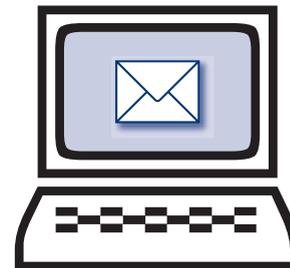


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## Medico-legal dilemma

Sir, I refer to the editorial in the *BDJ* of 13 May 2006<sup>1</sup> stating that the British Society for Antimicrobial Chemotherapy (BACS) have suggested that only three groups of patients are at risk when it comes to having to give antibiotic prophylaxis.<sup>2</sup> These were those who have had infective endocarditis, those with valve replacements and those with surgically-constructed systemic pulmonary shunts or conduits.

On one hand this is welcoming news which would now seem to eliminate the needless courses of antibiotic prophylaxis given routinely for many patients – or will it? I am quite sure that many practitioners, when uncertain, prescribe the prophylaxis mainly for medico-legal reasons to cover themselves and in my opinion one cannot blame the practitioners for doing so either. If one looks through the most recent *GDC Gazette*<sup>3</sup> reviewing the conduct cases, one of the practitioners admonished is related to this subject. The practitioner in question has been treating a patient for 26 years but the charges were related to the period 1997–2003 as the patient had been diagnosed with having a heart murmur in 1997 and the practitioner failed to give the antibiotic prophylaxis.

I understand that the latest guidelines<sup>4</sup> excluding the routine use of antibiotic prophylaxis for patients with heart murmurs was not there in 2003 when the GDC was investigating this case, but nevertheless, it does illustrate the medico-legal dilemma the practitioner can get into.

Following the editorial in the *BDJ*, I was enthusiastically getting ready to check my patients with the list on the latest suggestion before prescribing the antibiotic prophylaxis, until the recent letter from Barry Cockcroft, Acting Chief Dental Officer for England, was sent to all practitioners. Based on this letter we need to await further update on this issue before changing from the existing advice published in the British National Formulary. So the saga continues.

M. Zafarulla  
Shoreham-by-Sea

1. Martin M. A victory for science and common sense. The new guidelines on antimicrobial prophylaxis for infective endocarditis. *Br Dent J* 2006; **200**: 471.
2. Gould F K *et al.* Guidelines for the prevention of endocarditis: report of the Working Party of the British Society for Antimicrobial Chemotherapy. *J Antimicrob Chemother* 2006; **57**: 1035–1042.
3. *GDC Golden Gazette* 2006.
4. Department of Health Ref. No. 6765. 22 June 2006.

doi: 10.1038/sj.bdj.4814270

## Misplaced and inappropriate

Sir, I read Martin's editorial with some alarm and dismay.<sup>1</sup> His recommendations that antibiotic prophylaxis for dental procedures should be omitted for many groups of patients with cardiac disease, for example, those with aortic or mitral valve disease, congenital heart disease or aortic root replacement, are at odds with the recommendations of specialist opinions of the British Cardiac Society, the American College of Cardiology/American Heart Association and the European Society of Cardiology.<sup>2–4</sup> Moreover, his comments that newly qualified dentists are 'irrationally concerned about infective endocarditis' are at worst an insult to these colleagues and at best misplaced and inappropriate.

Infective endocarditis (IE) is a dangerous condition with life-threatening complications resulting in expensive, in-hospital treatment, cardiac surgery and high morbidity and mortality rates. I have already seen IE involving an aortic valve and on an aortic root graft in two patients who were told by their dentist that antibiotic prophylaxis was no longer needed, because of the recommendations made by BSAC<sup>5</sup> and Martin's editorial – despite the patients questioning the dentists' decision to omit. The pathogenesis of IE has been shown to involve bacteraemia and usually some endocardial/valvular lesion which acts as a focus for the development of infected vegetations and the resulting clinical condition, which is well described in the literature.

