**NHS Digital**

**Indicator Supporting Documentation**

**IAP00426 Tooth extractions for children admitted as inpatients to hospital aged 10 years and under**

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| **1.1 Indicator title** | Admissions of children aged 10 years and under to hospital for tooth extractions due to decay | **1.8 Application type** | For renewal |
| **1.2 Reference number** (if unsure, please leave for IMAS team) | IAP00426 | **1.9 Requesting organisation** | Department of Health and Social Care (DHSC) |
| **1.3 Topic area** | NHS Dental Services | **1.10 Applicant details** | Name: Dawn Fagence  Title: Senior Analyst  Email: dawn.fagence@dh.gsi.gov.uk |
| **1.4 Domain (if applicable)** | Domain 3 – Helping people to recover from ill-health or following injury |  |  |
| **1.5 Set** | NHS Outcomes Framework | **1.11 Alternate contact details** | Name: Gill Davies  Email: gill.davies@phe.gov.uk |
| **1.6 Please explain if ‘Set’ is ‘Other’ or ‘N/A’** | N/A | **1.12 SRO/ sponsor / policy owner details** | Name: Helen Miscampbell  Title: Policy Lead  Email:helen.miscampbell@dh.gsi.gov.uk |
| **1.7 Brief Summary of indicator (max 100 words)** | The rate of finished consultant episodes (FCEs) per 100,000 population for children aged 10 and under  having tooth extractions with a primary diagnosis of dental caries (tooth decay). The majority of these  extractions in a hospital setting are carried out under general anaesthetic, many could be avoided with  better home care and management within primary care. |  |  |

**Section 2: Rationale and Policy Basis (IGB to assess, MRG to advise)**

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| **2.1 Why is this indicator needed and why is it important that it be measured?** | The purpose of this indicator is to reveal variations in the rate of episodes of tooth extractions that occur in secondary care per 100,000 population of the relevant age band. This procedure is indicative of high levels of dental decay among young children and/or low levels of dental attendance in primary care, or local acceptance of extraction as being a satisfactory means of managing the care of young children.  If it is not measured, then there is no way of identifying at a national or regional level where levels of extraction are higher than might be expected considering the levels of decay in the population. Thus, preventing the ability of commissioners and other healthcare professionals to focus effort at a local level to educate and put in place interventions to reduce levels of tooth extractions in children. The existence of this indicator should also prompt local authorities to take action to improve oral health in the populations they serve.  Tooth decay is the most common oral disease affecting children and young people in England, yet it is largely preventable. Poor oral health can impact upon a child’s ability to sleep, eat, speak, play and socialise with other children. Other consequences include pain, infections, poor diet, and impaired nutrition and growth. Oral health is therefore a fundamental part of overall health and wellbeing. When children are not healthy, this affects their ability to learn, thrive and develop. In this way, good oral health can contribute to school readiness.  It should not be normally accepted that children require extractions in hospital for dental caries. The need for secondary care interventions indicates high levels of decay among young children and non-concordant children, who often have severe pain and bouts of acute infection. An outcome of a secondary care extraction can be an indication that a patient has not received or accessed suitable care from the primary care dental service.  There are no equivalent indicators on extractions in children in primary care at present. |
| **2.2 Is there any clinical evidence or professional opinion that can be cited in the development of this indicator?** | Tooth extraction related to dental caries in children is a critical outcome used in the development of NICE guidance on oral health (NICE guideline PH55) and provides an indication of the success of interventions to improve oral health such as promotion activities, tooth brushing schemes and fluoride varnish programmes.    Monitoring extractions in hospital is an outcome measure included in NICE Quality Standard QS139. Extraction occurring in secondary care implies children are having general anaesthetic and that decay in the tooth has reached extensive levels. The presence of extensive decay is the outcome of a poor diet with high frequency intakes of sugar-containing foods and drinks and rare or no exposure to fluoride.  Early dental attendance, early diagnosis, preventive treatment and correct advice can help reduce decay if there are consequent changes to dietary habits and exposure to fluoride (mainly through fluoride toothpaste).  In 2016/17, there were approximately 31,600 inpatient tooth extractions for those aged 10 and under, of which approximately 13,200 of these were for children aged 5 and under.  The figures for this procedure are stable when the numbers of children in the population are considered but variation across the country is very marked0F[[1]](#endnote-2)[i].  Dental treatment under GA, presents a small but real risk of life-threatening complications for children. Tooth extractions under GA are not only potentially avoidable for most children but also costly. Episodes for tooth extraction for children aged 18 years and under in hospitals in 2015/16 cost £847 per child with a total NHS cost of nearly £36 million. |
| **2.3 Is there any clinical evidence or professional opinion to support the ongoing need for this indicator?** | This indicator is under review after being developed three years ago. The clinical evidence continues to suggest that there are still large numbers of children of primary school age having teeth extracted due to decay that could be avoided. Variations in activity levels around the country warrant investigation. In some areas large numbers of children undergo extraction procedures and there are large waiting lists and very long waiting times. By making the activity figures available to all NHS England teams, comparison and enquiries into the suitable levels of provision can be made. Well commissioned dedicated services will continue to be required for those children who need them, and they should be available in a timely fashion.  The DHSC and NHS England continue to receive official correspondence asking how they plan to address the high numbers of tooth extractions in children. Dental media also continue to raise the issue – as above - <https://www.theguardian.com/society/2018/jan/13/dentists-warn-of-child-tooth-decay-crisis-as-extractions-hit-new-high>  Therefore, there is an ongoing need to monitor the outcomes of children in terms of tooth extractions due to decay and therefore this indicator has been reviewed and aligned with other similar ones. |
| **2.4 Which governmental strategies or policies is supported by the use of this indicator?** | The government made a commitment to oral health and dentistry with a drive to:  - improve the oral health of the population, particularly children  - introduce a new NHS primary dental care contract  - increase access to primary care dental services  - The public health outcomes framework includes “tooth decay in five-year-old children” as an outcome indicator.  The key objectives for dental policy, is to improve access and quality of services to deliver better oral health. Measuring and reporting levels of extractions in children is central to the policy objectives.  The Children and Young People’s Health Outcomes Forum report published in 2012 and its 2014 annual report recommended improved integration and greater action to reduce regional variation in child health outcomes.  The NHS Outcomes Framework (NHS OF) indicators provide national level accountability for the outcomes the NHS delivers; they drive transparency, quality improvement and outcome measurement through the NHS. The framework sets out the national outcome goals that the Secretary of State uses to monitor the progress of NHS England |
| **2.5 Who would use this indicator and why?** | This indicator is primarily for commissioners of primary and secondary care services. It should not be used to simply de-commission services without local investigation and consultation with stakeholders.  The indicator is a management tool to prompt further investigation. Commissioners would use this to identify if they have higher rates of admission for dental extractions than other areas. As part of their investigations they would use the PHE extraction information which indicates the proportion of episodes which do not have caries as the primary diagnosis and look at the national dental epidemiology figures to see what the population levels of caries are. Finally, they would investigate the waiting lists and times of each of their providers.  PHE Hospital episodes of teeth extraction for children 0-19 yrs 2011/12 – 2016/17 <http://www.nwph.net/dentalhealth/Extractions_270317.aspx>  PHE Surveys of caries levels among five-year olds. <http://www.nwph.net/dentalhealth/5year%20docs.aspx> |
| **2.6 Is there a relationship to other existing indicators?** | There are currently two dental indicators in Domain 4 (patient experience) that have been in the NHS OF from the first iteration:  4ai – Patient experience of Primary Care – NHS Dental Services  4.4.ii – Improving access to NHS Dental Services  These are important as NHS primary care dental services form the largest part of dental service provision.  The other existing indicators focus on the patient experience element of NHS Dentistry (adults only) – the first measures the weighted percentage of people who report their overall experience of NHS dental services as ‘very good’ or ‘fairly good’, from one question in the GP Patient Survey. The second indicator measures the weighted percentage of people who successfully obtained an NHS dental appointment out of those who tried in the last two years, from two questions in the GP Patient Survey.  This indicator on extractions in children sits in Domain 3 of the NHS Outcomes Framework and therefore complements the patient experience ones in Domain 4 by providing information on a clinical aspect of NHS dentistry. There is another clinical dental indicator in development for the NHS Outcomes Framework on decayed teeth, but the data source for this is not yet of sufficient quality.  Public Health England publishes more detailed data about episodes of hospital extractions for children but use tables of raw figures and percentages to describe the picture more fully and splits episodes into those with a primary diagnosis of caries and those without this. Thus, the PHE figures align with and complement the NHS indicator but does not replicate it. |

