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The Dental Health Services Research Unit was founded in 1979 at the University of Dundee following an open competition among Scottish Universities. The Chief Scientist Office of the day recognised the need for research to map Scotland’s poor record of dental health more clearly and to provide an evidence base for the measures employed by the NHS in Scotland to prevent and manage oral disease.

The Unit is currently core funded by the Chief Scientist Office of the Scottish Executive and supported by NHS Education for Scotland and the University of Dundee.

**The remit for DHSRU is:**
- To contribute to improving oral health and effective dental healthcare for NHS Scotland and beyond by facilitating and undertaking collaborative dental health and health services research which is delivered and implemented to international quality standards.

**In addition:**
- DHSRU’s role in dissemination is to communicate research findings to the NHS, research communities and professions through a twin-track policy using both peer reviewed publications and a range of other effective communication methods.

In the early 1980s, DHSRU established itself with a series of classic papers reporting analyses from longitudinal studies of routine NHS dental care and pioneering work in dental treatment decision making. Professor Pitts took up his appointment as Director in 1985 and, together with his team and network of national and international collaborators, has continued to build on these foundations.

DHSRU has evolved to meet the changing needs of the NHS in Scotland and continues to make long term contributions in the areas of dental epidemiology and public health, caries diagnosis and management, practice-based dental research, clinical effectiveness and evidence based dentistry. The DHSRU strategic framework focuses on researching and facilitating the delivery of both Information Services and Knowledge Services for Improving Oral Health.

DHSRU became part of the Community Health Sciences Division within the Faculty of Medicine, Dentistry and Nursing in 2003 and plays a leading role in the development of the Health Informatics Centre (HIC). The Health Informatics Centre is a unique national resource which aims to improve the quality of patient care and supports excellence in clinical and health services research.

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Director’s Overview

Welcome to this Report which is the first of what will become an annual series of Reports from the Dental Health Services Research Unit (DHSRU). The Unit is based at the University of Dundee and has long-standing and close links with the National Health Service, locally, in Scotland (with NHS Education Scotland, the Executive and NH-S Boards) and across the United Kingdom. DHSRU also works with a range of other research funding organisations and collaborators at the Scottish, UK, European and wider international levels. This document builds on the format of previous "progress reports" prepared over the years for our key funder: the Chief Scientist Office (CSO) of the Scottish Executive Health Department.

The aim of the Report is to give an accessible overview of DHSRU activities over the period August 2005 / 2006 for all interested parties; from research funders, to University and NHS collaborators as well as users of our research and development activities. The DHSRU website (www.dundee.ac.uk/dhsru/) also contains further information.

1. The structure of the Report is set out below

This Director’s Overview sets out to explain the structure of this Report and the roles of DHSRU. It then summarises key developments over the past year and introduces highlights from each of the twelve elements of the DHSRU Strategic Framework.

An updated Staff List, as at June 2006, is given for information and context.

The DHSRU Strategic Framework – Highlights in 2006 section selects specific highlights for the year for each of the twelve elements of DHSRU activity in facilitating Information and Knowledge Services. This section is not an exhaustive list of Unit activity; rather it is designed to give an accessible overview of the range of research, dissemination and implementation work undertaken by DHSRU. For each highlighted area, the section presents information on: background, progress over the year, linked graphic information and then provides a summary to explain why the area is important in the context of meeting the Unit’s remit and goals.

The Dental Caries Control Programme section provides an overview and update on this Unit research programme. It records all projects (excluding Cross Programme) in tabular form and then, for each, provides a brief overview outlining the title, sponsor, DHSRU lead(s) and collaborators before giving a summary of the research questions / hypotheses, a project outline/methodology overview, progress report, and a statement of what the study adds to the field together with implications for practice or policy.

The Effective Dental Practice Programme section provides an overview and update on this Unit research programme. It records all projects (excluding Cross Programme) in tabular form and then for each provides a brief overview outlining the title, sponsor, DHSRU lead(s) and collaborators before giving a summary of the research questions / hypotheses, a project outline/methodology overview, progress report, and a statement of what the study adds to the field together with implications for practice or policy.

The Summary of Cross Programme Activities section provides an overview and update on Unit research conducted across both Programmes and those conducted on a cross cutting professional or methodological theme. It records all such projects in tabular form and then for each provides a brief overview outlining the title, sponsor, DHSRU lead(s) and collaborators before giving a summary of the research questions / hypotheses, a project outline/methodology overview, progress report, and a statement of what the study adds to the field together with implications for practice or policy.
The Appendix provides a list of DHSRU Dissemination activities since the last Unit Review of 2002. It provides an extensive list of DHSRU Presentations from 2002-06, giving information on the presenter, the meeting, the venue, the date and any particular features about the audience. This is followed by an extensive list of DHSRU Publications from 2002-06. These are subdivided into: peer reviewed journals, professional journals, conference proceedings, reports, book chapters, letters, Cochrane Review protocols and reviews, clinical guidelines, reports in the popular press, other outputs and media and web based articles.

2 • The roles of DHSRU

Unit activity is always focused around the remit of DHSRU which has been agreed with key funders and the University of Dundee over a period of years, this is:

- to contribute to improving oral health and effective dental healthcare for the National Health Service in Scotland and beyond, by facilitating and undertaking collaborative dental health and health services research which is delivered and implemented to international quality standards.

In addition:
- the Unit’s role in dissemination is to communicate research findings to the NHS, research communities and professions through a twin-track policy using both peer reviewed publications and a range of other effective communication methods.

Increasingly, as DHSRU evolves to meet the changing needs of the NHS and other users of its research, the Unit has two complementary roles:

a) Delivering Research and
b) Delivering Service Development.

The Unit has therefore developed two related goals over the last twelve months.

2.1 • DHSRU - Delivering Research

GOAL 1:

To sustain a viable and effective Dental Health Services Research Unit (DHSRU) with a range of research active principal investigators working as a team to deliver world class dental health services research with which to play our part in developing the evidence base for more effective routine dental care.

To help achieve this goal the Unit is continuing to develop its two priority Research Programmes: the Dental Caries Control Programme and the Effective Dental Practice Programme. An important facet of the primary and secondary research work of DHSRU is the integration of the results of its research with the developing evidence base in dentistry in order to help produce and develop both Information Services and Knowledge Services. This is an approach developed by the Director over the last few years following organizational templates and strategy developed by the World Health Organisation (WHO) Europe in Geneva:

- Information Service activities of DHSRU involve providing a robust infrastructure to support three areas: the Measurement of Health Status / Dental Health Information Systems / Evaluation of Oral Health Outcomes. For example, we aim to provide more comprehensive measures of caries status than are currently available, in formats which will fit in well with routine dental information systems and lead to the evaluation of more health related, rather then disease related, outcomes of preventive interventions.
• **Knowledge Service** activities of DHSRU involve our projects on - Disseminating and Implementing Research / Defining Evidence Based Dental Healthcare / Developing Dental Clinical Effectiveness. We aim to ensure that the results of research will be communicated effectively in a variety of formats to a range of stakeholders from the local, national and international research, clinical and dental public health communities. The results of research and systematic reviews feed directly into the on-going production, review and updating of clinical guidelines and guidance which are being made available on paper and electronically.

2.2 • DHSRU - Delivering Service Development

**GOAL 2:** To develop and sustain a parallel, NHS-linked and NHS-funded DHSRU Delivering Service Development Portfolio which helps put research into both clinical and public health practice as part of an evaluative culture.

This new Portfolio of activity is an extension of the developing implementation agenda which the Unit has been building over the last decade. It is being assembled following the publication of the 2005 Dental Action Plan for improving oral health and modernising NHS Dental Services in Scotland, the "Kerr Report"; the National Framework for Service Change: Building a Health Service Fit for the Future and the Scottish Executive’s response – Delivering for Health. The **Delivering Service Development** Portfolio is also being built upon the results of wide-ranging consultations and discussions with key stakeholders across Scotland in order to provide a range of activities which will complement other NHS Scotland developments, integrate these with research, development, information and “evidence based dentistry” in order to help achieve improved oral health and modernise dental services.

It is proposed that this Portfolio might comprise four linked Themes undertaken with an NHS focus and identity:

- **Theme 1: Oral Health in Children** - expanding and facilitating the various initiatives set up through the NHS Dental Action Plan Network
- **Theme 2: Oral Health Assessment and Scottish Dental NHS Clinical Care Pathways** – continuing the development, evaluation and implementation
- **Theme 3: Dental Health Informatics** - collection, evaluation, organisation & dissemination of information, in partnership with NHS Information Services
- **Theme 4: Over-arching EQV (Effectiveness, Quality and Value framework) assessments of evolving dental services.**

Following widespread consultation, the timing, funding and full implementation of this strategy is still under discussion with various parties within NHS Scotland.

3 • Key developments over the past year

We live in ever-changing times and the environments in dentistry, in health and health services, and in Universities are no exception, whether at the local, national or international level. These changes represent a series of opportunities for DHSRU and its R&D “products”, as well as providing a number of challenges in terms of funding streams and continuity.
3.1 • Changes within the NHS
Evolutionary but radical changes are funded and underway in NHS dental services in Scotland with dentistry and dental health higher up the political agenda than ever before. The wider service as a whole in Scotland is re-aligning to a more proactive and preventive philosophy with implementation of the Kerr Report. At the same time Dentistry itself is also changing. There is a different modernisation agenda in England and more widespread moves to independent practice being seen in the UK and a dynamic evolution towards more preventive practice in many parts of an expanding Europe. All of this change brings great opportunities for incorporating best evidence into both practice and policy while the new service configurations require evaluation and optimisation.

The Chief Scientist Office (CSO) is also having to respond to a series of changes and initiatives, both within the Scottish Executive Health Department and within the wider UK. Developments around a National Institute for Health Research and UK Clinical Research Collaborations have a number of attractions and a potential UK dimension, but there are serious tensions about how these initiatives fit with current devolved budgetary arrangements for Research and Development.

3.2 • Changes within the University of Dundee
A number of changes have taken place within the Medical School at the University of Dundee; the abolition of Departments has led to the formation of a Division of Community Health Sciences in which DHSRU resides. This has been a generally well received change which has achieved excellent research accommodation and collaboration and has generated the new “research resource” that is the Health Informatics Centre (HIC). This year Professor Jeremy Wyatt has taken up post as the second Director of HIC. Further change is in train with structural re-organisation of the University into four Colleges which means the disappearance of the Faculty and the creation of four new Vice-Principal positions, one to manage each of the new Colleges.

3.3 • Changes and staffing within DHSRU
Over the last year, a key plank of DHSRU’s forward strategy (outlined in conjunction with its funders and stakeholders) has been to achieve

- Increased activity to try to attract external grant funding to support remit-relevant work
- Increased the amount of funded joint working with NHS in service development

Progress has been made in a number of areas. The advertisement of an innovative joint NHS Highland / University of Dundee funded post for a Professor of Dental Public Health Research / Consultant in Dental Public Health to work in both DHSRU and in NHS Highland should make a real contribution to both elements of the strategy. To address the first point, a number of new research grant applications have been made, with some successes and a number of applications are still outstanding. With regard to NHS collaborations, there have to date been a broad range of contributions from Unit staff to the implementation and further development of the Dental Action Plan.

The strength of DHSRU is its people and their ability to work collaboratively in teams. This flexible teamworking is important internally (as the subsequent sections will demonstrate in terms of activities, output and quality) as well as externally where it is becoming essential to secure funding for and to prosecute multi-disciplinary health service research. Collaborative team working is also essential for liaising effectively with service partners and colleagues in other academic centres.
I would like here to acknowledge the tremendous contributions made to the work and achievements of DHSRU by the entire team: from the all important Programme Directors, Drs Clarkson and Topping (who continue to make unique contributions in building distinctive but complementary Programmes), to the research and research support staff, both full and part time, and to the tremendous DHSRU administrative and clerical team led so ably by Mrs Marilyn Laird.

The range of dental HSR expertise and corporate memory the Unit enjoys is unique in the UK, extending from methodological insights in cariology and primary care with Dr Chris Longbottom, via a deep understanding of the dental team from a health psychology perspective with Dr Debbie Bonnetti, to an understanding of ways of working across three Universities and all the dental institutions in Scotland with Mr Steve Turner. Our local collaborators are also important with significant cariology input from funded sessions from Dr David Ricketts of Dundee Dental Hospital and School, invaluable help with dental epidemiology in Scotland coming from Mr Martyn Merrett of NHS Tayside and unique insights into evidence based dentistry coming from Mr Derek Richards of NHS Forth Valley.

The Chief Dental Officer for Scotland and his Deputy have made significant contributions to strategy and to a number of DHSRU projects. Similarly, the Postgraduate Dental Dean for Scotland also plays a key role in strategy and delivery of initiatives linked to dental education.

The research support team are a particular asset to the Unit as their work is a vital support for both Programmes as well as the Unit-wide activities. Dr Colin Tilley provides an invaluable economic perspective to the team and has maintained good links even during a productive secondment to NHS Education for Scotland; Dr Brian Bonner remains as a stalwart foundation in the Unit’s web activities, as well as contributing to systematic reviews and dissemination activities, Ms Patsy Smith has maintained her contribution of the patient perspective and qualitative research input as well as guiding others on design and presentation materials; while Miss Katy Levin, as Unit Statistician, has made major contributions to the evolving National Dental Inspection Programme working with all fifteen NHS Boards and also developing the methodology of exploring deprivation and oral health, an area she will continue to collaborate when she has moved to a new position in Edinburgh.

There are further staff changes with Ms Linda Young moving to take up a post with the NDAC’s Scottish Dental Clinical Effectiveness Programme (where we will retain links) and secretarial departures in the form of Miss Louise Cardno and Mrs Janet Taylor. We are joined by Dr Andrea Baker, working on an ESRC grant.

In the area of PhD Students, we are about to “lose” Mr George Bouliotis, as he is awaiting examination, while Mr Marcello Fernandez and Mrs Carole Anderson are writing up. On the arrivals side we are, however, very pleased that Dr Colin Tilley, together with Professor Martin Chalkley (a collaborator in the Health Informatics Centre from the Department of Economic Studies), were successful in a competition for an MRC Capacity Building PhD Studentship in the health economics priority area. This student, looking at measuring variation in health care performance using matched patient and provider data, will be joined by another MRC PhD Studentship awarded in competition in the Medical School and Division to Professor Nigel Pitts and Professor Ian Ricketts (a collaborator in the Health Informatics Centre from the Department of Applied Computing). The area of study for this student will be around the effective use of interactive user interface software for different members of the expanded dental team using mobile communication devices and integrated oral health records.
3.4 • DHSRU Dissemination of Research

The extension to the Unit’s remit calls for us to “communicate research findings to the NHS, research communities and professions through a twin-track policy using both peer reviewed publications and a range of other effective communication methods”. We believe that we have continued to achieve this through:

- a very extensive programme of publications. These range from peer reviewed papers published in journals such as the *Lancet* and *Social Science and Medicine* and the highest ranking dental journal in their fields, such as *Journal of Dental Research*, *Caries Research*, *Community Dentistry and Oral Epidemiology* as well as a series of Cochrane Reviews to a very wide range of publications in professional and other journals and media which are listed in the Appendix under publications.

- an equally extensive and varied series of invited presentations (over fifty in the last twelve months) have been made to diverse audiences involved with research, the methodological development of research and research quality, service development, education development, implementation of research findings and related issues in oral health and healthcare. These presentations which have been provided locally in Scotland, across the UK and in Europe, the US and Asia, are listed in the Appendix under presentations.

- DHSRU has also led in mounting a number of dissemination events, which are designed as direct communications with research partners, participants, users and policy interests. Mounting such events is a time consuming and labour intensive task, but one which the Unit believes is essential to maintain a dialogue with research participants, partners, funders and users. Over the past twelve months these initiatives have included:
  - The Health Informatics Centre (HIC) Open Event – Dundee, September 20th 2005 (including the first Mackenzie Lecture)
  - The “ERUPT study” results conference – Perth, November 9th 2005
  - The UK virtual Centre for Improving Oral Health Workshop - Edinburgh April 27-28th 2006 (bringing together methodology for clinical guidance from Scotland, England and an International Network)
  - Scottish Dental PBRN (Practice Based Research Network) – Annual Symposium – Dundee, May 6th 2006
  - Evidence for up-to-date clinical practice: 10 years of the Cochrane Oral Health Group (supported through the virtual Centre) – Manchester, 30-31 May 2006
  - The Health Informatics Centre (HIC) second Mackenzie Lecture – Dundee, June 8th 2006
  - International Caries Detection and Assessment System (ICDAS) Workshop – Dundee, July 9-10th 2006
3.5 • DHSRU 2006 Summary

This has been a busy period with achievements made across a range of fronts. These include:

- **Delivering current projects**: Unit staff have delivered a very comprehensive range of projects on time and on budget.

- **New grant applications made**: A wide range of applications have been made:
  - to the Scottish Higher Education Funding Council (the Unit is a partner - with Professors Sullivan and Rowley in Dundee and with the Health Services Research Unit at the University of Aberdeen - in a successful bid for “SCOT”, the Scottish Collaboration of Trialists, with a global award of £1.2m across the project).
  - to the European Union (with success in winning, with collaborators, a global award of €1.08 million project known as “EGOHID II”).
  - to the Medical Research Council (with success in winning two separate PhD Studentships linked through the Health Informatics Centre to economics and applied computing. In addition a DHSRU-led team have progressed to the second round with a large multi-centre Randomised Clinical Trial).
  - to the Health Foundation (a bid with Professor Davey of the Health Informatics Centre has got through to the second round of their process).

Further grant applications will be made according to the capacity of the Unit and the final outcome of current applications

- **NHS links with Service Development**: Development work on the Scottish Oral Health Assessment and related care pathways is being taken forward with the Chief Dental Officer and Deputy Chief Dental Officer Scotland in collaboration with colleagues from the University of Glasgow and is being funded in DHSRU by the Scottish Executive through NHS Tayside. This funding now supports the post of Ms Jenny Hally as a Clinical Research Fellow. Further links include work with the National Dental Inspection Programme across Scotland and with NHS Highland, and a developing range of work with both the East and West of Scotland Childsmile Demonstration Projects and with the Childsmile Evaluation Board.

- **Joint University / NHS initiatives and support for DHSRU**: The joint University of Dundee / NHS Highland new post for a Professor of Public Health Research and Consultant in Dental Public Health currently advertised is a tangible marker of progress in this area.

- **Increased International recognition**: DHSRU’s invited involvement in a range of international research and development activity is an important marker of the externally perceived quality of our work. Some of the current examples include:
  - Involvement in the National Institutes of Health-funded “PEARL” (Practitioners Engaged in Applied Research and Learning) Practice Based Research Network.
  - National Institutes of Health funding for specific Cochrane Oral Health Group Reviews in the area of oral cancer.
  - European Union funding with the University of Lyon and a range of partners across Europe to develop and operationalise European Global Oral Health Indicators across twenty five member states.
  - Invitations to help set out the direction of travel to protect oral health in the vulnerable child from the European Academy of Paediatric Dentistry.
  - Invitations to help set out the direction of travel for epidemiological methods for the European Association for Dental Public Health.
  - Invitations to help set out the strategic direction of travel for the European Organization for Caries Research (ORCA).
  - Central involvement with US and Scandinavian partners in the International Caries Detection and Assessment System (ICDAS) Group. Following a major symposium in the US in 2005, there have been invited presentations this year in Japan, Thailand and Europe as a prelude to the Workshop hosted by DHSRU in Dundee in July.
4 • Introducing the DHSRU Strategic Framework and highlights at 2006

DHSRU undertakes a wide range of research studies, facilitating the delivery of Knowledge Services and Information Services for improving oral health with local, national and international collaborators. Studies vary from focus on the individual, to large scale studies at the population level using both qualitative and quantitative methodologies. The World Health Organisation (WHO)-inspired Framework used by the Unit to maintain a coherent theme in all its activities is set out graphically below as twelve discrete, but linked, elements:

4.1 DHSRU Strategic Framework

The top half of the graphic shows the six linked elements which support research and delivery of Information Services - these elements support: the measurement of health status, dental health information systems and evaluation of oral health outcomes.

The lower half of the graphic shows the six linked elements which support research and delivery of Knowledge Services - these elements support: disseminating and implementing research / defining evidence based dental healthcare / developing dental clinical effectiveness.

The two halves of the framework do link and there is an essential dynamic, as new research findings should prompt an appropriate review and, if necessary, revision of guidance and practice.

The strategic framework is employed by the Unit to:

• Deliver DHSRU’s remit
• Ensure our research stays focused and on track
• Maintain and build up appropriate Scottish, UK and international links and collaborations
• Ensure that the evolving Research Programmes stay relevant and are delivering a positive impact to NHS Scotland and beyond
• Provide established routes to ensure that research results incrementally inform policy and are used in practice and education
4.2 DHSRU highlights at 2006

Highlights from DHSRU’s work over the last twelve months have been selected for each of the twelve elements of the Strategic Framework. The information presented in this next section is not meant to be comprehensive, it aims merely to provide a record of recent progress achieved in some areas and to demonstrate both the range and utility of the Unit’s work.

Element 1 • Surveillance and Oral Health Monitoring at Population Level – a range of DHSRU’s current collaborations in dental epidemiology have been chosen which span the Scottish, UK and international activities in this field.

Element 2 • Surveillance and Oral Health Monitoring at Practice Level – in this case, work developed over a range of DHSRU research and an English Department of Health funded project which is leading to the design and implementation of a Scottish Oral Health Assessment has been selected.

Element 3 • Caries Risk Assessment and Preventive Caries Management – in the case selected here, three longstanding Unit-related activities have combined to inform the design, implementation and evaluation of NHS Scotland Demonstration Projects to improve oral health in disadvantaged children.

Element 4 • Randomised Clinical Trials in Dental Primary Care – examples of such RCTs are drawn from work with vocational trainees, recent grant applications, the Scottish Dental Practice Based Research Network and a US equivalent at New York University.

Element 5 • Workforce Analysis and Modelling – examples are chosen which demonstrate on-going collaborations in workforce modelling in Scotland and economics.

Element 6 • Development of Dental Informatics with Collaborators – developments of both the Health Informatics Centre in Dundee and in dental health informatics are described.

Element 7 • Understanding Clinician Behaviour Change – in this case, a range of studies which have employed health psychology models to assess dentists have been assembled to propose a way forward with implementation research.

Element 8 • Evaluation of Education to Operationalise Research – the findings of a large, externally funded, randomised clinical trial comparing educational and financial incentives to promote preventive practices are described.

Element 9 • NHS Scotland Links with Knowledge Services – the recent development of the NHS Education Scotland-funded Scottish Dental Clinical Effectiveness Programme is outlined.

Element 10 • NHS England Links with Knowledge Services – DHSRU’s ability to establish synergistic linkage between two clinical guidance projects for NHS England is described.

Element 11 • NHS UK - virtual Centre for Improving Oral Health – an update is given regarding the co-ordination of activities of a DHSRU-linked, UK-based, network which seeks to advance oral health policy and practice.

Element 12 • UK/International Links with Knowledge Services – the example chosen is the recently funded second stage of the collaborative European Global Oral Health Indicators Development project.

Each highlight is illustrated with a symbol indicating the geographical breadth of the research. The following key applies:

Scotland wide UK wide EU wide Global

4.3 • Postscript

I hope that you will find from this Director’s Overview (and in the other detailed materials set out in this Annual Report) evidence that the wide range of DHSRU activities described, from the East, West and North of Scotland on one hand, to the rest of the UK and the wider reaches of Europe, the US and as far as Asia on the other, are having a real and sustained impact.

DHSRU believes that it continues to contribute to improving oral health and effective dental healthcare for the National Health Service in Scotland and beyond. We also believe that we are playing our full part in facilitating and undertaking collaborative dental health and health services research, delivering and implementing this research to international quality standards and disseminating our work by a broad range of methods to appropriate target audiences.

Please do not hesitate to contact me at n.b.pitts@chs.dundee.ac.uk (or through other contact methods given on the Report cover) if you have questions, ideas, comments or suggestions about our work.

Nigel Pitts • Director • Dental Health Services Research Unit
July 2006
### DHSRU Staff List

Identifying (in italics below their name) their source of funding as at 30 June 2006

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1 • Surveillance and Oral Health Monitoring at the Population level

**Background**

Over the last 20 years DHSRU has worked on oral epidemiology at the population level with a range of partners from the Scottish NHS Boards (now under the NDIP - National Dental Inspection Programme banner); to the other UK territories - under the auspices of both BASCD (the British Association for the Study of Community Dentistry) and ONS (the Office of National Statistics) as well as the EU team discussed in Element 12 and the ICDAS (the International Caries Detection and Assessment System) Group.

**Progress over the year**

- The Unit, in conjunction with Mr Martyn Merrett of NHS Tayside and other NHS colleagues, has continued to contribute to the NDIP work, with input into training and calibration, data quality assurance and Report generation at both the “Basic” and “Detailed” levels. DHSRU was also commissioned by NHS Highland to produce a specific Report for their Board area on the findings of the NDIP Basic exercise.
- At the UK level the BASCD Epidemiology Programme is becoming more heterogeneous following post-Devolution changes in policy. The frequency with which England & Wales examine specific age groups is changing but age coverage is broadening. A report across Great Britain was published in March 2006.
- The Unit’s participation in the UK 2003 Child Dental Health Survey (with Dundee Dental School and the Universities of Birmingham, Cardiff and Newcastle) is reflected in the production of a series of dental primary care focused articles currently being published in the British Dental Journal. These complement the web-based ONS Survey Reports of last year.
- The work around the ICDAS group has been extensive with presentations and workshops being held in Germany, Portugal, Japan and Thailand. The next full ICDAS Workshop will be hosted in Dundee by DHSRU on July 9-10th. A not-for-profit ICDAS Foundation is now being established in order to promote the System and produce standardised training materials.

The graphics reflect the commissioned Highland NDIP Report and DHSRU links with BASCD, ONS, NDIP and the ICDAS Foundation.

**Highlight of Current Unit Work**

DHSRU continues to be at the forefront of research, dissemination and implementation in this complex and challenging area in which there are a range of tools suitable for answering a series of very different questions and no ready “one size fits all” solution. The Unit is able to deliver on its remit by contributing to and assessing improvements in oral health and effective dental healthcare for NHSScotland and beyond by facilitating and undertaking collaborative work in oral health surveillance / monitoring of populations.
Background

DHSRU was successful in securing the NHS England Clinical Care Pathway Project which was completed in 2005 (see Highlight 10). During the latter stages of this work an invited presentation was made to a dental policy group within the Scottish Executive and elements of an Oral Health Assessment were subsequently included in Scotland’s distinctive Dental Action Plan.

Progress over the year

- The Scottish Oral Health Assessment (OHA) has been designed to facilitate a prevention-orientated dental service, based on a more comprehensive and structured patient record which is linked to best evidence and best practice. It records a patient’s ‘journey’ through their clinical experience, allowing the tailoring of interventions to meet an individual’s risk status and oral health needs.
- Ms Jenny Hally has been funded in DHSRU by NHS Scotland to work with Professor Pitts, the Chief Dental Officer, the Deputy Chief Dental Officer, the University of Glasgow Dental School and others on developing the Scottish Oral Health Assessment.
- The initial development has taken place using paper based formats, but as primary dental care in Scotland moves to have every practice connected to the NHS net through “N3”, a prototype IT format is also planned, as are interactions with IT suppliers.
- Initial work has resulted in a version tailored for the “over-60s” which has been piloted successfully with salaried and independent dentists. The pilots have led to useful improvements in the presentation of material and in the efficiency of data collection.
- A related educational programme for the dental team is currently being scoped to support the change in practice philosophy that the Action Plan requires.
- The development of the OHA is now also being informed by a sub-group of the National Dental Advisory Committee’s (NDAC) Scottish Dental Clinical Effectiveness Programme, which is chaired by Professor Pitts and supported by Ms Hally.

Content on the facing page

The graphic shows the cover of the well-received Guidance Notes for the Scottish OHA produced for the pilot testing and an overview of the NDAC’s Scottish Dental Clinical Effectiveness Programme, who are facilitating the implementation of this work.

Highlight of Current Unit Work

This element of our portfolio is an excellent demonstration of how DHSRU can work effectively with a mix of NHS and University stakeholders to synthesise best evidence from a variety of sources at the international, UK and Scottish levels in order to deliver its remit by contributing to improving effective dental healthcare for NHSScotland.
Prevention and management of dental decay in the pre-school child

A national clinical guideline

Introduction

Pathogenesis and diagnosis

Epidemiology and impact

Predicting caries risk

Diet and nutrition

Toothbrushing with fluoride toothpaste

Community based prevention

Practice based prevention

Practice based management

Implementation and audit

Information for parents and carers

Development of the guideline

Abbreviations and glossary

References

COPIES OF ALL SIGN GUIDELINES ARE AVAILABLE ONLINE AT WWW.SIGN.AC.UK

CSO DCRM
(Health Visitor / Mutans Study)
1994 - 1998

GETCaPPP 1998 - 2005
(NHS R&D)

SIGN 83
2003 - 2005

West of Scotland Demonstration Programme 2006

East of Scotland Demonstration Programme 2006
The results of two long-term DHSRU projects in this area: the CSO-funded DCRM (Dundee Caries Risk Model) Project and the NHS R&D funded GETCaPPP (Generalisable Evidence-based Targeted Caries Prevention for Pre-School children by integrated Primary Care Teams) Study, have produced a wealth of data on caries risk assessment for pre-school children. They have also produced unique insights into methodologies for access to these children and the optimal means of delivering caries prevention therapies.

• The final report for the GETCaPPP study has been revised following referees’ feedback.
• The writing up of the PhD thesis emanating from the study is being completed.
• The outcomes from both the initial DCRM study and the GETCaPPP study have been and continue to be used to inform the design, development and evaluation of the West of Scotland Childsmile Demonstration Project and the East of Scotland Childsmile Demonstration Project (Projects funded by Scottish Executive as part of the Dental Action Plan).
• Dr Longbottom, Dr Bonnetti and Dr Clarkson are contributing to the Committee developing the protocols for Childsmile West.
• Professor Pitts and Dr Longbottom are contributing to the Committee developing the protocols for Childsmile East.
• Dr Topping contributes to the Core Toothbrushing Programme group which has a Scotland-wide remit for overseeing the distribution of toothbrushes and toothpaste to infants and pre-school children as well as monitoring nursery school and primary school toothbrushing schemes.
• Professor Pitts and Dr Turner are on the Evaluation Board which is assessing outcomes for both Childsmile Projects.
• Mrs Anderson (GETCaPPP Clinical Research Fellow) was on the committee which developed the protocol for the Craigshill Dental Project, implementing study findings for pre-school children in NHS Lothian.
• DHSRU staff including Dr Clarkson, Dr Evans (as a former Senior Clinical Research Fellow and Chair of the Group) and Professor Pitts (as a member of the Group and member of SIGN Council) made significant contributions to the recently published SIGN Guideline (83) on the prevention and management of dental decay in the pre-school child.

Three long-term Unit-related activities (two studies and a Guideline) have all informed key new service developments for NHS Scotland.

The findings of the two previous studies and the SIGN guideline are being fed directly into the planning, implementation and evaluation of the national demonstration projects associated with the Dental Action Plan in Scotland.
The Scottish Dental Practice Based Research Network (Scottish Dental PBRN) was established in 2000 and aims to promote the implementation of research evidence through the conduct of high quality research and dissemination of evidence. The recent symposium on aspects of caries management in primary care dentistry disseminated emerging recent evidence and was both well attended and received. The focus in 2005 was to translate the evidence and experience of the Vocational Dental Practitioners’ (VDPs) RCTs along with the findings of Cochrane Reviews into grant applications. Links with UK and international practice-based networks are being developed for future collaboration.

- In 2001, 2002, 2003 and 2004, VDPs participated in RCTs that evaluated the effectiveness and patient views of routine scale and polish and oral health advice. Evidence from Cochrane Reviews was incorporated into the interventions including the use of powered toothbrushes.
- In 2005, Cochrane Reviews on the effectiveness of routine scale and polish and frequency of dental recall were published. The programme contributed to the conduct of these reviews which also informed the development of National Institute for Health and Clinical Excellence (NICE) guidelines.
- In 2005, the evidence from the above was incorporated into an MRC outline grant application for a cluster randomised controlled trial to evaluate whether routine scale and polish, or oral health advice or both lead to cost-effective improvements in periodontal health and patient self-care.
- In 2006 a full application was submitted to the MRC. This represents collaboration with ChaRT (Centre for Healthcare Randomised Trials), HERU (Health Economics Research Unit), the dental institutions in Scotland (at the Universities of Dundee, Edinburgh and Glasgow), NES (NHS Education for Scotland), Newcastle University, the North of England Practitioner Research Network and the University of Manchester.
- Professor Pitts sits on the External Advisory Board of the Practitioners Engaged in Applied Research and Learning (PEARL) network. This is a National Institutes of Health funded network covering the north eastern states of the USA based at New York University.
- A request was received from PEARL to collaborate on joint projects with relevance in the UK and US. Surveys of general practitioners in both countries have highlighted the need for evidence on routine scale and polish and it is proposed that, if funded, this trial would be replicated by PEARL in the US.

These graphics show the programme for the successful 5th Annual Symposium of the Scottish Dental PBRN and a title slide from the first annual meeting of the PEARL network held in Washington DC.

These activities show how the Unit continues to develop its experience in mounting successful Randomised Clinical Trials in Dental Primary Care and maintains links with key networks which can deliver such trials in the future.
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5 • Workforce Analysis and Modelling

Background
Dr Colin Tilley continues to contribute to the ongoing workforce analysis and modelling which is a collaborative venture between the Information Services Division (ISD) of NHS National Services Scotland, and NHS Education for Scotland (NES).

Progress over the year
The forthcoming workforce analysis report will be the third in a series of reports that, by constantly incorporating new data and recent policy developments, provide detailed analysis of dental workforce trends in Scotland.

This project highlights the benefits of this kind of collaboration and the value of the data held within the Health Informatics Centre (HIC):

The aggregate forecasts in the dental workforce reports have been informed by the research conducted by Dr Tilley and Professor Martin Chalkley:

In addition, the workforce analysis and modelling process has directly contributed to academic research:

In the British Dental Journal paper, they used MIDAS@DHSRU to decompose the aggregate participation rates into each individual patient’s pattern of participation over time. The table opposite illustrates the seven most frequent patterns of participation in the General Dental Service in Scotland over six years. A ‘1’ in the ‘Pattern’ column indicates that a patient participated in that year whilst a ‘0’ indicates they did not. Therefore, 16.3% of the patients in the sample attended in each of the six years. In contrast, 8.7% of patients in the sample participated in 1997 but were not observed in the sample thereafter.

