

Summary of: General dental practitioners' perceptions of antimicrobial use and resistance: a qualitative interview study

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FULL PAPER DETAILS

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Background Dentists are responsible for 9–10% of all antibiotics dispensed in primary care in the UK, many of which may be provided contrary to clinical guidelines. Since antibiotic consumption has been identified as a major cause of antibiotic resistance, dental prescribing may be a significant contributor to this important public health problem. **Objective** This study aims to explore general dental practitioners' (GDPs) perceptions and attitudes towards antibiotic use and resistance. **Method** Qualitative interview study with 19 purposively sampled GDPs working in Wales. A set of open-ended questions were developed and amended during semi-structured telephone interviews. Interviews were recorded, transcribed verbatim and codes were developed using thematic analysis. **Results** Perceptions of antibiotic use and resistance varied widely between practitioners, particularly with respect to the prevalence and impact of resistant strains on the management of dentoalveolar infection, and the impact of dental prescribing on the emergence of resistance. GDPs reported that their antibiotic prescribing decisions were driven by both clinical pressures and wider public health considerations. **Conclusions** Interventions to enhance the quality of antibiotic prescribing in primary care dentistry should address issues associated with inappropriate prescribing as well as providing education about the causes, prevalence and impact of antibiotic resistance.

EDITOR'S SUMMARY

Antimicrobial resistance is terrifying. But has it become one of those issues, like climate change or the appalling war in Syria, which has begun to wash over us? Has the volume of media, press and guidelines on the topic resulted in 'issue fatigue' of sorts? The scale of problems such as these coupled with the significant behaviour changes required by the proposed solutions often means that putting them on the back boiler is the natural response.

With climate change there is often a feeling that there is 'no point' in making small personal changes or driving an agenda when it will require a global effort. For example: 'What is the point in building only energy efficient houses in the UK when China is still burning so much coal? We might as well give up until we can convince them to change too.' But where will the leadership necessary to drive all these global changes come from? Where should it come from? In the western world, on the whole, our 'leaders' are led by us. Albeit through opinion polls and focus groups, they are led by us.

The same goes for the antimicrobial resistance issue in a way. There may be a perception that the role played by general medical practitioners, pharma and agriculture is so much greater than that of general dental practitioners, that there is no point in dentists changing their prescribing practices until GPs do. However, you could also look at it as a chance for the dental profession to lead. The dental profession has always shown itself to be a leader in global health – just look at the sugar issue. Dentists were there long before the rest of the health-care professions, advising their patients and tackling behaviour change around diet.

In the course of this study dentists were actually asked what they think about antimicrobial resistance. The results are not numbers or percentages but opinions and thoughts. Numbers are useful in identifying a problem and its scale. Opinions are invaluable in figuring out how the problem can be solved. The authors determine, as opposed to assume, the level of knowledge of dentists on the topic and they find out the reasons for their particular views on the profession's influence in the area of antimicrobial resistance.

In his commentary, Professor Bagg frankly points out why it is important and relevant to ask these questions. At the risk of adding to the 'fatigue' I will end with some more plain facts:

- On average antibiotics add 20 years to each person's life
- England's chief medical officer, Professor Dame Sally Davies has described antimicrobial resistance as a ticking time bomb
- Routine operations (oral surgery included) could become deadly in just 20 years if we lose the ability to fight infection.

This must not happen and we must determine what interventions are necessary to stop it.

The full paper can be accessed from the *BDJ* website (www.bdj.co.uk), under 'Research' in the table of contents for Volume 217 issue 5.

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IN BRIEF

- Provides insights into beliefs and attitudes held by general dental practitioners (GDPs) with regard to antibiotic use and resistance.
- Reports that perceptions of resistance may vary between GDPs.
- Suggests that antibiotic prescribing practices of GDPs may be influenced by both immediate clinical pressures and longer term public health concerns.

