Extraction of the Wrong Tooth – experience in Wales

Background

Extraction of the wrong tooth is the most common serious patient safety incident in dental practice. It is **wrong site surgery**, and therefore a "Never Event" as defined by the NHS in England and Wales. There are other types of "wrong site" events in dental clinical practice - such as giving an LA in the wrong site and restoring the wrong tooth - but this report is concerned with extraction of the wrong tooth.

A wrong tooth extraction (WTE) can be thought of as a tooth you were not intending to take out but NOT including those taken out due to an unforeseen but recognised clinical complications (for example, an extra tooth which had to be removed due to attachment to a fractured tuberosity)

The National Patient Safety Agency (England) had 18 reports of wrong tooth extraction from April 2013 to March 2014. This was 20% of all wrong site surgery, and it's the most common type of wrong site surgery. In Wales there was one report to a health board between 1st April 2015 and 31st March 2016 (WG data). While it's almost certain that extraction of the wrong tooth is under-reported, one dental defence organisation provided a verbal report that "wrong tooth extraction is one of the most common causes of patient complaint"

There are many reasons why the wrong tooth is extracted. Tooth notation systems can be confusing, clinicians fail to communicate clearly, referral letters aren't checked and busy clinical sessions can lead to "mix ups"

A number of dental teams will have experienced WTE at least once in their working lifetime, and although it happens to most teams only once, that adds up to a great many wrong extractions. The consequences can be serious for patients and dental teams alike, and there is anecdotal evidence about how often the wrong tooth is extracted.

This report describes a survey of dentists working in primary care, and dentists / dental therapists in the Community Dental Service in Wales about WTE. It was not designed as a detailed piece of research – rather a non threatening way to gauge how often WTE happens, its impact on dental teams, whether it was reported as a patient safety incident and ways in which individual clinicians try to reduce the risk of WTE. Eventually it may inform production of a straightforward pre extraction checklist which will be offered to dental teams in Wales

I was not able to find any published research into WTE in primary care, although there are a number of publications detailing the incidence in secondary care. The survey in Wales was inspired by the work of Manchester Dental School (*Preventing wrong tooth extraction: experience in development and implementation of an outpatient safety checklist. BDJ 2014; 217: 357-362 – Saksena A, Pemberton MN, Shaw A, Dickson S, Ashley MP.)*

I am very grateful to colleagues in Manchester for discussing and sharing their work with me.

Methodology

Working with the 1000 Lives service improvement team, the Wales Deanery Cardiff University developed a simple anonymous survey which was administered using the Bristol On line Survey (BOS) process, and conducted in line with Cardiff University governance systems (Appendix 1). The survey was tested with a small sample of clinicians to ensure it was quick and straightforward to complete. Respondents were assured it was completely anonymous – this was particularly important because WTE is a sensitive issue and we wanted respondents to feel they could safely share their experience. The survey was initially accessible during August for a period of 6 weeks and then reissued to maximise uptake during November / December 2015.

The Welsh Dental Committee was informed about the survey and members asked to publicise it through their networks.

Dentists working in Wales were contacted by e-mail with information about the survey and invited to complete it. Dental Therapists In the CDS were also invited to complete it but the survey did not distinguish between dentists and therapists because therapist numbers are relatively small and respondents may have felt they could in some way be "identified" if they shared personal experiences. The survey was promoted through dental networks in Wales, but it is not possible to say exactly how many dentists and therapists received the e-mail. However the Analysis of the Dental Workforce in Wales (NLIAH, 2012) shows there are around 1250 dentists working in primary care and 270 dental hygienists and / or therapists (1520 in total)

<u>The survey questions</u>

1. Have you ever extracted the wrong tooth or teeth? Yes/no

If yes, was it

- On one occasion – deciduous tooth / permanent tooth
- On more than one occasion - deciduous tooth / permanent tooth

2. If you have ever extracted the wrong tooth did you on any occasion report it outside the practice / clinic? Yes/No

If yes, who to?

- Medical Indemnity organisation
- National Patient Safety Agency (NPSA)
- Health Board
- Other (please specify)