The most frequent pattern of claims - accounting for about 16% patients in the sample - is for patients to claim at least once every year. In contrast, the next six most frequent patterns of claims - accounting for almost 35% of patients in the sample - comprise those patients who receive treatment in only one year over the six-year period. Participation is thus split between ‘highly regular users’ and ‘highly irregular users’.

This shows the cover of the last dental workforce planning report and the table from the British Dental Journal paper referred to above.

Highlight of Current Unit Work
These activities demonstrate the continuing value of the multi-professional skill mix among DHSRU and its HIC collaborators and the value of routine data accessible through HIC.
The Health Informatics Centre (HIC) was established as a partnership between the University of Dundee, NHS Tayside, and NHS Scotland Information Services in order to secure a high-quality facility in which patient confidentiality could be readily safeguarded while record linkage using the unique CHI number could allow simultaneous research and service development using routine data.

- On September 20th 2005, HIC celebrated ‘Health in the Information Age’, an Open Event attended by the Scottish Executive Minister for Health and Community Care and around 150 delegates drawn from health professionals, policymakers and the public.
- HIC established a formal Board of Governance under Professor David Rowley, University of Dundee and, following his arrival in Dundee late in 2005, Professor Jeremy Wyatt has been appointed as the second Director of HIC.
- Review of new developments in the wider Faculty, such as the Clinical Research Centre, have led to developing HIC as a research resource rather than an academic entity. DHSRU therefore sits within the Community Health Sciences Division.
- The HIC partners’ vision has been clarified; it is to develop further a resource that can benefit all of the people of Scotland. By working together we will improve the quality of information, build the systems that can use the information to solve the complex problems of health, and communicate the information in the right format to the right people at the time they need it.
- The Second “Mackenzie Lecture”, was held on Thursday June 8th 2006. Professor Jeremy Wyatt presented on ‘Health in the Information Age: Improving Secondary Uses of Data’.
- Mr Derek Richards, Consultant in Dental Public Health from NHS Forth Valley, and DHSRU have created an NHS funded dental web portal <ScottishDental.org>
- The patient example “Morag’s story” from the ‘Health in the Information Age’ day is being explored in conjunction with NHS partners from the East of Scotland Childsmile Demonstration Project and the Childsmile Evaluation Board.
- A joint grant application to the Health Foundation has been made with Professor Peter Davey, HIC Director of External Relations, which could link with Tayside Childsmile and the East of Scotland Project.
- HIC related research discussions have been on-going with the Department of Applied Computing and virtual Centre for Improving Oral Health partners.
- DHSRU and the Department of Applied Computing at the University of Dundee have been awarded an MRC PhD Studentship to explore optimal software human interfaces for collecting oral health data in the community.

The illustration shows the well received artwork designed for the Health in the Information age HIC Open Event.

Health Informatics is the collection, evaluation, organisation and dissemination of information about health. Health Informatics has the potential to revolutionise healthcare by improving both research and the translation of research results into practice. DHSRU’s involvement with HIC from its inception should allow dentistry and oral health to be fully integrated into these exciting developments.
DHESUJ researching and facilitating delivery of information services for improving oral health.

1. Surveillance & early health monitoring at population level
2. Surveillance & early health monitoring at practice level
3. Cephalic risk assessment & prevention
4. Coordinated dental services in special care
5. Workforce capability and leadership
6. Development of clinical information with collaboration

UK CVD local centre for learning
NHS UK library for learning oral health
NHS England local centre for learning oral health
NHS England local centre for learning oral health
Evaluation of education in oral health
Health behaviour change

UNIVERSITY OF DUNDEE
NHS HIC
health informatics centre
Through research at DHSRU conducted in collaboration with health psychologists, a range of psychological models have been applied to investigate factors associated with implementing evidence-based dental practice.

A fairly consistent picture has been found across many clinical behaviours, including third molar extraction, taking intra-oral radiographs, placing fissure sealants and restorations. Regardless of the behaviour investigated, dentists seem to be well informed about the evidence available in guidelines and the literature and tend to be confident about being able to implement this evidence. They have a very positive attitude toward implementing evidence and tend to have high intentions about keeping track of evidence and implementing evidence in practice. Despite this, dentists still lag in implementing evidence-based practice. So why is this so?

Currently, most interventions are focused on the ‘why’ and the ‘what’ of evidence-based practice. However, using psychological models and methods has allowed the accumulation of evidence suggesting that dentists also need to plan in more detail about ‘when’ and ‘how’ they can implement evidence-based behaviours.

Research facilitating the implementation of evidence-based dental practice can now be taken forward, in a more informed and systematic way. This includes examining how psychological models can contribute to the initial presentation of evidence relating to dental practice, by informing guideline design. Collaborations in these areas are with the Universities of Aberdeen, Newcastle and Ottawa.

The graphics show different questionnaire surveys of dentists incorporating psychological models. These have been funded by the Medical Research Council, Chief Scientist Office, the Scottish Higher Education Funding Council and NHS Education Scotland.

DHSRU now has a unique insight into clinician behaviour change and research in this area as it is able to synthesise across a number of externally funded projects using a multi-disciplinary team.
The ERUPT study, which ran from 2002 until 2005, was funded as part of a Chief Scientist Office / Scottish Higher Education Funding Council (CSO-SHEFC) call for research proposals in primary care. The DHSRU-led study brought together expertise across the spectrum of health services research, dental primary care, dental public health and policy across Scotland.

The study was a randomised controlled clinical trial comparing an educational intervention with providing financial incentives for the provision of preventive fissure sealants for child patients.

Project Management and Planning Team meetings ensured the coordination of data-collection, analysis and report writing across the participating institutions. This was particularly important for maintaining good clinical research practice in relation to the analysis of the dataset being conducted independently by the Health Services Research Unit in Aberdeen.

- The high participation rates described in previous Reports enabled treatment data analysis on 2,833 children treated by dentists in the four arms of the study.
- Final reports to the funders were presented by early 2006, and a well-attended dissemination conference was held on 8 November 2005 at the new Perth Concert Hall.
- The main findings of the study demonstrated that the direct fee for placement of fissure sealants had a significant effect on clinician’s treatment behaviour. Taking account of baseline differences, 10% more children of fee group GDPs received sealants by the end of the study. One third of children seen by GDPs offered a fee had 2nd molars treated with preventive sealants.
- Following dissemination of ERUPT study results, the Scottish Executive changed the dental fee structure by providing a direct fee for Preventive Fissure Sealants (from April 2006) as one means of promoting preventive care.
- Mr Steve Turner, the senior researcher on the project who links Dundee, Edinburgh and Glasgow, is disseminating the results of the ERUPT study in a series of papers accepted by national and international conferences, including European Organisation for Caries Research (ORCA), International Association for Dental Research (IADR), and European Association for Dental Public Health (EADPH).
- The study has continued to draw on MIDAS data held by the Practitioner Services Division (PSD) to follow treatment histories post-study, following the principles of collaboration set out in the 2003 service level agreement.

The graphic shows the extensive number of different organisations involved in the ERUPT study. The flowchart shows the result for the primary outcome of the study - the percentage of children who, by the end of the study, had been given preventive fissure sealants, to protect their second permanent molars from decay - and indicates the statistically significant impact of the free intervention.

Primary care based research which requires continuing commitment of primary care clinicians is acknowledged to be particularly difficult, despite the recognition that testing innovations in the primary care setting is essential. The ERUPT study has successfully met this challenge, and has been able to directly inform policy change which aims to improve the dental health of the nation’s children, as well as contributing to the research methodology agenda. The SHEFC funded post has been judged to be successful in demonstrating the feasibility and benefits of inter-institutional research collaborations in dentistry.
Evaluation of Education to Operationalise Research

**GDP Population**

**Control**
- 730 children
- % treated with preventive fissure sealant: 25% (26)

**Fee**
- 698 children
- % treated with preventive fissure sealant: 35% (28)

**Education**
- 691 children
- % treated with preventive fissure sealant: 27% (31)

**Fee & Education**
- 714 children
- % treated with preventive fissure sealant: 31% (23)

Fee intervention: baseline adjusted model effect size: 9.8% (CI, 1.8, 17.8)
Education intervention: baseline adjusted model effect size: 4.1% (CI, 3.9, 12.2) n.s.

(adjusted for cluster level minimisation covariates (Deprivation index, number of partners in practice, throughput of children aged 11-13, number of restorative fissure sealants placed on 6’s at baseline); ICC=0.315)
The Scottish Dental Clinical Effectiveness Programme (SDCEP) is an initiative of the National Dental Advisory Committee (NDAC) and a collaboration with NHS Education for Scotland. The Programme was established in 2004, with the aim of providing a more structured approach to developing user-friendly, evidence-based guidance for dental teams in Scotland.

The National Initiative involves participation from all sectors of dentistry in Scotland. Several members of DHSRU are involved in this initiative: Dr Jan Clarkson is Director of the Programme, Professor Nigel Pitts is the chair of the Oral Health Assessment Guidance Development Group, sits on the Steering Committee for the Programme and is a member of the NDAC, Ms Jenny Hally is a member of the Oral Health Assessment Group and Dr Gail Topping is a member of the Emergency Dental Care Group. In 2005, the programme secured recurrent funding from the Scottish Executive and appointed two new researchers and one additional administrator.

- The NDAC identified seven priority areas (child caries, decontamination, drug prescribing, emergency dental care, oral health assessment, sedation, practice support manual) and development groups of dental professionals have been set up to produce guidance in each of these areas.
- The first of the guidance documents, ‘Conscious Sedation in Dentistry’, was published on 22 May 2006 at the official launch of the Programme at the University of Glasgow Dental School.
- The consultation phases for ‘Pathways of Care – Emergency Dental Care’ and ‘Decontamination into Practice – Cleaning of Dental Instruments’ are now complete and both documents will be revised accordingly before publication.
- The development of guidance in the other four priority areas is ongoing.
- Evaluation of dissemination and implementation strategies is being developed with the MRC Implementation Research Group.
- The NDAC has discussed how best to identify future topics for the programme.

The graphic shows the cover of the first Dental Clinical Guidance document on Conscious Sedation in Dentistry and an information sheet describing the work of the Scottish Dental Clinical Effectiveness Programme.

This work, with many collaborative partners across Scotland from the NHS and universities, combined with the Unit’s role with SIGN, helps deliver DHSRU’s remit and translate evidence into practice in Scotland.
Background
DHSRU’s commission from the Department of Health in England to undertake the NHS Clinical Care Pathways Project on Oral Health Assessment in September 2002 was followed by an independent process resulting in key input from Unit staff into the Guideline Development Group which produced the NICE guidelines for Recall intervals between routine dental examinations.

Progress over the year
- Key DHSRU members played a pivotal role in establishing the NICE recall guideline. Professor Nigel Pitts chaired the group while Dr Jan Clarkson provided input through the Cochrane Oral Health Group. Both have been involved in discussions on the implementation of the Guidelines and the associated Cochrane Systematic Reviews have now been published.
- The NICE Guideline, based on a synthesis of best available evidence with contemporary professional consensus, offers clear guidance to NHS dentists in England and Wales on how to identify and refine the optimal frequency of routine recall intervals according to the oral health status and preferences of patients. This guidance has now been made a clinical governance priority in many Primary Care Trusts.
- Due to the multifaceted nature of the DHSRU team and its broad project portfolio, the NICE guidance was able to be integrated into another national NHS England project, the NHS Clinical Care Pathways Project for Oral Health Assessment.
- DHSRU Care Pathway developers linked the work done by NICE into the pathway. This means that key evidence based risk factors are identified within the new Oral Health Assessment which automatically collects the information required to tailor and individualise recall intervals. The OHA project has therefore provided a direct means of implementing the latest NICE guidance in primary dental care.

Content on the facing page
The graphic shows the cover of the final report for the English Department of Health NHS Clinical Care Pathways Project.

This was submitted in confidence to the Department at the end of 2005 and was released to be posted on the Department of Health and the DHSRU websites in April 2006.

Highlight of Current Unit Work
This interaction is an excellent demonstration of DHSRU’s ability to link project activity with the development of appropriate knowledge services. The impact of our work also extends to influencing the specification of dental primary care software suppliers (in both England and Scotland). This work has also facilitated related, but distinctively different, developments for an Oral Health Assessment in Scotland (see Element 2).
Clinical Pathways Project - DHSRU Dundee
The NHS Oral Health Assessment Final Report April 2006

DH Reference Number: ZPD/105/CP
Project Director: Professor Nigel Pitts

Department of Health
The virtual Centre (vC) for Improving Oral Health through Evidence Based Dentistry is a facilitated network comprising: the Centre for Evidence Based Dentistry (Oxford), the Cochrane Oral Health Group (Manchester), DHSRU and the Welsh Oral Health Information Unit (Cardiff). The vC remit goes beyond research alone.

**Progress over the year**

- The most recent meeting of the virtual Centre was convened in Edinburgh on April 27th and 28th 2006, with direct involvement of the Deputy Chief Dental Officer Scotland, and the Head of Dental Policy, Department of Health England.
- The vC partners updated the meeting on how the objectives of the Centre have been advanced and on developments within their “Units” since the last meeting, held in Birmingham last year.
- The vC mission statement was refined to become a “strap line”: the virtual Centre for Improving Oral Health: a UK-based network to advance effective oral health policy and practice.
- Discussions included topics around Levels of Evidence and how to communicate them in getting research into practice, a Scottish perspective on clinical effectiveness, the Scottish Intercollegiate Guidelines Network (SIGN) and the National Dental Advisory Committee (NDAC) Programme, the developing National Institute for Health and Clinical Excellence (NICE) strategy and the formation in England of a National Institute for Health Research and how this may impact on UK dental research.
- It was agreed that the International Centre for Evidence-Based Oral Health (based at the Eastman Dental Institute, London) which had been leading on international Evidence Based Dentistry links should now become a full member of the Centre.
- At the invitation of the Deputy CDO and the Head of Dental Policy, Department of Health England, it was agreed to try to schedule the next meeting of the vC back to back with the Autumn meeting of the UK Chief Dental Officers.

The graphic shows the programme for the very successful Cochrane Oral Health Group ten year anniversary International Symposium held at the end of May in Manchester and supported by the virtual Centre. The vC will also be taking forward some of the Symposium outcomes, particularly in communicating the findings of Reviews in user-friendly formats and promoting their use within the NHS.

The virtual Centre for Improving Oral Health is maturing as a UK-based network to advance effective oral health policy and practice. It brings together unique, international level expertise in evidence based dentistry with links to policy development across the UK.
EGOHID - European Global Oral Health Indicators Development

**Background**

Involvement in the initial work of the EGOHID I project was a result of the Unit’s long-term contributions to the development of methodology and practice in oral health surveys/oral health indicators at the Scotland, UK, and International levels and links with the European Association for Dental Public Health. Phase I of this European Union project short-listed and defined forty priority oral health indicators.

**Progress over the year**

- EU funding for phase II EGOHID was announced in September 2005 and a presentation outlining the project was made at the European Chief Dental Officers’ Meeting, held that month in London under the UK’s Presidency of the EU.
- EGOHID II is examining best evidence and practice to provide information to inform policy at regional, national & European levels. The broad objectives are:
  1. to develop recommended common instruments for National Health Interview Surveys - NHIS,
  2. to develop recommended common instruments for National Health Clinical Surveys - NHCS,
  3. to develop a methodology for improved NHIS and NHCS data, routinely collected in twenty-five European countries at the primary oral health care level, and
  4. to develop methods which could allow the adjustment of national data to allow cross-national comparisons.
- DHSRU has direct involvement in eight of the nine “Workpackages” and has the lead on developing and testing a standardised clinical survey system incorporating the clinically derived indicators from EGOHID I.
- A very successful initial planning meeting was held in Lyon in February 2006, followed by a briefing meeting for representatives of the EU “accession” Countries held in Riga, Latvia in April 2006. A working meeting for the knowledge elements workpackage was held in Rome in early June 2006.
- The EGOHID Web platform has been built and went “live” on June 2nd 2006 [http://www.egohid.eu]. This site has a public communications side with material available for download, and a confidential side facilitating the working of the collaboration.

**Highlight of Current Unit Work**

DHSRU has worked with International partners supported by the World Health Organisation (WHO), in order to secure EU grant funding of €1.08 million in a highly competitive field to support an important project harmonising oral health indicators. This project allows innovations from NHS Scotland and DHSRU to impact at the European level across a range of organisations and systems, whilst also making available new Knowledge Services for Scotland and the UK which utilise current international best practice.
European Global Oral Health Indicators
Development Phase II

Grant agreement 2005113

Kick off Meeting
University of Lyon
3rd February 2006

Health and Consumer Protection Directorate-General
Community Action Programme on Health Monitoring European Commission

Associate Partners
MP University Lyon, France
AP01 Austrian Health Institute (OBIg) Austria
AP02 Universitat Jena/Medizinische Fakultät, Germany
AP03 Medical Academy Riga, Latvia
AP04 Faculdade de Medicina Dentaria, Lisbonne, Portugal
AP05 Universidad de Granada, Facultad Odontológica, Spain
AP06 ACTA, Amsterdam, Netherlands
AP07, Dental Health Services Research Unit, Dundee University, UK
AP08 Union Française pour le Santé Bucco-dentaire, France
AP09 World Health Organisation, Switzerland
AP10 University of Copenhagen, Denmark
AP11 Haim Pal Children Hospital Budapest, Hungary
AP12 University of Roma, Italia
AP13 Université de Nice Faculté Odontologie, France
AP14 Stakes, Finland

Collaborating Partners
CP1: Charles University Medical Faculty, Prague, Czech Republic
CP2: Ilustre Consejo General de Odontologos de Espana
CP3: Ministry of Health Dental Services, Cyprus
CP4: Ministry of Health, Athens
CP5: Ministry of Social Affairs and Health, Finland
CP6: Slovak Chamber of Dentists, Bratislava, Slovakia
CP7: Université Catholique Departement de Medecine, Louvain, Belgium
CP8: University Medicine & Pharmacy F. Dental Medicine, Timisoara, Romania
CP9: University of Bergen, Center for Odontophobia, Norway
CP10: University of Medecine, Kaunas, Lithuania
CP11: University of Milan, Italy
CP12: University Prof. Safarik, Faculty of Medicine, Kosice, Slovakia
Dental Caries Control Programme

**Staffing**

- **Dr G Topping**
  Programme Director (Faculty of Med, Den and Nurs funded, 100%)

- **Dr C Longbottom**
  Programme Methodologist (CSO core funded, 6 sessions per week)

- **Professor NB Pitts**
  Unit Director (CSO core funded, 56% across all DHSRU work)

- **Miss K Levin**
  Statistician (CSO core funded)

- **Dr C Tilley**
  Health Economist (NES Seconded 01.07.05 - 30.06.06)

- **Ms P Smith**
  Research Associate (CSO core funded, 0.7fte)

- **Dr H MacRitchie**
  Clinical Research Fellow (NHS funded, 1 session per week)

- **Research Fellow**
  **Dr D Ricketts**
  Dundee Dental Hospital & School Senior Clinical Research Fellow
  (CSO core funded, 2 sessions per week)

- **Research Fellow**
  **Ms J Hally**
  Clinical Research Fellow (to be NHS Scotland funded)

- **PhD Students**
  **Mrs C Anderson**
  PhD Part-time (NHS R&D funded)

  **Mr G Bouliotis**
  PhD Full-time (MRC HSRC funded)

- **Masters Student**
  **Ms A Mekhada**
  MPH

**Programme Update**

Over the past year, the Dental Caries Control Programme has continued to work towards answering key questions related to caries prevention, its diagnosis and risk assessment and ultimately its appropriate clinical management.

The Dental Caries Control Programme continues to follow the themes built about the three research questions endorsed by the 2002 Unit Review:

(a) What leads to improvements in deliverable caries prevention?

(b) What leads to improvements in caries diagnosis and risk assessment, which can be used meaningfully at the population, clinical research or clinical practice levels?

(c) What leads to improvements in the appropriate clinical management of dental caries?

Dental caries and its management, especially in young children, remains a priority in Scotland as can be seen from the considerable investment being made into the prevention of oral diseases by the Scottish Executive as part of its Dental Action Plan. The National Dental Inspection Programme (NDIP) is one important element of the Dental Action Plan, as it facilitates monitoring changes in the dental health of children within Primary I and VII and will play an important role in evaluating the effectiveness of oral health improvement projects conducted as part of the East and West Childsmile initiatives.

DHSRU has once again provided assistance with NDIP in a number of different ways. These include helping to ensure that the detailed inspection data collected by the NHS Boards is quality controlled, analysed and fed back to each of them for local use, and in assisting with the production of national reports on dental health in Scotland. Since the last DHSRU progress meeting, the Memorandum of Understanding between NHS Boards and DHSRU on NDIP has been revised and has been beneficial in helping to establish closer links with Information Services Division and with colleagues in the University of Glasgow.
During the past year, DHSRU has continued to play an important role in NDIP through involvement in the training and calibration exercises with the Consultant in Dental Public Health of NHS Tayside, and Tayside Community Dental Service.

For the second year running, NHS Highland commissioned DHSRU to quality check and validate their basic dental inspection data and to produce a report looking at geographical differences across the region. Both the first and second reports have been well received.

Increasingly, the Dental Caries Control programme (DCC) is also focusing nationally on important service delivery elements which assist in translating research into practice at the population and individual patient levels. Much of this work is related to the Scottish Dental Action Plan and addresses all three of the dental caries control programme key questions. These service delivery elements include the secondment of one of DHSRU’s PhD students, Mrs Carole Anderson to the West Lothian Community and Health Care Partnership’s Craigshill project. Mrs Anderson acts in an advisory and training capacity as part of DHSRU’s contribution to the Childsmile projects being led by NHS colleagues on the East and West of Scotland. Mrs Anderson’s secondment to NHS Lothian is now finished but the team she was involved with were able to make significant progress in enhancing oral health training among non-dental staff and the provision of dental caries prevention in pre-school children. She is now finalising her PhD. The other PhD student within the DCC programme, Mr George Bouliotis, has recently submitted his thesis on dental inequalities among Scottish schoolchildren.

As previously described in the strategic framework highlights on caries risk assessment, DHSRU has continued to feed into both East and West Childsmile projects as well as the toothbrushing group working across Scotland.

The potential appointment of a new Researcher/Consultant in Dental Public Health as a joint post between the University of Dundee and Highland NHS Board is seen as of great importance to the DCC programme. It is hoped that this appointment will assist in progressing a number of pieces of collaborative work such as:

- Evaluation of new NHS initiatives to improve oral health and oral healthcare across NHS Highland;
- The exploration and evaluation of the Ekstrand/Nexo approach to caries prevention in Scotland which has stimulated a great deal of interest from NHS Highland;
- Common risk factors for childhood obesity and dental erosion and caries – a research project which will include elements researching the genetic components of dental erosion and caries to be run in collaboration with the University of St Andrews.

On a UK basis, since the last report the following progress has taken place:

- The UK Child Dental Health Survey of 2003 was published by ONS in 2005. Since it has been made available on the internet, a further series of publications has been produced with a dental primary care focus which are currently being published by the British Dental Journal.
- DHSRU continues to have strong links with the British Association for the Study of Community Dentistry (BASCD) and the most recent findings from across Great Britain were published in March 2006.
- Work led by Professor Pitts and Ms Jenny Hally has further developed the NHS Clinical Care Pathways Project Oral Health Assessment which links with the NICE guidelines for recall intervals. This is described in the strategic framework highlights on NHS England Links with Knowledge Services (10).
Internationally, many members of the DCC Programme continue to have leading roles in the progress of the International Caries Detection and Assessment System (ICDAS). This collaboration is designed to advance research and development in three overlapping but usually separate fields; caries epidemiology, clinical caries research and everyday clinical caries management. Professor Pitts, Dr Topping, Dr Longbottom and Dr Ricketts have all contributed to the further development of ICDAS through the following:

- A large bid was submitted to the NIH for an international multi-centre cohort study looking at the validation of dental caries detection and assessment using new technologies. Unfortunately, the bid was not successful but NIH have shown continued interest in this proposal and once the reviewers’ comments on the project have been appraised, the project may be resubmitted to NIH. Other funding avenues are also being sought.
- At the request of international collaborators, the ICDAS Foundation is being set-up to assist in taking forward the concepts of the ICDAS group. This not-for-profit company will seek sponsorship for future ICDAS projects and facilitate progress.
- The next ICDAS major meeting is being organised to take place in Dundee in July 2006. The delegates include over forty experts in dental cariology drawn from all over the world and from the fields of clinical practice, caries clinical trials and epidemiology. Industry colleagues are also invited.
- The successful training of a German survey team with the University of Marburg was conducted by Dr Ricketts in 2005. This study will be reported at the forthcoming ICDAS meeting in Dundee. Dr Ricketts has also worked with this group on conducting a study with histological validation of the 2005 ICDAS criteria.
- The ICDAS codes have now been piloted and accepted as part of the Scottish Oral Health Assessment charting of dental caries. There is ongoing work on how best to provide training to practitioners in the use of ICDAS codes.

Other international initiatives include phase two of the European Global Oral Health Indicators Development Project, which has been described in some detail in the strategic framework highlight on the UK/International Links with Knowledge Services (12).

A number of publications are in progress from completed studies including:
- Conjoint analysis of patients’ and dentists’ preferences.
- Misdiagnosis of caries in restored teeth.
- Caries activity assessment in restored teeth.

The Dental Caries Control programme is thus meeting its aims in illuminating the three central research questions, delivering the Unit remit and contributing to Information and Knowledge Services at the local, Scotland, UK and international levels. The table on page 41 shows current projects and activities.
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<td>3-DCC</td>
<td>Development of a dynamic model for caries and erosion-risk assessment</td>
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<td>3-DCC</td>
<td>The use of fingerprints to aid in caries risk assessment</td>
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<td>Investigation of familial and social factors in caries risk assessment in ethnic minority groups</td>
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<td>Community-based prevention in ethnic minority groups</td>
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<td>3-DCC</td>
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<td>3-DCC</td>
<td>Evaluation of early parent-child interaction during tooth brushing</td>
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<td>3-DCC</td>
<td>Further development of the Dundee Caries Risk Model (DCRM) in a 10-year-old cohort previously examined at 1 to 4 years</td>
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<td>3-DCC</td>
<td>Development of an algorithm based on tooth-type caries status at 5 years to predict later caries experience</td>
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<td>3-DCC</td>
<td>Application and further development of the DHII (Dental Health Inequalities Index) for use with Caries Clinical Trial data</td>
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<td>3-DCC</td>
<td>Caries misdiagnosis in restored teeth</td>
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<td>3-DCC</td>
<td>Association between early eruption of permanent molars and caries experience</td>
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<td>3-DCC</td>
<td>Exploration and evaluation of the Ekstrand/Nexo approach to caries prevention in Scotland</td>
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<td>3-DCC</td>
<td>Development of an International Caries Detection and Assessment System – ICDAS (iii) Activity System</td>
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<td>4-DCC</td>
<td>Development and evaluation of Generalisable Evidence-based Targeted Caries Prevention of pre-school children by integrated Primary care teams (GETCAPP) – RCT of the preventive intervention in Dundee children</td>
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<td>6-DCC</td>
<td>Health informatics with the Health Informatics Centre – MRC-e-science bid</td>
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**Status:**
- CSO Core funding = C
- External funding = E
- Study under development (Proposed) = P

*Development group plus travel funded by NICE*
**STUDY TITLE:** European Global Oral Health Indicators Development Project – Phase II (EGOHID II)

**SPONSOR:** European Commission Health & Consumer Protection Directorate-General

**AMOUNT OF AWARD:** €1.08 million (paid through a single site in Lyon as DG SANCO) (£21,913 to DHSRU)

**DHSRU LEAD:** Prof N Pitts / Dr G Topping

**COLLABORATORS:** University Lyon, France; Austrian Health Institute (OBIG), Austria; Universität Jena/Medizinische Fakultät, Germany; Medical Academy Riga, Latvia; Facultad de Medicina Dentaria, Lisbonne, Portugal; Universidad de Granada, Facultat de Odontologica, Spain; ACTA, Amsterdam, Netherlands; Union Française pour le Santé Bucco-dentaire, France; World Health Organisation, Switzerland; University of Copenhagen, Denmark; Heim Pal Children Hospital, Budapest, Hungaria; University of Roma, Italia; Université de NICE, Faculté Odontologie, France; Stakes, Finland.

**RESEARCH QUESTION(S)/HYPOTHESES:**
The objectives of the programme are in line with those of the European Commission Public Health Community Action Programme (2003-2008) and aim to:

(i) strengthen the health system performance through a better system organisation
(ii) improve the quality of the health information while facilitating Member States cooperation
(iii) encourage the development of relevant and action-oriented community health policies with priority focus at reducing health inequalities.

The four sub-objectives of the EGOHID II are to:

(i) develop recommended common instruments for National Health Interview Surveys (NHIS)
(ii) develop recommended common instruments for National Health Clinical Surveys (NHCS)
(iii) develop a methodology for improved NHIS and NHCS data, routinely collected in 25 European countries at the primary oral health care level
(iv) develop methods which could allow the adjustment of national data to allow national comparisons.

**PROJECT OUTLINE/METHODOLOGY:**
The Project will use its broad grouping of Partners to refine and quality assess the 40 oral health indicators identified in Phase 1 and then produce, pilot and refine the common instruments identified above. These will be translated into the languages required for all 25 member states. The Project interacts with existing DHSRU research methodologies and resources developed with collaborations in the UK virtual Centre for Improving Oral Health and ICDAS.

**PROGRESS:**
A very successful initial planning meeting was held in Lyon in February 2006, followed by a briefing meeting for representatives of the EU “accession” Countries held in Riga, Latvia in April 2006. A working meeting for the knowledge elements “workpackage” was held in Rome in early June 2006.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**
The study is combining for the first time a systematic and consistent evidence based approach with the pragmatic requirements of the very divergent oral health care systems across the EU. It is facilitating best practice for the reliable acquisition of both qualitative and quantitative indicators of oral health as well as other indicators relating to health systems.

**IMPLICATIONS FOR PRACTICE OR POLICY:**
For the member states with well developed oral health care systems this project will offer the opportunity to update and refine existing systems in such a way that will facilitate inter-country comparison and conformity with WHO guidance. For the recently joined member states who are starting to build administrative systems, this project will provide a blueprint which will allow them to construct and use robust oral health indicators very rapidly.
**DCC 1**

**STUDY TITLE:** Development of an International Caries Detection and Assessment System - ICDAS (i) Co-ordination, Development and Epidemiology

**SPONSOR:** CSO Core + IADR Fellowship

**AMOUNT OF AWARD:** *$14,993 (= £7,706) plus $54,998 (paid through the University of Michigan) from the NIH ($34,998) and American Dental Association ($20,000) (paid through the University of Michigan)*

*award across all three ICDAS projects*

**DHSRU LEAD:** Prof NB Pitts / Dr G Topping / Dr C Longbottom / Dr D Ricketts

**COLLABORATORS:** Prof A Ismail, University of Michigan, Dr K Ekstrand, University of Copenhagen, Prof D Zero, Indiana University

**RESEARCH QUESTION(S)/HYPOTHESES:**
Can an evidence-based and internationally unified system of caries detection and assessment be created for use within dental caries epidemiology, caries clinical trials and clinical practice?

**PROJECT OUTLINE/METHODOLOGY:**
Evidence for visual methods of caries detection and assessment has been reviewed systematically in the fields of primary coronal caries, root caries and caries adjacent to restorations. A unified system of caries detection and assessment is being developed, refined and tested for reliability and validity.

**PROGRESS:**
This project was the subject of a prestigious IADR International Fellowship awarded to Dr Gail Topping for travel between the Centres and to work up further grant applications to take the Project forward in 2005.

Key activities have been to bring together the ICDAS Committee, prepare documentation via e-mail and bring sixty five international experts in the field to a two-day Workshop held in Baltimore USA March 2005 to peer-review and refine the 2004 version of the criteria. This was followed by a major presence at the 2005 Indiana Conference on caries detection which explored the use of ICDAS, and meetings of the Committee at the 2005 ORCA Congress. The most recent work of the collaboration has included establishing a limited, not-for-profit company to be known as the ICDAS Foundation. DHSRU was asked by the other ICDAS collaborating centres to take this forward to facilitate future work. Sponsorship and income generated through ICDAS activities will be used to further the principles of ICDAS. DHSRU will be hosting the annual ICDAS meeting in July 2006. Around forty experts in cariology will be participating as well as the attendees of the ORCA summer school.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**
The work of this group relating to epidemiology will allow for meaningful and valid comparisons between countries of caries prevalence data. In addition, it will be possible for information collected within the dental caries epidemiology and caries clinical trial settings to be directly related to clinical practice.

**IMPLICATIONS FOR PRACTICE OR POLICY:**
Once validated, the criteria developed through this collaboration will offer a system of collecting data on caries at a stage still amenable to reversal. The system will offer the opportunity to detect changes in dental health within a shorter period of time than usually required in conventional clinical trials/epidemiology.
DCC 1

STUDY TITLE: Highland NDIP Report

SPONSOR: Highland Primary Care NHS Trust

AMOUNT OF AWARD: £3,756 (2005); £5,986 (2006)

DHSRU LEAD: Dr G Topping

COLLABORATOR: Mrs C Lush, Highland Primary Care NHS Trust

RESEARCH QUESTION(S)/HYPOTHESES:
Can “basic dental inspection data” be analysed to produce a report to inform appropriate targeting of oral health promotion initiatives and services?

PROJECT OUTLINE/METHODOLOGY:
Highland Primary Care NHS Trust commissioned DHSRU to quality check and analyse basic dental inspection data of Primary I and VII school children to provide an annual report on the geographic differences in oral health across the Highlands.

PROGRESS:
Data was quality checked, weighted appropriately and analysed to give an indication of the varying dental health across Highland NHS Board including discrete geographic locations and the three Community Health Partnership areas. A report was designed illustrating the results in a clear user-friendly manner for Highland NHS Board to present to their various stakeholders. The first report was well received and DHSRU was commissioned again in 2005 to produce another annual report. Data in the latest report was presented in a new format to allow useful caries risk category information to be drawn from the basic inspection data.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Production of the report provided an example of good practice in data quality control and dissemination. The process of reporting oral health at the level of individual areas and schools should prove valuable to Highland NHS Board in future years. The ability to monitor trends at a local level should allow planners in Highland to respond more appropriately to the needs of their local communities.

