Executive Summary

Setting the context

There are an increasing number of factors that have the potential to influence the performance of a dental practitioner. They include the gender ratio, ethnicity and skill-mix of the dental workforce. Most dental schools are now accepting more females than males and there are increasing numbers of dentists from the European Union (EU) and overseas working in the United Kingdom (UK). Other factors include health, changing working patterns, the environment and workload.

It is important to understand what is meant by “performance concerns”. The National Clinical Assessment Service (NCAS 2010) defines the term as any aspects of a practitioner’s performance or conduct which:

- pose a threat or potential threat to patient safety
- expose services to financial or other substantial risk
- undermine the reputation or efficiency of services in some significant way
- are outside acceptable practice guidelines and standards.

Aims of the review

In order to continue to develop its role in supporting healthcare organisations to address the performance concerns relating to dental practitioners, NCAS requires an in-depth appreciation of the factors that have the potential to influence clinician performance. It has therefore commissioned this literature review. For the purposes of the review, the terms “dentist” or “clinician” include dental practitioners working in a variety of clinical settings, although as the majority of dentists in the UK work in general dental practice, the review focuses primarily on this group. It will contribute to the development of the NCAS dental service, as well as ensuring a robust evidence-based foundation for concurrent research programmes.

The aims of the review were to:

- create an evidence-based document of the factors that impact upon dentist performance
- identify gaps in the literature and suggest areas for further research.

The specific questions the review attempted to answer included the following:

- What are the factors that influence a dentist’s performance?
- Why do these factors arise?
- How do these factors impact upon performance?
- What interventions exist, and are they effective?
- What are the areas for further research?

Methodology

In keeping with the scope of this review, the literature search was primarily focused on UK-based studies. However, when gaps in the UK-based evidence were identified, attempts were made to source information from studies based outside the UK.

Relevant studies were identified using PubMed up to 30 June 2010 and from references cited in the papers obtained from this database.

Twenty two stakeholders from 12 organisations including regulatory bodies, counselling associations, dental indemnity insurance providers and other groups were contacted by e-mail. A dental public health subject matter expert, Dr Jos van den Heuvel, from the Netherlands was also consulted.

The impact of the following factors on dental practitioner performance was examined:

- A consideration of demographic factors
- The impact of health on performance
- Stress, burnout and other workplace-related illnesses in dentistry
- Smoking and the misuse of drugs and alcohol in dentistry
- Are psychological factors related to performance?
- The role of education and training
- The impact of work-related factors upon performance
- Leadership in NHS dentistry.

Results

This review provides a comprehensive summary of work already undertaken in dentistry, or in similar fields such as medicine, as well as identifying any additional contributing factors. Alongside this, a number of areas for further research in a variety of domains has also been identified.

The review is fully reflective of both current and future trends and incorporates information from the UK as well as countries such as the United States of America (USA) and European Economic Area (EEA) member states. It brings together information from a wide range of sources and considers the findings from published primary studies, previous reviews, policy statements, grey literature and the opinions of a wide range of experts.

Where gaps existed in the literature for dentistry, the review examined relevant studies in medicine and sought to make appropriate cross references and applicable conclusions. Such evidence was considered a robust foundation for the current review, providing both useful insight in unexplored areas, whilst also highlighting areas for further research in dentistry.

The table below provides a summary of the factors which are found to affect practitioner performance, and a description of the impact that this factor may have.