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| **2.7 Comparability to other existing indicators** | Similar existing indicators –  There are currently two dental indicators in Domain 4 (patient experience) that have been in the NHS OF from the first iteration, these focus on adults only –  4ai – Patient experience of Primary Care – NHS Dental Services - this measures the weighted percentage of people who report their overall experience of NHS dental services as ‘very good’ or ‘fairly good’.  4.4.ii – Improving access to NHS Dental Services – this looks at the weighted percentage of people who successfully obtained an NHS dental appointment out of those who tried in the last two years.  The extractions indicator complements these by adding a clinical dimension into the mix. The patient experience indicators are based on responses to the General Practice Patient Survey, on a Likert scale, whereas the extractions indicator is based on actual hospital records. Therefore, the methodologies and results are quite different.  There is another dental indicator in the pipeline for the NHS OF on ‘Number of decayed teeth of NHS dental patients’. The data source for this indicator is not ready at present.  There is an indicator in the Public Health Outcomes Framework - 4.02 - Mean severity of tooth decay in children aged five years based on the mean number of teeth per child sampled which were either actively decayed or had been filled or extracted – decayed/missing/filled teeth (d3mft). See - http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000044/pat/6/at i/102/page/6/par/E12000004/are/E06000015  There are also a number of dental indicators provided by the PHE Dental Public Health Intelligence Programme (DPHIP) (previously the NHS Dental Epidemiology Programme) – see - http://www.nwph.net/dentalhealth/  - Oral health in children: experience of dental decay: percent, 5 years annually/12 years occasionally  - Oral health in children: decayed/ missing / teeth in children: mean 5 years annually /12 years occasionally  - Oral health in children: decayed/missing/filled teeth in children with dental decay: mean, 5 years, annually.  These are produced from a survey-based collection. Fieldwork teams from the Community Dental Service examine children from randomly sampled primary schools within a local authority area. These differ from the proposed indicator as they seek to measure decay levels in a representative sample of the population, as opposed to looking at children admitted to hospital.  A more closely related indicator which is also part of the DPHIP is –  - Admission to hospital for extraction of one or more decayed primary or permanent teeth, 0-19-year olds. See - <http://www.nwph.net/dentalhealth/extractions.aspx>  This indicator had a slightly different age breakdown (0-4, 5-9, 10-14, 15-19) which has proved a problem when queries on this subject have been received. Therefore, an exercise to align these age categories to this indicator has been completed and the PHE indicator will be published as follows from January 2018 – 0-4, 5-10, 11-14, 15-19.  The main differences between this and the indicator proposed here is that the compendium indicator includes children up to 19 years, but with aligned breakdowns for the younger age groups. Recently, in addition to the age groups being aligned, the clinical codes have also been aligned so that the number of extractions published for both sources is the same.  The PHE tables provide more information than the single NHS indicator in that it shows the numbers of episodes of extraction for all reasons and broken down into non-caries and caries reasons. It shows the episodes of each as a percentage and it shows the numbers of episodes among older children. This allows commissioners to see for their populations what proportion of episodes are for non-caries reasons among young children and adolescents. This information is essential when reviewing provision.  These indicators complement each other and reach a large proportion of the population – both users and non-users of services. This should give a more rounded picture of activity of NHS Dental Services. |

**Section 3: Presentation and interpretation (IGB to assess, MRG to advise)**

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| **3.1 How will the indicator be presented?** | The indicator is published annually in spreadsheet form at - https://digital.nhs.uk/data-and-information/national-indicator-library/tooth-extractions-for-children-admitted-as-inpatients-to-hospital-aged-10-years-and-under  The indicator value is presented as a crude rate per 100,000 population of children of the age in question:  𝑟 = 100,000 ∗ 𝑂 n  Where:  r = crude rate per 100,000 population  O = number of FCEs where extraction performed  n = population  In 2016/17, the indicator data showed that there were 422 FCEs where a tooth extraction was performed on a child aged 10 years and under due to decay, per 100,000 resident population in England.  Where:  r = 421.7  O = 31,666  n = 7,508,500  The data is presented in a table with the following breakdowns -  **Time periods**  Annual data from 2011/12 for all breakdowns  **Demographic**  Gender - male and female  Age – person  **Geographic**  Lower tier local authority – person  Upper tier local authority – person  Region – person  **Other**  Deprivation decile – person |
| **3.2 What contextual information will be provided alongside the indicator?** | Total number of extractions for 0-10-year olds regardless of primary diagnosis (emergency and non-emergency split), in hospital, by region.  Population of 0-10-year olds, by local authority region (East Midlands, East of England, London, North West, North West, South East, South West, West Midlands, Yorkshire & Humber), from ONS population estimates.  Data on the number of extractions regardless of primary diagnosis gives an indication of cases where teeth are extracted for reasons other than caries.  The same sources as for the main indicator would be used to calculate the contextual indicators.  The number of FCEs for tooth extraction, but without a specific primary diagnosis, is included to provide a comparison of the extent to which extractions are done due to dental caries.  The population of 0-10 year old children from ONS mid-year estimates is included to provide an indication of the size of the population. |
| **3.3 What is considered “good” performance? What is considered “bad” performance?** | A reducing crude rate is desirable if this indicates a reduction in disease levels and / or better management in primary care. A reducing rate in the absence of these could indicate reduced service, longer waiting lists and longer times for lots of children with pain and sepsis. Longer waiting times may be accompanied by deteriorating decay levels and the demand for frequent prescription of antibiotics.  A good outcome would be a reduction over time of the rate and number of children requiring admission to hospital for extraction of teeth due to improved levels of oral health.  A reduction in the level of extractions in hospital may be an indicator of improved management of decay in children in primary care or an increase in the availability of services that undertake extractions in primary care, possibly under inhalation sedation.  Having a higher than expected crude rate should not necessarily be interpreted as being the result of poorer quality or unsafe care. There is no ‘right’ level of provision.  It is not possible to draw conclusions about which area provides better or safer patient care solely using this indicator. It is intended to be used alongside other intelligence for commissioning decisions and in comparison to other similar areas.  The number of tooth extractions that occur in secondary care for those aged 10 and under is not expected to be zero, however, our clinical advice is that there is significant scope to reduce the current level in some areas.  Good performance would be an available, properly commissioned, dedicated service with clear acceptance criteria and a clear referral system which may include triaging of patients. The service would provide timely treatment for the right children, for the right reasons delivered by people with the right clinical expertise.  This indicator does not include the small number of tooth extractions that cannot be avoided, for example, those, due to trauma, such as A&E admissions of accidents, which require emergency dental extractions. There are also likely to be some cases where very young children require admission for extractions, children with special needs and cases where extractions would be in several quadrants or are difficult. These outcomes are not events that should never happen, but our clinical advice is that there is significant scope to reduce the current level in some areas. |
| **3.4 Is there a target to be achieved?** | A target is not applicable for this indicator. However, the direction of travel should be towards reducing the current level of tooth extractions in children aged under 10 years across England using a variety of approaches, nit just decommissioning of secondary care services. |
| **3.5 How will any interested parties use the information provided by the indicator?** | This indicator is primarily for commissioners of primary and secondary care services and local authority commissioners of community level oral health improvement interventions. It should not be used to simply de-commission services without local investigation and consultation with stakeholders. Rather, it is a management tool to prompt further local investigation into levels of child extractions in their area to inform work to introduce local initiatives.  Commissioners will use the indicator to see if they are outliers and supplement their investigation by using the PHE tables which provide more information about the numbers of episodes of extraction for all reasons, broken down into non-caries and caries reasons and numbers of episodes among older children. They would also use the epidemiological information about caries levels in their child population. This would allow commissioners to see for their populations what proportion of episodes are for non-caries reasons among young children and adolescents. This could reveal where changes could be made to admissions and acceptance criteria.  PHE Hospital episodes of teeth extraction for children 0-19 yrs 2011/12 – 2016/17 <http://www.nwph.net/dentalhealth/Extractions_270317.aspx>  PHE Surveys of caries levels among five-year olds. <http://www.nwph.net/dentalhealth/5year%20docs.aspx> |
| **3.6 Consider how the results can be used for benchmarking. If so, what methodology will be used?** | No baseline figure is explicitly set so ‘benchmarking’ is not possible against a national standard. Rather, the indicator will provide commissioners with a measure of activity which they will be able to compare with neighbouring areas or statistical neighbours and which should prompt local investigation. It is expected to be used alongside other intelligence to come to a complete picture of primary care dental provision for children. |