IMPLICATIONS FOR PRACTICE OR POLICY:
These reports were produced to identify the areas of worst oral health to inform appropriate targeting of resources. It is an example of how the role of DHSRU in the NDIP programme is adapting to the requirements of the NHS both nationally and at a local level. As well as assisting the NHS Scotland-wide with the National Dental Inspection Programme, DHSRU can help in the reporting of NDIP findings at Community Health Partnership level and at NHS Board level. This valuable information highlights areas requiring health promotion and dental service input and will be a useful monitoring tool over time. Local Authorities can also benefit from this small area reporting. They can receive the anonymised, aggregated report at primary school level (where numbers are sufficient to ensure anonymity) or at “cluster” level.

DCC 1

STUDY TITLE: Involvement in National (UK) and International Dental Caries Epidemiology Activities

SPONSOR: CSO Core

DHSRU LEAD: Prof NB Pitts / Dr G Topping

COLLABORATORS: Dental Epidemiology Programme, British Association for the Study of Community Dentistry (BASCD) and the NHS, EU Project on developing standardised Oral Health indicators for use in Member States and Contribution to revised WHO guidelines.

RESEARCH QUESTION(S)/HYPOTHESES:
What leads to improvements in caries diagnosis and risk assessment, which can be used meaningfully at the population, clinical research or clinical practice levels?
PROJECT OUTLINE/METHODOLOGY:
Work on harmonising evidence based standards and criteria for caries detection and assessment continues with the above collaborators. These activities range from service support to externally funded and international projects. A range of primary and secondary research is being undertaken as fits the needs of individual studies and systems.

PROGRESS:
BASCD: A major review of the Programme has been undertaken which should allow each area of the UK to collect locally sensitive data while allowing valid UK-wide comparisons in regular years. An expansion of the range of information collected is envisaged with working groups looking at different age groups, ICDAS criteria and Quality of Life measures for children.
EU Project on Oral Health Measures: Following a first meeting in Lyon in 2003, this EU-wide group has compiled a “long list” of potential Oral Health Measures. These were revised into an initial “short list” at a meeting in Granada, Spain in May 2004. A final meeting in Paris in March 2005 presented the results of a secret ballot to produce a final list of forty Oral Health Indicators. These indicators are being assembled into a “catalogue”, with explanatory notes on use and key references, which has been submitted to the EU.
World Health Organisation (WHO): WHO are now revising their “Basic Methods” guidance and DHSRU have been asked to advise the team in Cork who are leading this task.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
These activities bring to population level monitoring in the UK and wider afield updated knowledge from cariology and dental public health. The BASCD Epidemiology Programme data are used by the NHS, by the British Fluoridation Society and by researchers to monitor oral health at a fairly local level. The EU SANCO Project brings together for the first time representatives from established EU countries and the accession countries in order to compare their needs and priorities for practical oral health indicators.

IMPLICATIONS FOR PRACTICE OR POLICY:
With increasing scrutiny of dental access, workforce and policy developments, the collection of meaningful data on oral health becomes even more important. Similarly, the provision of guidance on the interpretation of these data by politicians, planners and practitioners is also important. These factors are increasingly operating at the national and international levels.

DCC 1
STUDY TITLE: UK Child Dental Health Survey 2003
SPONSOR: UK Health Departments
AMOUNT OF AWARD: £72,719 (+ additional award £2,474)
DHSRU LEAD: Prof NB Pitts
COLLABORATORS: Consortium comprising: Office of National Statistics, DHSRU and the Dental Schools of the Universities of Birmingham, Cardiff, Dundee & Newcastle

RESEARCH QUESTION(S)/HYPOTHESES:
At a National Survey policy level: What leads to improvements in deliverable caries prevention? What leads to improvements in the appropriate clinical management of dental caries?

PROJECT OUTLINE/METHODOLOGY:
The 2003 Children’s Dental Health Surveys, commissioned by the four United Kingdom Health Departments, is the fourth in a series of national children’s dental health surveys that have been carried out every ten years since 1973 in England and Wales and in the whole of the UK since 1983. The survey provides information on the dental health of children in the United Kingdom, measures changes in oral health since the last survey in 1993 and provides information on children’s experiences of dental care and treatment and their oral hygiene.

PROGRESS:
Results can be accessed via the ONS web site. While caries levels showed an overall improvement for older children and permanent teeth, no such improvement in the oral health of five years olds could be ascertained. A series of papers arising from this work is currently being published in the British Dental Journal.
WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The unique linkage between clinical information and questionnaire data on a wide range of social, economic and health issues allows a more in depth look at oral health in children than clinical examination of teeth alone. New developments included examination of the impact of including visual dentine lesions in national surveys of children.

IMPLICATIONS FOR PRACTICE OR POLICY:
Caries prevention for young children should remain a priority across the UK.

DCC 1
STUDY TITLE: National Dental Inspection Programme (NDIP)
SPONSOR: CSO Core
DHSRU LEAD: Prof NB Pitts / Dr G Topping (with Dr Z Nugent, Miss K Levin and Ms PA Smith)
COLLABORATORS: Scottish Executive, Scottish NHS Boards

RESEARCH QUESTION(S)/HYPOTHESES:
The principal aims of NDIP are to gather appropriate information in order to inform children (and parents) of their dental/oral health status and, through appropriately anonymised, combined data, advise the Scottish Executive, NHS Boards, Trusts and other organisations concerned with children’s health of the oral disease prevalence in their area. Key age groups are targeted: at entry into school in Primary I and in Primary VII before the move to secondary education.

PROJECT OUTLINE/METHODOLOGY:
The 2002/03 inspection was the first and pilot year of the new NDIP Programme and concerned only Primary 1 children. The Detailed Inspection, involving a representative sample of Primary I children, took place alongside the Basic Inspection (given to all Primary I children in Scotland). It involved recording the status of each tooth surface in accordance with international epidemiological conventions. The inspections were conducted by community dentists from each NHS Board. In 2003/04 a full survey of PI children was conducted and in 2004/05 inspections in PVII children were successfully piloted. DHSRU assists with the training and calibration of the survey examiners and plays a pivotal role in assessing data from each of the fifteen NHS Boards for data quality and validity. On NDIP tasks the Unit works with NHS Tayside’s Consultant in Dental Public Health and the many other NHS staff involved in the Programme.

PROGRESS:
In 2004/05, the first detailed inspection of Primary VII (eleven year olds) took place, the results of which have been analysed and have been reported back to the NHS Boards. The first annual report of dental health of eleven year olds across Scotland is now published. A new software programme for direct data entry is being developed and will be used for the first time in the 2006/07 survey of Primary I children. DHSRU staff have assisted in the development and refinement of this programme. NDIP now forms a vital part of the evaluation of Dental Action Plan initiatives to improve oral health.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
It is important that each child’s dental wellbeing is observed so that children and their parents can maintain oral health and take necessary steps to remedy any problems. There is also a need to monitor children’s dental health at a national and regional level so that reliable information is available for planning and evaluating initiatives directed towards improvements. The National Dental Inspection Programme aims to fulfil these functions by providing an essential source of information for keeping track of any changes in the dental health of Scottish children. Combined with the rich, historical nature of the existing data bank gathered from 1987 by the Scottish Health Boards’ Dental Epidemiological Programme, NDIP will be able to forecast trends and assist in planning future dental services. In 2005 a Memorandum of Understanding was signed between DHSRU and all fifteen NHS Boards clarifying the roles and responsibilities of those collecting data and developing closer links to ensure that the data is used as effectively as possible in Scotland. Progress from this agreement has included the establishment of new collaborative links with NHS Scotland Information Services Division (ISD) and the University of Glasgow.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results show that in overall dental health terms, little has changed in recent years; Scotland’s children still have too many decayed teeth. Inequalities persist with children from socially deprived backgrounds having high levels of decay and the rise in the number of teeth needing extraction also gives cause for concern. New initiatives are needed and specified in the 2005 Action Plan so that parents, dentists and NHS primary care staff can redouble efforts to reduce the unacceptably poor levels of dental health endured by Scotland’s children.
STUDY TITLE: Development of an International Caries Detection and Assessment System - ICDAS (ii) detection system for use in clinical practice

SPONSOR: CSO Core + IADR Fellowship

AMOUNT OF AWARD: *$14,993 (= £7,706), Plus $54,998 (paid through the University of Michigan) from the NIH ($34,998) and American Dental Association ($20,000) (paid through the University of Michigan)

* award across all three ICDAS projects

DHSRU LEAD: Prof NB Pitts / Dr G Topping / Dr C Longbottom / Dr D Ricketts

COLLABORATORS: Prof A Ismail, University of Michigan; Dr K Ekstrand, University of Copenhagen; Prof D Zero, Indiana University; Mr C Ormond (GDP)

RESEARCH QUESTION(S)/HYPOTHESES:
Can an evidence-based and internationally unified system of caries detection be created for use within dental caries epidemiology, caries clinical trials and which can also be used in a clinical practice setting within the NHS and other healthcare systems internationally?

PROJECT OUTLINE/METHODOLOGY:
As described in ICDAS (i) the evidence for visual methods of caries detection has been reviewed systematically in the fields of primary coronal caries, root caries and caries adjacent to restorations. A unified system of caries detection has been developed and tested for reliability and validity. The feasibility of it’s use in clinical practice is being investigated.

PROGRESS:
A unified system of caries detection has been developed and after testing for reliability under different field settings (Detroit, Mexico, Indiana, and Denmark) has been refined. The system has now also been used in Columbia and Iceland (as part of the National Child Dental Health Survey). Histological validation of the criteria has been undertaken in Michigan and Copenhagen. A joint study between Dundee and Marburg, Germany will produce further independent validation data. This project will be reported upon at the ICDAS meeting taking place in Dundee in July 2006. ICDAS codes for the detection of caries have been adopted as part of the Scottish Oral Health Assessment after successful piloting in 2005/06. Further work on the training necessary to support their use will be conducted. Further research into the use of ICDAS in clinical practice in the NHS setting with the Salaried and Independent services is currently being planned with collaborators in Forth Valley and will be the subject of a bid for a British Society for General Dental Surgery award for research in primary care.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This work will allow practitioners to record stages of the caries process in an evidence based way which will facilitate preventive care. At the same time it will be possible for practice based data to be used for research, and information collected within the dental caries epidemiology and caries clinical trial settings to be directly related to clinical practice.

IMPLICATIONS FOR PRACTICE OR POLICY:
The criteria which have been developed through this collaboration offer a system of collecting data on caries at a stage in the process still amenable to reversal as well as those more severe stages needing operative intervention. The system will help implement in practice the policy decision to move towards preventive caries management.
DCC 3
STUDY TITLE: Use of specific tooth surface caries data to assess relative caries activity status of individual patients

SPONSOR: CSO Core
DHSRU LEAD: Dr C Longbottom
COLLABORATORS: Dr B Nyvad, University of Aarhus, Denmark; Dr V Maciulinskiene, University of Kaunas, Lithuania

RESEARCH QUESTION(S)/HYPOTHESES:
Can specific tooth surfaces be identified which are predictors of relative caries activity within individuals’ mouths?

PROJECT OUTLINE/METHODOLOGY:
Using previously obtained data from caries clinical trials carried out in Lithuania and Denmark which recorded caries activity as well as presence, analysis will be carried out to identify specific tooth surfaces which are associated with different levels of caries incidence and activity over a three year period in adolescent subjects.

PROGRESS:
This project was abandoned due to the collaborators being unwilling to share the necessary data.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Caries activity is an area of increasing attention but with relatively little valid data available. Such a study will add to the understanding of the distribution of caries within mouths and inform the validity of one of the currently used visual assessment systems for caries activity.

IMPLICATIONS FOR PRACTICE OR POLICY:
Identification of relative risk markers would aid practitioners in targeting clinical caries preventive measures.

DCC 3
STUDY TITLE: Investigation of genetic factors for caries-risk and erosion-risk assessment

SPONSOR: CSO Core/Grant application
DHSRU LEAD: Dr C Longbottom / Dr G Topping
COLLABORATORS: Prof PA Mossey, Dundee Dental School; Prof R Freeman, Queen’s University Belfast and Dr G Humphris, University of St Andrews; Dr G Chadwick, Dundee Dental School

RESEARCH QUESTION(S)/HYPOTHESES:
Can genetically determined salivary factors be identified which are strongly associated with caries and erosion experience in children and young adults?

PROJECT OUTLINE/METHODOLOGY:
Using saliva samples from large Dundee cohorts of children for whom caries and erosion data is available (and can be further updated) specific markers previously identified from the literature will be linked to analysis of DNA samples taken from the subjects. This data will be used to generate prediction models based on the genetic and salivary markers.

PROGRESS:
This project is in the process of being developed and modified after a CSO grant application for an initial project was unsuccessful.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Such a study would add specific genetic linkage to the known association with caries and erosion susceptibility.

IMPLICATIONS FOR PRACTICE OR POLICY:
Specific genetic markers could be used in practice to identify individuals at highest risk of caries and erosion.
**DCC 3**

**STUDY TITLE:** Development of a dynamic model for caries and erosion-risk assessment

**SPONSOR:** CSO Core/Grant application

**DHSRU LEAD:** Dr C Longbottom / Dr G Topping

**COLLABORATORS:** Prof PA Mossey, Dundee Dental School; Prof R Freeman, Queen’s View, Belfast and Dr G Humphris, University of St Andrews; Dr G Chadwick, Dundee Dental School

**RESEARCH QUESTION(S)/HYPOTHESES:**
Can a model be developed which explains the complex interactions between genetic factors, dietary factors (especially soft drink consumption), obesity levels, behavioural factors and self-esteem measures which can be used in caries-risk and erosion-risk assessment?

**PROJECT OUTLINE/METHODOLOGY:**
Using a large Dundee cohort of children, for whom caries data exists (which can be updated and supplemented with erosion data), analysis of DNA samples, dietary analysis, obesity levels, behavioural information and self-esteem data will be used to generate a complex model for prediction of caries and erosion-risk.

**PROGRESS:**
The project has been modified from a previously genetics-based project to one incorporating other collaborators and disciplines. Collaborators in the genetics field are being sought within the UK.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**
Such a study would add not only specific genetic linkage to the known association with caries (and erosion) but also develop a new dynamic (interactive) risk modelling technique to the area of risk-assessment for caries and erosion.

**IMPLICATIONS FOR PRACTICE OR POLICY:**
Specific genetic markers and questionnaire responses could be used in practice to identify individuals at highest risk of caries and erosion.

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**DCC 3**

**STUDY TITLE:** The use of fingerprints to aid in caries risk assessment

**SPONSOR:** CSO Core

**DHSRU LEAD:** Dr C Longbottom

**COLLABORATOR:** Dr M Pirie, Queen’s University, Belfast

**RESEARCH QUESTION(S)/HYPOTHESES:**
Are fingerprint patterns associated with caries experience?

**PROJECT OUTLINE/METHODOLOGY:**
Clinical year Dental Students were examined for caries experience and their fingerprints taken and analysed. The specific fingerprint patterns of individuals were correlated with their caries data to try to identify any patterns which were significantly associated.

**PROGRESS:**
The results have been analysed and although no statistically significant associations were identified in this particular group, the trends identified tend to support a previous study that specific patterns may be associated with a high or low risk of caries.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**
The results tend to support the surprising finding of a previous study.

**IMPLICATIONS FOR PRACTICE OR POLICY:**
If a caries prediction model could be developed using fingerprint patterns this could be readily utilised for targeting clinical caries prevention.
**STUDY TITLE:** Craigshill Dental Project: community-based caries prevention for pre-school children

**SPONSOR:** West Lothian Healthcare Trust

**AMOUNT OF AWARD:** £27,413

**DHSRU LEAD:** Dr C Longbottom / Dr G Topping / Prof Nigel Pitts / Mrs C Anderson (seconded)

**COLLABORATORS:** West Lothian Community Health and Care Partnership

**RESEARCH QUESTION(S)/HYPOTHESES:**
This project was led by West Lothian Community Health and Care Partnership (WLCHP), assisted by DHSRU staff. The aim was to reduce caries prevalence in young children from a deprived locality by the age of five by developing an integrated, community-based dental health programme, from infancy, involving health, social and education services.

**PROJECT OUTLINE/METHODOLOGY:**
The West Lothian Community Health and Care Partnership Children’s Services Management Group integrates all services for pre-school children. Using these links, existing dental health priorities for Health Visitors and Locality Planning initiatives, health professionals, social and voluntary agencies were trained to give consistent dental health advice for pre-school children at the most appropriate venue. Free toothbrushes and toothpaste are being made available to all pre-school children from a number of different venues. Tooth brushing schemes have been established in pre-school groups, including Parent/Toddler and playgroups. Health Visitors will be trained in the recognition of enamel and dentine caries. Evaluation will be through local and national dental inspection programmes and the number of pre-school children referred for G.A. extractions. Mrs Carol Anderson was seconded to assist with this project in West Lothian for a period of twelve months. She was sought by West Lothian collaborators to bring her experience in this area of research to their area to help in implementing a programme of oral health improvements.

**PROGRESS:**
The following service developments have been put in place:
- Dental health is included in antenatal classes.
- A hygienist attends antenatal and baby clinics every six weeks.
- Sure Start groups liaise with dental personnel for regular dental health sessions and include dental health in other topics, as appropriate.
- Health Visitors give dental advice as appropriate; distribute toothbrushes and toothpaste to all eight week old infants and some older children according to perceived need. Toothbrush/paste is provided at Sure Start groups and linked to dental health sessions and from the Local Authority Child Services Information Centre on request.
- Open sessions run by an Oral Health Promoter at the Information Centre are under trial.
- Tooth brushing has been established in nursery school, playgroup and parent/toddler groups.

Training in caries recognition for Health Visitors has also been arranged and training in dental health is planned for foster carers. There are ongoing discussions with the Community Dental Service on ways to improve access to dental services for pre-school children.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**
This project should demonstrate the effectiveness of a co-ordinated approach to a dental health programme provided in a community setting. It makes dental advice and prevention accessible outwith the dental setting for children who are unable or unwilling to register with a dentist. It is of particular interest given the current difficulties of registering with a NHS dentist.

**IMPLICATIONS FOR PRACTICE OR POLICY:**
If successful, a community-based caries preventive programme could be extended to other areas of deprivation. Dental and oral health are priority areas for Health Visitors and the programme will also help them to maintain the wider Health Promotion and Public Health agenda.
DCC 3

STUDY TITLE: Investigation of familial and social factors in caries risk assessment in ethnic minority groups

SPONSOR: CSO Core + grant application
DHSRU LEAD: Dr C Longbottom / Prof NB Pitts
COLLABORATOR: Dr S Cheda, Milton Keynes Primary Care Trust

RESEARCH QUESTION(S)/HYPOTHESES:
Can questionnaire data investigating familial and social factors on a previously examined pre-school ethnic minority who participated in a cohort study be used to identify factors linked to caries prevalence/incidence?

PROJECT OUTLINE/METHODOLOGY:
Structured and unstructured questionnaires were completed on a one-to-one basis on a sub-set of the study sample of a previous study (GETCaPPP). Seventy one Asian families participated. The questionnaire results were analysed in combination with the previously obtained caries data.

PROGRESS:
The results demonstrated a number of social, cultural and ethnic factors which were associated positively and negatively with caries incidence in pre-school children. In addition, familial factors were shown to be of importance in caries incidence in this group.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
These results confirm previous ethnic group findings but run contrary to the literature which indicates that social factors over-ride ethnic factors. The finding of significant familial factors in relation to caries is a novel finding.

IMPLICATIONS FOR PRACTICE OR POLICY:
The findings imply that ethnic groups require specific targeted oral health promotion, education and preventive programmes in order to reduce the ethnic disparities in caries distribution in populations.

DCC 3

STUDY TITLE: Community-based prevention in ethnic minority groups

SPONSOR: CSO Core + grant application
DHSRU LEAD: Dr C Longbottom / Prof NB Pitts
COLLABORATOR: Dr S Cheda. Collaborators in the London area are being sought.

RESEARCH QUESTION(S)/HYPOTHESES:
Can a community-based caries preventive regime, specifically targeted at particular high-caries-risk (Asian) ethnic minority groups be developed and implemented to reduce caries in pre-school children in these groups?

PROJECT OUTLINE/METHODOLOGY:
Working with specific Asian ethnic minority groups in particular localities, a framework for a community-based programme will be developed and implemented on a longitudinal cohort of new-born infants and these will be followed through their pre-school years and caries recorded. A similar ethnic minority group in the vicinity will act as a control group. During the study, monitoring of the implementation of the programme will take place to identify factors which impact on the outcomes.

PROGRESS:
This study is under development – identification of potential funders is underway and the study protocol is being developed and refined.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This study will help to identify elements of caries-preventive programmes with specific reference to Asian ethnic minority groups.

IMPLICATIONS FOR PRACTICE OR POLICY:
If successful, such a community based caries-preventive programme could be applied to other ethnic groups.
**DCC 3**

**STUDY TITLE:** Development and evaluation of Generalisable Evidence-based Targeted Caries Prevention of Pre-school children by integrated Primary care teams (GETCaPPP) – performance of the Dundee Caries Risk Model in Milton Keynes children

**SPONSOR:** NHS R&D  
**AMOUNT OF AWARD:** Total available for both Milton Keynes and Dundee elements of research = £582,000 + £35,745 (Feb 2003) + £43,191 (Mar 2004)  
**DHSRU LEAD:** Prof NB Pitts / Dr C Longbottom  
**COLLABORATORS:** NHS Trust in Milton Keynes

**RESEARCH QUESTION(S)/HYPOTHESES:**  
The work was aimed at validating and appropriately modifying the Dundee Caries Risk Model (DCRM), which was previously developed in a longitudinal observational study in Dundee, at a site in a lower caries prevalence area with a different socio-demographic distribution.

**PROJECT OUTLINE/METHODOLOGY:**  
The study used a longitudinal cohort observational design, incorporating the questionnaires developed for the DCRM, together with a small number of additional questions, which might be of significance in the chosen test site, Milton Keynes, which demographically represents the average for the whole of England and Wales.

**PROGRESS:**  
Of the 3,300 children born in Milton Keynes in one calendar year, 87% were consented to participate in the study and over 2,100 remain in its final year. The final dental examinations were carried out on over 1,850 of the children (at 4 years of age). Analysis of the final data revealed that the modified DCRM models were capable of caries prediction at levels of sensitivity and specificity in the same order as those obtained in Dundee.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**  
The outcomes and knowledge generated by this study of what works and what does not work in a community and general dental practice setting have proved to be timely and valuable in optimising plans for the East and West of Scotland Childsmile Demonstration Programmes of NHS Scotland and its Boards.

**IMPLICATIONS FOR PRACTICE OR POLICY:**  
Caries risk models based on the DCRM CHAID approach may be utilised in pre-school children to facilitate appropriate targeting of primary caries prevention. This important work is now feeding into developments within the West of Scotland and East of Scotland Childsmile Demonstration Projects, both parts of the Action Plan for Improving Oral Health and Modernising NHS Dental Services in Scotland.

**DCC 3**

**STUDY TITLE:** Evaluation of early parent-child interaction during tooth brushing

**SPONSOR:** CSO Core  
**DHSRU LEAD:** Dr C Longbottom  
**COLLABORATORS:** Department of Psychology, University of Dundee

**RESEARCH QUESTION(S)/HYPOTHESES:**  
The aim of the study was to investigate the behaviour of parents and young children during tooth-brushing activities in the home in order to gain insight into this health behaviour in relation to tooth-brushing skills, parent-child interaction coping skills and parental teaching methods.
PROJECT OUTLINE/METHODOLOGY:
Volunteer families videotaped tooth-brushing sessions, involving parents and pre-school children in the home. The tapes were analysed systematically for tooth-brushing and interpersonal behaviours.

PROGRESS:
Initial plans to submit a grant application with NERI (New England Research Institute, Boston, USA) to the NIH (National Institutes of Health, Washington, USA) were not taken any further after discussions with NIH indicated that this avenue for funding was inappropriate. Analysis of the tapes from the study indicated that tooth-brushing behaviour amongst the self-selected families was less than optimal.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The initial study has provided increased knowledge of how parents brush pre-school children’s teeth. Ongoing analysis will provide information on what coping skills are used and how they teach the child to brush. This should lead to the development of educational material for use with mothers of infants and toddlers.

IMPLICATIONS FOR PRACTICE OR POLICY:
The knowledge obtained through this study should feed into the Scottish Oral Health Demonstration Project initiative which provides education and material to encourage tooth brushing from infancy.

DCC 3
STUDY TITLE: Further development of the Dundee Caries Risk Model (DCRM) in a 10-year-old cohort previously examined at 1 to 4 years

SPONSOR: CSO Core/Tayside PCT
AMOUNT OF AWARD: £5,200
DHSRU LEAD: Dr Longbottom / Dr G Topping
COLLABORATORS: NHS Tayside and the Community Dental Service

RESEARCH QUESTION(S)/HYPOTHESES:
Can caries prevalence and extent in the deciduous dentition and the permanent dentition in 10 year old children be predicted with a high degree of accuracy using socio-demographic, behavioural and dental data collected previously at ages 1, 2, 3 and 4 years?

PROJECT OUTLINE/METHODOLOGY:
Children who participated in the previous study were examined in school using the same caries criteria employed when they were pre-school children (Dundee Selectable Threshold Method).

PROGRESS:
Of the 821 children (out of 1350 located) consented, 498 have been examined. All the clinical data has been collected and entered into the database. The data is about to be analysed.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The findings of this study will indicate whether the model developed from initial studies for deciduous teeth at age 4 is accurate or can be developed/modified for the dentition at age 10 (deciduous and permanent teeth).

IMPLICATIONS FOR PRACTICE OR POLICY:
The models developed in this study may allow for the extrapolation from NDIP surveys to give information about children’s caries risk at age 10.
**DCC 3**

**STUDY TITLE:** Development of an algorithm based on tooth-type caries status data at 5 years to predict later caries experience

**SPONSOR:** CSO Core

**DHSRU LEAD:** Dr C Longbottom / Prof N B Pitts

**COLLABORATORS:** Dr Z Nugent

**RESEARCH QUESTION(S)/HYPOTHESES:**
Can an algorithm be developed to accurately predict the later caries experience of children by analysis of tooth surface caries status at 5 years of age?

**PROJECT OUTLINE/METHODOLOGY:**
Previous detailed caries data sets of children examined at 5 years and then later at 10-12 years are analysed using dichotomous ‘decision tree’ methodology to identify High Caries Risk/Experience ‘nodes’ from the 5 year-old data set using the older-age group data set as the validator of risk group allocation.

**PROGRESS:**
Analysis has been carried out and an algorithm developed which has a high discriminatory power in determining caries risk/activity in the older age group.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**
Although developed using a relatively high caries experience data set, this algorithm may have applicability to populations with different caries prevalence and incidence.

**IMPLICATIONS FOR PRACTICE OR POLICY:**
The use of this algorithm may aid in treatment planning and resource allocation for individuals and populations since it could be used to identify High Caries Risk/Activity children at age 5 years.

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**DCC 3**

**STUDY TITLE:** Application and further development of the DHII (Dental Health Inequalities Index) for use with Caries Clinical Trial (CCT) data

**SPONSOR:** CSO Core

**DHSRU LEAD:** Dr C Longbottom

**COLLABORATORS:** Dr Z Nugent and two major dentifrice manufacturers

**RESEARCH QUESTION(S)/HYPOTHESES:**
Can the DHII (based on Lorenz Curve analysis) be used to better differentiate between preventive products or regimens in controlled Caries Clinical Trials than current methodologies employing mean dmft/s and DMFT/S data?

**PROJECT OUTLINE/METHODOLOGY:**
The DHII methodology will be applied to CCT data previously both able and unable to differentiate between products of known and unknown efficacy using current mean DMFT/S analysis methods.

**PROGRESS:**
The work is under development and permission is currently being sought to use the appropriate data sets. Discussions will take place in July 2006.
WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The successful application of a new analytical tool in CCT methodology will enable greater discrimination of effective products/regimens from CCT data.

IMPLICATIONS FOR PRACTICE OR POLICY:
If successful, this methodology may aid in the reduction in size, time-scale and costs of CCTs.

DCC 3
STUDY TITLE: Caries misdiagnosis in restored teeth
SPONSOR: CSO Core
DHSRU LEAD: Dr G Topping / Dr C Longbottom
COLLABORATORS: Dr Z Nugent

RESEARCH QUESTION(S)/HYPOTHESES:
The principal aim was to determine the extent to which caries in relation to amalgam restorations in posterior teeth was misdiagnosed by General Dental Practitioners (GDPs).

PROJECT OUTLINE/METHODOLOGY:
In vitro studies were carried out using extracted posterior teeth with amalgam restorations which were set in simulated mouths. These were examined by GDPs and the restorations were subsequently removed carefully to allow validation of the presence or absence of caries. Analysis of the data involved determination of the sensitivity and specificity of the GDPs in relation to caries for specific tooth types and surfaces.

PROGRESS:
The sensitivity and specificity of GDPs’ diagnosis of caries in restored teeth indicated a high level of misdiagnosis. A number of clinical features were found to be associated with the presence of caries associated with amalgam restorations.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The evidence in the literature related to caries in restored teeth is sparse. These results will add to the current knowledge about factors which can influence the correct and incorrect diagnosis of such caries.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results suggest that new research is needed to inform the evidence base and to aid development of educational material for GDPs.

DCC 3
STUDY TITLE: Association between early eruption of permanent molars and caries experience
SPONSOR: CSO Core
DHSRU LEAD: Dr C Longbottom / Prof NB Pitts
COLLABORATORS: Dr Z Nugent

RESEARCH QUESTION(S)/HYPOTHESES:
Is there any association between the eruption of first permanent molars and the child’s caries experience?
PROJECT OUTLINE/METHODOLOGY:
Using the Scottish Health Boards’ Dental Epidemiological Programme (SHBDEP) and NDIP databases, the dental health of 5-year-old children covering a decade from the late 1980s, this cross-sectional data for caries was correlated with the age and state of eruption of first permanent molars for each child. Data was also analysed by correcting for a number of factors, including early loss of deciduous molars, which might be associated with early eruption of first permanent molars.

PROGRESS:
The analysis is complete and the paper is in the process of being written for submission to a peer-reviewed journal. The results show that there is an association between early eruption of first permanent molars and higher caries experience. The association remains even when correcting for early loss of deciduous molars. There is also an association between the presence of visible plaque in the mouth and early eruption of first permanent molars.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This study adds to the factors which can be modelled to create a caries prediction model for 5-year-old children.

IMPLICATIONS FOR PRACTICE OR POLICY:
If early eruption of first permanent molars is associated with higher caries experience this could impact upon preventive treatment planning for individual patient care.

DCC 3
STUDY TITLE: Exploration and evaluation of using the Ekstrand/Nexo approach to caries prevention in Scotland

SPONSOR: CSO Core (funding being sought)
DHSRU LEAD: Dr G Topping / Prof NB Pitts / Dr J Clarkson
COLLABORATORS: Health Visitors, Teachers, Highland NHS Board, Mr J Lyon, Western Isles NHS Board and Dr K Ekstrand, Associate Prof in Copenhagen, Denmark

RESEARCH QUESTION(S)/HYPOTHESES:
The aim is to investigate the efficiency of the Ekstrand/Nexo approach to caries prevention when offered to toddlers, children and teenagers in areas of Scotland where the caries prevalence is higher than average.

PROJECT OUTLINE/METHODOLOGY:
A Randomised Controlled Trial is proposed using clusters based on communities or schools. Potential places for conducting the study are the Western Isles and the Highlands.

PROGRESS:
The first stage of this study has been a series of meetings with Professor Ekstrand and key parties in Scotland. The second stage has been further exploration of the Ekstrand/Nexo approach to caries prevention. Plans are being developed to adapt the methods for use in Scotland and in remote and rural settings.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
It is anticipated that this study will reveal whether the Nexo method of caries prevention (which involves children and parents being given detailed oral hygiene instruction, particularly on erupting teeth, and has shown impressive results in Denmark) would be effective in Scotland. Some of the characteristics of this approach sit very well with the new Action Plan and with the Kerr Report “Building a Health Service Fit for the Future” in being proactive about disease prevention and involving patients and parents more in health. It remains to be seen how acceptable these concepts will prove to be in contemporary Scotland.

IMPLICATIONS FOR PRACTICE OR POLICY:
Should this study conclude that the Nexo method would be effective in reducing the caries experience of children in Scotland, the study would highlight appropriate and cost-effective ways of preventing caries which may influence how such services are commissioned in Scotland. Discussions to date have indicated that there may be a good fit with the NES Rural and Remote Fellowship scheme. This might allow a linked PhD programme.
STUDY TITLE: Development of an International Caries Detection and Assessment System – ICDAS (iii) activity system

SPONSOR: CSO Core + IADR Fellowship

AMOUNT OF AWARD: *$14,993 (= £7,706)
Plus $54,998 (paid through the University of Michigan) from the NIH ($34,998) and American Dental Association ($20,000) (paid through the University of Michigan)
* award across all three ICDAS projects

DHSRU LEAD: Prof NB Pitts / Dr G Topping / Dr C Longbottom / Dr D Ricketts

COLLABORATORS: Prof A Ismail, University of Michigan; Dr K Ekstrand, University of Copenhagen; Prof D Zero, Indiana University

RESEARCH QUESTION(S)/HYPOTHESES:
Can an evidence-based and internationally unified system of caries activity assessment be created for use within dental caries epidemiology, caries clinical trials and clinical practice?

PROJECT OUTLINE/METHODOLOGY:
As described in ICDAS (i) the evidence for visual methods of caries assessment has been reviewed systematically in the fields of primary coronal caries, root caries and caries adjacent to restorations. An initial unified system of caries activity assessment has been developed and tested for reliability and validity as part of a research agenda. Further improvements and research are required in this field which is at the forefront of cariology research.

PROGRESS:
Repeated debate within the cariology community and at international Consensus Workshops has confirmed that assessing the activity of an individual lesion is seen as a holy grail which would unlock more effective caries prevention and control. This neglected area of research has been advanced by the systematic approach employed over the last 3 years but data shared this years shows that problems still remain when trying to apply clinically a synthesis of current best evidence.

The recent ICDAS Workshops in Baltimore and Indianapolis have defined a new research agenda for clinical caries activity assessment which the group is advancing. This will be taken forward further as a major theme of the ICDAS workshop taking place in Dundee in 2006. Research conducted at DHSRU during the sabbatical visit from Dr Kim Ekstrand on caries activity assessment in restored teeth has been completed and is currently being written up for submission to a peer-reviewed journal.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The work of this group will allow for high quality evidence to be collected about the activity status of individual lesions at a particular point in time. The initial application will be in clinical research and the development and evaluation of new caries preventive agents and procedures.