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| The proportion of female general dental practitioners (GDPs) is steadily growing in the UK, USA and Europe. | - Female dentists may be more likely than male dentists to work part-time due to family commitments. This may have implications for the dentist in terms of productivity and workload. However, conversely, this could also mean a better work-life balance which could enhance clinical performance.  
- A study undertaken in 2001 stated that only half of female dentists had returned to dental practice after a career break. Furthermore, only four per cent had enrolled on the Keeping in Touch Scheme.  
- Female dentists spend less time in attendance at postgraduate courses than male dentists. This may be partly due to differences in working patterns.  
- Communication skills have been found to be more superior in women, which may lead to more effective interactions and relationships with patients.  
- Male and female dentists differ in their leadership style.  
- Findings from NCAS cases show that, as in medicine, women dentists are less likely to be referred than men, although this difference is less pronounced in dentistry than it is in medicine.  
- A study has demonstrated that significant
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<td>differences exist between male and female dentists in psychomotor performance and cognitive function (simple reaction time, choice reaction time, word recognition, immediate word recall, and delayed word recall).</td>
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<td>A larger proportion of students from minority ethnic backgrounds are entering dentistry.</td>
<td>▪ One small study demonstrated how the UK general public is most likely to choose a white male as their dentist, and that there was only limited evidence to suggest that individuals matched their choice of dentist to their own ethnicity.</td>
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| The number of dentists originating from EEA member states and from overseas, and working in the UK, has also increased significantly. |  ▪ Due to the significant variations across EEA member states in the structure of the dental team and role of its members, non-UK trained dentists may react differently to other members of the dental team when compared to a UK trained dentist.  
  ▪ There is a distinct lack of uniformity in the curricula in dental schools across EEA member states and other countries. This may mean that dentists graduating from these countries may possess varying clinical skills, knowledge, attitudes and may thus demonstrate different working patterns. |
| Back pain, neck, shoulder and hand/wrist complaints are reported to be a particular problem for dentists. |  ▪ Dentists can sometimes experience such high levels of physical pain which can limit their ability to work. |
| Infectious diseases are reported to be important health issues for dentists. |  ▪ The management of a hepatitis B infected dental clinician is relatively straightforward. However, the situation for the HIV infected dentist is less clear. |
| Working with amalgam. |  ▪ There is no evidence to suggest any negative effects of amalgam on the health of dental professionals when amalgam separators and safe collection, handling and storage of waste are used. |
| Risk of developing cancer. |  ▪ There is little evidence to suggest any work-related increase in cancer risk among dentists, due to the risk of exposure to dental amalgam or ionising radiation. |
| High levels of workplace stress, burnout and other “work-related” mental illness have been reported in dentists both in the UK and abroad. |  ▪ Clinical disorders such as burnout and depression may develop as a result of chronic long term occupational stress.  
  ▪ Dentists with a high burnout risk may report health complaints to a greater extent than dentists with a low burnout risk.  
  ▪ There is an emerging link between such factors and alcohol and/or drug misuse.  
  ▪ Dentists may be embarrassed by the thought of seeking professional help, due to the challenges of stigma and the dynamics of their professional role. |
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<td>Prevalence studies seem to demonstrate relatively high rates of alcohol and substance misuse amongst dentists, especially younger dentists, and dental students.</td>
<td>▪ Health and well being studies have demonstrated that significant levels of alcohol consumption in general dental practitioners (GDPs) are often strongly correlated to feelings of stress. ▪ It is reported that the culture of the profession may make dentists a vulnerable group for alcohol and substance abuse. Factors such as denial and stigma may impede early detection. ▪ However, there is little evidence from the prevalence data to suggest that dentists were at a greater risk of developing alcohol or other drug use problems than the general population.</td>
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<td>There are potentially important ways in which personality and other individual characteristics can affect the performance of dentists.</td>
<td>▪ Emotional reactivity traits such as conscientiousness and agreeableness tend to be common in dentists. Dentists may also be more susceptible and reactive to stress than most people. ▪ As demonstrated by the Myers-Briggs Type Indicator test, dentists can be described as realists who favour the practical and definite. Sensing and judging traits are also common in dentists’ personalities. ▪ Dentists’ attitudes can impact upon their ability to complete a task to a pre-determined standard, both in a positive and negative sense. ▪ Core values can have a significant impact upon performance, both as an individual dentist, and within the dental team. In particular, the way that individuals behave will vary according to the nature and strength of their basic core values. ▪ High levels of work engagement are deemed to improve productivity and efficacy of the dental team. ▪ A person with a high level of job satisfaction may invariably hold positive attitudes towards their job, whilst a person who is dissatisfied may hold negative attitudes about their job. Job satisfaction is noted to determine productivity, staff turnover and absenteeism, and could also be related to stress and burnout.</td>
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<td>Undergraduate education appears to have a fundamental role in the performance of future dental professionals.</td>
<td>▪ Particular subjects may form a vital part of undergraduate education. These include leadership and communication skills, as well as understanding the role of and working with</td>
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<td>Vocational and dental foundation training schemes may play a vital role in the</td>
