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**Main Title**

Subtitle

Version 1.0

**Referrals for the paediatric management of tooth decay from primary care**

Analysis of data from the electronic Referral Management System and from sites providing extractions under General Anaesthesia

Version 0.3

**The report presents the analysis of referral data from the electronic Referral Management System (eRMS) for the management of paediatric tooth decay and from sites providing Out-Patient Paediatric General Anaesthetic services for dental extraction.**

Authors: Oral Health Intelligence function, Dental Public Health Team, Public Health Wales Welsh Oral Health Information Unit, Cardiff University

**Background**

Reports detailing child dental extractions under general anaesthetic (XGAs) in Wales have been regularly produced on an annual basis. The aim has been to determine the overall figure for XGAs for children aged 0-17 in Wales. Despite the limitations of the data collected and provided by the health boards, this information has been helpful for dental service planning and informs Welsh Government’s dental policy on dental services and oral health. It is also critical in determining inequalities in the access to and the experience of XGAs across Wales.

XGAs are not without risks and therefore should only be utilised as a last resort when needed. Key factors that can contribute to high levels of XGAs include poor oral health, lack of/inadequate triage, assessment and planning of XGA services and difficulty accessing appropriate alternatives e.g. sedation services.

Epidemiological studies have shown that the prevalence of tooth decay is improving at a population level, but still affects one third of all five-year-old children (32.4%). The average number of decayed, missing or filled teeth for all five-year-old children across Wales is 1.1, but this figure triples to approximately 3.5 teeth, when only those children affected by the disease are counted. Equally, inequalities in the experience of tooth decay have not changed since 2007/8 and approaching one in five children report pain associated with the disease.

A national e-referral management system (eRMS) for dentistry was initiated in 2018 across Wales, making it possible to collect referral data for the paediatric management of tooth decay from General Dental Services (GDS) (‘high-street’ dental practices). Prior to this, there was no centralised referral database and XGA data had to be collected directly from individual health boards, who keep records of the number of children who are either managed 'in house' or referred onwards.

The aim of this report is to present an analysis of the data collected by the eRMS system from 2019 to 2023 for the paediatric management of tooth decay and to collect data directly from individual health boards on the number of XGAs undertaken.

**Methods**

Referral data was downloaded from the eRMS for all health boards between 2019 and 2023. Referral records are kept in the eRMS according to specialty areas: paediatric dentistry, orthodontics, oral medicine, special care dentistry, oral and maxillo-facial surgery and restorative care. These are organised according to the date of the referral and where the referral was made from. Referrals for paediatric care was compared to the number of total referrals made from GDS for all services in each calendar year.

Referral data related to the paediatric management of tooth decay (using the ‘Clinical Activity’ tab in the export file) was then analysed to determine year by year trends for referrals by health board by financial year (1st April 2020 to 31st March 2023). This data was reported as an absolute number and as a referral rate (per 1,000 children), based on population estimates. The geographic location of the children referred for the paediatric management of tooth decay and the ‘distance to provider’ was based on data held within the eRMS system.

Service managers within each health board were asked to collate data on the number of XGAs performed each year, in similarity to the approach previously adopted for earlier reports ‘Child Dental General Anaesthetics In Wales’.

This provided data on the number of referrals made from the GDS for the paediatric management of tooth decay and data on the number of XGAs performed within each health board. Based on the comparison of these two data sources, a series of recommendations are made to better understand the pathway of children referred for the management of tooth decay.