IMPLICATIONS FOR PRACTICE OR POLICY:
Once validated, these research criteria developed through this collaboration will offer a system of collecting valid caries activity data in the clinical setting. This will help take forward clinical caries prevention research and help individual clinicians make rational treatment decisions for their patients.
DCC 4

STUDY TITLE: Development and evaluation of Generalisable Evidence-based Targeted Caries Prevention of Pre-school children by integrated Primary care teams (GETCaPPP) – RCT of the preventive intervention in Dundee children

SPONSOR: NHS R&D

AMOUNT OF AWARD: Total available for both Milton Keynes and Dundee elements of research = £582,000 + £35,745 (Feb 2003) + £43,191 (Mar 2004)

DHSRU LEAD: Prof N Pitts / Dr C Longbottom

COLLABORATORS: Health Visitors, General Dental Services, Community Dental Services and Hospital Dental Service in Dundee, Health Economics Research Unit, University of Aberdeen.

RESEARCH QUESTION(S)/HYPOTHESES:
The objective was to develop and evaluate a caries preventive programme targeted at high-caries-risk children, within a Primary Care setting in order to reduce dental decay among pre-school children.

PROJECT OUTLINE/METHODOLOGY:
The study used a Randomised Controlled Clinical Trial methodology. Of all the children born in Dundee in the year 1999, nearly 1,000 children (78%) were consented to take part in the study and were aged 1 year at the start of the project. A caries prediction model previously developed in Dundee was used to determine the caries-risk status of each child.

PROGRESS:
The draft final report has been submitted and reviewer comments are being incorporated into the definitive final report. A PhD thesis is nearing completion. The results of the study showed that there were differences between the caries experience of the test and control groups, but these were not statistically significant. Further analysis revealed that where the preventive therapies were applied to the high-risk children, caries differences were statistically significant. The study results that GDP based prevention may not be optimal for pre-school children.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
It is hoped to link the outcomes of the study to the policy outcomes emerging from the Scottish Executive consultation documents on dental health in children and dental services.

IMPLICATIONS FOR PRACTICE OR POLICY:
Discussions were carried out with the Chief Dental Officer and the results of the study are feeding into the West of Scotland and East of Scotland Childsmile Demonstration Projects.
DCC 6

STUDY TITLE: Health Informatics with the Health Informatics Centre – MRC e-science proposal.

SPONSOR: CSO Core / Proposal to MRC for £60,876.26 was rejected
DHSRU LEAD: Prof NB Pitts / Dr J Clarkson
COLLABORATORS: Health Informatics Centre (HIC), University of Dundee

BACKGROUND: The vision of the Health Informatics Centre at the University of Dundee is to transform data into information that will improve health. Evidence based health information is at the heart of HIC’s vision for improving the quality of care and accurate characterisation of individuals and populations.

Building on an established track record, HIC will add value to data that are already available by using advanced methods for linking health records from several sources and by applying state-of-the-art methods for data-protection. This will facilitate interdisciplinary research and improve data access for researchers from Scotland, the rest of the UK and abroad.

A proposal was submitted to the MRC e-science programme to take work on observational studies and randomised controlled trials using grid technologies forward over a three year period in a phased approach. This proposal was rejected. Further funding sources are being reviewed.

DCC 7

STUDY TITLE: Conjoint Analysis of patients’ and dentists’ preferences for attributes of a caries diagnosis device

SPONSOR: CSO Core
DHSRU LEAD: Dr G Topping / Dr C Longbottom
COLLABORATORS: Dr Z Nugent; Dr E McIntosh, University of Oxford

RESEARCH QUESTION(S)/HYPOTHESES: Can Conjoint Analysis be used to elicit patients’ and dentists’ preferences in relation to attributes of a dental check-up for caries?

PROJECT OUTLINE/METHODOLOGY: Questionnaires were developed to identify the most important factors required to be included in a Conjoint Analysis study of patients’ and GDPs’ preferences. These ‘paired discrete choice’ questionnaires were sent out via post to a randomly selected group of adults. Analysis of the returned data was carried out according to Conjoint Analysis methodology.

PROGRESS: The results demonstrated that patients and dentists have slightly different preferences in relation to the factors affecting a dental check-up for caries and that their perceptions of the accuracy of current caries diagnostic methods are much higher than the literature indicates. Findings from this investigation have been presented at a meeting of the International Association for Dental Research.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD? This is only the second study in dentistry to use Conjoint Analysis methodology, and thus adds to the evidence base in an area of extremely limited knowledge.

IMPLICATIONS FOR PRACTICE OR POLICY: Further research is required to ascertain how other factors influence preferences and investigate how misunderstandings about caries diagnostic accuracy can be addressed.
Effective Dental Practice Programme

**Staffing**

- **Dr J Clarkson**  Programme Director (NES funded - 0.82 fte)
- **Dr D Bonetti**  Senior Researcher (CSO core funded)
- **Miss K Levin**  Statistician (CSO core funded)
- **Professor NB Pitts**  Unit Director (CSO core funded, 56% across all DHSRU work)
- **Mr S Turner**  Senior Researcher (NES, DHSRU, EDI and GDS funded)
- **Dr Andrea Baker**  Research Assistant (ESRC/University of Dundee funded, 0.6fte)
- **Ms D Lynas**  Project Administrator/Co-ordinator (NES funded, 0.8fte)
- **Dr C Tilley**  Health Economist (NES Seconded 01.07.05 - 30.06.06)
- **Ms P Smith**  Research Associate (CSO core funded, 0.7fte)

**ESRC Study**

- **Dr K Stringer**  Project Secretary (ESRC/Other funded – 0.5fte)

**Associate Staff**

- **Ms L Young**  Research Assistant (NES funded)

**PhD Students**

- **Mr A Haigh**  Part-time PhD student (NES funded)
- **Mrs F Stewart**  Part-time PhD student (University of Dundee Dental School)
- **Mr M Fernandes**  Completing PhD (The Wellcome Trust)
- **Ms A Glenny**  PhD completed (University of Manchester)

**Programme Update**

The Programme continues to respond to strategic developments in primary dental care services and dental postgraduate education. The research priority is to identify and evaluate strategies that might increase the implementation of research evidence in dental practice. The focus of research is on high quality trials in primary care, the conduct of systematic reviews relevant to the healthcare service and methodological research to inform future dental research.

The work of the Scottish Dental Practice Based Research Network (Scottish Dental PBRN) continues with annual funding of £60,000 from NES. The core activities of the network remain to promote the conduct of high quality research and dissemination of research evidence. Sustainability for a period of three years for Mr Steve Turner has been agreed with NHS Education for Scotland, University of Glasgow, University of Edinburgh and DHSRU to take forward primary care research. During the past year grant applications have been submitted to the Economic and Social Research Council (ESRC) and the Medical Research Council (MRC) for Scottish national randomised controlled trials in dental primary care collaborating with the practice based research network in the North East of England. These applications demonstrate the expertise and national collaboration that exists both in dentistry and health services research.

The ESRC trial to investigate financial incentives was awarded an alpha rating, however, the funders thought it more appropriate to be supported by the Scottish Executive or the MRC. The MRC trial to investigate scale and polish and routine oral health advice demonstrates our commitment to fulfilling the criteria for complex interventions; both the conduct of Cochrane Systematic Reviews and pilot trials have been undertaken by the programme to support the application. The collaboration with CSO’s Health Services Research Unit (HSRU) and Health Economics Research Unit (HERU) at the University of Aberdeen has been critical to the development of this project.
The 5th National Symposium of the Scottish Dental PBRN was attended by over sixty delegates from all sectors of the profession. Representatives of dental education, research and policy participated in the Symposium in addition to leaders in the clinical field of caries research and the editor of the British Dental Journal. The feedback has again been very positive, particularly regarding the decision to have a focus on a clinical area of uncertainty, i.e. whether caries removal should be minimal or conventional. Reported at the Symposium were the results of three pieces of work the Programme has contributed to. These were the results of the ERUPT study; a Cochrane Systematic Review of Minimal Versus Convention Caries Removal; and a trial of stainless steel crowns versus conventional restorations in children undertaken by a CSO Research Fellow at the University of Dundee.

Links between the Scottish Dental PBRN and the Scottish School of Primary Care continue. Scottish Practices and Professionals Involved in Research (SPPIRe) will be collaborating on the MRC trial if funded. Collaboration with a National Institutes of Health funded United States Dental Practice Based Research Network, PEARL, is progressing and an invitation has been made to take forward research projects that would be of interest to practitioners in both Scotland and the US.

The Programme has delivered results in the evaluation of implementation strategies for increasing evidence in dental practice. The results of the ERUPT study demonstrated that a fee for a preventive fissure sealant would increase the number of children receiving such care by 10%. The results of this trial were shared with Scottish Executive and have informed and influenced the policy decision to change the fee for item of service for this particular treatment. The results of this trial and other research on understanding dental professional behaviour change is leading to new research to develop and evaluate different implementation strategies and assess quality improvement strategies in practice. The results of the Vocational Dental Practitioners (VDP) cluster and patient randomised trial have been published in a Health Technology Assessment report and the Programme will continue this methodological research in collaboration with HSRU.

Collaboration with NES continues to be productive and to have impact on the organisation of educational activities. Examples include the randomised controlled trial evaluating different recruitment strategies for trainers of vocational dental practitioners, the cohort evaluations of vocational dental training across Scotland, North East and North West of England, Wales and Northern Ireland, undergraduate training in Dundee and Glasgow and vocational therapist training in Scotland. In addition to these evaluations of training the Programme has been involved with evaluating educational processes such as the introduction of electronic course registration for Section 63 and e-learning. The progress since 2004 of the National Dental Advisory Committees Clinical Effectiveness Programme, now called the Scottish Dental Clinical Effectiveness Programme (SDCEP), has been considerable. Dr Jan Clarkson, is Director of SDCEP and accountable to the Dental Postgraduate Dean of NHS Education for Scotland and the Chair of the National Dental Advisory Committee. There has been an increase in staff with two additional researchers and one administrator appointed in 2006. The first guidance document has been published and progress with the remaining six priority areas continues. The Scottish Dental Portal has been important and valuable for the consultation of draft guidance documents and informing the profession of the Scottish Dental CEP activity.

Collaboration with the Cochrane Oral Health Group continues. The NIDCR grant to take forward reviews in oral cancer has funded the first meeting of the International Cochrane Oral Cancer Group. The protocol for the treatment of oral cancer has been published and the review of surgical treatment will be the first to be undertaken in a series that will include radiotherapy and chemotherapy. A senior researcher has been appointed based in Manchester and in addition to supporting the oral cancer reviews they will assist with updating reviews of the management of complications associated with cancer treatment. The UK Childhood Cancer Support Group has published a guideline for the management of children with cancer based on the Cochrane Reviews in this area. This work formed part of Dr A Glenny’s PhD in addition to an appraisal of guidelines in dentistry. The translation of Systematic Review evidence to guidance and the design of trials continue to be a priority for the Programme. The most recent example is the application to the MRC for a scale and polish trial which is awaiting a final decision of the board in July 2006.

Dr Jan Clarkson
Programme Director
Effective Dental Practice Programme / NES Senior Lecturer
During the year the programme has advised and contributed to systematic reviews undertaken by the Centre for Disease Control (USA), the Health Technology Assessment Programme (UK) and the American Dental Association.

The future strategy for the Programme is to secure long-term funding for project staff; this will be achieved by building and consolidating our partnerships and applying for external grants. In addition to the development of randomised controlled trials, the plan is to design strategies to evaluate quality improvements in health care. Collaboration is underway with an Institute of Health Improvement Fellow from the University of Glasgow Dental School and an outline proposal has been submitted to the Health Foundation for an RCT to evaluate quality improvements in dental primary care.

Current Projects/Activities

This programme aims to answer three research questions:

(a) What promotes the appropriate use of research evidence in dental practice?
(b) How can systematic reviews inform evidence-based practice?
(c) How can methodological research inform future dental research?

The following table shows current projects and activities.

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<td>Scottish Molar Actuarial Life Table (MALT) Project</td>
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<td>4-EDP</td>
<td>Using psychological theory to further an understanding of GP and GDP participation in primary care research</td>
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<td>4-EDP</td>
<td>Using psychological theory to enhance intervention design and implementation: Vocational Trainer Study</td>
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<td>4-EDP</td>
<td>START Training recruitment Randomised Controlled Trial</td>
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<td>4-EDP</td>
<td>VDP-Trial: The effectiveness of evidence-based oral hygiene advice and instruction upon patient oral hygiene and self reported behaviour: a randomised controlled trial</td>
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<td>4-EDP</td>
<td>Feasibility and acceptability of a novel methods of caries prevention in children</td>
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<td>4-EDP</td>
<td>Bell’s Palsy: Early acyclovir or prednisolone in Scotland. A factorial trial of the early administration of steroids and/or antivirals for Bell’s Palsy</td>
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<td>4-EDP</td>
<td>Scale and polish and oral health advice outcomes study</td>
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<td>4-EDP</td>
<td>A financial implementation strategy for preventive dental care</td>
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<tr>
<td>4-EDP</td>
<td>UK survey of clinical practice issues requiring scientific assessment</td>
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<tr>
<td>4-EDP</td>
<td>A feasibility study to develop a tailored theory-based intervention to effectively deliver smoking cessation services in primary dental care</td>
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<td>7-EDP</td>
<td>A survey of current policy and practice in assessment of oral health needs and risks in patients with learning disabilities</td>
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<td>7-EDP</td>
<td>Process modelling in implementation research: Selecting a theoretical basis for interventions to change clinical practice (PRIME)</td>
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<td>Strategic framework area / Programme</td>
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<td>Public services: creating a clinical, economic &amp; psychological research resource</td>
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<td>Decontamination in primary care: an investigation into the barriers and facilitators to dissemination and implementation of best evidence</td>
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<td>8-EDP</td>
<td>An evaluation of dental therapist vocational training in Scotland</td>
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<td>8-EDP</td>
<td>An evaluation of final year dental undergraduate dental education</td>
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<td>A UK national cohort study evaluating dental vocational training – third year</td>
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<td>8-EDP</td>
<td>The effect of remuneration and education on the implementation of research evidence to reduce inequalities in oral health (Evidence from Research Used in Preventive Treatment (ERUPT) study)</td>
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<td>9-EDP</td>
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<td>9-EDP</td>
<td>Research into dental primary care and collaboration with organisations to contribute towards delivering Scotland-wide research</td>
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<td>12-EDP</td>
<td>Cochrane Systematic Review on the effectiveness of interventions for preventing oral candidiasis for patients with cancer receiving treatment</td>
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<td>12-EDP</td>
<td>Cochrane Systematic Review of the effectiveness of interventions for treating oral candidiasis for patients receiving cancer treatment</td>
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<td>Cochrane Systematic Review of interventions for preventing oral mucositis for patients receiving cancer treatment</td>
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<td>Cochrane Systematic Review of treatment of mucositis in patients treated for cancer</td>
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<td>12-EDP</td>
<td>Cochrane Systematic Reviews to determine the most effective intervention(s) to treat oral cancer and prevent/treat oral complications associated with cancer treatment</td>
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<td>12-EDP</td>
<td>Cochrane Systematic Review of the effectiveness of chair side oral health advice</td>
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<td>12-EDP</td>
<td>Cochrane Systematic Review of the effectiveness of recall intervals for oral health in primary care patients</td>
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<td>12-EDP</td>
<td>Cochrane Systematic Review of the effectiveness of routine scale and polish for periodontal health in adults</td>
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<td>12-EDP</td>
<td>Cochrane Systematic Review of the effectiveness of slow-release fluoride devices for the control of dental decay</td>
<td>C</td>
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Status:  
Core funding = C  
External funding = E  
Study under development (Proposed) = P
EDP 4

STUDY TITLE: Scottish Molar Actuarial Life Table (MALT) Project

SPONSOR: Wellcome Trust

AMOUNT OF AWARD: £193,119 Additional funding of £68,530 from TayRen, FresCo, GRID and the Wellcome Trust

DHSRU LEAD: Prof NB Pitts / Mr M Fernandes (PhD student) / Dr J Clarkson / Dr C Longbottom

COLLABORATORS: Regional Primary Care Networks, Glasgow and Prof G Ogden of Dundee Dental Hospital, TayRen, FresCo, GRID and HIC collaborators (Dr D Ruta, Prof I Crombie).

RESEARCH QUESTION(S)/HYPOTHESES:
The aim was to determine the natural history of pathology-free impacted lower third molars that might help dentists to decide whether or not to remove these teeth on an individual basis.

PROJECT OUTLINE/METHODOLOGY:
Patients were recruited from GDPs in Tayside, Fife and Glasgow and followed up for a year to determine the rate of pathology development in initially pathology-free impacted lower wisdom teeth. Data collected was used to build an actuarial life table that could help dentists decide whether or not to extract these teeth on an individual basis.

PROGRESS:
Baseline and follow-up assessments have been completed. Analysis of the Tayside data shows that the incidence of symptoms in the sample over one year was 20% and 26% for teeth and patients respectively. Marcello Fernandes is currently writing up his PhD.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The life table could help dentists to decide whether or not to remove impacted lower wisdom teeth on an individual basis.

IMPLICATIONS FOR PRACTICE OR POLICY:
Results may influence health authorities on the issuing of guidelines and recommendations on the extraction of impacted wisdom teeth. These results may also add more evidence to support the discontinuation of prophylactic removal of impacted wisdom teeth.

EDP 4

STUDY TITLE: Using psychological theory to further an understanding of GP and GDP participation in primary care research

SPONSOR: EastRen

AMOUNT OF AWARD: £14,812

DHSRU LEAD: Dr D Bonetti / Dr J Clarkson

COLLABORATORS: Scottish Dental PBRN, Prof F Sullivan, (Head of Community Health Sciences, University of Dundee), Dr C Jackson (GMP), Ms M Pitkeathly (East Ren), Mr P Higginson (GDP)

RESEARCH QUESTION(S)/HYPOTHESES:
What do general dental practitioners and general medical practitioners believe are the barriers and facilitators of research participation?

PROJECT OUTLINE/METHODOLOGY:
Semi-structured interviews were conducted with 15 General Dental Practitioners (GDPs) and 15 General Medical Practitioners (GMPs) in primary care. Questions in the schedule were developed using an established qualitative technique in psychology for eliciting salient beliefs relating to barriers and facilitators of performing a behaviour. A content analysis was performed with responses grouped by participant type (GDP or GMP), categorized as barriers or facilitators of research participation, then coded into behavioural, normative and control beliefs. Responses were defined as behavioural beliefs if they outlined a possible outcome of participating in research; as normative beliefs if they referred to people or groups who are thought to influence decisions to participate in research and as control beliefs if they referred to factors that might prevent or encourage participation in research. The results of the content analysis were used to develop a single postal questionnaire which will be sent to study participants and members of the steering group for comments and suggestions.
PROGRESS:
The interviews and content analysis have been completed. Salient beliefs of GMPs and GDPs concerning the barriers and facilitators of participating in research were practice, patient, clinician and research-related. The majority of statements were behavioural, indicating that GPs and GDPs are less likely to be influenced by what others think they should do. Instead, beliefs about what would happen if they participate in research and beliefs about whether they are able to participate in research appear to be the more influential for this behaviour. The high degree of concordance between the beliefs of GMPs and GDPs on the barriers and facilitators of research participation in primary care, enabled the development of a single, clinician-relevant questionnaire which will be piloted in the near future.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The problems with recruiting sufficiently representative samples of primary care practitioners and the associated time and effort in trying to do so, are well known. There has been little or no attempt to place issues around recruitment within a potentially generalisable theoretical framework. Such a framework would provide a platform for developing and evaluating interventions to promote improved research participation – consistent with the MRC model for developing and testing complex interventions. This study represents the necessary first stage.

IMPLICATIONS FOR PRACTICE OR POLICY:
Given the current NHS imperative toward the implementation of evidence-based practice in primary care, the study should provide a platform for ensuring the quality and generalisability of this evidence.

EDP 4
STUDY TITLE: Using psychological theory to enhance intervention design and implementation: Dental Vocational Trainer Study

SPONSOR: Scottish Dental PBRN / CSO Core
DHSRU LEAD: Dr D Bonetti / Dr J Clarkson
COLLABORATORS: NHS Education for Scotland, Scottish Dental PBRN

RESEARCH QUESTION(S)/HYPOTHESES:
What beliefs underpin the intention to become a dental trainer?

PROJECT OUTLINE/METHODOLOGY:
The rationale of this study was that psychological theory could be applied to further an understanding of the beliefs that underpin motivation to become a trainer. Predictive measures were derived from social cognitive theory and include outcome expectancy items (attitude toward being a trainer, attitude toward attending the trainer course) and self efficacy items (confidence in ability to train). The main outcome was intention to become a trainer. A questionnaire was distributed to dentists at the beginning of every CPD course conducted in November 2004, irrespective of the course content, by the five regional office administrators.

PROGRESS:
The survey and analysis is completed. Training self-efficacy accounted for the majority of the variance explained in intention to become a trainer.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This study furthered an understanding of what underpins dentists’ intention to become a trainer. Using a psychological model as a framework for the questionnaire provided a rationale for both the target and the format of an intervention. The results suggest that an intervention with the greatest likelihood of success in terms of encouraging dentists to become trainers would be one which targets training self-efficacy and which addresses the concerns of both motivated and unmotivated dentists in terms of both teaching and evaluative aspects of training.
Despite substantial monetary incentives, the recruitment rate of trainers is low and currently there is no knowledge or understanding about what influences the decision to become a trainer. In addition, the demand for new trainers may even increase, given the current move across the UK toward mandatory formal assessment throughout the training year and the debate about increasing the length of the post-graduate training period. If dental graduates cannot find a place with a trainer, then they cannot practice as NHS dentists. This is of particular relevance in the current climate of uncertainty and recrimination relating to lack of access to NHS dentists and waiting times.

**EDP 4**

**STUDY TITLE:** START (Scottish Trainer Training Course) Training recruitment Randomised Controlled Trial

**SPONSOR:** Scottish Dental PBRN / CSO Core

**DHSRU LEAD:** Dr D Bonetti / Dr J Clarkson

**COLLABORATORS:** NHS Education for Scotland

**RESEARCH QUESTION(S)/HYPOTHESES:**

What results in the highest START information pack request rate: pamphlet or persuasive letter, with or without a prepaid return envelope?

**PROJECT OUTLINE/METHODOLOGY:**

The results of a previous study (Using psychological theory to enhance intervention design and implementation: Vocational Trainer Study) suggested that an intervention with the greatest likelihood of success of encouraging dentists to become trainers would target training self-efficacy and address concerns relating to teaching and evaluative aspects of training. The format and content of the intervention was designed using a psychological framework (social cognitive theory). A letter was developed, which contained persuasive statements, positive statements from experienced trainers, information about incentives and goal setting – all elements which, theoretically, should influence self-efficacy expectancies. All GDPs in Scotland (unless they had already undertaken START Training) were randomly allocated to receive an invitation to sign up for the course in the form of a pamphlet; pamphlet with prepaid envelope; persuasive letter or persuasive letter with prepaid envelope. The outcome variable was the number of requests for the START course information pack.

**PROGRESS:**

The survey and analysis has been completed. No significant difference in response rate was found between receiving a letter or pamphlet. Enclosing a pre-paid envelope encouraged both requests for information packs and actual applications to START. Attending the information night did not appear to influence the decision to apply to START.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**

This study builds on previous work, which provided information about salient beliefs underpinning intention to become a dental trainer. It applies a psychological framework to the design of its intervention, explicitly stating the active ingredients, so that it is possible to understand how the intervention is expected to achieve its effects.

**IMPLICATIONS FOR PRACTICE OR POLICY:**

There is great concern over the low recruitment rate of dental trainers. This study has the potential to increase the number of dental trainers signing up for the START courses.
EDP 4

STUDY TITLE: Feasibility and acceptability of a novel method of caries prevention in children

SPONSOR: EastRen

AMOUNT OF AWARD: £14,952

DHSRU LEAD: Dr J Clarkson / Prof N Pitts

COLLABORATORS: Scotland-wide Fluoride Bead Coordinating committee. Three academic dental Centres in Scotland (at the Universities of Glasgow, Dundee and Edinburgh), from Dental Public Health, General Dental Practice, the Community Dental Services, University of Leeds

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Little is known about how best to impart oral health advice. This study has shown that psychological theory can be used to facilitate a simple, but effective, intervention to influence toothbrushing behaviour in general dental practice. The methodology used in this trial will inform the future design of educational randomised controlled trials in general practice.

IMPLICATIONS FOR PRACTICE OR POLICY:
The study will help inform current oral health strategy and development in Scotland.
RESEARCH QUESTION(S)/HYPOTHESES:
To investigate the feasibility and acceptability of slow release fluoride beads in children.

PROJECT OUTLINE/METHODOLOGY:
Samples of slow release fluoride beads will be provided by the manufacturer at no cost for this pilot project. The research team have an established and long term collaborative relationship with the development group (University of Leeds) and the manufacturer. Fifteen dentists will be recruited from EastRen for the pilot project. The dentists and their dental nurse will be trained in the technique at a full day course in Dundee. Dentists will recruit and consent 10 patients aged 6-10 years old who are considered to be at risk of dental decay and eligible for enhanced capitation. The fluoride bead will be bonded to the buccal surface of an upper molar tooth. Outcome data will be collected from both patients and dentists with respect to retention and acceptability. Clinical data will be collected at 3 months. Behavioural questionnaires will be given to dentists and participants. Qualitative follow-up will consist of a half-day forum with a focus group for dentists and dental nurses.

PROGRESS:
Recruitment of general dental practitioners began at the Scottish Dental PBRN Symposium. Training of the dentists will commence in September 2006 at the newly opened Dundee Dental Education Centre where a Clinical Skills facility will enable hands-on training. Patient recruitment will take place in October and November 2006.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Although there is international interest in this novel technique, the evidence is sparse. This pilot study will be the first to assess the feasibility and acceptability of this technique.

IMPLICATIONS FOR PRACTICE OR POLICY:
The study will principally inform the development of future research. If the device is found to be effective there will be implications for treatment schedules within NHS and private practice.

EDP 4
STUDY TITLE: Bell’s Palsy: Early acyclovir or prednisolone in Scotland. A factorial trial of the early administration of steroids and/or antivirals for Bell’s Palsy

SPONSOR: Health Technology Assessment Programme (HTA)

AMOUNT OF AWARD: £427,491 Tayside Centre for General Practice + additional award £95,184

DHSRU LEAD: Dr J Clarkson (as project co-applicant)

COLLABORATORS: Tayside Centre for General Practice, ENT specialists, Neurologists, Departments of General Practice in Glasgow and Aberdeen, Health Economics Research Unit, NHS 24

RESEARCH QUESTION(S)/HYPOTHESES:
Bell’s palsy is a debilitating condition annually affecting 33 per 100,000 adults in Scotland. There is uncertainty about the most effective treatment based upon Cochrane systematic reviews. Prof Frank Sullivan (Professor of Research and Development in General Practice, University of Dundee) co-ordinated the grant application to conduct a trial comparing alternative pharmacological treatments. The null hypothesis is that treatment with prednisolone (50mg per day for 1 week) and/or acyclovir (2000mg per day for 10 days or one of its esters with higher tissue penetration) commenced within the first 48 hours of onset of Bell’s palsy results in the same level of disability after one year as treatment with placebo.
PROJECT OUTLINE/METHODOLOGY:
A multi-centre randomised controlled trial of factorial design to:
• describe the resolution of neurological deficit, and cosmetic, psychological and functional recovery in each of the four groups of patients
• determine which group of patients i.e. prednisolone, acyclovir, both or neither have the greatest reduction in neurological disability scores on the House and Brackmann grading system at 9 months
• compare the prevalence of somatic symptoms, anxiety, social functioning and severe depression measured by General Health Questionnaire in the four groups
• compare the incremental costs per neurological deficit resolved in the study groups

PROGRESS:
Recruitment of patients is complete.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study provides evidence for practice across health care settings.

IMPLICATIONS FOR PRACTICE OR POLICY:
This is the first national, multi-centre trial for Bell’s Palsy and will have implications on dissemination and future research in this area. In addition, there is potential for early stage detection and management of this condition across primary care.

EDP 4
STUDY TITLE: Scale and polish and oral health advice outcomes study

SPONSOR: MRC

AMOUNT OF AWARD: £3,800,001 (application pending)

DHSRU LEAD: Dr J Clarkson

COLLABORATORS: Scottish Dental PBRN; HSRU, HERU and ChaRT; University of Aberdeen; NoDRIL; Newcastle University; University of Manchester; Edinburgh Postgraduate Dental Institute; Glasgow Dental Hospital & School; Queensway Dental Practice, Birmingham; Forth Valley NHS Board; West of Scotland Centre for PDE

RESEARCH QUESTION(S)/HYPOTHESES:
Do routine dental scale and polish, or oral health advice, or both, lead to cost-effective improvements in periodontal health and patient self-care?

PROJECT OUTLINE/METHODOLOGY:
The design of the study is a 5 year pragmatic, multi-centre, prospective, randomised, open trial with blinded outcome evaluation. The trial will be conducted throughout Scotland and in the North of England. Sixty dentists will be randomised to provide either simple or enhanced oral hygiene advice. Each dentist will recruit 31 patients who will be randomised to receive no scale and polish, 6 monthly or 12 monthly scale and polish.

PROGRESS:
Following submission of an outline application in May 2005, a full funding bid was invited. This was submitted in February 2006. The outcome of the bid will be known in August 2006.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This will be the first large multi-centre trial investigating the effectiveness and cost effectiveness of routine scale and polish in general dental practice.

IMPLICATIONS FOR PRACTICE OR POLICY:
Routine scale and polish is one of the most frequently performed dental treatments, but evidence to inform clinicians and patients of its effect on periodontal health or the optimal frequency at which it should be carried out is currently lacking.
STUDY TITLE: A financial implementation strategy for preventive dental care. Effects at the intensive margin: an experimental approach

SPONSOR: Seeking sponsor

AMOUNT OF AWARD: £790,459 (rejected by ESRC)

DHSRU LEAD: Dr J Clarkson, Ms L Young, Dr C Tilley

COLLABORATORS: Prof M Chalkley, Dept of Economic Studies, University of Dundee

RESEARCH QUESTION(S)/HYPOTHESES:
Can a financial implementation strategy for provision of preventive treatment, where there is a strong evidence base but no direct remuneration, encourage policy relevant, appropriate, cost effective care, and does this vary across contracts?

PROJECT OUTLINE/METHODOLOGY:
This proposal enables an experimental approach to be taken towards the evaluation of the marginal impact of a targeted fee for the provision of an evidence-based preventive treatment - fissure sealant (PFS) in general dental practice, within and across different remuneration structures. Two approaches will be followed; a discrete choice experiment (DCE) to elicit dentists’ stated willingness to provide PFSs and a pragmatic, cluster randomised controlled trial (CRCT) to evaluate dentist responsiveness to varying the amount of a targeted PFS fee. Conducting both experiments in a single study enables comparison of the hypothetical choices made under the DCE with the actual choices made during the CRCT.

PROGRESS:
The project was Alpha-rated but unfunded by the ESRC. Other funding sources are currently being pursued.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This will be the first large study to combine two distinct experimental methods to address a number of scientific and policy issues, using the NHS dental service as a model. Applying the gold standard of research methods to prospectively evaluate the impact of a financial incentive on health care provision will provide a level of evidence currently lacking in the empirical literature. Demonstrating that experimental methods can be successfully applied in this area of research may also stimulate researchers to consider and apply less traditional, but equally appropriate research methods to other areas. The DCE is a potentially useful tool with practical implications for decision makers across all public service policy jurisdictions and the methods employed in this study will enable testing of the external validity of DCEs, and exploration of methods to combine revealed and stated preference data.

IMPLICATIONS FOR PRACTICE OR POLICY:
The study also considers the relationship between incentives and psychological theories of behaviour strengthening the foundation for future research in the development of interventions to specifically target potentially mediating cognitions.

STUDY TITLE: UK survey of clinical practice issues requiring scientific assessment

SPONSOR: Scottish Dental PBRN / CSO Core

DHSRU LEAD: Dr J Clarkson / Ms L Young

COLLABORATORS: Scottish Dental PBRN, Scottish Dental Clinical Effectiveness Programme, North Western Deanery, Oral Health Group, Cochrane Collaboration, American Dental Association

RESEARCH QUESTION(S)/HYPOTHESES:
The aim of the study is to inform the future direction of dental research by identifying and prioritising the importance of clinical practice issues according to the needs of the practicing dentist.
PROJECT OUTLINE/METHODOLOGY:
The 2006 American Dental Association Survey of Clinical Practice Issues Requiring Scientific Assessment was adapted for use in the UK. The UK version was sent to a random sample of 450 dentists in Scotland and the North West of England.

PROGRESS:
Interim results show that the most important clinical issues requiring scientific assessment are the efficacy of routine scale and polish procedures in preventing periodontitis and the most appropriate clinical management of both very early (pre-cavitation) and more established (dentinally involved) carious lesions.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Previous studies identifying research priorities have not specifically addressed the full range of dental issues.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results will inform the future dental research agenda and future development of clinical practice guidelines in dentistry.

EDP 4
STUDY TITLE: A feasibility study to develop a tailored theory-based intervention to effectively deliver smoking cessation services in primary dental care.

SPONSOR: Funding being sought
DHSRU LEAD: Dr J Clarkson / Mr S Turner / Dr D Bonetti
COLLABORATORS: Newcastle University, University of Aberdeen, Glasgow Dental School, Action on Smoking and Health (ASH)

RESEARCH QUESTION(S)/HYPOTHESES:
The aim of this study will be to develop a theory-based intervention to promote the provision of smoking cessation advice to people attending primary care dental practices. The objectives are to:
• define an appropriate model for a smoking cessation intervention that could be applied in general dental practice.
• to identify, within a theoretical framework, factors that influence dental health practitioners and patients in the provision and receipt of smoking cessation advice within primary care dentistry.
• develop a theory-based intervention that promotes the provision of smoking cessation services in primary care dentistry by targeting those factors identified above that are amenable to change.
• establish methods of identifying generalisable samples of dental health professionals and their patients.

PROJECT OUTLINE/METHODOLOGY:
A review of studies that have delivered smoking cessation interventions in dental and medical practice will be undertaken. Interviews with dental health practitioners and patients will be held to elicit attitudes toward the provision and receipt of smoking cessation advice. This will help identify factors that are modifiable and the best predictors of behavioural intentions to develop a theory-based intervention that promotes smoking cessation services in primary care.