**Section 4: Data (MRG to assess)**

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| **4.1 What is the source of the data and why should it be used?** | The source of the data for this indicator is –   * Hospital Episode Statistics Admitted Patient Care Database (HES APC), NHS Digital (<http://www.hscic.gov.uk/hes>) * Office for National Statistics (ONS) Population Estimates (<http://ons.gov.uk/ons/taxonomy/index.html?nscl=Population+Estimates>).   Thus, can be considered an indicator which demonstrates the success and or value of health policy and initiatives.  HES is the only comprehensive source of information on inpatient clinical treatments in secondary care. The use of outpatient data was considered, however, since it is not mandatory to record procedure and diagnosis information, it could not be used in this instance.  ONS is the official (and only comprehensive) source of information on population estimates.  The age cut off of 10 years and under is based on clinical advice. Many extraction episodes in secondary care for those aged 10 years and under could be avoided if decay was controlled by reducing sugar in the diet, increasing exposure to fluoride and improving child patient management in primary care, for example via the use of inhalation sedation. A small proportion of extractions for under 10s in the absence of decay will be for legitimate reasons e.g. trauma. For children aged over 10 years there is much less justification for extractions to be undertaken in secondary care, except for children with special needs. |
| **4.2 Was any other data source considered?** | The use of survey data was considered. The decennial dental surveys (Adult Dental Health Survey, Child Dental Health Survey), Dental Public Health Intelligence Programme (previously the National Dental Epidemiology Programme) provide a detailed understanding of the general population’s oral health. However, they do not provide information on treatment provision so were not considered appropriate sources of data for this indicator. |
| **4.3 What is the coverage period of the data?** | HES - Annual (financial year) data. Published in the Autumn after the end of the relevant financial year by NHS Digital.  ONS - Office for National Statistics (ONS) mid-year population estimates of the relevant age group and gender based on the 2011 Census, published annually (calendar years) by the ONS. Available in the Summer following year-end. |
| **4.4 Which geographic area(s) will be covered and reported on by this indicator?** | Lower tier local authority  Upper tier local authority  Region |
| **4.5 How will the data be extracted or collected?** | This indicator makes use of existing data sources.  The underlying data for this indicator is from an existing collection and publicly available from NHS Digital (HES data – summaries are publicly available but not at record level) and ONS (population data).  This indicator is constructed from the underlying data for this purpose alone and is not available in the same format elsewhere. |
| **4.6 Data fields required** | Main operative procedure (OPCS4)  Primary diagnosis (ICD-10)  Patient age  Sex  Year  Region  Upper and lower tier Local Authority  Deprivation (derived using Department of Communities and Local Government (DCLG) Index of Multiple Deprivation (IMD) 2015 scores based on 2011 lower super output area (LSOA) boundaries).  Per 100,000 population (ONS population estimates)  This indicator focuses on patients admitted to hospital for tooth extractions. It does not include patients in hospital as outpatients for two reasons –   * It is not mandatory to record procedure and diagnosis information, only around 2% of records have completed clinical codes, which is essential for this indicator. * Most children admitted to hospital for extraction of teeth will have a GA, in this case they will be admitted as an inpatient as it is necessary to have potential access to an acute bed in the case of complications.   The justification for selecting children 10 years and under is that their primary diagnosis is, for the most part, dental caries, which has the potential for reduction and control.  There are likely to be a high proportion of cases where very young or pre-cooperative children require admission for extractions and cases where extractions would be in several quadrants or be difficult.  Children aged 10 years and over who are attending hospital for dental extractions are often undergoing extractions for orthodontic reasons – the legitimacy of this must be questioned as these can nearly all be carried out in primary care.  The inclusion/exclusion of emergency admissions was also considered, as these may contain some children who have their teeth extracted following unintended injury/accidents. Since emergency admissions would not have a primary diagnosis of caries, these are not included in this indicator.  There are instances of tooth extractions in secondary care where the patient is admitted via A&E following trauma. These will have a primary diagnosis of the trauma, not caries, and so will not be counted within this indicator because they are not the result of poor oral health due to non-attendance at primary NHS dental services. Instances where children are admitted via A&E with a primary diagnosis of dental decay will be counted in this indicator. In the future, as the coding of A&E records improves, this indicator will be reviewed and it may be possible to include A&E records too. |
| **4.7 Are any data filters required?** | Patient age = 0-5 & 6-10 years old derived from START\_AGE.  SEX = Male or Female  England only = RESLADST\_ONS  CLASSPAT (Patient classification) Is equal to: 1,2,5 (ordinary admissions, day case and mothers/babies using only delivery) facilities.  Main operative procedure (OPSC4) code of F09 – surgical removal of tooth or F10 – simple extraction of tooth (derived from OPERTN\_3\_01).  Primary diagnosis (ICD-10) code of K02 for dental caries (derived from DIAG\_3\_01), specifically the following –  K02.5  K02.1  K02.8  K02.9  Plus, the following -  K04.0  K04.5  K04.6  K04.7  Year - identified financial year (derived from EPIEND). |
| **4.8 Are there any linkages to other datasets?** | None |
| **4.9 Are there any limitations or potential bias?** | The HES database and the ONS population estimates are well-established sources and of good quality.  In terms of completeness, there is variation in hospital records and quality of coding. There is anecdotal evidence that may suggest there is also variation between hospitals in the way diagnoses are coded to the twenty diagnosis fields in each episode, particularly primary diagnosis. These issues do not outweigh the usefulness of HES data in this instance. The HES database is used for other indicators within the NHS OF and there is no reason to think that the coding of dental episodes is of any poorer quality than any other clinical area.  In terms of coverage, this indicator currently focuses on inpatient episodes. It would be a useful addition to include outpatient episodes, although very few children will be seen in an outpatient setting for a tooth extraction as having general anaesthetic requires being on a paediatric consultant list and as inpatient. However, clinical coding for outpatient episodes is not mandatory and is therefore poor quality. As this situation changes and clinical coding for outpatient episodes improves, these episodes should be included in this indicator for a fuller picture of tooth extractions in children. Another useful addition would be a marker for GA. There is not currently any way of recording in HES the type of anaesthetic that a patient receives. If HES were to add this in the future, it would be a useful addition to this indicator.  There is some variability with regard to recording activity where the extractions are undertaken by Community Dental Services. Since all dental general anaesthetics must take place in a hospital setting with access to critical care facilities all episodes should be recorded by Trusts on their PAS, irrespective of whether the work is being done under a contract with the CDS (which will be a GS contract or a PDS agreement) or under a hospital contract (a NHS standard contract). There is a way in SUS submissions to force SUS PbR not to calculate a national PbR tariff for hospital records. This is described here:  <http://www.datadictionary.nhs.uk/data_dictionary/data_field_notes/c/co/commissioning_serial_number_de.asp?shownav=0>  So, if CDS providers use this facility, then SUS will not add a national tariff price to the record. From next yearthis will be included as a requirement in the NHS Standard Contract, so while not all activity will be captured from the CDS at present (although we believe gaps to be minimal), from 2019, we will have a complete dataset.  There had been inconsistencies across Hospital Trusts on extraction episodes being reported in the HES figures (which is a difference between the hospital claiming payment for the treatment or not). This led to a piece of work carried out by the then Dental Observatory to see the extent of the gaps in the data. It was found that in 2008/09, in the North West SHA, 28% of extractions were not reported on HES, with 46% of PCTs within North West not having complete data available because of the involvement of CDS.  At pre-arranged dates during the year, SUS takes an extract from their database and sends it to HES. They then validate and clean the extract, before deriving new items and making the information available in the data warehouse. Data quality reports and checks are completed at various stages in the cleaning and processing cycle.  <https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/hospital-episode-statistics/the-processing-cycle-and-hes-data-quality>  There are no known data quality issues which specifically affect the quality of coding of dental episodes in hospital. HES data at present represents the best available data source and there is no reason to assume coding in dental episodes is worse than other areas. HES is used as the data source for other indicators in the NHS OF.  All extractions for dental caries that take place under general anaesthesia in hospitals, regardless of the service which holds the contract for the provision of the actual extractions need to be included in the proposed indicator. Now, unless recorded in HES, GA extraction data from the CDS is not collected centrally. As described above There is work underway to ensure that hospital trusts collect data when the extractions are carried out by CDS dentists and submit it centrally, this should evolve over the next few months and will be included in the indicator from 2019.  HES does not collect information on general anaesthesia, which would have been a good addition to this indicator. This was the case when the indicator was first published in 2015 and unfortunately has not moved on since, so it is still not possible to include information on GA’s in this indicator. If HES were to collect data on anaesthesia used in procedures in hospital, then it would be a good addition to this indicator as it would provide another dimension to the data. Different forms of sedation involve different risk factors, vary in cost and recovery time for the patient, it would be useful to know how anaesthesia practices varied across the country.  We will continue to monitor this and if it changes then a modification to the indicator will be suggested.  The data does not include episodes of care completed in an outpatient setting because clinical coding for outpatient episodes is not mandatory and is therefore of poor quality. However, children should be admitted if they need a GA for extractions and must be on a paediatric consultant list. |
| **4.10 Further notes on data** | These are both well-established data sources and are used for other indicators in the NHS OF.  HES data comes from the routine exchanges of information between providers and commissioners of healthcare for NHS patients in England. Healthcare providers collect administrative and clinical information locally to support the care of the patient. The data is submitted to the Secondary Uses Service (SUS), which, as well as making it available to the commissioners, also copies the information to a database.  The ONS Census population estimates have been through a rigorous quality assurance (QA) process to ensure that users of census data have confidence in the quality and accuracy of the information. See - https://www.ons.gov.uk/census/2001censusandearlier/dataandproducts/qualityofthecensusdata  There is work underway to improve this data. Currently, activity carried out by a CDS dentist in an hospital setting may not be captured in SUS. From 2019, there will be a requirement as part of the NHS Standard Contract for providers to record activity for children treated in an acute setting under a community dental contract on their PAS. There is a way in SUS submissions to force SUS PbR not to calculate a national PbR tariff for activity undertaken by the CDS. This is described here:  <http://www.datadictionary.nhs.uk/data_dictionary/data_field_notes/c/co/commissioning_serial_number_de.asp?shownav=0>  So, if providers use this facility then SUS will not add a national tariff price to the record. This would mean that going forward, we would capture all activity carried out under a CDS contract in a hospital setting. |