3. How long have you been qualified?

- 0-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- More than 20 years

4. Do you use a safety checklist to reduce the risk of wrong tooth extraction?

Respondents were also asked

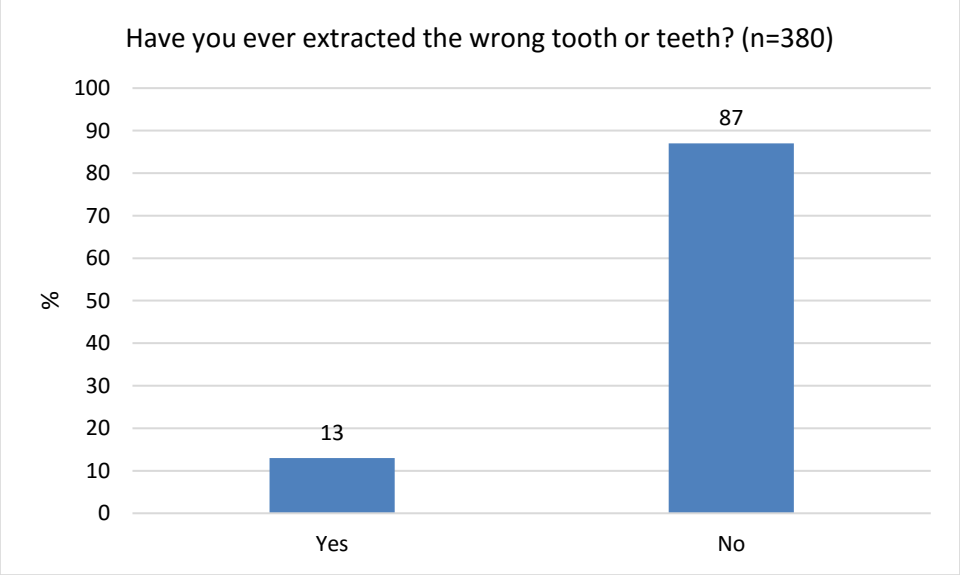
- if they wanted to describe the circumstances surrounding any WTE and reasons why it may have happened
- if they would like to share any checklist they use
- any other comments

Results

380 respondents completed the survey (approximately 25% of 1520 possibly respondents)

48 (12.6%) of respondents had extracted the wrong tooth.

Figure 1: Have you ever extracted the wrong tooth or teeth?



If it was on one occasion, was it a: (n=42)

- deciduous tooth – 14% (n=6)
- permanent tooth – 86% (n=36)

If it was on more than one occasion, was it a: (n=9)

- deciduous tooth – 11% (n=1)
- permanent tooth – 89% (n=8)

(51 respondents completed details about how often WTE happened which is probably an anomaly of interpreting the question)

26 (49.1%) of respondents reported the WTE outside the practice. They reported to:

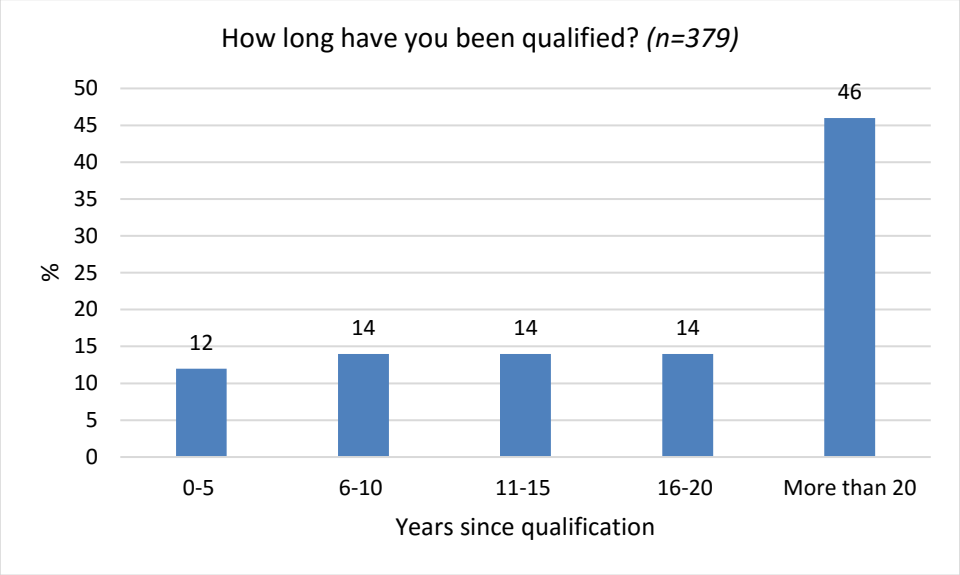
- Medical Protection – 33% (n=11)

- National Patient Safety Agency (NPSA) – 3% (n=1)
- Health Board – 3% (n=1)
- "Other" including orthodontists, hospital and senior clinician in the CDS - 61% (n=20) to

How long have you been qualified? 379 respondents completed this question

Nearly half (46%) of all respondents (n=175) had been qualified for more than twenty years. 42% had been qualified for between 6 and 20 years (n=159) while only 12% had been qualified for less than five years (n=45).

Figure 2: How long have you been qualified?