In the face of this knowledge, to abandon the logical prophylactic treatment to prevent IE which may occur

after procedural-related bacteraemia seems irrational and for those patients affected, totally unforgivable – even though randomised trial data are not available to support the practice. Over the last 50 years or so, cardiologists have learned that every effort should be made to prevent IE in those who are considered at risk because of their cardiac abnormalities and we should not advocate that we relearn these painful lessons over the next 10 years at the expense of patients under our care. I would suggest that dentists should follow the advice of the specialist cardiac societies rather than those of BSAC and continue to offer prophylactic antibiotic treatment to those patients with cardiac lesions that are known to put them at risk of developing IE after a procedure that is associated with significant bacteraemia.

E. McKay  
Blackpool

1. Martin M. A victory for science and common sense. The new guidelines on antimicrobial prophylaxis for infective endocarditis. *Br Dent J* 2006; **200**: 471.
2. Ramsdale D R, Turner-Stokes L on behalf of the Advisory Group of The British Cardiac Society Clinical Practice Committee and the RCP Clinical Effectiveness and Evaluation Unit (2004). Prophylaxis and treatment of infective endocarditis in adults: a concise guide. *Clin Med* 2004; **4**: 545–550.
3. Dajani A, Taubert K, Wilson W *et al.* Prevention of bacterial endocarditis. Recommendations by the American Heart Association. *Circulation* 1997; **96**: 358–366.
4. The Task Force on Infective Endocarditis of the European Society of Cardiology. Guidelines on Prevention, Diagnosis and Treatment of Infective Endocarditis. Executive Summary. *Eur Heart J* 2004; **25**: 267–276.
5. Gould F K, Elliott T S J, Foweraker J *et al.* Guidelines for the prevention of endocarditis: report of the Working Party of the British Society for Antimicrobial Chemotherapy. *J Antimicrob Chemother* 2006; **57**: 1035–1042.

doi: 10.1038/sj.bdj.4814271

## Conflicting advice

Sir, two recently published guidelines give conflicting advice about which dental procedures need antibiotic prophylaxis for preventing endocarditis. The British Cardiac Society report<sup>1</sup> recommends that only some dental procedures associated with high bacteraemia rates require antibiotic prophylaxis for patients with susceptible heart lesions. The British

Society for Antimicrobial Chemotherapy guidelines<sup>2</sup> advise prophylaxis for all dental or gingival manipulations for patients with a few of the highest risk cardiac conditions, but no prophylaxis for patients with moderate risk cardiac lesions. The lack of cover for the latter group of cardiac patients has been commented on elsewhere.<sup>3</sup>

A new definition of 'significant dental bacteraemia' was proposed in the detailed guidelines of the BCS report,<sup>1</sup> available on The Royal College of Physicians website. This was the demonstration of a statistically significant higher bacteraemia rate post-procedure compared with pre-procedure. However, the main oral organisms associated with endocarditis are viridans streptococci and the pre-procedure incidence of detectable viridans streptococcal bacteraemia by the usual blood culture methods is extremely low. Therefore some studies have omitted pre-procedure blood cultures as they have little relevance. Also, the above definition deals with total bacteraemia rates that include other organisms but does not emphasise that the viridans streptococci are the most important oral organisms. It has been suggested that although the usual blood culture techniques do not detect much bacteraemia pre-procedure the use of lysis-filtration methods are more sensitive<sup>4</sup> and often detect bacteraemia in subjects before a dental procedure. However, the organisms referred to in one study<sup>5</sup> were likely skin contaminants, such as coagulase negative staphylococci and propionibacteria, rather than viridans streptococci. A different lysis-filtration study,<sup>6</sup> not associated with frequent isolations of skin contaminants, failed to detect organisms in any of the 100 pre-procedure blood samples. In this study 85% of subjects undergoing dental extraction had viridans streptococci detected in post-extraction blood cultures. The analysis of the literature quoted in both the British Cardiac Society and BSAC reports was incomplete as many studies were probably unnecessarily excluded as they did not include pre-procedure blood culture data.