**Section 5: Construction and Testing (MRG to assess)**

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| **5.1 How will the indicator measure be calculated / constructed?**  Please provide explanation of coding where applicable and rationale behind demographic breakdowns | The numerator is the number of finished consultant episodes for extraction of tooth where the primary diagnosis is dental caries (tooth decay or cavities) and the patient is aged 10 years or under.  The denominator is the Office for National Statistics (ONS) mid-year population estimates (based on the 2011 Census).  This indicator is calculated by dividing the numerator by the denominator and multiplying by 100,000 to provide a crude rate per 100,000 population. 95% confidence intervals are calculated using one of two methods depending on whether the number of Finished Consultant Episodes (FCEs) where extraction was performed is above or below 389. Details of the methodology used for confidence intervals can be found in the technical specification and copied below for ease -  95% confidence intervals are calculated using the following methodology:  𝑟𝑙𝑜𝑤𝑒𝑟=𝑂𝑙𝑜𝑤𝑒𝑟n  𝑟𝑢𝑝𝑝𝑒𝑟=𝑂𝑢𝑝𝑝𝑒𝑟𝑛  where:  **r** is the crude rate per 100,000 population and rlower and rupper are the lower and upper confidence limits for the crude rate;  **O** is the number of FCEs where extraction performed and 𝑂𝑙𝑜𝑤𝑒𝑟and 𝑂𝑢𝑝𝑝𝑒𝑟 are the lower and upper confidence limits for the number of tooth extractions;  **n** is the number of individuals in the subject population.  The confidence limits for the number of tooth extractions are given by the following:  When **O** < 389 then, 𝑂𝑙𝑜𝑤𝑒𝑟= 𝜒𝑙𝑜𝑤𝑒𝑟22 𝑂𝑢𝑝𝑝𝑒𝑟= 𝜒𝑢𝑝𝑝𝑒𝑟22  where:  𝝌**2lower** is the 97.5th percentile value from the 𝜒2 distribution with 2O degrees of freedom;  𝜒**2upper** is the 2.5th percentile value from the 𝜒2 distribution with 2O+2 degrees of freedom.  When **O** >= 389 then,  𝑂𝑙𝑜𝑤𝑒𝑟=𝑂(1−19𝑂−𝑧3√𝑂)3 𝑂𝑢𝑝𝑝𝑒𝑟=(𝑂+1)(1−19(𝑂+1)+𝑧3√𝑂+1)3  where:  **z** is the 97.5th percentile value from the Standard Normal distribution.  The deprivation breakdown for this indicator has been derived using Department of Communities and Local Government (DCLG) Index of Multiple Deprivation (IMD) 2015 scores based on 2011 lower super output area (LSOA) boundaries.  The numerator data sourced from Hospital Episode Statistics (HES) are available at LSOA level using 2011 boundaries. The deprivation deciles have been directly assigned to the 2011 LSOAs using the deprivation scores provided by DCLG.  Population figures are available at LSOA 2011 level and the assignment of deprivation deciles to those figures have used the same IMD 2015 data.  The indicator will be presented as a simple crude rate of FCEs per 100,000 population with breakdowns as follows -  Age (0-5 & 6-10 years)  Sex  Region  Upper and lower tier Local Authority  Deprivation decile  This will be published on NHS Digital’s National Indicator Library in MS Excel and CSV files here - <https://digital.nhs.uk/data-and-information/publications/ci-hub/nhs-outcomes-framework> |
| **5.2 Numerator explanation** | Number of with Finished Consultant Episodes (FCEs) for extraction of one or more decayed primary or permanent teeth having a main procedure (OPCS4) code of F09 – surgical removal of tooth or F10 – simple extraction of tooth (derived from OPER\_1D3),  Primary diagnosis (ICD-10) code of K02 for dental caries in the primary position (derived from DIAG\_3\_01), specifically, the following –  K02.5  K02.1  K02.8  K02.9  Plus, the following -  K04.0  K04.5  K04.6  K04.7  For 0 to 10-year olds (derived from START\_AGE), in an identified financial year (derived from EPIEND). |
| **5.3 Denominator explanation**  . | The population of children aged 10 years and under from Office for National Statistics (ONS) mid-year population estimates (based on the 2011 Census). |
| **5.4 Provide a worked example** | Crude rate per 100,000 population  The indicator value is presented as a crude rate per 100,000 population: 𝑟 = 100,000 ∗ 𝑂 n  Where: r = crude rate per 100,000 population O = number of FCEs where extraction performed n = population  For example, for 2016/17 the indicator value was 421.7 children per 100,000 in England. Derived from dividing 31,666 (numerator) by 7,508,500 (denominator)  Full data can be found here - https://digital.nhs.uk/data-and-information/publications/clinical-indicators/nhs-outcomes-framework/current/domain-3-helping-people-to-recover-from-episodes-of-ill-health-or-following-injury-nof/3-7-ii-tooth-extractions-due-to-decay-for-children-admitted-as-inpatients-to-hospital-aged-10-years-and-under |
| **5.5 Could any risks be associated with the use of this indicator?** | There are no anticipated ways in which this indicator could stimulate undesired behaviours as there is no target linked to it and no agreed optimum level. Commissioners and providers may change the activity level in response to investigation into local conditions but this would be an appropriate use of the indicator, not an abuse. |