<td>Vocational and dental foundation training schemes may play a vital role in the development of the dental graduate, immediately post qualification. Dental foundation training programmes, in particular, provide trainees with a wider range of opportunities to develop their communication, team working and clinical and management skills, when compared to stand alone posts in each service.</td>
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<td>development of the dental graduate, immediately post qualification.</td>
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<td>Lifelong learning, continuing professional development and the availability of</td>
<td>▪ For dentists, the ability to expand and develop their careers is considered very important. This is both in terms of long term job satisfaction, and in the prevention of burnout.</td>
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<td>postgraduate qualifications appear to be very important in enhancing and updating</td>
<td>▪ However, it appears that dentists who have been qualified the longest may be less likely to read professional journals.</td>
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<td>the professional skills of practising dentists.</td>
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<td>It is suggested that only a small proportion of dental practitioners attend</td>
<td>▪ A further concern was that those who did return to dentistry following a career break, were unlikely to have undertaken any form of retraining. This may impact upon the quality of care delivered, but it is difficult to ascertain to what extent.</td>
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<td>retraining courses after a career break.</td>
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<td>In dentistry, the quality of clinical performance is strongly related to the</td>
<td>▪ This may be the ability to deliver different treatments due to changing oral health needs, to undertaking new governance procedures in line with emerging regulations, or to continued learning and self-development. An inability to undertake such tasks and respond to change may result in poor performance.</td>
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<td>ability to respond to change.</td>
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<td>Contractual arrangements (April 2006) – implemented in the NHS in England and</td>
<td>▪ Studies have revealed that levels of job satisfaction amongst GDPs have reduced since the introduction of the new contract. The main concerns appeared to focus on a lack of financial incentive to undertake preventive dentistry and the feeling of working on a “treadmill”. Primary Care Trusts (PCTs) were perceived to be placing pressure on GDPs to perform, by setting unrealistic activity targets and applying UDAs too rigidly, with the concept of “clawback” being a particular problem. The growing bureaucracy in the provision of NHS dental services has also been viewed as a particular problem.</td>
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<td>Wales.</td>
<td>▪ There is no evidence to suggest a likely association between the 2006 contractual changes and poor clinical performance. However, it is clear that the above issues could inevitably impact upon job satisfaction and the quality of clinical work undertaken.</td>
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<td>both potentially directly contributing to poor performance. In addition, these challenges and additional workload contribute to stress, anxiety and burnout.</td>
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| Organisational culture constitutes a range of social contextual factors which can profoundly influence the performance of those who work within the organisation. | - There is no direct evidence to demonstrate a relationship between culture and the performance of a doctor or dentist.  
- However, given what is understood about the associations between culture and behaviour, it seems reasonable to assume that there is a link. |
| Professional networks, both formal and informal were seen to have a major influence over the performance of dentists. | - Dental practitioners who do not belong to any network, and are therefore professionally isolated, may lack support mechanisms which could compromise performance. |
| The impact of clinical setting on the performance of a practitioner was identified as significant. | - Studies revealed that NHS practitioners may feel restricted in their ability to deliver quality care, in different clinical settings. Wholly NHS practitioners in the General Dental Service (GDS) were most likely to feel restricted in providing quality care, and that dental practitioners working in a mixed GDS/private practice were least likely to feel restricted in providing quality care.  
- Job satisfaction, another variable in stress and burnout, was also shown to vary according to clinical setting. |
| The importance of team working in dentistry is fully acknowledged in the literature. | - The deployment of the full range of skill-mix within a dental team offers advantages of increased productivity and efficiency, a reduced number of visits per patient, per course of treatment, and a more cost-effective service. Such advantages will indirectly impact upon the performance of a dentist, principally due to a reduced workload and the benefits of reduced stress and burnout from a more efficient work environment.  
- The acceptance by dentists of the developing role of Dental Care Professionals (DCPs) is crucial in allowing this shift towards greater team work, to generate the associated benefits. |
| Strong clinical leadership in NHS dentistry is paramount. | - Key Health Select Committee and Department of Health documents produced subsequent to the 2006 contractual changes highlighted a lack of dental leadership at Strategic Health Authority (SHA) and PCT level as a strong causative factor of some of the challenges experienced.  
- Developing the consultant as a leader of the Dental Public Health (DPH) team within wider talent management and leadership development plans will both ensure that |
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<td>health organisations maximise the potential of the DPH team, and enhance professional leadership and clinical engagement within dentistry.</td>
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<td>▪ The individual dental practitioner can play a role in driving change and influencing policy, but this is not widely undertaken.</td>
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<td>▪ At a more local level, leadership within the dental team is vital. The productivity, level of satisfaction and clinical performance of the dental team is strongly influenced by the dentist.</td>
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<td>▪ Leadership and communication behaviours have been identified as highly significant in creating a real “team culture”.</td>
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**Limitations of research into factors influencing dentists’ performance**