Interpretation of the data in the literature may also be difficult because total bacteraemia rates are often quoted for minor dental procedures, and some oral hygiene procedures such as toothbrushing. The actual viridans streptococcal bacteraemia rates are sometimes not given but when they are they are usually very low.<sup>7</sup> These difficulties with interpretation may result in minimising the risks due to extractions compared with other procedures. This has led to recommendations in the

BSAC report<sup>2</sup> that all dental-gingival manipulations be covered with antibiotics for patients with prosthetic valves and certain other cardiac lesions.

'Significant dental bacteraemia' should mean a high rate of predictable viridans streptococcal bacteraemia associated with a given dental procedure. An example would be an 85% viridans streptococcal bacteraemia rate associated with dental extraction.<sup>6</sup> In addition, a 'significant dental bacteraemia', in the context of endocarditis, should include consideration of whether such bacteraemias have been followed by endocarditis. Many case reports point to viridans streptococcal endocarditis occurring within two to four weeks of a dental extraction.<sup>8</sup> Thus dental extraction should be regarded as an important example of a high risk dental procedure on the grounds of significant predictable streptococcal bacteraemia plus frequent associated case reports of post-procedure streptococcal endocarditis.

In conclusion there is a need to challenge the latest suggested definition of 'significant dental bacteraemia' and the BSAC recommendations that all dental or gingival manipulations, including simple dental restoration or fillings, require antibiotic prophylaxis for patients with at risk cardiac lesions. For the reasons stated above only high risk dental procedures should be considered as causing truly significant streptococcal bacteraemias and antibiotic prophylaxis should be reserved for these procedures including extractions, deep scaling and periodontal surgery.

**D. Shanson**  
London

1. Ramsdale DR, Turner-Stokes L. Advisory Group of the British Cardiac Society Clinical Practice Committee. Prophylaxis and treatment of infective endocarditis in adults: a concise guide. *Clin Med* 2004; **4**: 545-550.
2. Gould FK, Elliott TSJ, Foweraker J *et al*. Guidelines for the prevention of endocarditis: report of the Working Party of the British Society for Antimicrobial Chemotherapy. *J Antimicrob Chemother* 2006; **57**: 1035-1042.
3. Shanson D. Comment on Guidelines for the prevention of endocarditis: report of the Working Party of the British Society for Antimicrobial Chemotherapy. *J Antimicrob Chemother* 2006; **58**: 895; author reply 896-898.
4. Roberts GJ, Jaffray E, Spratt DA *et al*. Duration, prevalence, intensity and identity of bacteraemia following dental extraction in children. *Heart* 2006 **92**: 1274-1277.
5. Hockett RN, Loesche WJ, Sodeman TM. Bacteraemia in asymptomatic human subjects. *Arch Oral Biol* 1977; **22**: 91-98.
6. Heimdahl A, Hall G, Hedberg M *et al*. Detection and quantitation by lysis-filtration of bacteraemia after different oral surgical procedures. *J Clin Microbiol* 1990; **28**: 2205-2209.
7. Kinane DF, Riggio MP, Walker KF *et al*. Bacteraemia following periodontal procedures. *J Clin Periodontol* 2005; **32**: 708-713.
8. Starkebaum M, Durack D, Beeson P. The 'incubation period' of subacute bacterial endocarditis. *The Yale Biol Med* 1977; **50**: 49-58.

doi: 10.1038/sj.bdj.4814272

## A unique opportunity?

Sir, the letter from A. J. R. Curtis relating the difficulties of explaining to patients that the previously 'essential' precaution of administering antimicrobial prophylaxis may now no longer be necessary (*BDJ* 2006; **200**: 67) highlights what must be a concern for many clinicians. This issue is further complicated by an apparent lack of agreement in cardiology circles about the logic of withdrawing prophylaxis for some and not for others, and about how the outcome of such changes ought to be monitored. Even though many are advising immediate change, in the light of such uncertainty, the advice issued recently by the CDO<sup>1</sup> has merit. This suggests continuing with current BNF guidance until more universal agreement for prescribing of antibiotic prophylaxis has been arrived at.