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| **5.6 Risk adjustment or standardisation type and methodology** | Standardisation was considered; direct standardisation was discounted because doing a crude rate for 0-5 and 6-10 year olds separately is not far off doing age standardisation anyway, and easier to understand.  Indirect standardisation was initially proposed to MRG but was challenged as there were questions regarding the interpretation of the indicator and the practical difference that standardisation would make. For this reason, an analysis of indirect ratio vs. crude rate was performed and is summarised below.  Scatter plot of crude vs. indirectly standardised ratio for each local authority.  Scatter plot of the residual of the indirectly standardised ratio minus the results of the regression line in the chart above, vs. the number of observations.  While there is some variation in the population distribution of local authorities, it is seen that the relationship between crude rate and standardised ratio is linear.  Some variation in rates is expected because of variations in decay levels associated with deprivation, ethnicity and exposure to fluoridated water.  Interpretation issues with the standardised ratio, i.e. that ratios cannot be ordered or compared over time, that improvement could only be observed in reference to the standard population, mean that the crude rate is preferred.  The use of the crude rate was approved by MRG members by correspondence w/c 2015-09-28. |
| **5.7 What are the confidence intervals and control limits and why have they been used?** | 95% confidence intervals are calculated using the following methodology:  𝑟𝑙𝑜𝑤𝑒𝑟=𝑂𝑙𝑜𝑤𝑒𝑟n  𝑟𝑢𝑝𝑝𝑒𝑟=𝑂𝑢𝑝𝑝𝑒𝑟𝑛  where:  **r** is the crude rate per 100,000 population and rlower and rupper are the lower and upper confidence limits for the crude rate;  **O** is the number of FCEs where extraction performed and 𝑂𝑙𝑜𝑤𝑒𝑟and 𝑂𝑢𝑝𝑝𝑒𝑟 are the lower and upper confidence limits for the number of tooth extractions;  **n** is the number of individuals in the subject population.  The confidence limits for the number of tooth extractions are given by the following:  When **O** < 389 then, 𝑂𝑙𝑜𝑤𝑒𝑟= 𝜒𝑙𝑜𝑤𝑒𝑟22 𝑂𝑢𝑝𝑝𝑒𝑟= 𝜒𝑢𝑝𝑝𝑒𝑟22  where:  𝝌**2lower** is the 97.5th percentile value from the 𝜒2 distribution with 2O degrees of freedom;  𝜒**2upper** is the 2.5th percentile value from the 𝜒2 distribution with 2O+2 degrees of freedom.  When **O** >= 389 then,  𝑂𝑙𝑜𝑤𝑒𝑟=𝑂(1−19𝑂−𝑧3√𝑂)3 𝑂𝑢𝑝𝑝𝑒𝑟=(𝑂+1)(1−19(𝑂+1)+𝑧3√𝑂+1)3  where:  **z** is the 97.5th percentile value from the Standard Normal distribution. |
| **5.8 Could the indicator be manipulated to influence the outcome?** | It may incentivise more under-reporting in HES, with hospitals saying they did fewer extractions than they did to look better on the indicator. However, this would equally lead to a reduction in payment for the service that has taken place – if they do not report extractions taking place on children, they will not get paid via payment by results, so not likely. Also, hospitals are responding to the health care needs of the population which are beyond their control. Rather, responsibility for this lies with local authorities and individuals so it should not affect the reporting of the treatment carried out. |

**To be completed by the Indicator Methodology and Assurance Service (IMAS)**

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|  |
| Date rec’d 3/10/2018 |
| Assigned to David Wheatley |
| Target MRG 15/11/2018 |
| Target IGB 10/01/2019 |
| Indicator No IAP00426 |
| Suggested length of indicator accreditation Five years |

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| --- | --- | --- |
| **Assurance Type** | **Current status** | **RAG status** |
| **Library and Directory check**  Is there anything already in the library or directory which is equal / similar? Is there enough of a distinction to add this indicator? | **No** | Green |
| **DSAS check**  Relationship to any standards, data sets or data collection | **N/A** | Green |
| **Policy justification**  Has an appropriate policy been selected? | **Yes, the policy section is appropriate and has been approved by MRG and IGB.** | Green |
| **Patient safety check** Will there be any associated patient safety implications? | **N/A** | Green |
| **IG check**  Are there any Information Governance (IG) considerations such as small numbers or sensitive information? | **Yes, published data has disclosure control (e.g. small number suppression).** | Green |
| **Dependencies**  On other indicators, programmes, standards, data sets | **No, this is a standalone indicator** | Green |
| **Risk / impact**  What level of risk is associated by using this indicator or the impact of using / not using? | **This indicator has been previously assured and is currently published. Continued use of the indicator poses no risk due to the assurance by MRG and IGB.** | Green |
| **Data quality checks**  How accurate and complete is the data? Are there any known constraints? Is there evidence that data is:   * available with sufficient frequency and timeliness * robust enough | **This has been addressed in the application.** | Green |
| **Overall analysis and recommendations** | **Indicator has been reviewed and assured by MRG and IGB and is suitable for continued inclusion in the Library of Quality Indicators.** | Green |

**Application Version Control**

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| --- | --- | --- | --- |
| **Version number** | **Date** | **Updated by (Name, team, organisation)** | **Changes made** |
| **02** | **20.12.18** | **SS** | **Amended typos** |
| **03** | **11.01.19** | **DW** | **Removed strikethrough text, tweaked formatting** |
| **04** | **04.02.19** | **DW** | **Added IMAS section** |
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**Final Assurance Rating from the Indicator Governance Board - 10/01/2019**

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| **Reason for assessment** | Scheduled review (review date reached) |
| **Iteration** | 1st IGB meeting |

Ratings Against Assessment Criteria- Fit for use

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| **Key findings from Assurance** |
| * IGB agreed with the findings of MRG * It was also noted that HES data will eventually switch from ICD10 to SNOMED coding, and this was something that the applicant should be aware of when it comes to the renewal of the indictor |

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| **Approval date** | 10/01/2019 |
| **Review date** | 10/01/2024 |

**Details of Methodology Appraisal – 15/11/2018**

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| --- | --- |
| **Methodology appraisal body** | NHS Digital Indicator Methodology and Assurance Service |
| **Reason for assessment** | Scheduled review (review date reached) |
| **Iteration** | 1st MRG meeting |

**Suggested Assurance Rating by Methodology Appraisal Body**

**Ratings Against Assessment Criteria**

Fit for use

**Summary Recommendation to Applicant:**

MRG thanked the applicant for their attendance at MRG and their work on application, especially as the application for renewal was much more in-depth than the first time around. It was felt that there was much to merit reassurance of the indicator, and the queries raised within the MRG meeting have been resolved to their satisfaction. As the queries have been answered, there is nothing stopping the application progressing to IGB

**Summary Recommendation to IGB:**

MRG have reviewed the application, and while there were some minor queries, these have been answered by the applicant to the satisfaction of MRG and it is recommended that the indicator is approved as fit for use.

