

# Summary of: A study of factors that influence the number of visits following traumatic dental injuries

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## FULL PAPER DETAILS

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### Refereed Paper

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**Objective** To investigate in children the factors that influence the number of visits per tooth following traumatic dental injuries (TDI) to the permanent dentition. **Method** A retrospective convenient sample of 100 children who had been treated for TDI at Leeds Dental Institute was identified. A multilevel negative binomial regression model was developed to identify factors influencing the number of visits per tooth. Data including age, gender, postcode, number of visits, treatment provided, number of teeth injured, type of periodontal and hard tissue diagnoses, healing modality, root maturity, pulp and tooth survival, and any history of previous or subsequent trauma to same tooth were analysed using SPSS 18.0 and MLWIN. **Results** 186 teeth were affected by trauma in 100 patients. Median total number of visits per tooth was six visits with a range of 1–22 visits. The factors that were found to influence number of visits included: distance travelled, hard tissue diagnosis, periodontal injury diagnosis and pulp survival ( $P < 0.05$ ). A mile increase in distance travelled from home to clinic led to a 1.2% reduction in the number of visits per month ( $-0.012$ ; SE 0.005), a diagnosis of a severe hard tissue injury was associated with 44% increase (0.362; SE 0.105) compared to no hard tissue injury, a diagnosis of a complicated periodontal injury compared to no periodontal injury was associated with a 30% increase (0.260; SE 0.124), a diagnosis of an uncomplicated periodontal injury compared to no periodontal injury was associated with a 31% increase (0.271; SE 0.124) and a diagnosis and treatment for a non-vital tooth in comparison to a vital tooth led to a 26% increase (0.230; SE 0.080) in the number of visits. There was a significant variation in the number of treatment visits at patient level (0.260; SE 0.048). **Conclusion** Complicated hard tissue injuries, complicated and uncomplicated periodontal injuries, diagnosis and treatment for pulp necrosis and the distance between clinic and patient's home all significantly influenced the number of visits needed to treat TDI.

## EDITOR'S SUMMARY

While in the commentary, Melvyn Smith recalls his personal experience of a traumatic dental injury, my personal experience of this situation was most pronounced as a Registrar under his timely guidance and instruction at the Eastman Dental Hospital. One of my most abiding memories is of the distress that such injuries caused more to the parents than the injured child. In terms of management, reassuring the parents, explaining possible future treatment possibilities and prognosis was often more stressful than the actual clinical tasks involved in calming and treating the child.

This interesting analysis of the journeys experienced by patients unfortunate enough to have suffered dental injuries helps to clarify our thinking on how we might better organise the treatment of such cases in the future. As with many

areas of medicine there is a very difficult balance to be kept between providing locally available treatment that might not be so specialised and dedicated units in regional 'centres' which have the great plus of providing up-to-date care but the disadvantage of distance. Anecdotally, it is often said that teachers, and especially physical education teachers, have a greater success rate in preserving avulsed incisors than do clinicians, primarily because they have the instant opportunity to 'jam' the tooth back into the socket. How true that is I am unsure but it does make the point rather well that untrained help (very) locally can have distinct advantages over more specialised knowledge and equipment at a distance.

A more satisfactory solution might be GDPs with a greater capacity to provide a level of immediate, proficient care that falls between these two extremes.

However, as the authors point out, factors such as inadequate financial remuneration, the feeling that time spent on trauma is excessive, and the irregular frequency and thus unfamiliarity with managing complicated injuries prevent this from happening in the majority of cases. Although the recent and current reorganisation of NHS care in England may provide an opportunity to attempt to create the correct balance, once again we have to commend continuing education as an avenue to be pursued even though the danger is that we will all need to be specialists in everything.

The full paper can be accessed from the *BDJ* website ([www.bdj.co.uk](http://www.bdj.co.uk)), under 'Research' in the table of contents for Volume 214 issue 11.

Stephen Hancocks  
Editor-in-Chief

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**IN BRIEF**

- Explores patient and tooth variables which influence the number of clinic visits needed following traumatic dental injuries.
- Reports the variables found to significantly influence the number of clinic visits, including distance travelled, diagnosis of a complicated hard tissue injury, and the diagnosis of a non-vital tooth.
- Helps clinicians more accurately inform parents of the number of visits likely to be required following traumatic dental injuries.

**COMMENTARY**

This paper touches a nerve as I recall my own patient journey as an innocent 11-year-old victim of a fractured incisor in Yorkshire, to forceps 40 years later. It also resonates with my work as a paedodontic specialist managing traumatised teeth in a community setting, miles from hospital departments. The authors pick up their patient journeys at the dental hospital trauma clinic, raising the issue of children not finding their way there and what opportunities (and teeth) were consequently lost. This also highlights the question of how far those who did arrive at the trauma clinic reflect the outcomes of dental trauma managed in primary care, or not treated at all.

The records of 961 children seen between 2003 and 2007 at the trauma clinic were sought but only 187 were available for examination. Retrospective analyses of case notes often have such difficulties; here the problem was off-site archiving of records. Notes of the 100 children met strict eligibility criteria for inclusion. One important criterion was that the most severely affected tooth had been treated to the point of being functional, of acceptable appearance and infection free. All patients were seen under the care of an experienced paediatric dentistry consultant and from this treatment within contemporary protocols is inferred.

Data analyses take treatment visits per tooth as the outcome variable and a range of factors (predictors) influencing this were examined. More visits were needed to manage com-

plicated hard tissue problems, complex periodontal diagnoses and pulp necrosis. Patients travelling further had more visits.

The clinical journey for children sustaining dental trauma should proceed along clearly signposted pathways, offering best interventions in a timely way. Evidence for effective interventions comes from specialised trauma units although paradoxically patient journeys most often begin in primary care, with referral through (perhaps more distant) higher tiers of expertise for more complicated cases.

Care pathways, being developed by NHS England for implementation by their area teams (with advice from professional networks) are the new way forward. This paper, illuminating a care pathway's specialist tier, should inform development of the complete paedodontic trauma pathway.

**Melvyn Smith**  
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**AUTHOR QUESTIONS AND ANSWERS****1. Why did you undertake this research?**

The number of clinic visits needed for treatment and review consultations following different traumatic dental injuries to the permanent dentition has received little attention. This is only the second paper of its kind for the UK population. Our paper explores which patient and tooth variables influence the number of clinic visits that are likely to be needed. These findings will help clinicians more accurately inform parents of how many visits they are likely to require.

**2. What would you like to do next in this area to follow on from this work?**

The impact of traumatic dental injuries to children and their families can be studied from both an economic and a quality of life standpoint. To date, these economic studies have shown similar results. Quality of life studies have been undertaken in a number of countries including the UK, Albania, Canada and Brazil. We would like to investigate whether we can use a systematic review methodology to compare, contrast and possibly summate these results. In some studies treatment has not always been provided for these injuries. Therefore the effect of treatment and the population that the study is undertaken in can be examined further.