There was a significant correlation between the number of years since qualified and reported experiences of wrong site surgery (x^2=25.820, p<0.001). Those qualified for less than 10 years reported fewer events of wrong tooth extraction (4%) while those qualified for more than 20 years reported more WTE events (22%).

Do you use a safety checklist to reduce the risk of wrong tooth extraction? *(n=379)*

- Yes - 25% (n=96)
- No - 75% (n=283)

No significant correlation was found between using a checklist now and having carried out a wrong site extraction in the past.

<u>Circumstances surrounding the WTE event and reasons why it may have happened</u>

Of the 46 respondents who included a description, 5 noted the very real adverse impact of the incident

"It was a salutary occasion – 6 month post-graduation. I extracted an upper 5 for orthodontic reasons and then realised the 4 had already been extracted. For the next 37 years I did not repeat this error"

"It was extremely distressing for the patient and very stressful for the dental team"

"I was very busy – I felt it would never have happened otherwise. I never saw the patient again and have often wondered what happened. I expressed to my line manager how dismayed I was"

40 respondents gave reasons why WTE have happened. The main themes were as follows-

- Orthodontic extractions – failure to check previous extractions / communications with orthodontists: 19 respondents
- Inexperienced clinician – student: 5 respondents
- Failure of communication between clinicians; 4 respondents
- Inexperienced clinician- newly qualified: 3 respondents
- Tooth for extraction adjacent to a loose or underdeveloped tooth: 3 respondents
- Patient issues – unable to co-operate, problems with access: 3 respondents
- Multiple extractions under GA: 2 respondents
- Very busy clinic: 1 respondent

Some respondents mentioned more than one of these themes while others also noted the problem in diagnosing exactly which tooth is causing pain prior to extraction. A few mentioned *"being confused"* by different tooth notation systems.

An additional 3 respondents described witnessing WTE by students when they themselves were students

"As an undergraduate I witnessed 3 fellow students before me take out the wrong tooth during the same paediatric GA session. Even though supervised!

When it came to my turn on the list I was determined not to make any mistake and have been vigilant in my practice during exodontias ever since."

33 / 46 respondents described the actual tooth which had been wrongly extracted.

- 15 were premolars extracted for orthodontic reasons. Some first premolars were extracted instead of second (or vice versa), some were upper premolars instead of lower or left instead of right. In some cases the orthodontic extraction had already been done by another clinician so the WTE involved extraction of additional premolars. One respondent described extracting four premolars only to discover the extractions had already been done so the patient had a total of eight premolar teeth removed.
- 10 were wrong molar extractions

"Done once it concentrates your mind in future"

Additional Comments

Of the 123 respondents who made additional comments, the main themes were as follows-

89 described their individual processes for reducing the risk of WTE. The great majority are not written checklists – they are tried and tested routines ("rituals") which clinicians have developed and – in some cases – used for many years.

3 respondents shared their checklists

"I have been an orthodontist since 1981 but use a safety checklist when writing extraction letters to GDPs"

"In theatre we use the WHO surgical checklist"

"Check twice, apply forceps once"

"If in doubt don't take it out"

22 clinicians noted the importance of involving the dental nurse(s) in the pre extraction process and encouraging them to "speak up" if they have any concerns that a WTE may happen

A few respondents noted the value of checking with the patient

"What tooth are you expecting to have out?"

2 respondents stated that they would not want to use a written checklist

1 respondent was unhappy that the survey was being conducted

And some were just hoping it *"never happens to me"*

Discussion

The survey raises a number of interesting points

- WTE is not a "rare" event. Clearly it does not compare with the seriousness of some types of WSS (e.g. operating on the wrong limb, or removing the wrong eye) but it has an adverse effect on the patient and the dental team which may lead to prolonged orthodontic treatment or complaints
- In this survey, the vast majority of WTE were permanent teeth
- About half of respondents reported the WTE, but only 1 to their health board. (It should be noted that health boards were established in 2009 and the WTE described may have happened before then)
- The majority of respondents had been qualified for more than 20 years, but a number described events when they were students, witnessing WTE as a student, or being newly qualified and inexperienced. It is worth noting that we did not ask how long they were qualified at the point of making the wrong extraction.
- In this survey, about 50% of WTE were associated with orthodontic extractions

- About 30% of respondents described personal processes / systems to reduce the risk of WTE.
- There are several tooth notation systems. This can lead to confusion about exactly which tooth needs to be extracted.
- Dental nurses have a valuable part to play in preventing WTE. As GDC registrants they have a professional responsibility to protect patients and act in the patients' best interests. They should feel empowered to "speak up" if the wrong tooth is about to be extracted and this must be encouraged by dentists and team leaders

Conclusion

It is encouraging that so many clinicians completed the survey and were willing to share their experiences. Their (sometimes detailed) written descriptions will help to develop information for dental teams in Wales, and support development of a straightforward checklist for tooth extraction under LA in the GDS and CDS. This would be offered to dental teams – it is not intended to replace the "tried and tested" systems but may be useful for those who do not use a checklist of any sort

This survey particularly highlights issues with orthodontic extractions and students / inexperienced clinicians. It is likely that most incidents are not reported to health boards.