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

**What do the Assurance Ratings mean?**

**Rating Description**

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

**Appraisal Log**

**Overview**

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| --- | --- | --- | --- | --- | --- | --- |
| **Rec. no** | **Issue or recommendation** | **Raised by / Date** | **Response or Action taken by applicant** | **Response date** | **Resolved** | **Sign off by / Date** |
| 1.1 | Tooth extractions for children admitted as inpatients to hospital aged 10 years and under | MRG – 15/11/18 | Changed title to - Admissions of children aged 10 years and under to hospital for tooth extractions due to decay | 07/12/18 |  | MRG - 13/12/18 |
| 1.1 | Given the notes further on, this indicator takes only the children under 10 who have had a GA to enable tooth extraction who have been admitted. | MRG – 15/11/18 | See above | 07/12/18 |  | MRG - 13/12/18 |
| 1.7 | First sentence needs to include extractions | MRG – 15/11/18 | Done – ‘The rate of finished consultant episodes (FCEs) per 100,000 population for children aged 10 and under having tooth extractions with a primary diagnosis of dental caries (tooth decay)’. | 07/12/18 |  | MRG - 13/12/18 |

**Rationale and Policy Basis**

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| --- | --- | --- | --- | --- | --- | --- |
| **Rec. no** | **Issue or recommendation** | **Raised by / Date** | **Response or Action taken by applicant** | **Response date** | **Resolved** | **Sign off by / Date** |
| 2.1 | Is data collected on non-secondary care extractions? If low rate of secondary care extractions under GA are alongside high rates of local dentist extractions under a local anaesthetic, is that a good thing? | MRG – 15/11/18 | Data is collected on non-secondary care extractions on FP17 forms completed by the dentist and collected by the BSA. It is not published at this level of aggregation by clinical area but could be requested from the BSA. | 07/12/18 |  | MRG - 13/12/18 |
| 2.1 | Can a young child be identified as uncooperative all the time - what about un-encouraged, uninformed children?  The phrase used in medications management is non-concordant as it's without judgement as to the reason | MRG – 15/11/18 | Changed to non-concordant | 07/12/18 |  | MRG - 13/12/18 |
| 2.1 | Are there any similar indicators for primary care? It would be good to have information if there is or is not. | MRG – 15/11/18 | No, there are no equivalent indicator in PC. Added the following sentence ‘There are no equivalent indicators on extractions in children in primary care at present’. | 07/12/18 |  | MRG - 13/12/18 |
| 2.2 | Hasn't fully addressed the question which seeks evidence that research or clinical opinion identifies this as an issue. | MRG – 15/11/18 | Tooth extraction related to dental caries in children ~~remain at high levels and attract media attention.~~ is a critical outcome used in the development of NICE guidance on oral health (NICE guideline PH55) and provides an indication of the success of interventions to improve oral health such as promotion activities, tooth brushing schemes and fluoride varnish programmes.    Monitoring extractions in hospital is an outcome measure included in NICE Quality Standard QS139. Extraction occurring in secondary care implies children are having general anaesthetic and that decay in the tooth has reached extensive levels. The presence of extensive decay is the outcome of a poor diet with high frequency intakes of sugar-containing foods and drinks and rare or no exposure to fluoride.  Early dental attendance, early diagnosis, preventive treatment and correct advice can help reduce decay if there are consequent changes to dietary habits and exposure to fluoride (mainly through fluoride toothpaste).  In 2016/17, there were approximately 31,600 inpatient tooth extractions for those aged 10 and under, of which approximately 13,200 of these were for children aged 5 and under.  The figures for this procedure are stable when the numbers of children in the population are considered but variation across the country is very marked[[2]](#endnote-3)[i].  Dental treatment under GA, presents a small but real risk of life-threatening complications for children. Tooth extractions under GA are not only potentially avoidable for most children but also costly. Episodes for tooth extraction for children aged 18 years and under in hospitals in 2015/16 cost £847 per child with a total NHS cost of nearly £36 million. | 07/12/18 |  | MRG - 13/12/18 |
| 2.2 | I would suggest that we are missing one vital piece of contextual information here - how many tooth extractions in children are carried out OTHER than in a hospital? Many of the users of this indicator (e.g. in a typical council Public Health department) will not be dental specialists and will not have a sense of whether in-hospital extractions are the exception or the rule. | MRG – 15/11/18 | NHS Digital publish clinical data on dentistry in Primary Care at - <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-dental-statistics>  This includes data on extractions, should we insert a link to this? | 07/12/18 |  | MRG - 13/12/18 |
| 2.3 | This article refers to Starting Well as government policy. Drawing on key messages from this would strengthen the application | MRG – 15/11/18 | Perhaps we should remove any mention of this single article as the claim it makes is inaccurate and assumes that reducing levels of decay will automatically reduce admissions to hospital. | 07/12/18 |  | MRG - 13/12/18 |
| 2.4 | Needs references. Key policy is Starting Well which needs drawing on here | MRG – 15/11/18 |  | 07/12/18 |  | MRG - 13/12/18 |
| 2.5 | This indicator is primarily for commissioners of primary and secondary care services. It should not be used to simply de-commission services without local investigation and consultation with stakeholders.  Nice to see this caveated - though does this leave organisations open to legal challenge if services are decommissioned? | MRG – 15/11/18 | Not by stating this alone – there are policies and procedures that have to be followed if services are planned for de-commissioning. | 07/12/18 |  | MRG - 13/12/18 |
| 2.5 | The indicator is a management tool to prompt further investigation.  Needs more explanation. If it's a management tool, what might it be used alongside? | MRG – 15/11/18 | Paragraph amended to the following –  The indicator is a management tool to prompt further investigation. Commissioners would use this to identify if they have higher rates of admission for dental extractions than other areas. As part of their investigations they would use the PHE extraction information which indicates the proportion of episodes which do not have caries as the primary diagnosis and look at the national dental epidemiology figures to see what the population levels of caries are. Finally, they would investigate the waiting lists and times of each of their providers.  PHE Hospital episodes of teeth extraction for children 0-19 yrs 2011/12 – 2016/17 <http://www.nwph.net/dentalhealth/Extractions_270317.aspx>  PHE Surveys of caries levels among five-year olds. <http://www.nwph.net/dentalhealth/5year%20docs.aspx> | 07/12/18 |  | MRG - 13/12/18 |
| 2.7 | If you go to the Compendium at https://digital.nhs.uk/data-and-information/publications/ci-hub/compendium-indicators, and follow the link for Public Health, then Dental Health, the page you arrive at is dated 2013. Is this really a meaningful path to send us down these days? | MRG – 15/11/18 | I’m not sure where this link has been drawn from as it doesn’t seem to appear on our submission in 2.7. I have removed mentioned of a compendium so that the reader is now led straight to the epidemiology site. | 07/12/18 |  | MRG - 13/12/18 |
| 2.7 | A more closely related indicator which is also part of the DPHIP is –  - Admission to hospital for extraction of one or more decayed primary or permanent teeth, 0-19-year olds. See - http://www.nwph.net/dentalhealth/extractions.aspx  This is indeed very closely related. Once the PHE indicated age bands are changed in Jan 2018 does it not cover the indicator in this application? | MRG – 15/11/18 | I have added in a para to explain the differences, this reads –  The PHE tables provide more information than the single NHS indicator in that it shows the numbers of episodes of extraction for all reasons and broken down into non-caries and caries reasons. It shows the episodes of each as a percentage and it shows the numbers of episodes among older children. This allows commissioners to see for their populations what proportion of episodes are for non-caries reasons among young children and adolescents. This information is essential when reviewing provision. | 07/12/18 |  | MRG - 13/12/18 |