PROGRESS:
An initial outline application to the National Prevention Research Initiative for £167,000 was unsuccessful. The collaborators have met to discuss re-submission and application to alternative funding bodies.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This study would add to knowledge about the use of theory to develop interventions to change behaviour of health care professionals.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results of this study would progress to the development of a trial that would help inform the profession, policy makers and service purchasers of the most effective route to delivering smoking cessation services in primary care dentistry.
EDP 7

STUDY TITLE: A survey of current policy and practice in assessment of oral health needs and risks in patients with learning disabilities

SPONSOR: EastRen
AMOUNT OF AWARD: £14,746
DHSRU LEAD: Mr S Turner
COLLABORATORS: Dundee Dental School, Glasgow Dental School & Scottish School of Primary Care

RESEARCH QUESTION(S)/HYPOTHESES:
What are the nature and scope of risk assessment arrangements currently in use in Scotland? What is the level of agreement on the value of a common oral health risk assessment tool for people with learning disabilities? What elements of form and content are perceived to be necessary or valuable elements in risk assessment?

PROJECT OUTLINE/METHODOLOGY:
Clinical Dental Directors of the fifteen Health Boards were asked to provide written material (proforma, guidance notes, policy documents) pertaining to oral health risk assessment for people with learning disabilities. A postal survey was made of all Dental Service Managers, Consultants in Dental Public Health, Senior Community Dental Officers, Community Dental Officers and selected GDPs in Scotland to establish how risk assessment arrangements operate in practice. Protocol development, content/scope, ownership and risk management measures were covered. Other agencies such as care homes and Social Work Departments will also be contacted.

PROGRESS:
Clinical Dental Directors in all fifteen Health Boards responded to the request for information with nine providing documentation and six indicating that no such material was in use for this patient group. Following piloting, in April/May 2006 a questionnaire was sent to the groups described above. By the end of May 2006, 140 responses had been received. Further reminders are being sent.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The extent to which oral health is currently included in setting standards of care among community care groups, either alone or as part of a more comprehensive assessment of needs and risks, is currently unclear.

IMPLICATIONS FOR PRACTICE OR POLICY:
This exercise will clarify current practice regarding oral health risk assessment in Scotland for people with learning disabilities. It will inform the development and testing of a common assessment strategy.

EDP 7

STUDY TITLE: Process modelling in implementation research: Selecting a theoretical basis for interventions to change clinical practice (PRIME)

SPONSOR: Medical Research Council
AMOUNT OF AWARD: £497,688 (£33,048 to DHSRU)
DHSRU LEAD: Prof N B Pitts
COLLABORATORS: Prof M Johnston, University of Aberdeen; Prof M Eccles and Mr N Steen, Newcastle University, Prof J Grimshaw, University of Ottawa

RESEARCH QUESTION(S)/HYPOTHESES:
The aim of this study was to establish a scientific rationale for interventions to translate research findings into clinical practice.
PROJECT OUTLINE/METHODOLOGY:
Five studies were conducted, two focused on general medical practice, three on general dental practice. In each study, the initial stage involved semi-structured interviews with GMPs and GDPs which were then coded and analysed within the theoretical frameworks used in the work. These analyses were used to develop postal surveys to identify which variables (theoretical constructs) predicted clinical practice, as assessed from routinely collected clinical data. These data were primarily analysed using multiple regression techniques.

PROGRESS:
The main results show that different theoretical constructs are predictive of different clinical practices. Some models perform better than others e.g. Social Cognitive Theory performs better than the Self-Regulation Model. The models are also successful in predicting the secondary outcomes of what practitioners say they do and what they intend to do. As there was no data on the range of other possible behaviours in each clinical area it was not possible to predict evidence of non-compliant behaviour. The inherent complexity of understanding clinical behaviour in a theoretical framework, the lack of experience in operationalising theory (as the MRC complex Interventions suggests) and the health services research issues in obtaining good measures of individual clinical behaviour was demonstrated.

The results allow some progress to be made. For example, the results on the prescribing of antibiotics for upper respiratory tract infections indicate that this might best be addressed via changes in variables that are non-volitional and currently there is work on the development of an intervention based on these findings.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
A systematic review in progress has identified 12 published studies where psychological models have been used to predict clinical behaviour; only five of these used objectively measured rather than self-reported measures of behaviour. This work has doubled the world literature in this area.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results of this study will be used to guide the development of more appropriate and effective training and support packages designed to enable clinicians to implement evidence-based practice.

EDP 7
STUDY TITLE: Public services: creating a clinical, economic & psychological research resource
SPONSOR: Economic and Social Research Council
AMOUNT OF AWARD: £46,076
DHSRU LEAD: Dr J Clarkson / Ms L Young / Dr C Tilley / Dr D Bonetti
COLLABORATORS: Prof M Chalkley, Department of Economic Studies, University of Dundee and the Scottish Dental PBRN

RESEARCH QUESTION(S)/HYPOTHESES:
What is the effect of different contractual arrangements for the provision of primary dental care on the numbers of patients treated and the treatment course mix of NHS primary dental care; and the preferences, attitudes and beliefs of newly qualified dentists?

PROJECT OUTLINE/METHODOLOGY:
This study is a natural experiment which utilises the expected changes to the NHS dental remuneration contract. All dentists who undertook dental vocational training in Scotland, Wales, Northern Ireland, and the Northern and North Western Deaneries in England during 2003/04 and 2004/05 will be asked to take part. A UK cross-national database linking the participants routinely collected treatment data with psychological data gathered using postal questionnaires will be developed. This database will be used to evaluate the impact of the new contracts from a clinical, economic and psychological perspective.
PROGRESS:
A project administrator has been appointed. To date, 120 dentists have agreed to take part and recruitment is ongoing. Baseline questionnaires have been completed by recruited dentists. Follow-up questionnaires will be sent out in October/November 2006. Access to treatment data in England, Wales and Northern Ireland has been agreed.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
A key issue in the design of contracts for health care is how financial incentives affect clinician behaviour and service delivery. Our present understanding is based mainly on the theoretical literature. There are few empirical studies to test and quantify theoretical predictions because of stringent data requirements. In particular, theory recognises that concerns other than profit-maximisation may be important determinants of clinician behaviour, but clinician characteristics which may offset financial incentives are typically unobservable. In this study, direct measures of dentists’ characteristics (psychological attributes) will be generated and record linked to the dentists’ routinely collected treatment data and this will enable testing of theoretical predictions and quantification of the impact of different dental contracts on the numbers of patients treated and the treatment mix provided.

IMPLICATIONS FOR PRACTICE OR POLICY:
This study will inform and directly feed into the ongoing policy initiatives surrounding contractual change in the primary care dental service. However, the policy relevance of the study is much wider and this research will help inform policy makers across the range of health service jurisdictions.

EDP 7
STUDY TITLE: Decontamination in primary care: an investigation into the barriers and facilitators to dissemination and implementation of best evidence

SPONSOR: NHS Education for Scotland (NES)

AMOUNT OF AWARD: £25,000 to Mr Alex Haig, NHS Education for Scotland

DHSRU LEAD: Dr J Clarkson and Dr D Bonetti

COLLABORATORS: Dr D Stirling and Ms L Young, National Dental Advisory Committee Clinical Effectiveness Programme

RESEARCH QUESTION(S)/HYPOTHESES:
The aim of this study is to identify the barriers and facilitators to implementing best evidence for decontamination of equipment in primary care dentistry.

PROJECT OUTLINE METHODOLOGY:
The methodology has been developed and successfully implemented in previous studies investigating the barriers and facilitators of evidence based practice in dental primary care. It involves a national survey using a questionnaire, which will be informed by a pilot study.

PROGRESS:
Funding has been awarded. The design of the pilot study is now in progress.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Little is currently known about the barriers and facilitators to decontamination in primary care dental practice. This study will add to the evidence base.

IMPLICATIONS FOR PRACTICE OR POLICY:
The decontamination of equipment in primary care, with the risks of potential transmission of vCJD, Hepatitis C, etc., has become a priority across the NHS. This study would be addressing this issue in dentistry in Scotland. The research will link with the work of the National Dental Advisory Committee which is currently devising clinical guidance for decontamination. This project will inform a consequent trial of educational interventions.
EDP 8
STUDY TITLE: An evaluation of dental therapist vocational training in Scotland

SPONSOR: Scottish Dental PBRN / CSO Core
DHSRU LEAD: Dr J Clarkson / Ms L Young
COLLABORATORS: Mr A Walker, NHS Education for Scotland

RESEARCH QUESTION(S)/HYPOTHESES:
Does vocational dental therapist (VDT) training enhance newly qualified therapists’ clinical and administrative competence and promote the high standards required to become caring, knowledgeable, skilful and reflective practitioners who are capable of providing effective and safe dental care for their patients?

PROJECT OUTLINE/METHODOLOGY:
This is a pilot study of VDT training in Scotland. A mandatory formal system of assessment is part of the VDT training year and VDTs must demonstrate satisfactory completion. The VDT course curriculum, competencies, assessment process and employment contract programme is modelled on the Vocational Dental Practitioner (VDP) programme. A self-administered questionnaire was sent to VDTs in April 2006. The questionnaire was underpinned by two theories of behaviour; Social Cognitive Theory and the Theory of Planned Behaviour and sub-divided into individual sections each addressing one of the study objectives. Another questionnaire will be sent out in November 2006.

PROGRESS:
VDTs were confident in the majority of areas of clinical practice evaluated. The choices made in their clinical decision making were backed by reasoned argument and concern for the welfare for the patient. Attitudes to the training course were generally positive with the VDTs indicating their experiences and activities were beneficial, useful and comforting, although sometimes challenging. Three out of five VDTs intend to remain in Scotland once their training is complete. Overall, the outcomes evaluated were favourable and suggest that the therapist vocational training course is successfully providing the educational experience necessary for VDTs to consolidate and improve their skills allowing them to develop into caring, knowledgeable, competent and reflective dental professionals.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study has provided the first prospective evaluation of vocational dental therapist training in Scotland.

IMPLICATIONS FOR PRACTICE OR POLICY:
The evaluation will inform the future development of vocational dental therapist training in Scotland.

EDP 8
STUDY TITLE: An evaluation of final year dental undergraduate dental education

SPONSOR: Scottish Dental PBRN / CSO Core
DHSRU LEAD: Dr J Clarkson / Ms L Young / Dr D Bonetti
COLLABORATORS: Prof P Mossey; Dr J Newton, Dundee Dental School; Dr V Bissell, Glasgow Dental School

RESEARCH QUESTION(S)/HYPOTHESES:
The aims were to evaluate student outcomes from undergraduate dental education in terms of their confidence, attitudes and beliefs towards dental practice; inform the future development of the undergraduate dental education curriculum; and provide baseline information for future studies that relate to workforce issues and the provision of dental care in Scotland.
PROJECT OUTLINE/METHODOLOGY:
A questionnaire utilising two theories of behaviour – Social Cognitive Theory and the Theory of Planned Behaviour – was developed specifically for this study. During the pilot phase of the study in 2005, the questionnaire was sent to all final year undergraduate dental students at Dundee Dental School. Following this successful pilot, the questionnaire was sent to all final year undergraduates in Dundee and Glasgow Dental Schools in 2006.

PROGRESS:
In the pilot phase, 47 students returned a completed questionnaire giving a response rate of 94%. Students reported being confident in all areas of clinical practice considered except for two. Attitudes towards the final year were generally positive and practicing in an outreach environment was considered beneficial and appropriate to their training needs. The majority intend to undertake dental vocational training and 77% intend to practice in Scotland. The 2006 questionnaire was distributed to students in May 2006. No results are currently available.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This study will provide the first prospective, comparative evaluation of student outcomes from undergraduate dental education in Scotland.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results of the pilot study have helped inform curriculum development within Dundee Dental School. In future, the continuation and development of the study will help inform curriculum development in all dental schools in Scotland and will enable evaluation of the impact of specific educational and policy initiatives e.g. outreach. Useful information for studies and interventions concerning workforce planning in NHS dentistry will be provided. The linkage between this study and the National Cohort Study will enable longitudinal follow-up across the undergraduate/postgraduate dental education interface.

EDP 8
STUDY TITLE: A UK national cohort study evaluating dental vocational training – third year
SPONSOR: Scottish Dental PBRN / NHS Education for Scotland
AMOUNT OF AWARD: £12,600
DHSRU LEAD: Dr J Clarkson / Dr D Bonetti / Ms L Young
COLLABORATORS: SDPBRN, NHS Education for Scotland, University of Manchester (North Western Deanery), Newcastle University (Northern Deanery), The Northern Ireland Medical and Dental Training Agency, University of Wales College of Medicine.

RESEARCH QUESTION(S)/HYPOTHESES:
Does dental vocational training enhance newly qualified dentists’ clinical and administrative competence and promote the high standards required to meet the needs of unsupervised general dental practice? What is the impact of formal assessment in dental vocational training for patient care, the dental professional and the delivery of NHS primary dental care?

PROJECT OUTLINE/METHODOLOGY:
This is a controlled cohort study of dental vocational training in areas of the UK with and without formal assessment of vocational dental practitioners (VDPs). In Scotland, a mandatory formal system of assessment is part of the dental vocational training year and VDPs must demonstrate satisfactory completion before being issued with an NHS list number. The dental vocational training teams in Northern Ireland, Wales, the Northern and North Western Deaneries in England, where there is no formal assessment, are the control cohorts.
PROGRESS:
A stakeholder consultation was carried out in June 2003 which identified 23 potential outcomes for evaluation. Broadly categorised outcomes identified were the effect of dental vocational training for patient care, the dental professional, and the delivery of NHS primary dental care, including the implementation of evidence-based practice and workforce planning issues such as recruitment and retention of dentists. Following the consultation, outset and end of vocational training year questionnaires which considered a number of VDP outcomes were developed. The questionnaires were distributed to 3 VDP cohorts. Analysis of the data indicates that VDPs intend to keep up to date with new evidence relating to their practice and are confident they can do so. Views surrounding assessment are mixed. There were differences between VDPs in Scotland and those in the other Deaneries.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study has provided the first prospective, comparative evaluation of dental vocational training in all four UK countries.

IMPLICATIONS FOR PRACTICE OR POLICY:
The evaluation will inform the future development of dental vocational training in all four UK countries.

EDP 8
STUDY TITLE: The effect of remuneration and education on the implementation of research evidence to reduce inequalities in oral health (Evidence from Research Used in Preventive Treatment (ERUPT) study).

SPONSOR: CSO / SHEFC / Scottish Consortium

AMOUNT OF AWARD: £197,874 / £166,599 / £23,381

DHSRU LEAD: Dr J Clarkson

COLLABORATORS: Universities of Aberdeen, Edinburgh, Glasgow, St Andrews, Practitioner Services Division

RESEARCH QUESTION(S)/HYPOTHESES:
Do remuneration and/or training in use of evidence from research positively influence General Dental Practitioners to implement evidence from research to increase the targeted use of preventive fissure sealants (PFS) on the permanent second molars of 12-14 year old children at high caries risk?

PROJECT OUTLINE/METHODOLOGY:
A 2x2 factorial design was adopted. Dental practices, stratified by proportion of children registered aged 12-14 years in DEPCAT areas 4-7 were randomised to a control group or groups receiving different combinations of the interventions – i.e. remuneration only, training only and both remuneration and training. A central feature of the study is its use of routinely-collected data held on the MIDAS system by the Practitioner Service Division of the Common Services Agency. These data were used in two ways: firstly to identify dentists to be invited onto the study, and secondly to select a random sample of patients whose treatment records would generate the principle study outcome measures. A sample of all dentists with a surgery address in a DEPCAT area 4 to 7 who had seen at least 48 children of the relevant age in 2002 (based on MIDAS returns) was selected.

PROGRESS:
Recruitment, retention and participation were good: 53% (149/284) of GDPs were recruited in 2003; 89% returned data on 2,833 children in 2005. 55 of 73 GDPs attended a workshop, and 48 of 76 claimed for PFS. Taking account of baseline differences, 10% more children of fee group GDPs received a PFS by the end of the study. One third of children seen by GDPs offered a fee had 2nd molars treated with PFS. Economic analysis showed that the fee intervention was the most cost effective, and that replication of the results Scotland-wide would cost around £0.9m. GDPs in the education group were more aware of the value of obtaining, evaluating and using research evidence in clinical practice. No statistically significant differences in PFS treatment relating to the education intervention were found, or that either intervention improved the targeting of PFS to children at higher caries risk. Psychological analysis revealed that variables such as GDPs’ intention and extent of prior planning, while predicting placement of PFS, were not influenced by the interventions.
WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study provided evidence of the influence of fee-for-service remuneration and/or education on the behaviour of GDPs, with regard to the implementation of research from evidence being adopted in practice.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results of the study indicate the need for more evidence-based preventive treatment for children, a revised service policy to introduce a fee for PFS and a change in the approach to postgraduate education.

EDP 9
STUDY TITLE: NHS Education for Scotland iBooklet evaluation
SPONSOR: Scottish Dental PBRN / CSO Core
DHSRU LEAD: Dr J Clarkson / Ms L Young
COLLABORATORS: Mrs Wendy McCombes, NHS Education for Scotland

RESEARCH QUESTION(S)/HYPOTHESES:
What is the impact of switching to an on-line booking system for CPD courses for all categories of iBooklet users in terms of ease of use, course uptake and organisational and administrative efficiency?

PROJECT OUTLINE/METHODOLOGY:
The study population are all members of the dental team who are required to use or administer the iBooklet. Outcomes will be evaluated using a questionnaire specifically designed for this study, focus groups and semi-structured interviews.

PROGRESS:
Focus groups and semi-structured interviews are complete. The questionnaire has been distributed to 400 users of the iBooklet (dentists and PCDs).

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study will be the first to evaluate the impact of introducing an online booking system for CPD in dentistry.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results will inform the future development of the iBooklet and will inform other postgraduate dental deaneries who may be considering the introduction of online systems for CPD.

EDP 9
STUDY TITLE: Research into Dental Primary Care and collaboration with organisations to contribute towards delivering Scotland-wide research
SPONSOR: NHS Education for Scotland
AMOUNT OF AWARD: £17,425 (salary support)
DHSRU LEAD: Dr J Clarkson

RESEARCH QUESTION(S)/HYPOTHESES:
The aim has been to further develop a national role to promote high quality research in dental primary care through a joint research post linking the three higher education dental institutes at Edinburgh, Glasgow and Dundee Universities.

PROJECT OUTLINE/METHODOLOGY:
By establishing a base in the three institutions and a regular physical presence, joint research projects will be developed and supported.
The following collaborations have been initiated in Glasgow: (i) analysis and reporting of results of a national survey of domiciliary dental care service; (ii) analysis and reporting of a study of dental health care of residents of care homes in Greater Glasgow; (iii) planning, delivery, analysis and reporting of a programme of dental examinations and interviews of over 1,000 people with learning disabilities attending the 2005 UK Special Olympics in Glasgow; (iv) contributing to the development of adult oral health assessment, particularly in relation to the development of a training module in knowledge, diagnosis and referral re soft tissue lesions; (v) contributing to the management and evaluation of the West of Scotland Child Oral Health Demonstration Programme.

The following have taken place in Edinburgh: (i) analysis and reporting of a postal survey on the acceptability of jointly qualified hygienist-therapists in general dental practice; (ii) analysis and reporting of a survey on the activity and education of clinical dental technicians; (iii) development and analysis of a UK survey into team work and dentistry among final year dental students; (iv) (from Summer, 2006) contributing to the management and evaluation of the East of Scotland Child Oral Health Demonstration Programme. A new three year funding agreement to fund Mr Steve Turner’s post is being finalised.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This role is an innovative approach to developing the research base in dental primary care, which historically has been at a low level.

IMPLICATIONS FOR PRACTICE OR POLICY:
The post represents a build in research capacity and has promoted the production and publication of high quality multidisciplinary, multi-professional research.

EDP 12
STUDY TITLE: Cochrane Systematic Review on the effectiveness of interventions for preventing oral candidiasis for patients receiving cancer treatment

SPONSOR: for future review update National Institute of Dental and Craniofacial Research (NIDCR) award

AMOUNT OF AWARD: $216,000 (Cochrane Oral Health Group)

DHSRU LEAD: Dr J Clarkson

COLLABORATORS: Prof H Worthington, Cochrane Oral Health Group; Prof OB Eden, University of Manchester

RESEARCH QUESTION(S)/HYPOTHESES:
The main objective of this review was to assess the effectiveness of interventions (which may include placebo or no treatment) for the prevention of oral candidiasis in patients with cancer receiving chemotherapy and/or radiotherapy. The null hypothesis was that there is no difference in the proportion of patients acquiring oral candidiasis during cancer treatment compared with placebo or no treatment.

PROJECT OUTLINE/METHODOLOGY:
The Cochrane Oral Health Groups' Trials Register, the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE were searched for randomised controlled trials (RCTs). Quality assessment of included trials was undertaken independently by two reviewers. Data were extracted using specially designed data extraction forms. Candidiasis may be dichotomised at different levels of severity. In order to maximise the availability of similar outcome data we recorded the number of patients in each category of candidiasis. The duration of trials and timing of assessments were recorded in order to make a decision about which to include for commonality. We also recorded the country where the trial was conducted and whether a dentist was involved in the investigation. Some of the authors were contacted for clarification or for further information.

PROGRESS:
28 trials involving 4226 patients satisfied the inclusion criteria. Drugs absorbed and partially absorbed from the gastrointestinal (GI) tract were found to prevent oral candidiasis when compared to a placebo, or a no treatment control group, with RR for absorbed drugs = 0.47 (95% CI 0.29 to 0.78). For absorbed drugs in populations with an incidence of 20% (mid range of results in control groups), this implies a NNT of 9 (95% CI 7 to 13) patients need to be treated to avoid one patient getting oral candidiasis. There was no significant benefit shown for drugs not absorbed from the GI tract.
WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The review provides updated synthesis of research evidence since 2000 to aid decision making and guidance development.

IMPLICATIONS FOR PRACTICE OR POLICY:
For patients being treated for cancer the clinical dilemma is whether to prevent, treat or leave oral candidiasis. For treating or preventing oral candidiasis, drugs absorbed from the gastrointestinal tract should be prescribed. Overall there is no evidence that drugs not absorbed are effective, however there is weak evidence that amphotericin B may possibly be of benefit.

EDP 12
STUDY TITLE: Cochrane Systematic Review of the effectiveness of interventions for treating oral candidiasis for patients receiving cancer treatment

SPONSOR: for future review update National Institute of Dental and Craniofacial Research (NIDCR) award
AMOUNT OF AWARD: $216,000 (Cochrane Oral Health Group)
DHSRU LEAD: Dr J Clarkson
COLLABORATORS: Prof H Worthington, Cochrane Oral Health Group; Prof OB Eden, University of Manchester

RESEARCH QUESTION(S)/HYPOTHESES:
The main objective of this review was to assess the effectiveness of interventions for the treatment of oral candidiasis for patients with cancer receiving chemotherapy and or radiotherapy. The null hypothesis was that there is no difference in outcomes of patients treated for oral candidiasis during cancer treatment compared with placebo or no treatment.

PROJECT OUTLINE/METHODOLOGY:
The Cochrane Oral Health Groups’ Trials Register; the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE were searched for randomised controlled trials (RCTs). Quality assessment of included trials was undertaken independently by two reviewers. Data were extracted using specially designed data extraction forms. Candidiasis may be dichotomised at different levels of severity. In order to maximise the availability of similar outcome data we recorded the number of patients in each category of candidiasis. The duration of trials and timing of assessments were recorded in order to make a decision about which to include for commonality. We also recorded the country where the trial was conducted and whether a dentist was involved in the investigation. Some of the authors were contacted for clarification or for further information.

PROGRESS:
Eight trials involving 418 patients satisfied the inclusion criteria and are included in this review. Only 2 agents were found to be effective for eradicating oral candidiasis, Ketoconazole and Clotrimazole. No differences were found when comparing different absorbed drugs and comparing absorbed drugs with drugs which are not absorbed.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The review provides an updated synthesis of research evidence since 2000 to aid decision making and guidance development.

IMPLICATIONS FOR PRACTICE OR POLICY:
Clinicians need to make a decision on whether to treat patients receiving treatment for cancer for oral candidiasis. There is weak and unreliable evidence on which drug should be prescribed.
EDP 12

**STUDY TITLE:** Cochrane Systematic Review of interventions for preventing oral mucositis for patients receiving cancer treatment

**SPONSOR:** for future review update National Institute of Dental and Craniofacial Research (NIDCR) award

**AMOUNT OF AWARD:** $216,000 (Cochrane Oral Health Group)

**DHSRU LEAD:** Dr J Clarkson

**COLLABORATORS:** Prof H Worthington, Cochrane Oral Health Group; Prof OB Eden, University of Manchester

**RESEARCH QUESTION(S)/HYPOTHESES:**
The main objective of this review was to evaluate the effectiveness of interventions for the prevention of oral mucositis in patients with cancer receiving chemotherapy and/or radiotherapy. The null hypothesis was that there is no difference in the proportion of patients acquiring oral mucositis during cancer treatment compared with placebo or no treatment.

**PROJECT OUTLINE/METHODOLOGY:**
The Cochrane Oral Health Group's Trials Register, the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE were searched for randomised controlled trials (RCTs). Quality assessment of included trials was undertaken independently by two reviewers. Data were extracted using specially designed data extraction forms. Mucositis may be dichotomised at different levels of severity. In order to maximise the availability of similar outcome data we recorded the number of patients in each category of mucositis. The duration of trials and timing of assessments were recorded in order to make a decision about which to include for commonality. We also recorded the country where the trial was conducted and whether a dentist was involved in the investigation. Some of the authors were contacted for clarification or for further information.

**PROGRESS:**
There were 52 useable studies in this review representing 3594 randomised patients. Of the 21 interventions included 9 showed some evidence of benefit for either preventing or reducing the severity of mucositis.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**
The review provides updated synthesis of research evidence since 2000 to aid decision making and guidance development.

**IMPLICATIONS FOR PRACTICE OR POLICY:**
Several of the interventions were found to have some benefit at preventing or reducing the severity of mucositis associated with cancer treatment. The strength of the evidence was variable and implications for practice include consideration of the fact that benefits may be specific for certain cancer types and treatment.

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EDP 12

**STUDY TITLE:** Cochrane Systematic Review of treatment of mucositis in patients treated for cancer

**SPONSOR:** for future review update National Institute of Dental and Craniofacial Research (NIDCR) award

**AMOUNT OF AWARD:** $216,000 (Cochrane Oral Health Group)

**DHSRU LEAD:** Dr J Clarkson

**COLLABORATORS:** Prof H Worthington, Cochrane Oral Health Group; Prof OB Eden, University of Manchester

**RESEARCH QUESTION(S)/HYPOTHESES:**
The main objective of this review was to assess the effectiveness of interventions for treating oral mucositis or its associated pain in patients with cancer receiving chemotherapy and/or radiotherapy. The null hypothesis was that there is no difference in outcomes of patients treated for oral mucositis during cancer treatment compared with placebo or no treatment.
PROJECT OUTLINE/METHODOLOGY:
The Cochrane Oral Health Groups’ Trials Register, the Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE and EMBASE were searched for randomised controlled trials (RCTs). Quality assessment of included trials was undertaken independently by two reviewers. Data were extracted using specially designed data extraction forms. Mucositis may be dichotomised at different levels of severity. In order to maximise the availability of similar outcome data we recorded the number of patients in each category of mucositis. The duration of trials and timing of assessments were recorded in order to make a decision about which to include for commonality. We also recorded the country where the trial was conducted and whether a dentist was involved in the investigation. Some of the authors were contacted for clarification or for further information.

PROGRESS:
25 trials involving 1292 patients satisfied the inclusion criteria. Three agents were found to be effective for improving or eradicating mucositis. Three trials compared patient controlled analgesia (PCA) to the continuous infusion method for controlling pain.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The review provides updated synthesis of research evidence since 2000 to aid decision making and guidance development.

IMPLICATIONS FOR PRACTICE OR POLICY:
There is weak and unreliable evidence that allopurinol mouthwash, immunoglobulin and placental extract may be beneficial in improving or curing mucositis. There is no evidence that patient controlled analgesia (PCA) is better than continuous infusion method (CI) for controlling pain. However, there is evidence that less opiate is used per hour and the duration of therapy is shorter with PCA compared with CI. There is weak evidence that pharmacokinetically based analgesia (PKPCA) reduced pain compared with PCA but more opiate was used with PKPCA.

EDP 12
STUDY TITLE: Cochrane Systematic Reviews to determine the most effective intervention(s) to treat oral cancer and prevent/treat oral complications associated with cancer treatment

SPONSOR: National Institute of Dental and Craniofacial Research (NIDCR)

AMOUNT OF AWARD: $216,000 (Cochrane Oral Health Group)

DHSRU LEAD: Dr J Clarkson

COLLABORATORS: Prof H Worthington, Cochrane Oral Health Group

RESEARCH QUESTION(S)/HYPOTHESES:
These systematic reviews will summarise the evidence of randomised controlled trials investigating the benefits and harms of different treatment modalities for oral cancer and the management of oral complications associated with cancer and its treatment. The systematic reviews to be completed are
- The Effectiveness of Treatment for Oral Cancer by surgery, radiotherapy, chemotherapy and alternative therapies. These will be evaluated within and between groups, and for different cancer sites.
- The Effectiveness of Interventions for the Prevention and Treatment of Oral Complications associated with Cancer; oral mucositis, oral candidiasis, oral herpes simplex virus, and salivary gland dysfunction.

PROJECT OUTLINE/METHODOLOGY:
A search strategy will be developed and adapted for use in the following databases: Cochrane Oral Health Group’s Trials Register, Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, MEDLINE preindexed, EMBASE, CINAHL, CANCERLIT, SIGLE and LILACS. Reference lists from relevant articles will be scanned and the authors of eligible studies contacted to identify trials and obtain additional information. Authors of ongoing trials identified on the Current Controlled Trials register (http://www.controlled-trials.com) will be contacted for information about their completion and publication. A series of systematic reviews will be undertaken to determine the most effective intervention(s) to treat oral cancer. A second series of systematic reviews will be undertaken to evaluate the effectiveness of interventions to prevent and treat oral complications associated with cancer treatment. This will include update of four current reviews on the prevention and treatment of oral mucositis and candidiasis in patient receiving treatment for cancer.
PROGRESS:
A protocol for the first series of reviews is currently undergoing the Cochrane refereeing process. Updates of the mucositis and candidiasis reviews have already begun.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The production of comprehensive systematic reviews helps inform decision making for the treatment of diseases that are on the increase and are associated with considerable morbidity and mortality.

IMPLICATIONS FOR PRACTICE OR POLICY:
It is anticipated that the results of these reviews will contradict some current practice and help inform the development of clinical guidelines.

EDP 12
STUDY TITLE: Cochrane Systematic Review of the effectiveness of chairside oral health advice

SPONSOR: NES/CSO Core
DHSRU LEAD: Dr J Clarkson / Ms L Young / Miss K Levin
COLLABORATORS: Ms F Soldani, Dundee Dental Hospital; Ms K Jones, Eastman Dental Hospital

RESEARCH QUESTION(S)/HYPOTHESES:
The main objective of this review are to determine the benefits and harms of chairside oral health advice, provided by a member of the dental team, on patients' oral health, behaviour and attitudes and to test the null hypothesis that there is no effect of chairside oral health advice on oral health.

PROJECT OUTLINE/METHODOLOGY:
A search strategy will be developed and adapted for use in the following databases: Cochrane Oral Health Group’s Trials Register; Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, MEDLINE preindexed, EMBASE, CINAHL, CANCERLIT, SIGLE and LILACS. Reference lists from relevant articles will be scanned and the authors of eligible studies contacted to identify trials and obtain additional information. Authors of ongoing trials identified on the Current Controlled Trials register (http://www.controlled-trials.com) were contacted for information about their completion and publication.

PROGRESS:
The title of this review has been registered with the Cochrane Oral Health Group. A protocol is currently being developed for submission by the end of the year.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This review will synthesise current evidence of chairside oral health advice to further understand its benefits and possible harms and inform future research and guidance in this area.

IMPLICATIONS FOR PRACTICE OR POLICY:
Chairside oral health advice is routine practice. This review will demonstrate evidence of the effectiveness of this practice and potentially inform policy and guidance in this area.
STUDY TITLE: Cochrane Systematic Review of the effectiveness of recall intervals for oral health in primary care patients

SPONSOR: Cochrane Collaboration / NICE / CSO Core

DHSRU LEAD: Dr J Clarkson

COLLABORATORS: Mr P Beirne, University of Cork; Dr A Forgie, Dundee Dental School; Prof H Worthington, Cochrane Oral Health Group

RESEARCH QUESTION(S)/HYPOTHESES:
The main objectives were to:

• determine the beneficial and harmful effects of different fixed recall intervals (for example 6 months versus 12 months) for different types of dental check-up: clinical examination only; clinical examination plus scale and polish; clinical examination plus preventive advice; clinical examination plus preventive advice plus scale and polish.
• determine the relative beneficial and harmful effects between any of these different types of dental check-up at the same fixed recall interval.
• compare the beneficial and harmful effects of recall intervals based on clinicians’ assessment of patients’ disease risk with fixed recall intervals.
• compare the beneficial and harmful effects of no recall interval/patient driven attendance (which may be symptomatic) with fixed recall intervals.

PROJECT OUTLINE/METHODOLOGY:
A search strategy was developed and adapted for use in the following databases: Cochrane Oral Health Group’s Trials Register, Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, MEDLINE preindexed, EMBASE, CINAHL, CANCERLIT, SIGLE and LILACS. Reference lists from relevant articles were scanned and the authors of eligible studies contacted to identify trials and obtain additional information. Authors of ongoing trials identified on the Current Controlled Trials register (http://www.controlled-trials.com) were contacted for information about their completion and publication.

PROGRESS:
Only one study (with 188 participants) was included in this review and was assessed as having a high risk of bias. This study provided limited data for dental caries outcomes (dmfs/DMFS increment) and economic cost outcomes (reported time taken to provide examinations and treatment).

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
There is insufficient evidence from randomised controlled trials to reach any conclusions regarding the potential beneficial and harmful effects of varying recall intervals between dental check-ups.

IMPLICATIONS FOR PRACTICE OR POLICY:
There is insufficient evidence to support or refute the practice of encouraging patients to attend for dental check-ups at 6-monthly intervals. This review was conducted in parallel with the NICE guidance on recall intervals and was instrumental in formulating the consensus strategy adopted for defining some of the recommendations.
EDP 12

STUDY TITLE: Cochrane Systematic Review of the effectiveness of routine scale and polish for periodontal health in adults

SPONSOR: Cochrane Collaboration / NICE / CSO Core

DHSRU LEAD: Dr J Clarkson

COLLABORATORS: Mr P Beirne, University of Cork; Dr A Forgie, Dundee Dental School; Prof H Worthington, Cochrane Oral Health Group

RESEARCH QUESTION(S)/HYPOTHESES:
The main objectives were:

• to determine the beneficial and harmful effects of routine scaling and polishing for periodontal health
• to determine the beneficial and harmful effects of providing routine scaling and polishing at different time intervals on periodontal health
• to compare the effects of routine scaling and polishing provided by a dentist or professionals complementary to dentistry (PCD) (dental therapist or dental hygienist) on periodontal health.