The GDC describes the professional responsibility for **Being Open and Honest – the professional duty of candour.**

http://www.gdc-uk.org/Newsandpublications/Pressreleases/Pages/Openness-and-honesty—-the-professional-duty-of-candour.aspx

Dental teams need to ensure they communicate any WTE appropriately with the patient and any carers and explain the implications and any necessary remedial treatment. They may need additional training in "communicating bad news" as well as support from their health board in potentially stressful situations.

Next Steps

The Dental Deanery, Welsh Government and 1000 Lives will liaise on the nest steps

- Welsh Government Deputy CDO and Dental Dean, Welsh Deanery will jointly write to general dental practitioners and CDS in Wales to inform then of the survey results and planned next steps.
- 1000 Lives dental team will work with the Dental Deanery to produce an information leaflet on WTE for dental teams in Wales – making particular reference to the survey findings
- 1000 Lives dental team will work with the Dental Deanery to develop and test a pre-extraction checklist to reduce risk of WTE; primarily for dental teams in primary care extracting teeth under LA. The checklist will be offered to dental teams in Wales
- Through the Strategic Advisory Forum on Orthodontics, Welsh Government will advice the Orthodontic MCNs of the findings and ask them to consider the good practice described by one respondent of using a safety checklist in written communications with dentists. In this survey orthodontic extractions accounted for around 50% of WTE

- Deanery to consider how these findings can be incorporated into the Foundation Dentists programme and the wider workforce development programme for all dental team members.
- Dental Dean to consider what lessons may be learnt for undergraduate training

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Jon Cowpe: in his capacity as Director of Postgraduate Dental Education

Ann Rockey: Deputy Director of Postgraduate Dental Education

Appendix 1 – covering information included with BOS survey

Extraction of the wrong tooth
SURVEY INFORMATION SHEET

SURVEY SUBJECT:
To assess how often the wrong tooth is extracted

Background

Extraction of the wrong tooth* is the most common type of "wrong site surgery". It is not always reported and we do not know exactly how often it happens. Wrong site surgery occurs in other areas of healthcare and includes things like operating on the wrong limb or removing the wrong eye. Welsh Government would like all healthcare professionals to reduce the risk of wrong site surgery.

We also know it is a common cause of complaint against dentists and therapists, and that using a safety checklist can reduce the risk of it happening. You may like to read the recent BDJ article "*Preventing wrong tooth extraction: experience in development and implementation of an outpatient safety checklist. BDJ 2014; 217: 357-362"*

This survey is to assess how often the wrong tooth is extracted. It is being carried out through 1000 Lives Improvement Service and the Dental Section/Wales Deanery is helping to collate results.

This information tells you why this survey is being done and what it involves. Please read it carefully and *contact us if you would like more information.*

You do not have to take part, but we hope you will want to.

Purpose of the survey

The aim of this study is to assess how often dentists and therapists extract the wrong tooth.

Why have I been asked to take part?

All dentists and dental therapists in Wales have been asked to take part, because they extract teeth and may have extracted a wrong tooth or nearly done so.

Do I have to take part?

No. You can decide whether or not to take part. The survey is anonymous.

What will happen if I take part?

All survey results will be brought together and summarised into a short anonymised report to the 1000 Lives Improvement Service and the Dental Section/Wales Deanery.

What will happen to the survey results?

The results will be collated and used to assess how often wrong tooth extraction takes place. This will help the 1000 Lives Improvement Service and the Dental Section/Wales Deanery to develop a straightforward dental safety checklist to reduce the risk of extracting the wrong tooth.

What are the possible disadvantages and risks of taking part?

There are almost no disadvantages or risks. The survey will take no more than 5 minutes to access on line and complete. You will not be identified and will not be contacted afterwards.

What are the possible benefits of taking part?

You will support development of a safety checklist which will be made available to all dental practices.

Will my taking part in the study be kept confidential?

Yes.

Contact details

If you need any more information please contact RockeyAM@cardiff.ac.uk

* A wrong tooth extraction can be thought of as **a tooth you were not intending to take out** but not including those taken out due to an unforeseen but recognised clinical complications (for example, an extra tooth which had to be removed due to attachment to a fractured tuberosity).