There can be few who do not agree with the central premise of the British Society of Antimicrobial Chemotherapy document<sup>2</sup> that the link between dental treatment and infective endocarditis (IE) is scientifically tenuous. However, withdrawing antimicrobial prophylaxis for some or all of the patients considered at increased risk of developing IE is a fundamental departure from previous practice. Surely one would hope that such a change would be introduced in a unified and coordinated fashion. Unfortunately, this does not seem to have been achieved. As a result, dentists could find themselves offering advice that differs from that being given by patients' cardiologists. This not only leads to uncertainty for the dentist, but must be at best confusing and at worst a cause of considerable anxiety for the affected patients. In addition, it would seem sensible to ensure that any changes in IE incidence are being monitored during such a change in practice. Indeed, might this offer a unique opportunity to definitively assess the outcome of ceasing antibiotic prophylaxis?

Antibiotic prophylaxis for those susceptible to IE has been a source of considerable debate amongst the dental profession over many years. As dentists, most of us have neither cardiac nor microbiological expertise, yet the question of whether or not individual patients should receive antimicrobial prophylaxis presents itself frequently in our day to day practice.

We want to be as confident as possible that the care we offer our patients reflects best practice, but this is difficult when experts in the field disagree.

Let us hope that these differences can be resolved (perhaps as the CDO suggests

via NICE) and that clear guidance can be produced. Let us hope that this could be followed by effective dissemination of information to both clinicians and patients, and that the health implications of such a change are monitored. Let us hope 'common sense' prevails.

S. A. Fayle  
Leeds

1. Dear Colleague Letter from the CDO *Information – All Dentists*. Department of Health, 22 June 2006.
2. Gould F K, Elliott T S J, Foweraker J *et al*. Guidelines for the prevention of endocarditis: report of the Working Party of the British Society for Antimicrobial Chemotherapy. *J Antimicrob Chemother* 2006; **57**: 1035–1042.

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## Confusing guidelines

Sir, we welcome the recent change to antibiotic prophylaxis,<sup>1</sup> as we are sure many others do, and have been keen to adopt the new practice. As a result it is now simpler to identify patients requiring cover, at least those in the first two groups (previous endocarditis or cardiac valve replacement), many of whom are already aware of their need to inform their dentist. However, regarding the third group in whom antibiotic prophylaxis is advised, we were unclear which surgical procedures are encompassed by the term 'surgically constructed systemic or pulmonary shunt or conduit'. To add to our confusion, in the recent *BDJ* editorial<sup>2</sup> the term 'surgically-constructed systemic pulmonary shunts or conduit' is used. One of the 'or's' has disappeared!

We informally approached a cardiologist and personal friend for further advice. In his opinion, the phrase 'surgically constructed systemic or pulmonary shunt or conduit' is too non-specific and, if taken literally, would encompass a number of procedures which do not require antibiotic prophylaxis, such as coronary artery or femoral artery bypass grafts. However, it is likely that the term is intended to describe only those procedures where a shunt or conduit is used to link systemic and pulmonary circulations, in which case the version in the *BDJ* may be more accurate and not simply a typographical error.

The vast majority of patients undergoing such procedures are children with congenital heart disease, including conditions such as Tetralogy of Fallot and pulmonary or tricuspid atresia. Although community or special needs dentists may be most likely to see these children, the development of such surgical techniques has led to the survival of many into young adulthood and some may lead relatively normal lives, quite possibly presenting to a general dental practitioner. While

many of these patients' cardiologists may be able to advise on the nature of their previous surgery and the need for antibiotic prophylaxis, we feel that the new guidelines fail to clearly define the patient groups at high-risk of infective endocarditis and who still require antibiotic prophylaxis. New guidelines may be confusing if it is difficult to determine to which patient groups they are to be applied.