PROJECT OUTLINE/METHODOLOGY:
A search strategy was developed and adapted for use in the following databases: Cochrane Oral Health Group’s Trials Register, Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE, MEDLINE preindexed, EMBASE, CINAHL, CANCERLIT, SIGLE and LILACS. Reference lists from relevant articles were scanned and the authors of eligible studies contacted to identify trials and obtain additional information. Authors of ongoing trials identified on the Current Controlled Trials register (http://www.controlled-trials.com) were contacted for information about their completion and publication.

PROGRESS:
Eight studies were included in this review. Two split-mouth studies provided data for the comparison between scale and polish versus no scale and polish. The first, involved patients attending a recall programme following periodontal treatment and found no statistically significant differences for plaque, gingivitis and attachment loss between experimental and control units at each time point during the 1 year trial. The other involved adolescents in a developing country with high existing levels of calculus who had not received any dental treatment for at least 5 years, reported statistically significant differences in calculus and gingivitis (bleeding) scores between treatment and control units at 6, 12 and 22 months (in favour of ‘scale and polish units’) following a single scale and polish provided at baseline to treatment units. For comparisons at different time intervals, there were some statistically significant differences in favour of scaling and polishing provided at more frequent intervals. There were no studies comparing the effects of scaling and polishing provided by dentists or Professionals Complementary to Dentistry.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Scale and polish is possibly the most frequent dental treatment and establishing the evidence base for this treatment has been a priority for many countries, including the UK and USA. This is the first review of the highest level evidence and its findings have generated considerable interest.

IMPLICATIONS FOR PRACTICE OR POLICY:
The research evidence is of insufficient quality and limited quantity to allow confident statements to be made regarding the beneficial and harmful effects of ‘routine scaling and polishing’ for periodontal health and regarding the frequency with which this intervention should be provided to different patient populations.
EDP 12

STUDY TITLE: Cochrane Systematic Review of the effectiveness of slow-release fluoride devices for the control of dental decay

SPONSOR: CSO Core
DHSRU LEAD: Dr B Bonner / Dr J Clarkson
COLLABORATORS: Lorna Dobbyn and Smriti Khanna – Senior House Officers, Dundee Dental Hospital & School

RESEARCH QUESTION(S)/HYPOTHESES:
The aim was to evaluate the effectiveness of different types of slow-release fluoride devices on preventing, arresting, and reversing the progression of carious lesions on all surface types of deciduous and permanent teeth.

PROJECT OUTLINE/METHODOLOGY:
For the identification of the studies included or considered for this review, search strategies were employed for a number of databases. Searches were conducted for potential randomised controlled trials (RCTs) in the Cochrane Central Register of Controlled Trials (CENTRAL), the Cochrane Oral Health Group’s Specialised Register; MEDLINE (1966 to present), EMBASE (1980 to present), and Current Controlled Trials limited’s register of trials. Randomised or quasi-randomised controlled trials (RCTs) in which slow-release fluoride devices were compared concurrently to an alternative fluoride treatment, placebo, or no intervention group. RCTs were considered for inclusion irrespective of publication status, language, or blinding. Split-mouth trials were not included because the treatment applied to one half may have contaminated the other part of the mouth.

PROGRESS:
The protocol for the review has been accepted for publication by the Cochrane Collaboration. Only one trial was found to fully comply with the criteria set for the review, that of Toumba and Curzon, 2005. Of the children examined at the 2-year end point, totals for decayed, missing, and filled teeth and decayed, missing, and filled surfaces were significantly less in the intervention group than the control group. A problem with non-retention of the slow-release devices was evident.

The completed review has been submitted for assessment by referees.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This review will provide evidence on whether or not slow-release fluoride devices have the potential to protect against tooth decay within target groups when used over an extended period. It will assess the value to future research on the methodology of this procedure and the generalisability of the findings to a wider context.

IMPLICATIONS FOR PRACTICE OR POLICY:
Dental decay is not distributed evenly amongst the population. In epidemiological surveys in Scotland it has been seen that 50% of the disease can be accounted for by only 11% of 5-year-olds and only 6% of 14-year-olds (DHSRU 2003; Pitts 1999). These small percentages of children may be offered slow-release fluoride devices as part of targeted caries preventive measures to great potential effect, if they can be shown to be cost effective.
Summary of DHSRU Cross Programme Activities

Introduction

Although there are two discrete research Programmes within DHSRU (the Dental Caries Control Programme and the Effective Dental Practice Programme) which have been detailed in the preceding sections of this report, the Unit also mounts a number of ‘Cross Programme’ studies. These are undertaken in order to best fulfill the DHSRU remit in addressing studies which involve both research teams as well as tackling areas of enquiry where DHSRU can make the most of its multi-professional team.

These projects also integrate into the DHSRU Strategic Framework of Information Services and Knowledge Services. Studies in this category range from commissioned work on Clinical Care Pathways and Oral Health Assessments from different UK Health Departments, to partnerships working with NHS Scotland and NHS Information Services (to explore and model the health professional workforces in Scotland), to facilitating evidence-based clinical guidelines for both the Scottish Inter-Collegiate Guidelines Network and the National Institute for Health and Clinical Excellence.

The Table below summarises the cross-Unit projects.

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Status:
CSO Core funding = C  •  External funding = E  •  Study under development (Proposed) = P
* Development group plus travel funded by NICE
CP 2

STUDY TITLE: Development of NHS clinical care pathways – The Oral Health Assessment

SPONSOR: Department of Health, England

AMOUNT OF AWARD: £243,000 (additional £90,584 awarded Dec 2004)

DHSRU LEAD: Prof NB Pitts / Dr J Clarkson / Dr C Longbottom / Ms J Hally

COLLABORATORS: The developed elements are fed through a Clinical Advisory Group of key players in all fields of dentistry and are further guided by Department of Health’s Pathways Steering Group.

PROJECT AIM:
The objective of this project was to develop the Oral Health Assessment Clinical Pathway as defined by the government paper ‘Options for Change’ published in August 2002. This assessment is a fundamental element of the new prevention driven service and will act as the gateway to NHS dentistry in England.

PROJECT OUTLINE/METHODOLOGY:
The project has its grounding in innovative design and development. It is based on the documents outlined by ‘Options for Change’ and is evolving through consideration of available evidence and best practice.

PROGRESS:
The primary output was the Oral Health Assessment in May 2005 ready for field trials in NHS dentistry in England. The Project also includes the development of appropriate IT and training to support pathway use.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This innovative development will provide dental primary care with the opportunity to facilitate a more unified and holistic service, tailored to the specific needs of the NHS patient in England and Wales.

IMPLICATIONS FOR PRACTICE OR POLICY:
The results of this project will play a fundamental role in the evolution of NHS dentistry within England. Its final format will be rolled out to dentists within NHS Primary care and will link with risk-based recall intervals and NICE guidelines.
CP 2

STUDY TITLE: The involvement of adult patients in dental treatment decision making: a qualitative study

SPONSOR: CSO Core
DHSRU LEAD: Ms PA Smith
COLLABORATORS: Dundee Dental Hospital & School and General Dental Practices in Tayside

RESEARCH QUESTION(S)/HYPOTHESES:
The aim was to investigate the involvement of adult patients in the decision processes surrounding their partial denture treatment by identifying how decisions to have a partial denture are reached, agreed and confirmed; what information is exchanged between the dentist and the patient during the decision-making process; the meaning of the denture for patients and how this impacts on denture use.

PROJECT OUTLINE/METHODOLOGY:
Semi-structured in-depth interviews were conducted exploring involvement in the decision processes surrounding partial denture treatment and subsequent use of partial dentures from the perspective of the patient. A range of differing types of patients was sought in order to reflect a reasonably broad spectrum of experiences and views. In addition, a small group of dentists was included both from Dundee Dental Hospital and from general dental practices in Tayside.

PROGRESS:
The study formed the basis for a research based MSc degree from the University of Dundee which was awarded in 2003.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Involving patients in decision making can help acceptance of partial dentures, can help patients assume personal responsibility towards successful outcomes and requires a flexible approach as patients like differing levels of involvement and information.

IMPLICATIONS FOR PRACTICE OR POLICY:
Continuity of care should be promoted and a level of remuneration that compensates for the time required to allow patient involvement is needed in the NHS General Dental Service for partial denture treatment.

Ms Patsy Smith
Research Associate
CP 3

STUDY TITLE: Views of parents in relation to their child's need for tooth extractions and the method of anaesthesia: a qualitative study

SPONSOR: CSO Core
DHSRU LEAD: Ms PA Smith
COLLABORATOR: Dr Dafydd Evans, Dundee Dental Hospital and School

RESEARCH QUESTION(S)/HYPOTHESES:
The aim is to investigate the views of parents whose children have been referred for assessment for tooth extractions using general anaesthesia.

PROJECT OUTLINE/METHODOLOGY:
Parent(s) of children referred to the Paediatric Clinic at Dundee Dental Hospital regarding assessment for extraction of teeth under general anaesthesia are being asked if they would be prepared to have a tape-recorded interview for research purposes which will later be transcribed for analysis. The interviews focus on the parent's understanding of how their child came to require the extraction(s), their views on the method of anaesthesia chosen, understanding of the nature of informed consent and how they gave this and their views about the future good dental health of their child. The interviews are being analysed using the “framework” method.

PROGRESS:
Interviews are currently being conducted and preliminary analysis has been undertaken.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
It is hoped that the study will provide insight into parents' appreciation of the factors which have led to their child requiring extractions, increased understanding of parents' attitudes towards the acceptability of their child being given a dental general anaesthetic versus other methods (norms) and understanding of parents' knowledge of the nature of informed consent and their experience of giving this.

IMPLICATIONS FOR PRACTICE OR POLICY:
Increased understanding of parental/societal factors influencing attitudes to child oral health may inform the delivery of paediatric dental services.

CP 5

STUDY TITLE: The supply of dental services and provider remuneration

SPONSOR: CSO Core
DHSRU LEAD: Dr C Tilley
COLLABORATOR: Prof M Chalkley, Department of Economic Studies, University of Dundee

RESEARCH QUESTION(S)/HYPOTHESES:
The effect of health providers' payment contracts on outcomes is a key theme in economics. However, for a number of reasons very few studies have been able to estimate this effect. Using MIDAS@DHSRU (an anonymised dataset of the system used to process, authorise and store all claims for the General Dental Services (GDS) in NHSScotland), this study develops both a conceptual and econometric framework to estimate the impact of different payment systems on the provision of NHS dental care in Scotland.

PROJECT OUTLINE/METHODOLOGY:
Using econometric analysis, the research controls for a number of factors that usually confound research of this nature.
The research finds that dentists paid on a fee-for-service basis treat exempt patients more intensively than non-exempt patients while salaried dentists treat exempt and non-exempt patients equally. The conceptual and empirical framework used in this project has applications beyond dentistry which may be exploited within the Health Informatics Centre.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study provides an analysis of the impact of payment systems on the provision of health care.

IMPLICATIONS FOR PRACTICE OR POLICY:
One key policy conclusion of the analysis is that remuneration has real effects on the treatments that are delivered. Where policy makers are concerned that treatment should reflect either the requirements of patients or the assessments of physicians, it is important to choose the appropriate remuneration method.

CP 5

STUDY TITLE: Measuring access to health care services

SPONSOR: CSO Core and NHS Education for Scotland

DHSRU LEAD: Dr C Tilley

COLLABORATOR: Prof M Chalkley, Department of Economic Studies, University of Dundee

RESEARCH QUESTION(S)/HYPOTHESES:
Problems of accessing NHS health services are an area of continued policy focus. In certain areas of the UK, these problems are particularly acute and have recently received considerable attention. In Scotland, a stylised fact is that about 50% of the population access NHS dental services per annum. However, this aggregate measure ignores important information about the dynamics of access. This project estimates a more informative measure of access.

PROJECT OUTLINE/METHODOLOGY:
This methodological research uses data from MIDAS@DHSRU (an anonymised dataset of the system used to process, authorise and store all claims for the General Dental Services (GDS) in NHS Scotland) to develop a measure of access that may be applied to all health care services.

PROGRESS:
Whereas only approximately 50% of the adult population is registered at any point in time, a much larger percentage of the population (close to 80%) has had access to NHS general dental services over a six year period. The framework used in this study permits a more detailed breakdown of the pattern of access than that previously available. It has been established that the population is comprised of a relatively large group of individuals (30% of the adult population) who access NHS general dental services at least once per year and a substantial group (19% of the adult population) who access services only once in six years. The groups within the population who access services at intermediate frequencies are less numerous.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study uses panel data to identify the pattern of General Dental Service use over time.

IMPLICATIONS FOR PRACTICE OR POLICY:
These results would appear to have important implications for policy reform and beg questions regarding the likely impact of changes in patient charges, changes in the frequency of dental recall, changes in service availability and changes in practitioner contracts for the overall impact of NHS general dental services.
CP 5
STUDY TITLE: Physician agency
SPONSOR: CSO Core
DHSRU LEAD: Dr C Tilley

RESEARCH QUESTION(S)/HYPOTHESES:
The ability of physicians to make 'take-it-or-leave-it' offers of treatment implies that even fully informed consumers of health care may receive treatments that they would not themselves choose. This paper examines both the extent and direction of this distortion away from patient choice - the physician agency effect - using a large patient-level claims-based data set for dental treatments under the British National Health Service.

PROJECT OUTLINE/METHODOLOGY:
This project consists of an econometric analysis of panel data provided by MIDAS@DHSRU (an anonymised dataset of the system used to process, authorise and store all claims for the General Dental Services (GDS) in NHS Scotland). A small physician agency effect for fee-for-service dentists but not for salaried dentists has been found.

PROGRESS:
It has been shown that an increase in competition between dentists results in an increase in treatment effort when those dentists are remunerated on a fee-for-service basis, which is suggestive of stunting (physician agency resulting in under-treatment relative to what patients would choose) and that this effect increases with the extent to which patients are insulated from the cost of their treatment.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study provides an insight into the effect of availability on the provision of dental services.

IMPLICATIONS FOR PRACTICE OR POLICY:
The response of treatment to competition is important in understanding how physician agency operates. In particular, it suggests that any policy that seeks to mitigate physician agency, for example by increasing patient choice, will potentially result in increased treatment effort and thus cost.

CP 5
STUDY TITLE: The demand for dental services (i)
SPONSOR: CSO Core and NHS Education for Scotland
DHSRU LEAD: Dr C Tilley

RESEARCH QUESTION(S)/HYPOTHESES:
If training capacity in dentistry is to respond to the demand for dental services in a timely fashion, a method of forecasting demand is required. The objective of this project is to identify the key determinants of the demand for dental services in Scotland with a view to forecasting this demand over the long run.

PROJECT OUTLINE/METHODOLOGY:
The project develops a conceptual and empirical framework within which to estimate and interpret the demand for dental services in Scotland. The project employs two complementary data sets: the British Household Panel Survey and MIDAS@DHSRU. The econometric analysis will identify both the conventional determinants of demand and also various sources of persistence in the demand for dental services. The performance of the model in predicting demand will be assessed.

PROGRESS:
Preliminary results suggest that models that account for sources of persistence more accurately capture variations in service use over time than models that do not.

IMPLICATIONS FOR PRACTICE OR POLICY:
Conventional models that exclude sources of persistence in the utilisation of health services are mis-specified.
CP 5

STUDY TITLE: The demand for dental services (ii)

SPONSOR: Scottish Executive (Central Research Unit)

AMOUNT OF AWARD: £14,412

DHSRU LEAD: Dr C Tilley

RESEARCH QUESTION(S)/HYPOTHESES:
One public policy instrument that may be used to influence the utilisation of NHS dental services is the patient charge. However, the extent of its influence is uncertain. The purpose of this research is to review dental charges in Scotland in order to provide an evidence base for decisions about the future structure of the dental charging system in Scotland.

PROJECT OUTLINE/METHODOLOGY:
The project used a combination of primary and secondary research to review the evidence relating to patient charges.

PROGRESS:
Completed.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The research provided an economic perspective on patient charges in dentistry.

IMPLICATIONS FOR PRACTICE OR POLICY:
This review identified a number of policy options to address policy objectives.

CP 5

STUDY TITLE: Workforce analysis in Scotland

SPONSOR: NHS Education for Scotland

DHSRU LEAD: Dr C Tilley

COLLABORATORS: NHS Information Services Division (ISD), NHS Education for Scotland and the Scottish Executive.

RESEARCH QUESTION(S)/HYPOTHESES:
The objective of the workforce analysis initiative is to develop an evidence base to inform workforce development and training policies. This evidence base requires information on the demand for dental services, the supply of dental services (see previous projects) and population and dentist projections.

PROJECT OUTLINE/METHODOLOGY:
The project uses both primary and secondary research to build up a picture of the demand for and provision of dental services in Scotland.

PROGRESS:
A draft report has been circulated.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
A novel, comprehensive, updateable model will advance the methodology in this complex field.

IMPLICATIONS FOR PRACTICE OR POLICY:
It is hoped the analysis will inform workforce and training policy for NHS Scotland.
STUDY TITLE: Economic evaluation of a teledental orthodontics system

SPONSOR: NHS Telemedicine Initiative
AMOUNT OF AWARD: £2,300
DHSRU LEAD: Dr C Tilley
COLLABORATOR: Adrian Hart, Highland Acute Hospitals NHS Trust.

RESEARCH QUESTION(S)/HYPOTHESES:
There is anecdotal evidence to suggest that the current provision of orthodontic services in secondary care is inefficient. In particular, many referrals to specialists are made which are unwarranted. This adds to the waiting time of patients who do require specialist care and imposes unnecessary travel and opportunity costs on patients who do not. These problems may be even more acute in remote and rural locations. This project conducts an economic evaluation, which compares the current system of provision with a Telemedicine approach in two regions of Scotland; Highland, and Dumfries and Galloway.

PROJECT OUTLINE/METHODOLOGY:
This project is being conducted using primary research.

PROGRESS:
To be finalised.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study will clarify the cost effectiveness of the intervention on the provision of orthodontic care to patients.

IMPLICATIONS FOR PRACTICE OR POLICY:
The study will provide an assessment of the most efficient method of providing health care to patients in remote and rural locations.

STUDY TITLE: Economic evaluation of the third molar SIGN guideline

SPONSOR: NHS R&D
AMOUNT OF AWARD: £303,309
DHSRU LEAD: Dr C Tilley
COLLABORATOR: Dr E McIntosh, University of Oxford

RESEARCH QUESTION(S)/HYPOTHESES:
In recent years a substantial amount of time and effort has been invested in conducting economic evaluations of health care interventions. However, these research findings may not be implemented in practice and very few studies have produced any clear cut prescriptions for the best method of implementation. This study reports an economic evaluation of the implementation of the third molar SIGN guideline.

PROJECT OUTLINE/METHODOLOGY:
The study consisted of an economic evaluation of a randomised controlled trial.

PROGRESS (TO INCLUDE KEY RESULTS/INTERIM RESULTS AS APPROPRIATE):
In addition to providing a traditional cost-effectiveness analysis of the four implementation methods in the study, this paper also contributes to the literature on the design and analysis of implementation studies.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
The study demonstrates that the effectiveness of the implementation method depends crucially on the 'type' (as determined by clinical signals) of the patient.

IMPLICATIONS FOR PRACTICE OR POLICY:
Implementation methods have to be context and patient specific.
STUDY TITLE: Measuring variation in health care performance using matched patient and provider data

SPONSOR: MRC (Capacity Building Studentship)

AMOUNT OF AWARD: £77,407

DHSRU LEAD: Dr C Tilley

COLLABORATOR: Prof M Chalkley, Dept of Economic Studies, University of Dundee

RESEARCH QUESTION(S)/HYPOTHESES:
Applications are to be invited for a 4-year PhD studentship funded by the Medical Research Council to conduct research around measuring variation in health care using matched data. The studentship is part of the Capacity Building Studentship Scheme in the Health Economics priority area.

PROJECT OUTLINE/METHODOLOGY:
A significant development in health economics has been the emerging availability and subsequent econometric analysis of large, individual level data sets. Whilst developing rapidly, this area is still in its infancy and there is a shortage of researchers with the required economic and econometric skills to fully exploit the resource that is being made available through health care data. This project will add to research capacity in this general area. In addition, this project will focus on how variation in observed health care interventions can be accounted for by variations in the observable characteristics of patients and their health care providers.

PROGRESS:
This studentship begins in October 2006.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
Whilst the specific focus of the research is on contracting for health care, the general techniques have a much wider application. A better understanding of the sources of variation in health care delivery impacts upon: the conduct of economic evaluations, the measurement of the performance of providers of health care over time, the formulation of guideline implementation strategies, and the empirical analysis of health care data. The studentship will thus provide research training that may be ultimately applied to many areas of health economics.

Further information is given in Highlight 10. The Final Report of this project is now published on both the DHSRU (www.dundee.ac.uk/dhsru) and the Chief Dental Officer, England web sites (http://www.dh.gov.uk/AboutUs/HeadsOfProfession/ChiefDentalOfficer/fs/en)

The next stage of developments in England are planned to proceed but are bound up in uncertainties over developments in the NHS England new dental contract and the timing of the dental aspects of the Connecting for Health NHS IT Programme.

IMPLICATIONS FOR PRACTICE OR POLICY:
A particular issue that will be investigated is the potential for structuring remuneration and incentives so that they affect health care delivery and consequently outcomes. This issue is of particular concern to policy-makers and the proposed research will serve to inform policy debate.
**CP 5**  
**STUDY TITLE:** Commissioning plan for education  
**SPONSOR:** NHS Education for Scotland  
**AMOUNT OF AWARD:** 12 month secondment  
**DHSRU LEAD:** Dr C Tilley

**RESEARCH QUESTION(S)/HYPOTHESES:**  
Currently, there is no national overview of what training is being commissioned by whom, with whom and at what cost. This leads to significant issues of the Best Value that the NHS is obtaining for its commissioned education. To that end, the National Workforce Committee has agreed a major strand of work to develop a Commissioning Plan for Education. Its remit is “to ensure co-ordinated commissioning of education between health and its partners to fit the requirement for creating and sustaining the health care workforce in Scotland… (the) main output will be a single commissioning plan for Scotland supported by strategic alliances with education and employment sectors”.

**PROJECT OUTLINE/METHODOLOGY:**  
The main objectives of the economic review of the Commissioning Plan are to estimate the cost of training that is currently being commissioned, review the framework within which training is being commissioned and estimate the returns to training.

**PROGRESS:**  
Dr Tilley completes his secondment at the end of June 2006.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**  
A uniform framework within which the commissioning of education and training for NHS Scotland staff may be analysed. It will also provide an overview of the institutional structures of training and NHS labour markets.

**IMPLICATIONS FOR PRACTICE OR POLICY:**  
This secondment is intended to ensure co-ordinated commissioning of education between health and its partners to fit the requirement for creating and sustaining the health care workforce in Scotland.

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**CP 6**  
**STUDY TITLE:** Long term medical conditions and the use of hospital services  
**SPONSOR:** Department of Health, England  
**AMOUNT OF AWARD:** £14,275  
**DHSRU LEAD:** Dr C Tilley  
**COLLABORATOR:** Prof M Chalkley, Department of Economic Studies, University of Dundee

**RESEARCH QUESTION(S)/HYPOTHESES:**  
Is there any persistence in the use of secondary care medical services by high intensity users?

**PROJECT OUTLINE/METHODOLOGY:**  
The study used the British Household Panel Survey and Hospital Episode Statistics to identify sources of persistence.

**PROGRESS:**  
Report completed.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**  
The study used two data sets (the British Household Panel Survey and Hospital Episode Statistics) to identify the determinants of persistence in the use of secondary care medical services.

**IMPLICATIONS FOR PRACTICE OR POLICY:**  
If high intensity users can be identified, an intervention may be designed to be implemented in primary care which may avoid or defer admission to hospital.
**CP 7**

**STUDY TITLE:** ERUPT Study – economic aspects

**SPONSOR:** CSO Core / SHEFC

**AMOUNT OF AWARD:** £197,874 / £166,599

**DHSRU LEAD:** Dr C Tilley

**COLLABORATOR:** Dr A Scott, Health Economics Research Unit, University of Aberdeen

**RESEARCH QUESTION(S)/HYPOTHESES:**
A number of different methods have been suggested to implement evidence based practice. None is universally preferred. This project evaluates two: training in research evidence and payment for evidence based treatment. The economics component consists of an economic evaluation of the two implementation methods.

**PROJECT OUTLINE/METHODOLOGY:**
The project consists of a Scotland-wide randomised controlled trial of the two interventions.

**PROGRESS:**
Ongoing.

**WHAT DOES/WILL THE STUDY ADD TO THE FIELD?**
This study will clarify the cost effectiveness of the intervention on the provision of preventive fissure sealants for children.

**IMPLICATIONS FOR PRACTICE OR POLICY:**
The study identifies the most efficient method of implementing best practice in dental primary care.

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**CP 9**

**STUDY TITLE:** Scottish Oral Health Assessment

**SPONSOR:** Scottish Executive

**DHSRU LEAD:** Prof NB Pitts / Ms J Hally / Dr GTopping / Dr J Clarkson / Dr C Longbottom

**COLLABORATORS:** Mr T Ferris, NHS Forth Valley; NDAC Clinical Effectiveness Group; Ms P Sweeney and Prof L MacPherson, University of Glasgow; Mrs M McCann, Deputy Chief Dental Officer, Scotland; Mr R Watkins, Chief Dental Officer, Scotland

**PROJECT AIM:**
The aim of this project was to develop, from the roots of the Clinical Care Pathways Project for England and Wales, a modified version of the Oral Health Assessment. This assessment, heralded by the publication of “An Action Plan for Improving Oral Health and Modernising NHS Dental Services in Scotland” (2005), was designed to the exacting specifications of the Scottish NHS Dental Primary Care Team. It was aimed to be universally applicable to all patient groups.

**PROJECT OUTLINE/METHODOLOGY:**
This project has its grounding in innovative design and development. It is based on the documents and guidance outlined by ‘Options for Change’ and is evolving in its Scottish context through consideration of available evidence and best practice as well as NHS dental primary care focus groups and pilot studies. Further information is given in Highlight 2.

Ms Jenny Hally
Clinical Research Fellow
The project’s initial products (Patient Proformae, Clinical Proformae and Guidance booklet) have undergone successful pilot testing and are currently undergoing redevelopment to be ready for the next phase in 2006. Further products following this pilot study will include the development of suitable individual study material in CD-RoM format to update and support the guidance notes developed for this age group and the development of further resources to support the dissemination of the Oral Health Assessment to other patient age groups.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This innovative development will provide NHS dental primary care with the opportunity to facilitate a more unified and holistic service, tailored to the specific needs of the NHS patient in Scotland.

IMPLICATIONS FOR PRACTICE OR POLICY:
The introduction of the Oral Health Assessment will change the face of NHS primary care dentistry in Scotland. It will bring the available evidence into everyday practice and will ultimately unify the format of dental assessment across the boundaries of salaried and general practice NHS dentistry.

STUDY TITLE: Tayside orthodontic managed clinical network
SPONSOR: CSO Core
DHSRU LEAD: Dr G Topping / Dr C Tilley / Prof NB Pitts
COLLABORATORS: Mr J Clark and Prof D Stirrups (Consultant Orthodontists)

PROJECT AIM:
What are the financial costs and also the benefits associated with the development of an orthodontic Managed Clinical Network (MCN) within Tayside?

PROJECT OUTLINE/METHODOLOGY:
DHSRU was asked by NHS Tayside orthodontic colleagues to help develop and evaluate a Managed Clinical Network (MCN) within the field of orthodontics in Tayside. This project seeks to assist in determining the costs and benefits associated with the MCN and to investigate changes in the orthodontic patient’s journey within Tayside.
PROGRESS:
Initial meetings with the collaborators explored potential ways of evaluating the MCN. The MCN steering group (of which Dr Topping is a member) was successful in obtaining funding until March 2006 to employ a facilitator to assist in establishing communication between orthodontic stakeholders in Tayside and to develop an agreed dataset in order to collect baseline and follow-up information. Waiting list information also formed a part of the evaluation pre- and post-development of the MCN. Following a successful first year, the MCN has been granted further funding to continue to employ the facilitator. Discussions continue with regard to the possibility of a Specialist Registrar in Orthodontics training to use the research opportunities offered with this project as the basis of a Master’s degree thesis. Another proposal is the development of a training programme for Community Dental Officers on the subject of screening for orthodontic treatment need. This could be included locally within the National Dental Inspection Programme in order to facilitate fast-track referral where appropriate. This may be taken forward as part of a project planned with the Community Dental Service in Forth Valley.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This project will highlight the pros and cons of establishing an orthodontic MCN for those in other geographic areas considering similar developments.

IMPLICATIONS FOR PRACTICE OR POLICY:
Demonstration of value for money and improvements to the orthodontic management of children and adults will feed into taking forward the Action Plan for Improving Oral Health and Modernising NHS Dental Services.

CP 10

STUDY TITLE: Development of NICE Guidelines for modern dental recall intervals

SPONSOR: CSO Core / National Institute for Health and Clinical Excellence (NICE)

DHSRU LEAD: Prof NB Pitts / Dr C Longbottom / Dr JE Clarkson

COLLABORATORS: NICE, Centre for Evidence Based Dentistry, Centre for Evidence Based Periodontology, Faculty of General Dental Practitioners, British Dental Association.

PROJECT AIM:
To develop evidence based clinical guidelines, compatible with the Options for Change Oral Health Assessment, for the optimal frequency at which dental patients should be recalled in routine primary care practice.

PROJECT OUTLINE/METHODOLOGY:
The project employed standard NICE methods. Professor Pitts chaired the group. Dr Clarkson provided input through the Cochrane Oral Health Group.

PROGRESS:
Draft guidance was published in February 2004. The Guideline Development Group considered stakeholders comments in April 2004. Following a second round of stakeholder comments, the final guidelines were published later in 2004. The guidance has attracted favourable peer reviews from the Evidence Based Dentistry Community.

WHAT DOES/WILL THE STUDY ADD TO THE FIELD?
This guideline will, in England and Wales initially, offer clear guidance to NHS dentists on how to factor the frequency of routine recall intervals to the oral health status, oral disease risk and preferences of patients. The guidance establishes a range of recall intervals from 3-12 months for children and from 3-24 months for adults. It makes clear the importance of integrating the dentist’s clinical expertise with the patient’s views and preferences.

IMPLICATIONS FOR PRACTICE OR POLICY:
A National (England and Wales) Clinical Guideline was produced.
2002

1. Presenter: Tilley CJ
Title: “Is prevention better than cure?”
Meeting: Intermediate Skills, Unit of Restorative Dental Care
Date: 10 January 2002
*Academics & postgraduate dental students/by invitation

2. Presenter: Topping G
Title: “Dental activity in Scottish prisons”
Meeting: Scottish Prisons Health Care Policy Group
Venue: Edinburgh
Date: January 2002
*Invited

3. Presenter: Topping G
Title: “Calibration for practice inspections” and “Health and safety in dental practice”
Meeting: Fife Dental Practice Inspections Training and Calibration
Venue: Kirkcaldy
Date: January 2002

4. Presenter: Fernandez M
Title: “What is the natural history of impacted third molars?”
Meeting: University of Dundee Postgraduate Seminar
Date: 22 February 2002
*Academics & postgraduate dental students/by invitation

5. Presenter: Anderson C and Robertson M
Title: “Dundee/Milton Keynes caries prevention study”
Venue: Abertay University, Dundee
Date: 19 February 2002
*Public health nurses/by invitation

6. Presenter: Young L
Title: “How do changes to dental remuneration systems affect clinical activity?”
Meeting: CSO Postgraduate Studentship Conference
Venue: Scottish Executive, Edinburgh
Date: 14 February 2002

7. Presenters: Anderson C, Robertson M
Title: “Targeted caries prevention for pre-school children”
Meeting: Training for Public Health Nurses
Venue: Abertay University, Dundee
Date: 19 February 2002
*Student Public Health Nurses
8. Presenter: Clarkson JE  
Title: “Research in Primary Care”  
Meeting: British Society of Paediatric Dentistry  
Venue: Edinburgh  
Date: 20 February 2002  
*Postgraduate dentists

9. Presenter: Pitts NB  
Title: “Dental caries in the UK – 2000/01”  
Meeting: British Association for the Study of Community Dentistry (BASCD)  
Coordinators from across the UK  
Venue: Department of Health, Richmond House, London  
Date: 27 February 2002  
*BASCD Epidemiology Coordinators

10. Presenter: Anderson C  
Title: “Generalisable evidence-based caries prevention for pre-schoolers in Primary Care”  
Meeting: British Dental Association, Dundee Branch Meeting  
Venue: Dundee Dental Hospital & School  
Date: 4 March 2002  
*BDA Members

11. Presenter: Pitts NB  
Title: “Evidence based dentistry: clinical applications & recommendations”  
Meeting: International Association for Dental Research (General Meeting)  
Venue: San Diego, USA  
Date: 4-9 March 2002  
*International Dental Researchers / Invited

Title: “The validity of Locker’s conceptual model of oral health”  
Meeting: International Association for Dental Research (General Meeting)  
Venue: San Diego, USA  
Date: 4-9 March 2002  
*Dentists

Title: “Frequency of oral health impacts in three industrialized countries”  
Meeting: International Association for Dental Research (General Meeting)  
Venue: San Diego, USA  
Date: 4-9 March 2002  
*Dentists

Title: “Effect of tooth loss and age on oral health impacts”  
Meeting: International Association for Dental Research (General Meeting)  
Venue: San Diego, USA  
Date: 4-9 March 2002  
*Dentists
15. Presenters: Tilley CJ and Chalkley M  
Title: “Provider behaviour under fixed and flexible reimbursement: Dentists in the British National Health Service”  
Meeting: International Health Economics Conference  
Venue: Hong Kong University of Science and Technology  
Date: 12 March 2002  
*International / Paper / Invited

16. Presenter: Pitts NB  
Title: “Dental caries epidemiology, BASCD criteria”  
Meeting: British Association for the Study of Community Dentistry (BASCD) UK benchmark trainers’ course  
Venue: Chester  
Date: 19 March 2002  
*Selected Community Dentists from across UK

17. Presenter: Clarkson JE  
Title: “Scottish Dental Practice Based Research Network”  
“FGDP (UK) – Implications for standards”  
Meeting: Faculty of General Dental Practitioners (FGDP) Audit & Research Meeting  
Venue: London  
Date: 19 March 2002

18. Presenter: Clarkson JE  
Title: “Scottish Dental Practice Based Research Network”  
Meeting: Scottish Dental PBRN GRID (Inaugural Meeting)  
Venue: Glasgow  
Date: 21 March 2002  
*Glasgow research in dentistry members, postgraduate dentists

19. Presenter: Clarkson JE  
Title: “Oral and dental growth”  
Meeting: Scottish Inter-collegiate Guidelines Network (SIGN) National Meeting  
Venue: Stirling  
Date: 27 March 2002  
*Healthcare professionals and patients

20. Presenter: Fernandes M  
Title: “The Scottish MALT Project”  
Meeting: Postgraduate seminars  
Venue: Dundee Dental Hospital & School  
Date: 29 March 2002  
*Lecturers and Postgraduate students.