COMMENTARY

If any readers need to be convinced of the importance and relevance of this study may I suggest that they visit the World Health Organisation (WHO) website (<http://www.who.int/mediacentre/news/releases/2014/amr-report/en/>) and download the report on antimicrobial resistance issued by the organisation on 30 April 2014. It is a sobering and frightening summary that illustrates, as the WHO states in its own words, that 'Antibiotic resistance – when bacteria change and antibiotics fail – is happening right now, across the world'.

Dentists prescribe significant quantities of antibiotics and there is extensive literature that indicates that these highly valuable drugs continue to be used inappropriately on a regular basis within our profession, as well as many other areas of healthcare. Organisations such as the Scottish Dental Clinical Effectiveness Programme have produced clear guidance on drug prescribing in dentistry (<http://www.sdcep.org.uk/index.aspx?o=2334>), but are also engaged in studies to understand the prescribing behaviours of dentists through the Translation Research in a Dental Setting (TRiADS) research collaboration (<http://www.sdprn.org.uk/index.aspx?o=2688>), in the hope that effective behavioural interventions can be designed to enhance prescribing practices. This timely paper by Cope and colleagues provides a further and very interesting approach to this field, by using a qualitative methodology to obtain a deeper understanding of dentists' perceptions of both the significance of the antibiotic resistance problem and their role in tackling it. It reveals significant remaining educational and attitudinal challenges.

A key concept linked to antibiotic prescribing in dentistry is that most of the

infections we manage are caused by organisms in the biofilm state. A recent paper¹ summarises very neatly the massively reduced effectiveness of antimicrobial drugs against microbes that have adopted a biofilm lifestyle. There is an urgent need for microbiologists to undertake more in-depth studies of the physiology of microbial biofilms, but also for clinicians to take a body-wide approach to infectious diseases, recognising, for example, that prescribing an antibiotic to manage an oral infection will also affect the microbiome in every other body site.

I will finish by quoting the opening paragraph of the foreword to the recent WHO report of 30 April 2014 referenced above, the relevance of which is heightened by the fact that no major new types of antibiotics have been developed in the last 30 years. 'Antimicrobial resistance within a wide range of infectious agents is a growing public health threat of broad concern to countries and multiple sectors. Increasingly, governments around the world are beginning to pay attention to a problem so serious that it threatens the achievements of modern medicine. A post-antibiotic era – in which common infections and minor injuries can kill – far from being an apocalyptic fantasy, is instead a very real possibility for the 21st century'.

Let's do all we can to ensure that dentistry plays its part in preventing this frightening prospect.

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1. Ten Cate J M, Zaura F. The numerous microbial species in oral biofilms: how could antimicrobial therapy be effective? *Adv Dent Res* 2012; **24**: 108–111.

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

Antimicrobial resistance is recognised as a prominent and potentially very serious public health concern. One of the major drivers of the increased prevalence of resistant bacteria is believed to be the widespread use of antibiotics. Public health initiatives in both medical and dental fields have sought to improve prescribing practices in order to minimise the contribution of healthcare-associated antibiotic use to the development of resistance. However, very little work has been done to understand what general dental practitioners (GDPs) think of the issues surrounding antimicrobial resistance and how they view their own prescribing patterns in the context of increased public and professional awareness of resistance.

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

Current research suggests that a substantial proportion of antibiotics prescribed for acute dental problems in primary dental care may not meet recommendations made by clinical guidelines. Therefore interventions are required to optimise prescribing to maximise the effectiveness of treatment for acute conditions and to minimise problems associated with antibiotic-related side effects and resistance. Our hope is that we can use insights gained through this work to design a successful intervention which will adequately address the barriers that exist with regard to the implementation of antimicrobial prescribing guidelines.

This research forms part of a wider programme which seeks to understand how antibiotics are used in the management of acute dental problems in primary care. We also investigating consultations in general medical practice for dental conditions, and factors that influence antibiotic prescribing by doctors for dental conditions.