*We wish to thank Dr Dwayne Conway MD MRCP for cardiological advice and help in preparing this letter.*

S. Martin  
T. Martin  
Birmingham

1. Gould F K, Elliott T S J, Foweraker J *et al*. Guidelines for the prevention of endocarditis: report of the Working Party of the British Society for Antimicrobial Chemotherapy. *J Antimicrob Chemother* 2006; **57**: 1035–1042.
2. Martin M. A victory for science and common sense: the new guidelines on antimicrobial prophylaxis for infective endocarditis. *Br Dent J* 2006; **200**: 471.

*Dr Michael Martin responds to the above letters: I would like to thank everyone who has contacted me by a letter to the *BDJ* and by other means following my editorial.<sup>1</sup> There is no doubt everyone agrees that infective endocarditis (IE) is a devastating disease with very serious potential sequelae. Anything that can be done to avoid this disease should be done. The essence of the differences between the working party of the British Society for Antimicrobial Chemotherapy (BSAC) on IE and the advice of the specialist societies such as the British Cardiac Society, is scientific evidence. The BSAC working party reviewed, I am sure as I have, all the available evidence linking IE and dentistry. Most of the evidence is at best anecdotal and very poorly documented. Some clinicians like Dr McKay have seen patients with IE associated with dentistry, but definitive literature written in peer-reviewed case reports is lacking. All the retrospective and other analyses do not support a strong link between dentistry and IE.*

*The concept of a 'significant bacteraemia' as described by the BCS report and relating it to risk as Dr Shanson suggests is an interesting concept.<sup>2</sup> Unfortunately this approach is fraught with inconsistencies, as toothbrushing would be considered a significant risk if this approach is adopted. The risk of infective endocarditis cannot be simply linked to numbers of bacteria recovered from the blood stream, but probably to a myriad of other factors such as surface adhesins, cryptotopic expression of oral streptococci and many other properties. Many of these factors need to be evaluated at a molecular level*

*before risk can be properly estimated.*

*This debate about IE and dentistry will I am sure continue to run, but personally I am pleased that the BSAC working party have produced a report based on evidence. If there is a legal challenge after April 2006 linking dentistry and IE as Dr Zafarulla and Dr Fayle suggest, then I am sure that the BSAC working party will be regarded by courts as the sole competent authority; this has been the case in over 300 previous medico-legal disputes.<sup>3</sup>*

*I welcome the fact that that Dr Cockcroft, the Chief Dental Officer, has asked NICE to look again at this subject. I hope that NICE will consult widely and above all consider the available scientific and relevant documented clinical evidence. I will however be surprised if the conclusions of NICE do not reflect those of the BSAC working party on infective endocarditis.*

1. Martin MV. A victory for science and common sense. The new guidelines on antimicrobial prophylaxis for infective endocarditis. *Br Dent J* 2006; **200**: 471.
2. Ramsdale D R, Turner-Stokes L. Advisory group of the British Cardiac Society Clinical Practice Committee. Prophylaxis and treatment of infective endocarditis in adults: a concise guide. *Clin Med* 2004; **4**: 545–550.
3. Martin MV, Longman L P, Forde M *et al*. The legal link between infective endocarditis and dentistry: a report of 303 cases. *Br Dent J*; in press.

doi: 10.1038/sj.bdj.4814274

## Reduction rationales

Sir, being Swedish I read with interest the letter from A. Kent in the *BDJ* (*Catastrophic occlusion*. *BDJ* 2006; **201**: 419). That occlusion is vitally important in a reconstruction is generally acknowledged; I would say that the prevailing view is pretty much the same in Sweden as in the UK. There are dentists who pay more attention to occlusion than others – I attended a course some years ago given by the late Dr Redhe, who used micron thick occlusion foils to adjust the bite. He was a very thorough dentist of the 'old school', who presented several case studies where he claimed to have alleviated the symptoms of patients presenting with headaches and migraines.

However, Dr Redhe emphasised the extremely small reductions needed in the order of microns or, at most, tenths of a millimetre. Never was there a mention of lowering the entire bite: the rationale was to eliminate unwanted molar contacts in laterotrusion/mediotrusion. Sadly A. Kent seems to have 'fallen victim' to a colleague who has not quite understood this rationale. Possibly she saw a dentist who embraced the 'holistic' attitude which some colleagues have embraced.