21. Presenter: Young L  
Title: “How do changes to dental remuneration systems affect clinical activity?”  
Meeting: Postgraduate Seminar  
Venue: Dundee Dental Hospital & School  
Date: 29 March 2002

22. Presenter: Fernandes M  
Title: “The Scottish MALT Project”  
Meeting: Postgraduate seminars  
Venue: Dundee Dental Hospital & School  
Date: 29 March 2002
23. Presenters: Pitts NB, Longbottom C, Ricketts DN, Forgie A and Topping G.
Title: “Dental caries detection and assessment – the evidence so far”
Meeting: International Caries Detection and Assessment System (ICDAS) Collaboration
Venue: Dundee
Date: 22-24 April 2002
*International Research Group.

24. Presenter: Tilley CJ
Title: “Provider behaviour under fixed and flexible reimbursement: Dentists in the NHS”
Meeting: Department of Economics Seminar Series
Date: 24 April 2002

25. Presenter: Nuttall NM
Title: “Trends in social inequalities in total tooth loss in Scotland since 1972”
Meeting: Scottish School of Primary Care (SSPC) - Primary Care Research in Scotland Conference 2002
Venue: Crieff Hydro Hotel
Date: 25-26 April 2002
*Primary Care Researchers

26. Presenter: Anderson C
Title: “Generalisable evidence-based caries prevention for pre-schoolers in Primary Care”
Meeting: Scottish School of Primary Care (SSPC) - Primary Care Research in Scotland Conference 2002
Venue: Crieff Hydro Hotel
Date: 25-26 April 2002
*Poster presentation

27. Presenter: Smith PA
Title: “Establishment and evaluation of a patient forum within a research unit”
Meeting: Scottish School of Primary Care (SSPC) - Primary Care Research in Scotland Conference 2002
Venue: Crieff Hydro Hotel
Date: 25-26 April 2002
*Poster presentation

28. Presenter: Young L
Title: “Comparison of the intensity and type of NHS dental treatment provided to patients who are liable for NHS dental charges and those who are exempt”
Meeting: Scottish School of Primary Care (SSPC) – Primary Care Research in Scotland Conference 2002
Venue: Crieff Hydro Hotel
Date: 25-26 April 2002
*Poster presentation

29. Presenter: Topping G
Title: “Features of a dental check-up – quantifying patients’ and dentists’ preferences with conjoint analysis”
Meeting: British Association of Study of Community Dentistry Annual Meeting
Venue: Winchester
Date: April 2002
*Poster presentation (Andy Anderson Memorial Prize winner)
30. Presenter: Clarkson JE  
Title: “Evidence-based dentistry: systematic reviews and meta analysis”  
Meeting: Systematic Review Course  
Venue: School of Dentistry, University of Michigan, USA  
Date: 6-12 May 2002

31. Presenter: Pitts NB  
Title: “Evidence-based dentistry: How much is enough for whom?”  
Meeting: Symposium on the impact of research on the future of Dentistry  
Venue: Department of Dentistry, University of Rochester, USA  
Date: 21 May 2002

32. Presenter: Hunter R  
Title: “The impact of oral problems on stroke patients”  
Meeting: 11th European Stroke Conference  
Venue: Geneva, Switzerland  
Date: 31 May 2002

33. Presenter: Pitts NB  
Title: “Assessing effectiveness in dentistry”  
Meeting: International Society of Health Technology Assessment  
Venue: Berlin, Germany  
Date: 8-11 June 2002

34. Presenter: Fernandes M  
Title: “The Scottish MALT Project – Challenges of an observational study based on primary care patients”  
Meeting: Public Health Seminars  
Venue: Ninewells Hospital, Dundee  
Date: 11 June 2002  
*Doctors and researchers from Ninewells Hospital.

35. Presenters: Longbottom C, Anderson C, Robertson M  
Title: “Generalisable evidence-based caries prevention for pre-schoolers in Primary Care”  
Meeting: Health Visitor Seminar  
Venue: King’s Cross Hospital, Dundee  
Date: 17 June 2002  
*Health Visitors

36. Presenter: Fernandes M  
Title: “The Scottish MALT Project. Challenges of an observational study based on primary care patients”  
Meeting: Public Health Seminars  
Venue: Ninewells Hospital, Dundee  
Date: 17 June 2002

37. Presenter: Clarkson JE  
Title: “The effect of remuneration and education on the implementation of research evidence to reduce inequalities in oral health”  
Meeting: Scottish School of Primary Care  
Venue: Stirling  
Date: 18 June 2002
38. Presenter: Clarkson JE  
Title: “Researching the outcomes of educational interventions: a matter of design”  
Meeting: Scottish Dental Practice Based Research Network (SDPBRN)  
Venue: Edinburgh  
Date: 18 June 2002
*Postgraduate dentists

Title: “Integrated research in dental primary care”  
Meeting: CPD Course for Dentists and Health Visitors  
Venue: Dundee University  
Date: 18 June 2002
*Dentists and Health Visitors participating in the GETCaPPP project.

40. Presenters: Longbottom C, Robertson M  
Title: “Generalisable evidence-based caries prevention for pre-schoolers in Primary Care”  
Meeting: Health Visitor Seminar  
Venue: Wallacetown Health Centre  
Date: 19 June 2002

41. Presenter: Nuttall NM  
Title: “Dental indifference – what is it?”  
Meeting: Scottish Dental Health Forum, Dental Indifference. The Ultimate Barrier to Oral Health?  
Venue: Stirling Royal Infirmary Conference Centre  
Date: 19 June 2002
* Dentists / Invited

42. Presenter: Pitts NB  
Title: “Caries research implications of the International Collaborative Workshop on Caries Clinical Trials”  
Meeting: ORCA (European Organisation for Caries Research) General Assembly  
Venue: Turku, Finland  
Date: 2-5 July 2002
*Poster and Oral Presentation

43. Presenter: Nuttall NM  
Title: “Using the CADET recording criteria”  
Meeting: CADET Calibration Trial  
Venue: Dundee Dental Hospital & School  
Date: 24 July 2002
*Dentists

44. Presenters: Clarkson JE and Pitts NB  
Title: “Clinical effectiveness & evidence based dentistry workshop”  
Meeting: Clinical Effectiveness & Evidence Based Dentistry Workshop  
Venue: Dalmahoy Hotel, Edinburgh  
Date: 15 August 2002
*Chief Dental Officers, Deputy CDOs, Cochrane Oral Health Group, etc.
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<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
<th>Meeting</th>
<th>Venue</th>
<th>Date</th>
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<tbody>
<tr>
<td>Pitts NB</td>
<td>“Dental caries detection and assessment – criteria development”</td>
<td>International Caries Detection and Assessment System (ICDAS) Collaboration</td>
<td>University of Michigan, USA</td>
<td>24-27 August 2002</td>
</tr>
<tr>
<td>Topping G</td>
<td>“Clinical criteria for recording caries adjacent to restorations”</td>
<td>International Caries Detection and Assessment System (ICDAS) Workshop</td>
<td>Ann Arbor, Michigan</td>
<td>August 2002</td>
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<tr>
<td>Levin KA</td>
<td>“Comparing the health status of urban and rural populations”</td>
<td>Society for Social Medicine Annual Scientific Meeting</td>
<td>Liverpool</td>
<td>September 2002</td>
</tr>
<tr>
<td>Clarkson JE</td>
<td>“Dental Primary Care research &amp; development”</td>
<td>Audit National Symposium</td>
<td>Stirling</td>
<td>5 September 2002</td>
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<tr>
<td>Crawford F</td>
<td>“Meta analysis”</td>
<td>Health Economics Department Seminar</td>
<td>Manchester University</td>
<td>9 September 2002</td>
</tr>
<tr>
<td>Clarkson JE</td>
<td>“What is clinical effectiveness?”</td>
<td>Senior House Officers’ Meeting</td>
<td>Dundee Dental Hospital &amp; School</td>
<td>9 September 2002</td>
</tr>
<tr>
<td>Pitts NB</td>
<td>“SIGN Guidelines for the prevention and control of dental caries”</td>
<td>European Association for Dental Public Health</td>
<td>Athens</td>
<td>12 September 2002</td>
</tr>
</tbody>
</table>

*Consultants in Dental Public Health, Community Dental Officers and NDIP Coordinators.

*Postgraduate dentists, Primary Care dentists.

*Public Health Dentists from across Europe.
53. Presenter: Pitts NB  
Title: “The ‘AGREE’ instrument for evaluating guidelines”  
Meeting: European Association for Dental Public Health  
Venue: Athens  
Date: 12 September 2002  
*Public Health Dentists from across Europe

54. Presenter: Pitts NB  
Title: “New developments and research in cariology”  
Meeting: SE Asian Division International Association for Dental Research (IADR) Meeting  
Venue: Hong Kong  
Date: 16-20 September 2002  
*International Dental researchers from US, Europe and SE Asia / Invited keynote address

55. Presenter: Crawford F  
Title: “Systematic Reviews”  
Meeting: Postgraduate Seminar  
Venue: Dundee Dental Hospital & School  
Date: 16 September 2002

56. Presenter: Clarkson JE  
Title: “Critical appraisal”  
Venue: Dundee/Aberdeen  
Date: 20 September 2002  
*Vocational trainees

57. Presenters: Longbottom C, Anderson C, Robertson M  
Title: “Generalisable evidence-based caries prevention for pre-schoolers in Primary Care”  
Meeting: Research team members in Milton Keynes  
Venue: Eaglestone Health Centre, Milton Keynes  
Date: 24 September 2002  
*Health Visitors

58. Presenters: Nugent ZJ, Pitts NB, Merrett MCW  
Title: “Predicting 12 year olds’ DMFT from dental data collected at age five”  
Meeting: British Society for Dental Research (BSDR) – Pan European Dental Federation, IADR  
Venue: Cardiff  
Date: 25-28 September 2002  
*BSDR & Pan European Dental Research / Poster

59. Presenter: Bahrami M  
Title: “Effectiveness of different implementation strategies for evidence based guidelines in primary dental care”  
Meeting: British Society for Dental Research (BSDR) – Pan European Dental Federation, IADR  
Venue: Cardiff  
Date: 25-28 September 2002
60. Presenter: Clarkson JE  
Title: “Experience of clinical trials in General Dental Practice”  
Meeting: British Society for Dental Research (BSDR) – Pan European Dental Federation, IADR  
Venue: Cardiff  
Date: 25-28 September 2002

61. Presenter: Pitts NB  
Title: “Systematic reviews and changing clinical practice”  
Meeting: British Society for Dental Research (BSDR) – Pan European Dental Federation, IADR  
Venue: Cardiff  
Date: 25-28 September 2002  
* International Academic researchers / Invited symposium presentation

62. Presenter: Tilley CJ  
Title: “Appraisal of economic evaluations”  
Meeting: Services Based Training with SHOs  
Venue: Dundee Dental Hospital & School  
Date: 30 September 2002

63. Presenter: Pitts NB  
Title: “Do NHS services for children in Scotland demonstrate clinical effectiveness?”  
Meeting: Clinical Resources and Audit Group (CRAG) Conference on Clinical Effectiveness  
Venue: Stirling  
Date: 4 October 2002  
*Postgraduate dentists, Primary Care dentists

64. Presenter: Clarkson JE  
Title: “Research issues in paediatric dentistry in Primary Dental Care settings”  
Meeting: Clinical Resources and Audit Group (CRAG)  
Venue: Stirling  
Date: 4 October 2002  
*Postgraduate dentists, Primary Care dentists

65. Presenter: Clarkson JE  
Title: “What is evidence based practice and its role in General Dental Practice?”  
Meeting: Faculty of General Dental Practitioners Module: Evidence Base for Effective Clinical Practice  
Venue: Manchester  
Date: 24-25 October 2002  
*FGDP Members

66. Presenter: Longbottom C  
Title: “How do we diagnose caries?”  
Meeting: Postgraduate Seminars  
Venue: Dental School, Penn State University  
Date: 28 October 2002
<table>
<thead>
<tr>
<th>Presenter:</th>
<th>Levin KA</th>
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<tbody>
<tr>
<td>Title:</td>
<td>“Measurement of rural deprivation in health care research”</td>
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<tr>
<td>Meeting:</td>
<td>European Public Health Association Meeting</td>
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<tr>
<td>Venue:</td>
<td>Dresden</td>
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<td>Date:</td>
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<tr>
<th>Presenter:</th>
<th>Longbottom C</th>
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<tr>
<td>Title:</td>
<td>“Caries detection: High tech or Low tech?”</td>
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<tr>
<td>Meeting:</td>
<td>Indiana State Dental Research Association</td>
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<tr>
<td>Venue:</td>
<td>Indianapolis, Indiana, USA</td>
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<td>Date:</td>
<td>1 November 2002</td>
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<tr>
<th>Presenter:</th>
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<tbody>
<tr>
<td>Title:</td>
<td>“Inequalities – the facts”</td>
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<tr>
<td>Meeting:</td>
<td>Consultants in Dental Public Health Away Day</td>
</tr>
<tr>
<td>Venue:</td>
<td>Falkirk</td>
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<tr>
<td>Date:</td>
<td>6 November 2002</td>
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<tr>
<th>Presenter:</th>
<th>Pitts NB</th>
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<tbody>
<tr>
<td>Title:</td>
<td>“Dental Health Services Research Unit – joining up evidence based healthcare”</td>
</tr>
<tr>
<td>Meeting:</td>
<td>Public Health Institute for Scotland Roundtable Presentation</td>
</tr>
<tr>
<td>Venue:</td>
<td>Glasgow</td>
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<tr>
<td>Date:</td>
<td>8 November 2002</td>
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*Invited presentation to Public Health staff of the Institute*

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<tr>
<th>Presenter:</th>
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<tr>
<td>Title:</td>
<td>“NDIP clinical training”</td>
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<tr>
<td>Meeting:</td>
<td>National Dental Inspection Programme Training &amp; Calibration Course 1</td>
</tr>
<tr>
<td>Venue:</td>
<td>Perth</td>
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<td>Date:</td>
<td>11-12 November 2002</td>
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*23 examining teams from across Scotland*

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<tr>
<th>Presenter:</th>
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<tbody>
<tr>
<td>Title:</td>
<td>“NDIP clinical training”</td>
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<tr>
<td>Meeting:</td>
<td>National Dental Inspection Programme Training &amp; Calibration Course 2</td>
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<td>Venue:</td>
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<td>14-15 November 2002</td>
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*21 examining teams from across Scotland*

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<tr>
<th>Presenter:</th>
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<tbody>
<tr>
<td>Title:</td>
<td>“Water Fluoridation and inequalities in dental health”</td>
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<tr>
<td>Meeting:</td>
<td>Presentation of MRC Expert Committee on Fluoridation and Human Health</td>
</tr>
<tr>
<td>Venue:</td>
<td>London</td>
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<tr>
<th>Presenter:</th>
<th>Smith PA</th>
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<tbody>
<tr>
<td>Title:</td>
<td>“Partial denture patients in general practice”</td>
</tr>
<tr>
<td>Meeting:</td>
<td>Postgraduate Meeting</td>
</tr>
<tr>
<td>Venue:</td>
<td>Dundee Dental Hospital &amp; School</td>
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<tr>
<td>Date:</td>
<td>22 November 2002</td>
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75. Presenter: Pitts NB
Title: “Caries criteria for 2003” “CD-ROM as an aid to training and quality in surveys”
Meeting: Pilot Examiner Training for UK Child Dental Health Survey 2003
Venue: Walsall, Quality Hotel
Date: 26 November 2002

76. Presenter: Pitts NB
Title: “Enhancing the role of PCDs in Treatment (care) provision”
Meeting: Stakeholder consultation on Children’s Oral Health Glasgow Primary Care Trust
Venue: Ibrox, Glasgow
Date: 2 December 2002
*Invited presentation to Glasgow GDPs and Community Dentists

77. Presenter: Pitts NB
Title: “Scope for the redesign of primary care dental services”
Meeting: Stakeholder consultation on Children’s Oral Health Glasgow Primary Care Trust
Venue: Ibrox, Glasgow
Date: 2 December 2002
*Invited presentation to Glasgow GDPs and Community Dentists

78. Presenter: Pitts NB
Title: “Options for Change: Introduction and pathways”
Meeting: Annual Scientific Meeting of the British Association for the Study of Community Dentistry
Venue: Royal College of Physicians, London
Date: 6 December 2002
*Invited presentation to Specialist Society

79. Presenter: Pitts NB
Title: “Modernising the BASCD / NHS dental epidemiology programme”
Meeting: Annual Scientific Meeting of the British Association for the Study of Community Dentistry
Venue: Royal College of Physicians, London
Date: 6 December 2002
*Invited presentation to Specialist Society

80. Presenter: Pitts NB
Title: “Understanding evidence based dentistry in Primary Care”
Meeting: Faculty of General Dental Practitioners EBD module Course
Venue: Royal College of Surgeons, London
Date: 12 December 2002
*Primary Care dentists

81. Presenter: Pitts NB
Title: “Move of DHSRU to the Health Informatics Centre”
Meeting: External Review of Community Unit, University of Dundee
Venue: Dundee
Date: 18 December 2002
*External expert Reviewers and University Research sub-committee
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<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
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<tr>
<td>Tilley CJ</td>
<td>&quot;Is prevention better than cure?&quot;</td>
<td>Intermediate Dental Skills 2002</td>
<td>Dundee Dental Hospital &amp; School</td>
<td>7 January 2003</td>
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<tr>
<td>Clarkson JE</td>
<td>&quot;Remuneration education and inequalities in health care&quot;</td>
<td>Forsyth Institute, Evidence Based Dentistry Conference</td>
<td>Boston, USA</td>
<td>9-12 January 2003</td>
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<tr>
<td>Pitts NB</td>
<td>&quot;UK developments in clinical effectiveness and EBD&quot;</td>
<td>University of Boston</td>
<td></td>
<td>10-12 January 2003</td>
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<tr>
<td>Raitt F, Clarkson JE, Radford J</td>
<td>&quot;Developing personal transferable skills with Health Care Law and Admin Honours Students&quot;</td>
<td>Hon Graduates Award for Innovative Teaching</td>
<td>Dundee Dental Hospital &amp; School</td>
<td>22 January 2003</td>
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<tr>
<td>Tilley CJ</td>
<td>&quot;Economic evaluation in dentistry&quot;</td>
<td>4th BDS Dental Public Health</td>
<td>Dundee Dental Hospital &amp; School</td>
<td>27 January 2003</td>
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<tr>
<td>Hally J</td>
<td>&quot;Evidence Based Dentistry&quot;</td>
<td>Hygienist Course</td>
<td>Dundee Dental Hospital &amp; School</td>
<td>30 January 2003</td>
</tr>
<tr>
<td>Pitts NB</td>
<td>&quot;Why is evidence-based dentistry important for Primary Dental Care?&quot;</td>
<td>Oral Health Workshop</td>
<td>Royal Society of Edinburgh</td>
<td>31 January 2003</td>
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<tr>
<td>Crawford F</td>
<td>&quot;What can dentistry learn from elsewhere in Primary Care?&quot;</td>
<td>Oral Health Workshop</td>
<td>Royal Society of Edinburgh</td>
<td>31 January 2003</td>
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<tr>
<td>Presenter</td>
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<td>Meeting</td>
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<tr>
<td>Clarkson JE</td>
<td>“What is the “SDPBRN” and how does it function?”</td>
<td>Oral Health Workshop</td>
<td>Royal Society of Edinburgh</td>
<td>31 January 2003</td>
</tr>
<tr>
<td>Longbottom C</td>
<td>“Terahertz technology: potential dental applications”</td>
<td>DGL Congress</td>
<td>Berlin</td>
<td>31 January 2003</td>
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<tr>
<td>Hally J</td>
<td>“NHSC Dental Clinical Pathways”</td>
<td>SCHIN and Department of Health</td>
<td>University of Newcastle (SCHIN)</td>
<td>13 February 2003</td>
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<tr>
<td>Pitts NB</td>
<td>“Clinical Pathways and improving dental care”</td>
<td>Virtual Centre for Improving Oral Health – EBD Workshop</td>
<td>Manchester</td>
<td>13 February 2003</td>
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<tr>
<td>Clarkson JE</td>
<td>“Virtual Centre for Evidence Based Dentistry”</td>
<td>Virtual Centre for Improving Oral Health – EBD Workshop</td>
<td>Manchester</td>
<td>13-14 February 2003</td>
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<td>Hally J</td>
<td>“What are clinical pathways?”</td>
<td>Virtual Centre for Improving Oral Health – EBD Workshop</td>
<td>Manchester</td>
<td>14 February 2003</td>
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<tr>
<td>Young L</td>
<td>“How do changes to dental remuneration systems affect clinical activity? The benevolent dentist”</td>
<td>CSO Postgraduate Conference</td>
<td>Edinburgh</td>
<td>19 February 2003</td>
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</tbody>
</table>
98. Presenter: Clarkson JE  
Title: “What is evidence based practice and its role in General Dental Practice?”  
Meeting: Faculty of General Dental Practitioners (FGDP) Module Part 5 + 6  
Venue: Edinburgh  
Date: 20-21 February 2003

99. Presenter: Tilley CJ  
Title: “Economics and health care”  
Meeting: Faculty of General Dental Practitioners (FGDP)  
Venue: The Lister, SSPC, Edinburgh  
Date: 21 February 2003

100. Presenter: Clarkson JE  
Title: “Career pathways in academia, the NHS and research”  
Meeting: Research Training Fellows Conference  
Venue: Leith  
Date: 12 March 2003

101. Presenter: Clarkson JE  
Title: “Clinical effectiveness in dentistry”  
Meeting: CSO Consumer Day  
Venue: Edinburgh  
Date: 17 March 2003

Title: “A randomised controlled trial to investigate the effects of enhanced oral health advice upon self-reported patient behaviour, oral cleanliness and gingival health”  
Meeting: Scottish Dental Practice Based Research Network (SDPBRN) Annual Conference  
Venue: The Royal Concert Hall, Glasgow  
Date: 20 March 2003  
*GDPs / Poster presentation

103. Presenter: Anderson C  
Title: “Targeted caries prevention for pre-school children”  
Meeting: Scottish Dental Practice Based Research Network (SDPBRN) Annual Conference  
Venue: The Royal Concert Hall, Glasgow  
Date: 20 March 2003

104. Presenter: Clarkson JE  
Title: “Critical reading”  
Meeting: West of Scotland VT Schemes  
Venue: Postgraduate Centre, Glasgow Dental School  
Date: 3 April 2003  
*Vocational Trainees

105. Presenter: Clarkson JE  
Title: “Cluster trials in dentistry”  
Meeting: Scottish School of Primary Care (SSPC) Conference – ‘Cutting Edge of Primary Care Research’  
Venue: Hilton Hotel, Dundee  
Date: 4-5 April 2003
Title: “A randomised controlled trial to explore attitudes to routine scale and polish and compare manual versus ultrasonic scaling”
Meeting: Scottish School of Primary Care (SSPC) Conference – ‘Cutting Edge of Primary Care Research’
Venue: Hilton Hotel, Dundee
Date: 4-5 April 2003
*Poster presentation

107. Presenter: Tilley CJ
Title: “The demand for dental services in Scotland: A framework for analysis”
Meeting: Dental Workforce Modelling Seminar
Venue: NHS Education Scotland (NES) Queen Street, Glasgow
Date: 7 April 2003

108. Presenter: Pitts NB
Title: “Other important lessons from SIGN Guideline 47 and the future of guidelines in Practice”
Meeting: Seminar – Preventing Dental Caries in Children – The Role of SIGN Guideline 47
Venue: Lister Postgraduate Institute, Edinburgh
Date: 23 April 2003

109. Presenter: Pitts NB
Title: “NDIP - Developments to date, quality systems for caries data and the potential for future development”
Meeting: National Meeting of National Dental Inspection Programme
Venue: Hilton, Dunkeld
Date: 29 April 2003

110. Presenter: Clarkson JE
Title: “Critical reading”
Meeting: Glasgow VDPs
Venue: Postgraduate Centre, Glasgow Dental School
Date: 30 April 2003
*Vocational Trainees

111. Presenters: Clarkson JE, Worthington H
Title: “Interventions for preventing and treating oral mucositis for patients with cancer: systematic reviews”
Meeting: Head and Neck Cancer – Oral Medicine Update
Venue: Royal Society of Medicine, London
Date: 1 May 2003
*RSM members, fellows, associates and students

112. Presenter: Pitts NB
Title: “Eight hour course on Evidence Based Preventive Dentistry for the 21st Century”
Meeting: Brazilian Society for Preventive Dentistry (ABOPREV) Congress
Venue: Brazil
Date: 1 May 2003
113. Presenter: Pitts NB
Title: “How should we measure what we want to know?” and “How should the information be collected and used?”
Meeting: British Association for the Study of Community Dentistry Dental Epidemiology Symposium
Venue: London
Date: 16 May 2003

114. Presenter: Pitts NB
Title: “Progress with the ICDAS approach in Scotland, UK and Europe”
Meeting: International Caries Detection and Assessment System Symposium
Venue: Indiana University
Date: 20 May 2003

115. Presenter: Longbottom C
Title: “ICDAS criteria: application and validation”
Meeting: Indiana Conference: Early detection of dental caries III
Venue: Indianapolis
Date: 22 May 2003

116. Presenter: Topping G
Title: “Evidence-based documentation of the ICDAS process”
Meeting: International Caries Detection and Assessment System Symposium
Venue: Indianapolis
Date: May 2003

117. Presenter: Pitts NB
Title: “Clinical care pathways: How to get evidence into Practice”
Meeting: UK Consultants in Dental Public Health Annual Study Meeting
Venue: Harrogate
Date: 5 June 2003

118. Presenters: Nugent ZJ, Antunes JLF, Narvai PC
Title: “Measuring inequalities in the distribution of dental caries”
Meeting: Canadian Society for Epidemiology & Biostatistics 2003 Biennial Meeting
Venue: Halifax, Canada
Date: 8-11 June 2003
*Poster presentation

119. Presenter: Young L
Title: “A UK National cohort study evaluating dental Vocational Training”
Meeting: Vocational Dental Practice Study Day
Venue: Postgraduate Centre, Ninewells
Date: 13 June 2003

120. Presenter: Young L
Title: “A UK National cohort study evaluating dental Vocational Training”
Meeting: Vocational Dental Practice Study Day
Venue: Edinburgh Postgraduate Dental Institute
Date: 19 June 2003
<table>
<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
<th>Meeting</th>
<th>Venue</th>
<th>Date</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crawford F</td>
<td>“Plantar heel pain”</td>
<td>2nd International Meeting of eMusk</td>
<td>University of Teeside, Middlesbrough</td>
<td>20 June 2003</td>
<td>Invited</td>
</tr>
<tr>
<td>Hally J</td>
<td>“Continuing dental care for elderly in the Scottish Highlands”</td>
<td>International Association for Dental Research Annual Congress</td>
<td>Gothenburg, Sweden</td>
<td>25-28 June 2003</td>
<td>Poster presentation</td>
</tr>
<tr>
<td>Nuttall NM, Clarkson JE, Laird M</td>
<td>“Obtaining dental epidemiological information for adults during routine dental visits”</td>
<td>International Association for Dental Research Annual Congress</td>
<td>Gothenburg, Sweden</td>
<td>25 June 2003</td>
<td>Poster presentation</td>
</tr>
<tr>
<td>Pitts NB</td>
<td>“IADR-FDI Research meets Practice seminar: Opportunities and gaps for behavioural sciences, health services research and cariology”</td>
<td>International Association for Dental Research Annual Congress</td>
<td>Gothenburg, Sweden</td>
<td>25 June 2003</td>
<td></td>
</tr>
<tr>
<td>Pitts NB</td>
<td>“International collaboration in evidence based dentistry – Towards an International EBD Network”</td>
<td>International Association for Dental Research Annual Congress</td>
<td>Gothenburg, Sweden</td>
<td>26 June 2003</td>
<td></td>
</tr>
</tbody>
</table>
128. Presenter: Topping G
Title: “Dental Public Health in Scotland”
Meeting: General Professional Training Final Event
Venue: Aberdeen
Date: June 2003
*Invited

129. Presenter: Pitts NB
Title: “Are we ready to move from operative to non-operative/preventive treatment?”
Meeting: European Organisation for Caries Research (ORCA), 50th Anniversary Symposium
Venue: Konstanz, Germany
Date: 1 July 2003

130. Presenter: Clarkson JE
Title: “Getting research into clinical practice: Barriers and solutions”
Meeting: European Organisation for Caries Research (ORCA) 2003
Venue: Konstanz, Germany
Date: 2-6 July 2003

131. Presenter: Longbottom C
Title: “Parents’ and toddlers’ toothbrushing behaviour: Analysis of videotaped home toothbrushing sessions”
Meeting: European Organisation for Caries Research (ORCA) 2003
Venue: Konstanz, Germany
Date: 4 July 2003
*Poster presentation

132. Presenter: Young L
Title: “A UK National cohort study evaluating dental Vocational Training”
Meeting: CSO Public Involvement Group
Venue: University of Dundee
Date: 18 July 2003

133. Presenters: Nugent ZJ, Antunes JLF, Narvai PC
Title: “Measuring inequalities in the distribution of dental caries”
Meeting: VII Brazilian Congress of Collective Health – Brazilian Association of Collective Health (ABRASCO)
Venue: Brasilia
Date: 29 July – 2 August 2003
*Poster presentation

134. Presenter: Pitts NB
Title: “EADPH special interest group in epidemiology: Evidence on caries detection and assessment systems”
Meeting: European Association for Dental Public Health
Venue: Finland
Date: 21 August 2003

135. Presenter: Hally J
Title: “NHS Dental Clinical Pathways: DHSRU Progress Report”
Meeting: Department of Health
Venue: London
Date: 27 August 2003
<table>
<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
<th>Meeting</th>
<th>Venue</th>
<th>Date</th>
<th>Invited</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarkson JE</td>
<td>“All you need to know to read a paper: (To keep up-to-date with a trainee)”</td>
<td>START Course</td>
<td>Edinburgh</td>
<td>29 August 2003</td>
<td></td>
</tr>
<tr>
<td>Topping G</td>
<td>“Caries risk assessment and appropriate intervals for bitewing radiographs”</td>
<td>Fife General Dental Practitioners’ Audit Evening</td>
<td>Kirkcaldy</td>
<td>August 2003</td>
<td>Invited</td>
</tr>
<tr>
<td>Topping G</td>
<td>“Specialist training in Dental Public Health”</td>
<td>General Professional Training Induction Event</td>
<td>Aberdeen</td>
<td>August 2003</td>
<td>Invited</td>
</tr>
<tr>
<td>Levin KA</td>
<td>“Urban/rural inequalities in ischaemic heart disease and their association with deprivation”</td>
<td>Society for Social Medicine Annual Scientific Meeting</td>
<td>Edinburgh</td>
<td>September 2003</td>
<td></td>
</tr>
<tr>
<td>Young L</td>
<td>“A UK National cohort study evaluating dental Vocational Training and the SDPBRN Vocational Dental Practitioner Practice Based Research Programme: The 2004 VDP Trial”</td>
<td>West of Scotland Centre for Postgraduate Dental Education</td>
<td></td>
<td>3 September 2003</td>
<td></td>
</tr>
<tr>
<td>Clarkson JE</td>
<td>“Making evidence work for you”</td>
<td>Evidence from Research Used in Preventive Treatment (ERUPT) Study Education Intervention</td>
<td>Dundee, Edinburgh, Inverness, Glasgow</td>
<td>4, 5, 12 and 16 September 2003</td>
<td>Participants in education arm of ERUPT Study</td>
</tr>
</tbody>
</table>
143. Presenter: Clarkson JE  
Title: “All you need to know to read a paper: (Critical Appraisal)”  
Meeting: START Course  
Venue: Glasgow  
Date: 24 September 2003  
*Dental Vocational Trainees*  

Title: “Establishing a scientific rationale for choosing interventions to translate research findings into clinical practice: The PRIME Project”  
Meeting: European Health Psychology Society Conference, 17th Conference of the EHPS Gender, Culture and Health  
Venue: Kos, Greece  
Date: 24-27 September 2003  
*Poster presentation made by Liz Shirran.*  

145. Presenter: Pitts NB  
Title: “25 Years of dental caries prevention”  
Meeting: World Health Organisation (WHO) Collaborating Centre  
Venue: University of Jena, Germany  
Date: 30 September 2003  
*Invited chair of workshop session and discussant*  

146. Presenter: Young L  
Title: “A UK National cohort study evaluating dental Vocational Training: Consumer involvement”  
Meeting: CSO Public Involvement Group  
Venue: British Medical Association, Edinburgh  
Date: 30 September 2003  

147. Presenter: Hally J  
Title: “NHS Dental Clinical Pathways: An introduction”  
Meeting: Special Needs Focus Group  
Venue: Quality Hotel & Suites, Walsall  
Date: 1 October 2003  

148. Presenter: Clarkson JE  
Title: “Scottish Dental Practice Based Research Network (SDPBRN)”  
Meeting: NHS Education Scotland (NES) Annual Dental Conference  
Venue: Dunkeld  
Date: 4 October 2003  

149. Presenter: Tilley CJ  
Title: “The demand for dental services”  
Meeting: NHS Education Scotland (NES) Annual Dental Conference  
Venue: Dunkeld  
Date: 4 October 2003  