**Presentation and interpretation**

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| --- | --- | --- | --- | --- | --- | --- |
| **Rec. no** | **Issue or recommendation** | **Raised by / Date** | **Response or Action taken by applicant** | **Response date** | **Resolved** | **Sign off by / Date** |
| 3.1 | How is the data presented? | MRG – 15/11/18 | Added the following –  The indicator is published annually in spreadsheet form at - https://digital.nhs.uk/data-and-information/national-indicator-library/tooth-extractions-for-children-admitted-as-inpatients-to-hospital-aged-10-years-and-under | 07/12/18 |  | MRG - 13/12/18 |
| 3.2 | Total number of extractions for 0-10-year olds regardless of primary diagnosis (emergency and non-emergency split), by region.  Need to specify 'in hospital' | MRG – 15/11/18 | Done –  Total number of extractions for 0-10-year olds regardless of primary diagnosis (emergency and non-emergency split), in hospital, by region. | 07/12/18 |  | MRG - 13/12/18 |
| 3.2 | What ONS populations are used in terms of area breakdown? | MRG – 15/11/18 | Office for National Statistics (ONS) mid-year population estimates (based on the 2011 Census).  Population figures are available at LSOA 2011 level and the assignment of deprivation deciles to those figures have used the same IMD 2015 data. | 07/12/18 |  | MRG - 13/12/18 |
| 3.3 | Needs to specify ‘in hospital’. | MRG – 15/11/18 | Done –  A good outcome would be a reduction over time of the rate and number of children requiring admission to hospital for extraction of teeth due to improved levels of oral health.  A reduction in the level of extractions in hospital may be an indicator of improved management of decay in children in primary care or an increase in the availability of services that undertake extractions in primary care, possibly under inhalation sedation.  Having a higher than expected crude rate should not necessarily be interpreted as being the result of poorer quality or unsafe care. There is no ‘right’ level of provision. | 07/12/18 |  | MRG - 13/12/18 |
| 3.3 | It says in section 3.3 that 'It is not possible to draw conclusions about which area provides better or safer patient care solely using this indicator.' | MRG – 15/11/18 | This indicator is intended to be used alongside other information on child dental health, to come to a conclusion about levels of provision in an area. | 07/12/18 |  | MRG - 13/12/18 |
| 3.3 | The number of tooth extractions that occur in secondary care for those aged 10 and under is not expected to be zero, however, our clinical advice is that there is significant scope to reduce the current level in some areas.  This implies a clinical view of what 'good' might look like. Would it be possible to work with the appropriate professional group to get a consensus opinion on this, or what kind of range should be aimed for? | MRG – 15/11/18 | It is doubtful if a single descriptor could be developed to describe what ‘good’ looks like as local needs, service availability and accessibility all vary from one location to another. | 07/12/18 |  | MRG - 13/12/18 |
| 3.3 | Good performance would be an available, properly commissioned, dedicated service with clear acceptance criteria and a clear referral system which may include triaging of patients. The service would provide timely treatment for the right children, for the right reasons delivered by people with the right clinical expertise.  This helpfully describes what can be done to improve the rate, is there any evidence to support this as best practice? | MRG – 15/11/18 | No evidence that I know of | 07/12/18 |  | MRG - 13/12/18 |
| 3.5 | What measures would this indicator be used alongside (and by who) to inform commissioning decisions? | MRG – 15/11/18 | Added the following para and links to this effect –  Commissioners will use the indicator to see if they are outliers and supplement their investigation by using the PHE tables which provide more information about the numbers of episodes of extraction for all reasons, broken down into non-caries and caries reasons and numbers of episodes among older children. They would also use the epidemiological information about caries levels in their child population. This would allow commissioners to see for their populations what proportion of episodes are for non-caries reasons among young children and adolescents. This could reveal where changes could be made to admissions and acceptance criteria.  PHE Hospital episodes of teeth extraction for children 0-19 yrs 2011/12 – 2016/17 <http://www.nwph.net/dentalhealth/Extractions_270317.aspx>  PHE Surveys of caries levels among five-year olds. <http://www.nwph.net/dentalhealth/5year%20docs.aspx> | 07/12/18 |  | MRG - 13/12/18 |
| 3.6 | The phrasing used in this section seems to conflict with the responses in 3.3 | MRG – 15/11/18 | Changed to -  No baseline figure is explicitly set so ‘benchmarking’ is not possible against a national standard. Rather, the indicator will provide commissioners with a measure of activity which they will be able to compare with neighbouring areas or statistical neighbours and which should prompt local investigation. It is expected to be used alongside other intelligence to come to a complete picture of primary care dental provision for children. | 07/12/18 |  | MRG - 13/12/18 |

**Data**

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| **Rec. no** | **Issue or recommendation** | **Raised by / Date** | **Response or Action taken by applicant** | **Response date** | **Resolved** | **Sign off by / Date** |
| 4.1 | The source of the data for this indicator is –  • Hospital Episode Statistics Admitted Patient Care Database (HES APC), NHS Digital  • Office for National Statistics (ONS) Population Estimates.  "...and as such can be considered an indicator which demonstrates the success and or value of health policy and initiatives." Could be added to the text. | MRG – 15/11/18 | Done | 07/12/18 |  | MRG - 13/12/18 |
| 4.3 | ONS - Office for National Statistics (ONS) mid-year population estimates of the relevant age group and gender based on the 2011 Census, published annually (calendar years) by the ONS. Available in Autumn following year-end. Now available earlier in the year. | MRG – 15/11/18 | Changed to ‘Summer’ | 07/12/18 |  | MRG - 13/12/18 |
| 4.4 | Should the data be available at CCG level if this is to support commissioning? | MRG – 15/11/18 | All dental commissioning, primary, secondary and specialist care, is undertaken by NHS E teams, not by CCGs so it is not essential to have the information at this level. | 07/12/18 |  | MRG - 13/12/18 |
| 4.6 | This indicator focuses on patients admitted to hospital for tooth extractions. It excludes patients in hospital as outpatients for two reasons –   * It is not mandatory to record procedure and diagnosis information, only around 2% of records have completed clinical codes, which is essential for this indicator. * Most children admitted to hospital for extraction of teeth will have a GA, in this case they will be admitted as an inpatient as it is necessary to have potential access to an acute bed in the case of complications.   Outpatient treatment doesn't count as being 'admitted to hospital' anyway. | MRG – 15/11/18 | No, technically not, but the statement on outpatients is included to avoid any confusion.  Changed to ‘it does not include…’ | 07/12/18 |  | MRG - 13/12/18 |
| 4.6 | A bit more definition for ‘deprivation’ would help here. | MRG – 15/11/18 | Added the following –  The deprivation breakdown for this indicator has been derived using Department of Communities and Local Government (DCLG) Index of Multiple Deprivation (IMD) 2015 scores based on 2011 lower super output area (LSOA) boundaries. | 07/12/18 |  | MRG - 13/12/18 |
| 4.6 & 4.7 | A deeper explanation of emergency admissions could be demonstrated in the filters, as well as a note to show how many are excluded. |  | Added the following to show that emergency admissions are not included –  CLASSPAT (Patient classification) Is equal to: 1,2,5 (ordinary admissions, day case and mothers/babies using only delivery) facilities.  I have no data on extractions for children via emergency admissions. | 07/12/18 |  | MRG - 13/12/18 |
| 4.7 | Do F10s (simple extractions) require GA? | MRG – 15/11/18 | Yes, it may be required if a child is very young, or non-concordant, or requires multiple simple extractions or a simple extraction in the presence of infection then GA may be the only means of the procedure being successfully completed. | 07/12/18 |  | MRG - 13/12/18 |
| 4.7 | better to simply list the diag1 codes of interest. This muddling - not all the codes are K02s and the term 'including' suggests others might be included! | MRG – 15/11/18 | I have tried to make this a bit clearer by changing to the following –  Primary diagnosis (ICD-10) code of K02 for dental caries (derived from DIAG\_3\_01), specifically the following –  K02.5  K02.1  K02.8  K02.9  Plus, the following -  K04.0  K04.5  K04.6  K04.7 | 07/12/18 |  | MRG - 13/12/18 |
| 4.9 | References to GA are not relevant here, and throughout the application. There is no way of knowing what type of anaesthetic is used and this is not available in HES. | MRG – 15/11/18 | I have taken out a reference to GA where appropriate, but left in the point about it not being legal to carry out a tooth extraction in PC with a GA. | 07/12/18 |  | MRG - 13/12/18 |
| 4.9 | Legally, hospital tooth extractions must take place in a hospital setting with access to critical care facilities… There is a way in SUS submissions to force SUS PbR not to calculate a national PbR tariff for hospital records.  I found this discussion difficult to follow and the current / future implications in terms of data completeness unclear | MRG – 15/11/18 | I have amended the words a bit –  There is some variability with regard to recording activity where the extractions are undertaken by Community Dental Services. Since all dental general anaesthetics must take place in a hospital setting with access to critical care facilities all episodes should be recorded by Trusts on their PAS, irrespective of whether the work is being done under a contract with the CDS (which will be a GS contract or a PDS agreement) or under a hospital contract (a NHS standard contract). There is a way in SUS submissions to force SUS PbR not to calculate a national PbR tariff for hospital records. This is described here: | 07/12/18 |  | MRG - 13/12/18 |
| 4.9 | Clinical advice is that all extractions that take place under general anaesthesia in hospitals,  Presumably only those for which the reason is dental caries? | MRG – 15/11/18 | Yes, I’ve made this clearer now –  Clinical advice is that all extractions for dental caries that take place under general anaesthesia in hospitals | 07/12/18 |  | MRG - 13/12/18 |
| 4.9 | However, children should be admitted as they need a GA for extractions and must be on a paediatric consultant list.  This makes it sound as if children always need a GA for extractions, which is evidently not the case. | MRG – 15/11/18 | No, it is now. I’ve made this clearer now –  However, children should be admitted if they need a GA for extractions and must be on a paediatric consultant list. | 07/12/18 |  | MRG - 13/12/18 |