**Key messages**

1. One in every seven of referrals from General Dental Services was for the paediatric management of tooth decay;
2. The number of referrals from General Dental Services for the management of tooth decay in 2020/21, 2021/22 and 2022/23 was 3,730, 6,467 and 8,711 respectively;
3. The increase in the number of referrals between 2020/21 and 2022/23 was seen across all Health Boards;
4. Referrals for was for the paediatric management of tooth decay appears to reflect the social gradient in the experience of tooth decay, with more referrals from areas of higher deprivation;
5. Patients from Betsi Cadwaladr University Health Board (UHB), Powys Teaching Health Board (THB) and Hywel Dda UHB have longer distances to travel to services, compared to Cardiff & Vale UHB, Aneurin Bevan UHB, Swansea Bay UHB and Cwm Taf Morgannwg UHB;
6. A wide range of different outcomes are recorded by health boards making it difficult to understand the paediatric management of tooth decay;
7. There has been an overall reduction in the number of reported XGAs conducted across Wales from 2011/12 to 2022/23;
8. The number of reported XGAs in 2020/21 fell to its lowest level; and
9. The annual number of referrals for paediatric XGAs recorded by eRMS is considerably higher than the number of children who have experienced XGAs. Given that outcome data are not entered on the eRMS system consistently, it is difficult to understand various reasons for this discrepancy.

**Key recommendation**

Given that the number of referrals for paediatric care are substantive, the following recommendations are made:

1. The offer of an XGA should be the last resort for the paediatric management of tooth decay;
2. Local Health Boards should monitor the level of paediatric referrals to ensure services provided meet the local need;
3. Improving the availability of sedation services within primary care could reduce the level of need for onward referral for XGAs; and
4. Ensuring all health boards have a standardised and mandated outcome data template within the eRMS will ensure a better understanding of the patient journey for referrals for paediatric caries. This information should then inform management of inappropriate referrals and improvement actions including right level of provision of dental GA and conscious sedation services to meet the need of the local population.

**Results**

Figure 1 describes the total number of referrals made from the GDS across Wales in each calendar year between 2019 and 2023. Referrals for paediatric care for children (for any reason) were the third most common reason for referrals from GDS practices. The highest number of referrals from the GDS were for orthodontic provision and oral surgery (OS), which represented 32.3% and 27.6% respectively. Oral and maxillofacial surgery (OMFS) and restorative referrals accounted for 6.2% and 3.7% respectively.

5,213 in 2020, the first year of the COVID19 pandemic. Referrals increased to 7,454 and 9,680 during the latter years of the COVID pandemic (2021 and 2022) and then further increased to 10,713 in 2023. As a proportion of total referrals made from the GDS, there was no substantive change between 2019 and 2023, with approximately one in every seven (14.6%) of all referrals relating to referrals for the paediatric care of children (for any reason).

**Figure 1: Referrals from the GDS for the main clinical specialties across Wales**

Table 1 describes the number of paediatric referrals recorded in the eRMS system for the management of dental caries between the 1st of April 2020 and the 31st of March 2023.

**Table 1: Number of referrals for the management of paediatric dental caries 2020-2023**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **ABUHB** | **C&VUHB** | **HDUHB** | **CTMUHB** | **SBUHB** | **Powys** | **BCUHB** |
| **2020/21** | 767 | 560 | 462 | 460 | 743 | 123 | 615 |
| **2021/22** | 1,415 | 931 | 809 | 762 | 1,208 | 213 | 1,129 |
| **2022/23** | 1,988 | 1,379 | 986 | 1,042 | 1,577 | 260 | 1,479 |
| **TOTAL** | **4,170** | **2,870** | **2,257** | **2,264** | **3,528** | **596** | **3,223** |

The total number of referrals for the management of tooth decay are increasing year on year across all health boards. Aneurin Bevan UHB (ABUHB) and Swansea Bay UHB (SBUHB) received the highest number of paediatric referrals for tooth decay. Powys THB received the lowest.

Figure 2 presents the rate of referrals (per 1,000 children). Across Wales, 1.21 per 1,000 children was recorded in 2020/21. This increased to 2.1 and 2.8 in 2021/22 and 2022/23 respectively. SBUHB had the highest rate of referrals, followed by ABUHB.

