|  | **Record of MRG Discussion** |
| Discussion dates:  | 09/08/12, 26/10/12 |
| By: | HSCIC - Alyson Whitmarsh, Andy Sutherland, Azim Lakhani, John Varlow, Jonathan HopeNICE – Daniel SutcliffeUHB – Daniel Ray, Irena BegajISB – Neil McCrirrick |
| Summary of MRG discussions:  | * MRG noted that this indicator overlapped with CCGOIS *2.8 – Complications associated with diabetes*, as it had earlier been agreed that 2.8 would be a composite indicator covering multiple conditions, rather than a separate indicator for each complication.
* MRG recommended that it be reviewed whether or not both indicators needed to be included, however this approach rejected by DH.

See also 2.8 - Rates of complications associated with diabetes (IAP0084)* Reported back that NDA has NHS Number as a mandatory item; complete NHS numbers are verified and validated through Open Exeter.
* Final recommendation to use indirect standardisation accepted by MRG
* Further work should be carried out to see if it is possible to identify those patients who exist in the previous audit period but not the current audit and then link to ONS death records
* It was recommended that the denominator be changed to better reflect the period of risk. This would mean that someone alive for half the numerator time period (1 year) would be counted as 0.5, rather than 1. However the NDA team subsequently reported that using the above methodology would lead to a disparity between the production of the indicator and that used to analyse the audit data as NDA only use ‘years at risk’ in the mortality standardisation.
 |
| *Outcome of MRG consideration:* | **No significant issues on basis of completion of outstanding actions** |
| MRG statement of recommendation: | * Indicator approved for escalation to Indicator Governance Board
 |
| Peer Reviewers: | No peer review currently undertaken |
| Peer Review summary: | n/a |
| Range of input[Have relevant business areas contributed e.g clinical assurance?]  | This indicator was developed as part of the National Diabetes Audit primary care data collection to determine the percentage of patients with diabetes who are referred to diabetes education programmes. The indicator was requested and developed in conjunction with the NDA clinical lead, Bob Young and expert clinical coders. This indicator is collected nationally as part of the NDA. |

IGB – Additional Recommendations:

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| --- | --- |
| Made:18/01/13 | **Recommendations & Updates** |
| Comments & Recommendations[List additional comments and recommendations raised by IGB] | Further information is required on the data linkage referenced in the indicator. Details of the linkage algorithm need to be supplied. |
| Action required: | **Further Update IGB** |
| Update:Made: 09/01/14 | **The method used to link NDA and HES items is a deterministic linkage between NHS number in the NDA and NHS number in the HESID index. This applies to both this indicator and** **CCGOIS 2.8 – Complications associated with diabetes,**  |

Review:

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| Review Timescale | 3 years |
| Rationale  | In light of no significant issues being identified with the methodology or anticipated changes to process or data source it is recommended that the indicator be reviewed in 3 years, unless there are any changes to data collection methodologies (e.g. use of GPES). |

 IGB Sign-off: **Indicator Assurance Process Output**

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| --- | --- |
| *Final Appraisal Status* | **Assured with Comments** |
| Basis of Sign-off[Detail caveats and limitations ] | In light of the information provided regarding the data linkage, the indicator was retrospectively signed off as assured (with comments) under Chair’s actions (IGB pre-meet 10/7/14). It was determined that the indicator should be reviewed alongside the other diabetes indicators discussed at IGB on 18/01/13 which were given a 3 year review period. *IAP00125 -Rate of people with diabetes with a single marker of all nine basic care processes performed**IAP00075 - People with diabetes who have been diagnosed for less than 1 year with a structured education referral recorded* |
| Sign-off Date | The sign off date was determined as 18/01/13 |

1. Chronic heart failure quality standard, June 2011, NICE, <http://www.nice.org.uk/guidance/QS9> [↑](#footnote-ref-1)
2. Cardiovascular Disease Outcomes Strategy, March 2013, Department of Health, [https://www.gov.uk/government/uploads/system/uploads/attachment\_data/ file/217118/9387-2900853-CVD-Outcomes\_web1.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/%20file/217118/9387-2900853-CVD-Outcomes_web1.pdf) [↑](#footnote-ref-2)
3. National Service Framework for Coronary Heart Disease, March 2000, Department of Health, [https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/198931/National\_Service\_Framework\_for\_ Coronary\_Heart\_Disease.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/198931/National_Service_Framework_for_%20Coronary_Heart_Disease.pdf) [↑](#footnote-ref-3)
4. Commissioning a cardiac rehabilitation service, October 2010, Department of Health, [http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/ en/publicationsandstatistics/publications/publicationspolicyandguidance/ browsable/DH\_117504](http://webarchive.nationalarchives.gov.uk/%2B/www.dh.gov.uk/en/publicationsandstatistics/publications/publicationspolicyandguidance/browsable/DH_117504) [↑](#footnote-ref-4)
5. Wilson EB. Probable inference, the law of succession, and statistical inference. J Am Stat Assoc 1927; 22: 209–12 [↑](#footnote-ref-5)
6. 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 [↑](#footnote-ref-6)
7. Eayres D. Technical Briefing 3: Commonly used public health statistics and their confidence intervals. York: APHO; 2008. Available at <http://www.apho.org.uk/resource/item.aspx?RID=48457> [↑](#footnote-ref-7)
8. Wilson EB. Probable inference, the law of succession, and statistical inference. J Am Stat Assoc 1927 [↑](#footnote-ref-8)
9. Newcombe RG. Two-sided confidence intervals for the single proportion: comparison of seven methods. Stat Med 1998. [↑](#footnote-ref-9)
10. Newcombe RG, Altman DG. Proportions and their differences. In Altman DG et al. (eds). Statistics with confidence (2nd edn). London: BMJ Books; 2000. [↑](#footnote-ref-10)
11. Agresti A, Coull BA. Approximate is better than ‘exact’ for interval estimation of binomial proportions. Am Stat 1998 [↑](#footnote-ref-11)