This was not a systematic review, so the intention was not to report on every study examining these questions. However, the search strategy outlined was designed to be comprehensive and to allow for the selection of the most pertinent primary studies and relevant review papers.

A general observation applicable to many subject areas is that there is a lack of solid scientific evidence to demonstrate definitive associations or findings upon which robust conclusions can be based. The principal limitations of the research focused on the constraints of self-reported questionnaires and use of studies that are opinion or experience based, of which there are many. Generalisation can also be a problem in small studies which may not have obtained a representative sample. This is certainly the case in the UK, where there are few studies which are based in, or include, Northern Ireland or Scotland.

**Moving forward**

From the stakeholder engagement process it was found that there were significant volumes of informal data currently being simultaneously collated by individual organisations including the General Dental Council (GDC), Dental Complaints Service, NCAS, NHS Dental Services, Postgraduate Dental Deaneries, Professional Indemnity Societies, etc. Pooling this information could help to generate an understanding of the magnitude of the problem and may also reveal the source of the problems, that is, understanding why dentists perform poorly and what can be done to remediate this?

These organisations are thus in a strong position to develop a portfolio of research on a variety of factors. Such studies will require an initial investment of research funds, but have the potential both to improve outcomes within the dental own workforce and to inform policy in other settings.

The findings from this work are applicable to the global community of dentists and could contribute to the ongoing research programmes of international organisations. It would also be extremely useful if future studies could be undertaken in partnership with such organisations.
References
Section 1: Introduction

Setting the context

Patterns of oral health are changing, with increasing inequalities, together with an ageing population, increased service uptake, new and increasing patient expectations, and an exponential growth in scientific and technological developments pertinent to oral health care. Thus there are increasing numbers of factors that have the potential to influence the performance of a dental practitioner. These issues include the gender ratio, ethnicity and skill-mix of the dental workforce. Most dental courses are now accepting more females than males and there are increasing numbers of dentists from the European Union (EU) and overseas working in the UK. Other factors include changing working patterns, the environment and workload. One such factor has arisen from the NHS General Dental Service contractual changes which took place in England and Wales in 2006. It has also been reported that dentists perceive their profession as being more stressful than other occupations (Cooper et al. 1987, Moore and Brodsgaard 2001). Stress is often associated with anxiety and depression, which can predispose to alcohol and drug abuse.

Purpose of review

In order to develop its role in supporting healthcare organisations to address the performance concerns of dental practitioners, NCAS requires an in-depth appreciation of the impacting factors that have the potential to influence clinician performance and has therefore commissioned this literature review. For the purposes of this review, the terms “dentist” or “clinician” include dental practitioners working in a variety of clinical settings, although as the majority of dentists in the UK work in general dental practice, the review focuses primarily on this group. It will contribute to the development of the NCAS dental service, as well as ensuring a robust evidence-based foundation for concurrent research programmes.

This will allow the organisation to advance in its capacity to prevent or identify potential problem areas and act swiftly to provide healthcare organisations and practitioners with the necessary support to ensure a high-quality and safe service for patients.

The findings from this work are applicable to the global community of dentists and could contribute to the ongoing research programmes of international organisations. It would also be extremely useful if future studies could be undertaken in partnership with such organisations.

The aims of this review are to:

- provide an evidence-based literature review of the factors that impact upon dentist performance
- identify gaps in the literature and suggest areas for further research.

The specific questions the review will attempt to answer include:

- What are the factors that influence a dentist’s performance?
- Why do these factors arise?
- How do these factors impact upon performance?
- What interventions exist, and are these effective?
- What are the areas for further research?

Scope of the review

This review provides a comprehensive summary of work already undertaken in dentistry, or in similar fields such as medicine, as well as identifying any additional contributing factors. The review is fully reflective of both current and future trends and incorporates information from the UK, as well as countries such as the USA and EEA member states.
The review brings together information from a wide range of sources and considers the findings from published primary studies, previous reviews, policy statements, grey literature and the opinions of a wide range of experts.

The impact of the following factors on dental practitioner performance was examined:

- A consideration of demographic factors
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- Smoking, and the misuse of drugs and alcohol in dentistry
- Psychological factors related to performance
- The role of education and training
- The impact of work-related factors upon performance
- Leadership in NHS dentistry.
References