**Figure 2: Referral rate for the management of paediatric dental caries (per 1,000)**

Figure 3 presents a choropleth map of the location of the children who received paediatric referrals for the paediatric management of tooth decay across Wales, with an overlay of the Welsh Index of Multiple Deprivation (WIMD) (2019). It shows a degree of clustering of referrals from predominantly areas of deprivation, highlighting a social gradient. The number of referrals (red dots) increases as deprivation increases (blue areas). This concurs with the social gradient seen in both the prevalence and severity of the disease for children.

**Figure 3: Location of patients referred for the management of paediatric dental caries with a WIMD overlay from 2020 to 2023**

**Location of patients referred for the management of paediatric dental caries with a WIMD overlay from 2020 to 2023**

Figure 4 highlights the mean distance travelled to reach the provider of services, as recorded in the eRMS. This highlights the shorter distances travelled for children from high population density conurbations (Cardiff and Vale UHB (C&VUHB), ABUHB, Cwm Taf Morgannwg UHB (CTMUHB) and SBUHB). Conversely, Figure 4 shows that children from regions with a more dispersed population were required to travel further (Betsi Cadwaladr UHB (BCUHB), Powys THB, Hywel Dda UHB (HDUHB)).

**Figure 4: ‘Distance to provider’ (miles) for Health Boards across Wales during 2020/21 and 2022/23**

Table 2 and Figures 5 to 7 present data collected from the providers of XGA services in the different health boards from 2011 to 2023. Table 2 and Figure 5 show a decline in the number of children seen for XGAs (for any reason) across Wales prior to the COVID pandemic and a marked reduction during the first year of the pandemic (2020/21). Levels of XGAs during 2021/22 and 2022/23 increase, but at a lower level than before the pandemic.

**Table 2: Number of children experiencing XGAs by health board\* (2013-2023)**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2013-14** | **2014-15** | **2015-16** | **2016-17** | **2017-18** | **2018-19** | **2019-20** | **2020-21** | **2021-22** | **2022-23** |
| **ABUHB** | 2,059 | 1,652 | 1,850 | 1,792 | 1,426 | 1,359 | 1,089 | 91 | 892 | 810 |
| **C&VUHB** | 1,012 | 893 | 891 | 930 | 1,749 | 1,393 | 778 | 195 | 429 | 241 |
| **CTMUHB** | 960 | 870 | 865 | 855 | 371 | 427 | 829 | 65 | 402 | 421 |
| **SBUHB** | 2,167 | 1,862 | 1,722 | 1,223 | 822 | 1,058 | 872 | 352 | 537 | 563 |
| **HDUHB** | 1,357 | 1,331 | 1,384 | 1,083 | 589 | 1,115 | 649 | 112 | 360 | 435 |
| **BCUHB** | 1,304 | 1,190 | 1,169 | 1,427 | 1,112 | 1,134 | 1,048 | 210 | 652 | 839 |
| **PTB** | 42 | 25 | 27 | 28 | 1 | 96 | 77 | 2 | 32 | 53 |
| **TOTAL** | **8,901** | **7,823** | **7,908** | **7,338** | **6,068** | **6,576** | **5,342** | **1,027** | **3,304** | **3,362** |

\*Please note that there was change in the boundaries in Health Board between Cwm Taf Morgannwg and Swansea Bay in 2019

**Figure 5: Number of children experiencing XGA across Wales (2011-2023)**

Figure 6 and 7 presents the number of 3+ and 0-2 year old children who experienced XGAs by health board from 2017 to 2023.

**Figure 6: Number of children (3 years of age +) experiencing XGAs by health board\* (2017-2023)**

\*Please note that there was change in the boundaries in Health Board between Cwm Taf Morgannwg and Swansea Bay in 2019

**Figure 7: Number of children (0-2 years of age) experiencing XGAs by health board\* (2017-2023)**

\*Please note that there was change in the boundaries in Health Board between Cwm Taf Morgannwg and Swansea Bay in 2019

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