**Construction and Testing**

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| 5.1 | This indicator is calculated by dividing the numerator by the denominator and multiplying by 100,000 to provide a crude rate per 100,000 population. 95% confidence intervals are calculated using one of two methods depending on whether the number of Finished Consultant Episodes (FCEs) where extraction was performed is above or below 389. Details of the methodology used for confidence intervals can be found in the technical specification.  Rationale for 389 and CI calculation unclear. This section needs to be clear enough for someone to reproduce the CIs | MRG – 15/11/18 | I referenced the full method in the technical specification but have now included it in the form for ease.  I also checked with the Clinical Indicators Team in NHS Digital on this and received the following response from David Keighley –  One of our CCG indicators was assured in September and the appraisal log mentioned this issue. MRG said that Public Health England had issued new guidance that the different method for <389 was unnecessary, although not technically wrong. We argued that the method is used widely in CCG and NOF and that changing the method would break the time series in many indicators. This would be unhelpful to users and we would be reluctant to make the change when the old method is not technically wrong. MRG accepted this argument.  The CCG indicator I am referring to was assured by IGB and is now in the indicator library:  <https://digital.nhs.uk/data-and-information/national-indicator-library/unplanned-hospitalisation-for-asthma-diabetes-and-epilepsy-in-under-19s-iap00069> | 07/12/18 |  | MRG - 13/12/18 |
| 5.1` | Is the term 'Indicator Portal' still in use? | MRG – 15/11/18 | I don’t think so, I’ve changed to ‘National Indicator Library’, this is the terminology used on NHS Digital website. | 07/12/18 |  | MRG - 13/12/18 |
| 5.2 | The codes listed below do not all fall under 'K02'. | MRG – 15/11/18 | Changed to –  Primary diagnosis (ICD-10) code of K02 for dental caries in the primary position (derived from DIAG\_3\_01), specifically, the following –  K02.5  K02.1  K02.8  K02.9  Plus, the following -  K04.0  K04.5  K04.6  K04.7 | 07/12/18 |  | MRG - 13/12/18 |
| 5.3 | Needs a precise definition of the population figures used. |  | Changed to the following –  The population of children aged 10 years and under from Office for National Statistics (ONS) mid-year population estimates (based on the 2011 Census). | 07/12/18 |  | MRG - 13/12/18 |
| 5.4 | Please provide a sample of the presentation. |  | I’ve added a link to the data and noted the indicator value for 2016/17, with numerator and denominator, is this enough? | 07/12/18 |  | MRG - 13/12/18 |
| 5.4 | This isn't a worked example. | MRG – 15/11/18 | I’ve added this –  For example, for 2016/17 the indicator value was 421.7 children per 100,000 in England. Derived from dividing 31,666 (numerator) by 7,508,500 (denominator) | 07/12/18 |  | MRG - 13/12/18 |
| 5.6 | direct standardisation was discounted because there are many local authorities with very low counts of extractions and these aggregations would therefore have to be suppressed  Not sure this is the most convincing reason to discount direct standardisation. Could just say that doing a crude rate for 0-5 and 6-10 year-olds separately is not far off doing age standardisation anyway, and easier to understand. | MRG – 15/11/18 | I’ve changed to your suggested reason. | 07/12/18 |  | MRG - 13/12/18 |
| 5.6 | Indirect standardisation was initially proposed to MRG but was challenged as there were questions regarding the interpretation of the indicator and the practical difference that standardisation would make. For this reason, an analysis of indirect ratio vs. crude rate was performed and is summarised below.  Would welcome input from others re statistical validity of this | MRG – 15/11/18 | See above | 07/12/18 |  | MRG - 13/12/18 |
| 5.6 | Factors such as ease of access to a dental hospital and water fluoridation will affect levels of decay seen in children  Ease of access to a dental hospital is unlikely to have much effect on levels of decay. | MRG – 15/11/18 | I have modified the para that this refers to and taken out any reference to dental hospitals –  Standardisation was considered; direct standardisation was discounted because doing a crude rate for 0-5 and 6-10 year olds separately is not far off doing age standardisation anyway, and easier to understand. | 07/12/18 |  | MRG - 13/12/18 |
| 5.7 | Hard to follow. The formula needs to be clearer or presented as an image. | MRG – 15/11/18 | This was what was presented originally and is how it is described in the current technical specification for the indicator. | 07/12/18 |  | MRG - 13/12/18 |
| 5.7 | The ‘389’ is a historic holdover and is no longer an issue when creating formulae. This could be amended. | MRG – 15/11/18 | I will check with technical colleagues in NHS Digital team who construct this indicator for a different description. | 07/12/18 |  | MRG - 13/12/18 |
| 5.8 | This reads as blaming families, is this appropriate in a methodology document? | MRG – 15/11/18 | I have re-worded –  It may incentivise more under-reporting in HES, with hospitals saying they did fewer extractions than they did to look better on the indicator. However, this would equally lead to a reduction in payment for the service that has taken place – if they do not report extractions taking place on children, they will not get paid via payment by results, so not likely. Also, hospitals are responding to the health care needs of the population which are beyond their control. Rather, responsibility for this lies with local authorities and individuals so it should not affect the reporting of the treatment carried out. | 07/12/18 |  | MRG - 13/12/18 |

**IMAS Section**

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1. [↑](#endnote-ref-2)
2. [↑](#endnote-ref-3)