If this treatment was reported to the 'Socialstyrelsen' (corresponding to the GDC) the colleague who performed an

occlusal reduction of this scale on a previously healthy patient would certainly be severely disciplined.

G. Eriksson

By email

doi: 10.1038/sj.bdj.4814275

## Do no harm

Sir, in reply to the letter from the patient A. Kent (*Catastrophic occlusion. BDJ* 2006; 201: 419), I can only offer my sympathy for treatment, which was probably carried out by an over-enthusiastic dentist. The concept of carrying out an invasive and irreversible procedure on a patient who is not complaining of symptoms is contrary to the Hippocratic oath of 'do no harm' and the common sense message of 'if it ain't broke, don't fix it'.

Hopefully some thoughts on the subject might be of value:

- The concept of a 'balanced occlusion' is based on the need to reduce adverse loading of force on individual teeth. By equilibrating teeth, forces are directed evenly in a controlled manner, so that not only the teeth but also the muscles are not strained unduly
- Many patients with a malocclusion do not get symptoms, as they do not grind or clench their teeth (bruxism)
- On the other hand, high stress individuals may suffer symptoms with only a small discrepancy or interference with their occlusion
- The starting point for balancing an occlusion is referred to as centric relation and this ideal relationship between the jaws has been defined in many different ways without a consensus viewpoint for more than 50 years
- The principles of occlusal equilibration are based on the patient having healthy functioning joints. Unfortunately, many patients with underlying problems in the joints exhibit symptoms of tooth clenching. Grinding the teeth and closing down the vertical dimensions of these compromised patients can exacerbate their symptoms and is, therefore, inappropriate treatment, since it does not treat the underlying cause of the problem
- The fact that A. Kent developed pain in the joints and muscles emphasises the intimate inter-relationship between the muscles, joints and the dental occlusion. No irreversible treatment should be carried out without a clear diagnosis, and prior to permanent change in the occlusion, a removable bite splint should be worn to assess whether any beneficial effect will ensue from changing the bite
- Perhaps one reason for differing opinions is the fact that problems related to

malocclusion are treated by a broad cross-section of practitioners, including restorative dentists, orthodontists and maxillofacial surgeons.

The current 'state of the art' with regard to occlusion and jaw joint problems remains controversial, largely due to lack of understanding of normal joint biomechanics and adherence to outmoded concepts. Unfortunately, many patients are incorrectly treated, which often leads to complex medico-legal claims. The problems encountered by A. Kent only emphasise the fact that this subject needs to be thoroughly debated within the profession, in order for clear guidelines to be established.

Perhaps instead of battling in the courtrooms, the ongoing debate could take place in the columns of the journal in the hope that a sensible consensus viewpoint might be achieved. When clear guidelines can be agreed upon, this will reduce the number of patient complaints.

R. M. Dean

By email

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## Volunteer programme

Sir, I read with interest the contribution by my colleagues and friends, Professor Benzian and Professor Van Palenstein in your recent editorial (*BDJ* 2006; 201: 413). As a Dental NGO we want to endorse their findings and observations where the framework is the WHO-endorsed Basic Package of Oral Care.

For the past two years Bridge2Aid has operated a short-term volunteer programme in North West Tanzania which flows with the very same values and principles expounded in the editorial. Indeed, the programme (called the DVP – Dental Volunteer Programme) was set up in partnership with the Tanzanian government who identified Oral Urgent Treatment (OUT) – one of the four key aspects of the Basic Package of Oral Care – as their priority for training baseline healthcare personnel in the rural areas. Our UK volunteers are involved in two weeks of one-to-one training with a rural Clinical Officer in OUT. The five programmes run to date have proved a great success, and the government have invited us to expand the programme across the region.

We welcome applications from dentists with two years' postgraduate experience and qualified or experienced dental nurses. Full details are available on our website at [www.bridge2aid.org](http://www.bridge2aid.org).

I. Wilson

Executive and Dental Director, Bridge2Aid Tanzania

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