

# Summary of: A survey of adoption of endodontic nickel-titanium rotary instrumentation part 1: general dental practitioners in Wales

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**Objective** To assess adoption of endodontic nickel-titanium (NiTi) rotary technology by general dental practitioners and identify factors influencing its uptake. **Design** Postal questionnaire. **Setting** General dental practitioners working in Wales. **Methods** General dental practitioners (n = 584) were approached regarding their usage or otherwise of nickel-titanium rotary instrumentation during root canal shaping. The postal questionnaire took the form of an anonymous survey comprising 13 questions. These questions covered usage parameters, satisfaction, training issues and reasons for avoidance of NiTi instruments. **Results** The response rate was 71%. Nickel-titanium rotary instruments were used routinely by 67% of those responding practitioners. Principle factors cited as being implicated in the decision to not adopt NiTi use included cost (65% of responses), lack of training and the perceived risk of instrument fracture. **Conclusions** Over two thirds of dental practitioners in Wales use rotary NiTi endodontic technology with the majority having converted to such systems more than three years ago. There was, however, a significant disparity in NiTi usage between solely NHS practitioners (42%) and private practitioners (90%). Continued provision of high quality hands-on practical workshops may be of benefit in facilitating a positive initial NiTi experience in order to assist the transfer to these newer technologies.

# Summary of: A survey of adoption of endodontic nickel-titanium rotary instrumentation part 2: community and hospital dental practitioners in Wales

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**Objectives** To assess adoption of endodontic nickel-titanium rotary technology (NiTi) by community and hospital dental clinicians within Wales and identify factors that may restrict uptake. **Design** Postal questionnaire. **Setting** Community and hospital-based dentists in Wales. **Methods** Community and hospital-based dentists with a remit for provision of restorative dentistry (community dental setting = 32; hospital dental setting = 36) were approached regarding their usage or otherwise of nickel-titanium rotary instrumentation for endodontic treatments. The postal questionnaire took the form of an anonymous survey comprising 12 questions. These questions covered usage parameters, satisfaction and training and broached reasons for NiTi avoidance. **Results** The response rate was 77%. NiTi rotary instruments were used routinely by an encouraging 82% of those in the hospital-based restorative dental services but only 13% of community staff. Factors cited as being implicated in the decision to avoid their use included cost (62% of responses) lack of training and the perceived lack of benefit. **Conclusion** The adoption of rotary NiTi endodontic technology by the hospital dental practitioners of Wales is encouraging with the majority having converted to such systems in excess of three years prior to the survey. There was, however, a significant disparity in NiTi usage between community and hospital settings, the implications for which and possible solutions for increased training and uptake are discussed.

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**IN BRIEF**

- Provides an overview of the provision of endodontic services by both general dental practitioners, and community and hospital dental practitioners in Wales.
- Alludes to the differences in protocol and methodology between NHS and private endodontic treatment provision.
- Notes the significant variation in training and practice between the dental settings and discuss the barriers to usage of contemporary endodontic instrumentation.

**COMMENTARY**

The introduction of endodontic nickel-titanium rotary instrumentation 14-15 years ago, marked a paradigm change in the ability to shape a root canal safely and efficiently. These excellent papers by Locke *et al.* seek to assess the uptake of this important technology amongst general, hospital and community dental practitioners in Wales.

As well as providing valuable information to educators, along with manufacturers, it also describes reasons why NiTi instrumentation is not universal. In fact, with the advantages in speed and the ability to produce fewer preparations, it is a wonder that only 67% of GDPs use NiTi instrumentation routinely. The uptake was more encouraging in the hospital service (82%), but is a rather poor 13% for the community dental practitioners.

Before leaping to any decisive conclusions from the returns of this postal questionnaire, it is important to consider that, despite the introduction of safer and progressively more efficient root canal shaping instruments over the last 20 years, there is no evidence that this has led to a significant increase in the survival rate of root treated teeth. What is known and cited in the articles is a depressingly high-frequency of sub-optimal, technically deficient root canal fillings, many with associated pathology.

Shaping the root canal is a vital step in achieving disinfection and a final seal, but it cannot stand by itself in fulfilling the objectives of successful root canal therapy. Ni-Ti rotary instrumentation cannot completely replace the skilled

use of stainless steel hand files, and the theory should be, that the time saved by the new technology should be spent in effective irrigant decontamination and obturation. The importance of these co-dependencies needs to be taught both at undergraduate and postgraduate levels, which, together with the hands-on training sessions recommended by the authors, will undoubtedly lead to improved treatment outcomes.

The most unsurprising evidence uncovered by the surveys is the restricted use of Ni-Ti rotary instrumentation within NHS contracted services. With cost being a major motivator in human behaviour, I have the hugest respect for those 42% of NHS practitioners who use NiTi rotaries in their clinical practice of endodontics. For many years the NHS remuneration system has refused to recognise the time and costs involved in providing good quality root canal treatment. Hit with a double whammy of the single usage policy of endodontic instrumentation and the derisory 'band 2' payment of £39 (Wales) and £47 (England), I have no idea how NHS practitioners can fulfil their patients' expectation to save teeth through endodontics, never mind using a number of files that cost £4-6 each.

With the evidence provided it really is time for the profession to take on both the DH and manufacturers, to help provide optimal dental health and fulfil patient aspiration through wider implementation of this technology.

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

Similar national-type investigational questionnaires have been undertaken in endodontics recently. With Wales having an accessible and all-encompassing Postgraduate Deanery based at the Dental School in Cardiff we were fortunate to be able to use such resources to access the dentists of Wales. Endodontic teaching through Wales' singular Dental Teaching School has, since its inception, provided rotary NiTi teaching to dental undergraduates. It was hoped that the study may show evidence of an increased and increasing cohort of GDPs practicing in Wales that utilise such contemporary techniques. Barriers were identified and possible solutions to these barriers provided.

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

Twofold: firstly investigations into the postgraduate arena in order to provide focussed didactic and practical classes to encourage those wishing to migrate to rotary NiTi and to reinforce best practice for those who seek to gain more experience.

Secondly, investigation into further endodontic practices, in particular the managements of pulpal exposure, traumatic dental injuries and the use of contemporary direct and indirect capping materials.