150. Presenter: Tilley CJ  
Title: “Economic evaluation in dentistry”  
Meeting: Service Based Training for SHOs  
Venue: Dundee Dental Hospital & School  
Date: 8 October 2003
<table>
<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
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<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Tilley CJ</td>
<td>&quot;The demand for dental services in Scotland&quot;</td>
<td>Workforce Planning in the UK</td>
<td>Department of Health</td>
<td>23 October 2003</td>
</tr>
<tr>
<td>Levin KA</td>
<td>&quot;Urban/rural inequalities in ischaemic heart disease&quot;</td>
<td>European Public Health Association</td>
<td>Rome</td>
<td>November 2003</td>
</tr>
<tr>
<td>Tilley CJ</td>
<td>&quot;Physician Agency and the link between Physician Density and Intensity of Treatment: Dentists in the British NHS&quot;</td>
<td>Behaviour, Performance and Organisation of Care Programme (BPOC) Meeting</td>
<td>HERU, Aberdeen</td>
<td>11 November 2003</td>
</tr>
<tr>
<td>Nugent ZJ</td>
<td>&quot;Patterns of tooth loss in children&quot;</td>
<td>Developing guidelines for referral of children for dental treatment under general anaesthesia in Scotland Symposium</td>
<td>Dundee Dental Hospital &amp; School</td>
<td>28 November 2003</td>
</tr>
<tr>
<td>Shirran E, Walker AE, Bonetti D, Eccles M, Grimshaw J, Johnston M, Pitts NB, Steen N</td>
<td>&quot;Using health psychology models in implementation research; planned investigations&quot;</td>
<td>UK Federation of Primary Care Research Networks</td>
<td>Glasgow</td>
<td>3 December 2003</td>
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<tr>
<td>Southwick C</td>
<td>&quot;The ERUPT Study&quot;</td>
<td>EastRen Quarterly Meeting</td>
<td>St Andrews Bay Hotel</td>
<td>3 December 2003</td>
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<tr>
<td>Hally J</td>
<td>&quot;OHA Development&quot;</td>
<td>Department of Health</td>
<td>London</td>
<td>17 December 2003</td>
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<tr>
<td>Topping G</td>
<td>&quot;Developments in measuring oral disease&quot;</td>
<td>British Association for the Study of Community Dentistry</td>
<td>London</td>
<td>December 2003</td>
</tr>
</tbody>
</table>
159. Presenters: Pitts NB and Clarkson JE
Title: “The research programmes at DHSRU”
Meeting: UK Virtual Centre for Improving Oral Health
Venue: The Vale, Cardiff
Date: 9 January 2004

160. Presenters: Clarkson JE and Young L
Title: “Dental Vocational Training: VDP Randomised Controlled Trial”
Venue: Postgraduate Centre, Glasgow Dental School
Date: 14 January 2004

161. Presenter: Pitts NB
Title: “NHS Dental Clinical Care Pathways – Steps along an evolutionary path”
Venue: Royal Institute of British Architects
Date: 21 January 2004

162. Presenters: Worthington H and Clarkson JE
Title: “Interventions for preventing and treating oral mucositis for patients with cancer: Systematic Reviews”
Meeting: Royal Society of Medicine Head and Neck Cancer
Venue: Liverpool
Date: 21 January 2004

163. Presenters: Pitts NB, Longbottom C, Anderson CE and the GETCaPPP team
Title: “GETCaPPP progress with caries risk assessment and caries prevention in pre-school children in Dundee and Milton Keynes”
Meeting: Presentations to the NHS R&D Primary Dental Care Programme
Venue: Health Informatics Centre, Dundee
Date: 23 January 2004

164. Presenter: Smith PA
Title: “The public and the patient: Implications for dentistry”
Meeting: Lecture to 4th BDS students
Date: 16 February 2004

165. Presenter: Pitts NB
Title: “NHS Dental Clinical Care Pathways and the virtual Centre for Improving Oral Health – current positions”
Meeting: Department of Health, England: Dental Top Team
Venue: London
Date: 4 March 2004

166. Presenter: Pitts NB
Title: “The IADR Evidence Based Dentistry (EBD) Network”
Meeting: FDI – IADR Science Transfer Seminar; 82nd General Session of International Association of Dental Research (IADR)
Venue: Honolulu Convention Centre, Hawaii
Date: 10 March 2004
167. Presenter: Clarkson JE  
Title: “All you need to know to read a paper”  
Venue: Edinburgh Postgraduate Dental Institute  
Date: 12 March 2004  
*VTs and trainers

168. Presenter: Topping G  
Title: “Accuracy in caries detection – General Dental Practitioners’ beliefs”  
Meeting: 82nd General Session of International Association of Dental Research (IADR)  
Venue: Honolulu Convention Centre, Hawaii  
Date: 13 March 2004

169. Presenter: Fernandes M  
Title: “The incidence of symptoms in impacted molars in primary care”  
Meeting: 82nd General Session of International Association of Dental Research (IADR)  
Venue: Honolulu Convention Centre, Hawaii  
Date: 13 March 2004

170. Presenter: Clarkson JE  
Title: “Scottish Dental Practice Based Research Network: 3rd National Symposium ‘Evidence in Action’”  
Meeting: Scottish Dental Practice Based Research Network (SDPBRN) 3rd National Symposium  
Venue: Stirling Royal Infirmary, Stirling  
Date: 24 March 2004  
*GDPs and researchers

171. Presenters: Young L and McCoombes W  
Title: “Dental Vocational Training research programme”  
Meeting: Scottish Dental Practice Based Research Network (SDPBRN) 3rd National Symposium  
Venue: Stirling Royal Infirmary, Stirling  
Date: 24 March 2004

172. Presenter: Pitts NB  
Title: “Evidence versus experience in evidence based dentistry”  
Meeting: Scottish Dental Practice Based Research Network (SDPBRN) 3rd National Symposium  
Venue: Stirling Royal Infirmary, Stirling  
Date: 24 March 2004

173. Presenter: Turner S  
Title: “Evidence from Research Used in Preventive Treatment (ERUPT)”  
Meeting: Scottish Dental Practice Based Research Network (SDPBRN) 3rd National Symposium  
Venue: Stirling Royal Infirmary, Stirling  
Date: 24 March 2004
174. Presenter: Pitts NB
Title: “Evidence and the future in Primary Dental Care – Policy view (given for Deputy CDO)”
Meeting: Scottish Dental Practice Based Research Network (SDPBRN) 3rd National Symposium
Venue: Stirling Royal Infirmary, Stirling
Date: 24 March 2004

175. Presenters: Anderson C, Longbottom C, Pitts NB
Title: “Development and evaluation of Generalisable Evidence-based, Targeted Caries Prevention for Pre-school children by integrated Primary care teams (GETCaPPP)”
Meeting: Reflection and Moving Forward, Dental R&D Conference
Venue: Manchester Conference Centre
Date: 31 March 2004
*Poster

176. Presenter: Pitts NB
Title: “How projects were selected”
Meeting: Reflection and Moving Forward, Dental R&D Conference
Venue: Manchester Conference Centre
Date: 31 March 2004

Title: “A UK national cohort study evaluating dental Vocational Training”
Meeting: NHS Education Scotland (NES) Conference on Education Research and Development
Venue: Beardmore Hotel, Clydebank
Date: 1-2 April 2004
*Poster

178. Presenters: McCombes W, Young L, Bonner B, Clarkson JE
Title: “Introducing randomised controlled trials into dental vocational training”
Meeting: NHS Education Scotland (NES) Conference on Education Research and Development
Venue: Beardmore Hotel, Clydebank
Date: 1-2 April 2004
*Poster

Title: “UK National cohort study evaluating dental Vocational Training: Stakeholder consultation”
Meeting: NHS Education Scotland (NES) Conference on Education Research and Development
Venue: Beardmore Hotel, Clydebank
Date: 1-2 April 2004

Title: “Educational aspects of an implementation study in Child Dental Health”
Meeting: NHS Education Scotland (NES) Conference on Education Research and Development
Venue: Beardmore Hotel, Clydebank
Date: 1-2 April 2004
181. Presenter: Pitts NB  
Title: “International Caries Detection and Assessment System – the concept and progress to plan”  
Meeting: International Caries Detection and Assessment System (ICDAS) International Planning Committee  
Venue: Bornholm, Denmark  
Date: 2 April 2004

182. Presenter: Pitts NB  
Title: “Moving Forward with Dental R&D – an overview for BSDR”  
Meeting: Management Committee of British Society for Dental Research and UK Dental Research Deans  
Venue: University of Birmingham  
Date: 6 April 2004

183. Presenter: Fernandes M  
Title: “Validation of the OHIP-14 in General Dental Practice”  
Meeting: British Society for Dental Research Annual Scientific Meeting  
Venue: University of Birmingham  
Date: 6 April 2004

184. Presenters: MacLennan G, Ramsay C, Clarkson JE, Turner S  
Title: “Sample size calculations for cluster randomised trials in dentistry”  
Meeting: Methodological Issues in Oral Health Research  
Venue: Leuven, Belgium  
Date: 21-24 April 2004

Title: “An evidence-based approach to the recruitment of general dental practitioners into an implementation study promoting the dental care of children”  
Meeting: Methodological Issues in Oral Health Research  
Venue: Leuven, Belgium  
Date: 21-24 April 2004

186. Presenter: Pitts NB  
Title: “Contemporary clinical management of dental caries”  
Meeting: GIRSO Dental Congress  
Venue: Wroclaw, Poland  
Date: 22 April 2004

187. Presenter: Pitts NB  
Title: “NHS Clinical Care Pathways”  
Meeting: Stocktake for Department of Health England Fieldsites  
Venue: Department of Health, London  
Date: 26 April 2004

188. Presenters: Pitts NB, Longbottom C, Anderson CE and the GETCaPPP team  
Title: “The GETCaPPP Study – Results in Milton Keynes and Dundee”  
Meeting: Feedback to GMPs, GDPs, NHS Staff and Health Visitors  
Venue: Milton Keynes PCT  
Date: 28 April 2004
189. Presenters: Smith PA, Nuttall NM, Entwistle VE  
Title: “Patients’ decisions to have partial denture treatment: A qualitative study”  
Meeting: British Society for Dental Research Annual Scientific Meeting  
Venue: Birmingham  
Date: April 2004

Title: “A Randomised Controlled Trial of methods to increase response rates of general dental practitioners to a postal questionnaire”  
Meeting: Scottish School of Primary Care Conference  
Venue: Aberdeen  
Date: 29-30 April 2004  
*Poster presentation made by Ruth Thomas

191. Presenter: Clarkson JE  
Title: “Research methodology for caries research and epidemiology”  
Meeting: European Organisation for Caries Research (ORCA) Summer School, 2-5 May 2004  
Venue: Brazil  
Date: 3 May 2004

192. Presenter: Tilley CJ  
Title: “Implications of the workforce planning report, 2004”  
Meeting: NHS Education Scotland  
Venue: Edinburgh  
Date: 4 May 2004  
*Invited

193. Presenter: Topping G  
Title: “Analysis of NDIP data – Training proposals for 2004”  
Meeting: Scottish National Dental Inspection Programme Annual Seminar  
Venue: Dunkeld Hilton, Dunkeld  
Date: 6 May 2004  
*Community Dental Service epidemiology co-ordinators, Consultants in Dental Public Health, Clinical Directors

194. Presenter: Pitts NB  
Title: “Harmonisation of Oral Health Indicators, a UK perspective”  
Meeting: EU SANCO Project  
Venue: Grenada, Spain  
Date: 7 May 2004

195. Presenter: Pitts NB  
Title: “Pathogenesis”  
Meeting: SIGN – Prevention and Control of Dental Caries in the Pre-School Child  
Venue: Royal College of Physicians and Surgeons, Glasgow  
Date: 18 May 2004
196. Presenter: Young L  
Title: “All you need to know to read a paper”  
Meeting: START Course – Critical Appraisal Teaching Session  
Venue: The Inchyra Grange Hotel, Grangemouth  
Date: 10 June 2004

Title: “Using health psychology models in predicting evidence-based practice: Use of x-rays by doctors and dentists (The PRIME Project)”  
Meeting: 18th Annual Conference of the European Health Psychology Society  
Venue: Finland  
Date: 21-24 June 2004  
*Poster presentation made by Liz Shirran

198. Presenters: Pitts NB, Anderson C  
Title: “Caries reduction with health visitors”  
Meeting: European Organisation for Caries Research, 51st Meeting  
Venue: Marburg, Germany  
Date: 30 June – 3 July 2004  
*Poster

199. Presenter: Clarkson JE  
Title: “Oral Health and the Cochrane Collaboration”  
Meeting: American Dental Association (ADA) Symposium on EBD  
Venue: Chicago  
Date: 12-13 August 2004  
*American Dental Association members

200. Presenter: Clarkson JE  
Title: “All you need to know to read a paper”  
Meeting: Vocational Trainees  
Venue: Ninewells Hospital, Dundee  
Date: 20 August 2004  
*9 VTs in each group

201. Presenter: Clarkson JE  
Title: “All you need to know to read a paper”  
Meeting: Vocational Trainees  
Venue: Ninewells Hospital, Dundee  
Date: 26 August 2004  
*9 VTs in each group

Meeting: Eighth International Congress of Behavioural Medicine  
Venue: Mainz, Germany  
Date: 25-28 August 2004  
*Poster presentation
203. Presenter: Clarkson JE
Title: “DHSRU activities update”
Meeting: 4th Meeting of the virtual Centre for Improving Oral Health
Venue: Norton House, Edinburgh
Date: 31 August 2004
*Members of the vC (Centre of Evidence Based Dentistry, Cochrane Oral Health Group, DHSRU, Welsh Oral Health Information Unit)

204. Presenter: Hally J
Title: “Care Pathways”
Meeting: Virtual Centre Meeting
Venue: Edinburgh
Date: 1 September 2004

205. Presenter: Young L
Title: “Levels of evidence and strength of clinical recommendation”
Meeting: SHO Training Day
Venue: Dundee
Date: 1 September 2004

206. Presenter: Young L
Title: “Systematic reviews”
Meeting: SHO Training Day
Venue: Dundee
Date: 1 September 2004

207. Presenters: Johnston M, Shirran L, MacLennan GS, Bonetti D, Thomas RE
Title: “Using health psychology models in predicting evidence-based practice: use of x-rays by doctors and dentists (The PRIME Project)”
Meeting: The British Psychological Society Division of Health Psychology Annual Conference
Venue: Edinburgh
Date: 8-10 September 2004
*Poster presentation

208. Presenter: Pitts NB
Title: “Overview of how different parts of the evidence based jigsaw fit together as well as specific examples of getting research into practice”
Meeting: Federation Dentaire International (FDI) World Dental Congress
Venue: Delhi, India
Date: 10-13 September 2004

209. Presenters: Topping G and Pitts NB
Title: “Role of DHSRU in dental epidemiology and research collaboration with NHS Boards in Scotland”
Meeting: Consultants in Dental Public Health (CDPHs) and Chief Administrative Dental Officers (CADOs) Group
Venue: Edinburgh
Date: 22 September 2004

210. Presenter: Anderson C
Title: “The use of health visitors in caries risk assessment”
Meeting: European Association for Dental Public Health Conference
Venue: Porto, Portugal
Date: 23 September 2004
*Poster
211. Presenter: Topping G  
Title: “The International Caries Detection and Assessment System (ICDAS)”  
Meeting: European Association for Dental Public Health Conference  
Venue: Porto, Portugal  
Date: 24 September 2004  
*Invited

212. Presenters: Smith PA, Nuttall NM, Entwistle VE  
Title: “Patients, decision making and partial denture wear: a qualitative study”  
Meeting: European Association for Dental Public Health Conference  
Venue: Porto, Portugal  
Date: 24-25 September 2004  
*Poster presentation made by PA Smith

213. Presenter: Pitts NB  
Title: “Improving quality of life through individualized prevention”  
Meeting: European Association for Dental Public Health Conference  
Venue: Porto, Portugal  
Date: 24-25 September 2004

214. Presenters: Turner S, Tiley C, Clarkson JE  
Title: “Utilisation of routinely collected data in an implementation RCT”  
Meeting: European Association for Dental Public Health Conference  
Venue: Porto, Portugal  
Date: 24-25 September 2004

215. Presenter: Young L  
Title: “Evidence in Practice: Power vs manual”  
Meeting: EastRen Quarterly Meeting  
Venue: Dundee  
Date: 28 September 2004

216. Presenter: Hally J  
Title: “NHS Dental Care Pathways”  
Meeting: Department of Health meeting with software suppliers  
Venue: London  
Date: 29 September 2004

217. Presenter: Turner S  
Title: “The ERUPT Study: Designing and running a cluster randomised, factorial intervention trial in primary dental care”  
Meeting: Health Informatics Centre Seminar  
Venue: Mackenzie Building, Dundee  
Date: 29 September 2004

218. Presenter: Clarkson JE  
Title: “MSc in Dental Primary Care”  
Meeting: NHS Education Scotland (NES) Annual Dental Conference  
Venue: Dunkeld  
Date: 30 September 2004
219. Presenter: Tilley CJ
Meeting: NHS Education Scotland (NES) Annual Dental Conference
Venue: Dunkeld
Date: 30 September 2004

220. Presenter: Levin KA
Title: “A comparison of health inequalities in urban and rural Scotland”
Meeting: European Public Health Association
Venue: Oslo
Date: October 2004

221. Presenter: Pitts NB
Title: “Clinical Pathways in Practice”
Meeting: Postgraduate Course
Venue: Birmingham Dental School
Date: 13 October 2004

222. Presenter: Tilley CJ
Title: “Treatment intensity and provider remuneration: Dentists in the British NHS”
Meeting: Health Informatics Centre (HIC) Seminar Series
Venue: Dundee
Date: 19 October 2004

223. Presenter: Topping G
Title: “Caries from all angles”
Meeting: Postgraduate Course
Venue: Aberdeen
Date: 29 October 2004

224. Presenter: Topping G
Title: “Dental caries detection criteria for Primary 7 children in Scotland”
Meeting: National Dental Inspection Programme (NDIP) Training and Calibration Course I
Venue: Perth
Date: 1-2 November 2004
*20 examining teams from across Scotland

225. Presenter: Tilley CJ
Title: “Appraisal of economic evaluations”
Meeting: Service based training for SHOs
Date: 3 November 2004

226. Presenter: Clarkson JE
Title: “So you think you know how to treat caries?”
Meeting: BDA Scientific Meeting
Venue: Loughborough
Date: 3 November 2004
*BDA members, GDPs
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<thead>
<tr>
<th>Presenter</th>
<th>Title</th>
<th>Meeting</th>
<th>Venue</th>
<th>Date</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>Topping G</td>
<td>“Dental caries detection criteria for Primary 7 children in Scotland” and “Dental health in Scotland in 2003”</td>
<td>National Dental Inspection Programme (NDIP) Training and Calibration Course II</td>
<td>Perth</td>
<td>4-5 November 2004</td>
<td>*20 examining teams from across Scotland</td>
</tr>
<tr>
<td>Hally J</td>
<td>“NHS Dental Care Pathways”</td>
<td>Field site meeting</td>
<td>Manchester</td>
<td>8 November 2004</td>
<td></td>
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<tr>
<td>Clarkson JE</td>
<td>“What is Evidence?”</td>
<td>Therapists Meeting</td>
<td>Perth Royal Infirmary</td>
<td>10 November 2004</td>
<td></td>
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<tr>
<td>Clarkson JE</td>
<td>“What can evidence-based dentistry offer the PCD”</td>
<td>British Dental Hygienists' Association Oral Health Conference and Annual General Assembly of Members</td>
<td>Edinburgh International Conference Centre</td>
<td>12-13 November 2004</td>
<td>*BDHA members, CDO Scotland, Deputy CDO England, GDPs and Hygienists</td>
</tr>
<tr>
<td>Fernandes M</td>
<td>“What happens when we leave impacted third molars?”</td>
<td>Dundee Dental School Research Symposium</td>
<td>University of Dundee, Dundee</td>
<td>1 December 2004</td>
<td></td>
</tr>
<tr>
<td>Pitts NB</td>
<td>“Getting Evidence into Practice”</td>
<td>British Association for the Study of Community Dentistry Scientific Meeting</td>
<td>London</td>
<td>9 December 2004</td>
<td>*Invited presentation</td>
</tr>
</tbody>
</table>
2005

234. Presenter: Smith PA
Title: “The public and the patient: Implications for dentistry”
Meeting: Lecture to 4th BDS students, Dundee Dental School
Date: 20 January 2005

235. Presenter: Clarkson JE
Title: “A UK National cohort study evaluating dental Vocational Training”
Meeting: Celtic Deaneries Meeting
Venue: Cardiff
Date: 21 January 2005

236. Presenter: Young L
Title: “Critical appraisal”
Venue: Edinburgh Dental Postgraduate Institute
Date: 28 January 2005

237. Presenter: Topping G
Title: “Oral health study day”
Meeting: Postgraduate Course
Venue: Aberdeen
Date: 16 February 2005
*Dentists and hygienists / Invited presentation

238. Presenter: Pitts NB
Title: “An international perspective on Practical Science”
Meeting: International Association of Dental Research (IADR), 84th Annual Session
Venue: Baltimore
Date: 8-12 March 2005

239. Presenter: Pitts NB
Title: “Early detection of dental caries and the International Caries Detection & Assessment System ICDAS”
Meeting: International Association of Dental Research (IADR), 84th Annual Session
Venue: Baltimore
Date: 8-12 March 2005

240. Presenter: Clarkson JE
Title: “Early caries detection”
Meeting: International Association of Dental Research (IADR), 84th Annual Session
Venue: Baltimore
Date: 12 March 2005
*Session chair

241. Presenter: Turner S, Pitts NB, Cardno L, Southwick C, Clarkson JE
Title: “Recruitment and retention of dentists in primary care research”
Meeting: International Association of Dental Research (IADR), 84th Annual Session
Venue: Baltimore
Date: 9-12 March 2005
*Poster
242. Presenter: Topping G
Title: "Predictive strength of features associated with caries adjacent to amalgam"
Meeting: International Association of Dental Research (IADR), 84th Annual Session
Venue: Baltimore
Date: 12 March 2005
*Poster presentation

243. Presenter: Young L
Title: "Effect of participating in evidence-based implementation research on dentists’ beliefs"
Meeting: International Association of Dental Research (IADR), 84th Annual Session
Venue: Baltimore
Date: 12 March 2005
*Poster presentation

244. Presenter: Clarkson JE
Title: "Prevention of mucositis in patients treated for cancer: Cochrane Review"
Meeting: International Association of Dental Research (IADR), 84th Annual Session
Venue: Baltimore
Date: 12 March 2005

245. Presenter: Clarkson JE
Title: "How to formulate a question for a systematic review"
Meeting: International Association of Dental Research (IADR), 84th Annual Session
Venue: Baltimore
Date: 12 March 2005

246. Presenters: Longbottom C and Topping G
Title: "Caries associated with restorations and sealants"
Meeting: International Caries Detection and Assessment System (ICDAS) Workshop
Venue: Baltimore
Date: 14-15 March 2005
*65 international experts in cariology; invited presentation

247. Presenter: Pitts NB
Title: International Caries Detection & Assessment System – ICDAS: Concepts and approach to integrate the different criteria systems to allow use across different applications"
Meeting: International Caries Detection and Assessment System (ICDAS) Workshop
Venue: Baltimore
Date: 14-15 March 2005
*65 international experts in all aspects of cariology

248. Presenter: Pitts NB
Title: "International Caries Detection & Assessment System – ICDAS: Applications in education"
Meeting: International Caries Detection and Assessment System (ICDAS) Workshop
Venue: Baltimore
Date: 14-15 March 2005
*65 international experts in all aspects of cariology
249. Presenter: Anderson C
   Title: “Targeted caries prevention for pre-school children”
   Meeting: East of Scotland Paedodontic Society Meeting
   Venue: Pfizer Institute, Edinburgh
   Date: 16 March 2005
   *Members of East of Scotland Paedodontic Society

250. Presenter: Pitts NB
   Title: “Implementation of oral health indicators – What are the links between research and policy interests?”
   Meeting: EU SANCO
   Venue: Paris
   Date: 17-18 March 2005

251. Presenter: Pitts NB
   Title: “Why do we need implementation research? A Health Services Research perspective”
   Meeting: British Society for Dental Research (BSDR), Annual Scientific Meeting
   Venue: Dundee
   Date: 4-7 April 2005

252. Presenter: Turner S
   Title: “Oral health care and status of elderly care home residents”
   Meeting: British Society for Dental Research (BSDR), Annual Scientific Meeting
   Venue: Dundee
   Date: 5 April 2005
   *poster

253. Presenter: Turner S
   Title: “Study of dental practitioner training for oral soft tissue examination”
   Meeting: British Society for Dental Research (BSDR), Annual Scientific Meeting
   Venue: Dundee
   Date: 6 April 2005
   *poster

254. Presenter: Clarkson JE
   Title: “Impact of third molar Guidelines: Economic perspective”
   Meeting: British Society for Dental Research (BSDR), Annual Scientific Meeting
   Venue: Dundee
   Date: 6 April 2005

255. Presenter: Fernandes M
   Title: “What happens when we leave impacted third molars?”
   Meeting: British Society for Dental Research (BSDR), Annual Scientific Meeting
   Venue: Dundee
   Date: 6 April 2005

256. Presenter: Turner S
   Title: “The ERUPT Study – promoting EB practice – Incentives perspective”
   Meeting: British Society for Dental Research (BSDR), Annual Scientific Meeting
   Venue: Dundee
   Date: 7 April 2005
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<tr>
<td>Young L</td>
<td>“A UK National cohort study evaluating dental Vocational Training”</td>
<td>British Society for Dental Research (BSDR), Annual Scientific Meeting</td>
<td>Dundee</td>
<td>7 April 2005</td>
</tr>
<tr>
<td>Ogden O, Fernandes M, Pitts NB</td>
<td>“Impacted third molars: Which ones should we leave?”</td>
<td>Professional Dissemination Event – MALT project</td>
<td>Glasgow Dental School</td>
<td>13 April 2005</td>
</tr>
<tr>
<td>Pitts NB</td>
<td>“The Role of Primary Care Research Networks in dental research”</td>
<td>Professional Dissemination Event – MALT project</td>
<td>Glasgow Dental School</td>
<td>13 April 2005</td>
</tr>
<tr>
<td>Pitts NB</td>
<td>“Improving oral health and modernising dental services: Mobilising information and knowledge services: Locally, nationally and internationally”</td>
<td>Tayside Health's Universities Strategic Liaison Committee</td>
<td>Dundee</td>
<td>20 April 2005</td>
</tr>
<tr>
<td>Young L</td>
<td>“Critical appraisal”</td>
<td></td>
<td>Edinburgh</td>
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</tr>
<tr>
<td>Pitts NB</td>
<td>“NHS Dental Care Pathways”</td>
<td>Software of Excellence Meeting</td>
<td>Bristol</td>
<td>29 April 2005</td>
</tr>
<tr>
<td>Clarkson JE</td>
<td>“Evidence based practice in dentistry”</td>
<td>Cochrane Oral Health Group Evidence Based Dentistry Course</td>
<td>Manchester</td>
<td>9-12 May 2005</td>
</tr>
<tr>
<td>Pitts NB</td>
<td>“Trends in caries and changes in disease presentation”</td>
<td>Children’s Dental Health in the UK 2003: Symposium</td>
<td>London</td>
<td>12 May 2005</td>
</tr>
</tbody>
</table>
265. Presenter: Pitts NB  
Title: "Working with Oral Health Assessment, new perspectives from the UK and elsewhere"  
Meeting: BDA Conference  
Venue: Glasgow  
Date: 19 May 2005

266. Presenter: Hally J  
Title: "The pilot test of the Oral Health Assessment for the 60 years and older age group"  
Meeting: Scottish Oral Health Assessment (OHA) Pilot Test  
Venue: Glasgow Postgraduate Centre  
Date: 26 May 2005

267. Presenter: Topping G  
Title: "Clinical proformae and the Oral Health Assessment of those aged 60 years and older"  
Meeting: Scottish Oral Health Assessment (OHA) Pilot Test  
Venue: Glasgow Postgraduate Centre  
Date: 26 May 2005  
*Invited

268. Presenter: Young L  
Title: "Critical appraisal"  
Venue: Edinburgh  
Date: 3 June 2005

269. Presenter: Fernandes M  
Title: "Prophylactic extraction of impacted third molars – Should it be discontinued?"  
Meeting: 4th Annual National Symposium of the Scottish Dental Practice Based Research Network (SDPBRN)  
Venue: Royal Society of Edinburgh  
Date: 15 June 2005

270. Presenter: Pitts NB  
Title: "Future of Dental PBRN’s – What’s the best “root” for Scotland – National and international perspectives”  
Meeting: 4th Annual National Symposium of the Scottish Dental Practice Based Research Network (SDPBRN)  
Venue: Royal Society of Edinburgh  
Date: 15 June 2005

271. Presenter: Young L  
Title: "The effect of chair-side oral hygiene advice – VDP Trial"  
Meeting: 4th Annual National Symposium of the Scottish Dental Practice Based Research Network (SDPBRN)  
Venue: Royal Society of Edinburgh  
Date: 15 June 2005  
*GDPs, PCDs, SDPBRN members, representatives of Education, Research and Dental Policy
272. Presenters: Longbottom C and Anderson C  
Title: “Practice meets research”  
Meeting: 4th Annual National Symposium of the Scottish Dental Practice Based Research Network (SDPBRN)  
Venue: Royal Society of Edinburgh  
Date: 15 June 2005

273. Presenter: Pitts NB  
Title: “ICDAS – International Caries Detection & Assessment System – as a tool for policy decision making”  
Meeting: Council of European Chief Dental Officers (CECDOs)  
Venue: Madrid  
Date: 17 June 2005

274. Presenter: Tilley CJ  
Title: “The ESRC DenRes Project”  
Meeting: Economic and Social Research Council (ESRC) Public Services Programme  
Venue: Edinburgh  
Date: 28 June 2005

275. Presenter: Pitts NB  
Title: “The Process of and Conclusions from the 2002 Scotland Consensus Conference ICW-CCT”  
Meeting: Indiana Caries Conference  
Venue: Indiana  
Date: 4 July 2005

276. Presenter: Pitts NB  
Title: “ICDAS Workshop Group Presentation”  
Meeting: Indiana Caries Conference  
Venue: Indiana  
Date: 5 July 2005

277. Presenter: Longbottom C  
Title: “ICDAS Workshop Group Presentation – Secondary caries”  
Meeting: Indiana Caries Conference  
Venue: Indiana  
Date: 5 July 2005

278. Presenter: Pitts NB  
Title: “Dental caries – a journey of discovery: from diagnosis, via detection and assessment, to prognosis and management”  
Meeting: 52nd Congress of the European Organisation for Caries Research (ORCA)  
Venue: Indiana  
Date: 7 July 2005

*ORCA / ZSOLNAY Prize Lecture
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<tr>
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<tbody>
<tr>
<td>Pitts NB</td>
<td>“Dental registration effects when targeting caries prevention in pre-school children”</td>
<td>52nd Congress of the European Organisation for Caries Research (ORCA)</td>
<td>Indiana</td>
<td>7 July 2005</td>
</tr>
<tr>
<td>Anderson C</td>
<td>“Integrated care approach to targeting caries prevention to pre-school children”</td>
<td>52nd Congress of the European Organisation for Caries Research (ORCA)</td>
<td>Indiana</td>
<td>7-9 July 2005</td>
</tr>
<tr>
<td>Clarkson JE</td>
<td>“Critical appraisal and evidence in practice”</td>
<td></td>
<td>Dundee</td>
<td>August 2005</td>
</tr>
<tr>
<td>Ramsay C</td>
<td>“European dentistry creating a united agenda – Where are we now with European Oral Health Indicators?”</td>
<td>EU Presidency Meeting</td>
<td>Royal College of Physicians, London</td>
<td>6 September 2005</td>
</tr>
<tr>
<td>Pitts NB</td>
<td>“Changes in Dental Services in the UK: Changing contracts, changing philosophies”</td>
<td>World Congress on Preventive Dentistry (IADR/EADPH/BASCD joint meeting)</td>
<td>Liverpool</td>
<td>9 September 2005</td>
</tr>
<tr>
<td>Tilley CJ</td>
<td>“Treatment intensity and provider remuneration: dentists in the NHS”</td>
<td>14th European workshop on health econometrics</td>
<td>Dublin</td>
<td>16 September 2005</td>
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</tbody>
</table>
286. Presenter: Turner S, Clarkson JE  
Title: “Dental health through the ages: The ERUPT study – Fissure sealants in young adults”  
Meeting: EastRen Quarterly Meeting  
Venue: Dundee  
Date: 28 September 2005

287. Presenter: Anderson C  
Title: “Targeted caries prevention for pre-school children”  
Meeting: EastRen Quarterly Meeting  
Venue: Dundee  
Date: 28 September 2005

288. Presenter: Tilley CJ  
Title: “Patient charges for dental services”  
Meeting: NHS Education Scotland (NES) Annual Dental Conference  
Venue: Dunkeld  
Date: 30 September 2005

Title: “How do we know if we’re measuring the theoretical constructs we want to measure? A workshop on Discriminant Content Validity (DCV)”  
Meeting: British Psychological Society Annual Conference  
Venue: Coventry  
Date: September 2005

290. Presenter: Topping G  
Title: “Caries diagnosis”  
Meeting: Postgraduate Course  
Venue: Aberdeen  
Date: 7 October 2005

291. Presenter: Pitts NB  
Title: “Embracing change in the diagnosis of dental disease – ICDAS as a worked example”  
Meeting: Community Dental Services Group – Annual, Presidential and Scientific Meeting 2005  
Venue: Newcastle-upon-Tyne  
Date: 20 October 2005  
*Community Dental Officers responsible for carrying out epidemiological surveys across the UK

292. Presenter: Topping G  
Title: “Dental caries detection criteria for Primary 1 children in Scotland” and “Dental health in Scotland in 2004”  
Meeting: National Dental Inspection Programme (NDIP) Training and Calibration Course I  
Venue: Perth  
Date: 24 October 2005  
*20 examining teams from across Scotland
293. Presenter: Topping G  
Title: “Dental health in Scotland in 2004 – feedback from the NDIP survey of 11-year-old children”  
Meeting: National Dental Inspection Programme (NDIP) Co-ordinators Meeting  
Venue: Perth  
Date: 26 October 2005  
*15 epidemiology co-ordinators from across Scotland

294. Presenter: Topping G  
Title: “Dental caries detection criteria for Primary 1 children in Scotland” and “Dental health in Scotland in 2004”  
Meeting: National Dental Inspection Programme (NDIP) Training and Calibration Course II  
Venue: Perth  
Date: 27 October 2005  
*21 examining teams from across Scotland

295. Presenter: Clarkson JE  
Title: “Critical appraisal and evidence in practice”  
Venue: Perth  
Date: October 2005  
*Vocational trainees

296. Presenter: Pitts NB  
Title: “Caries detection and assessment: a preventive approach to disease management”  
Meeting: Osaka Conference 2005  
Venue: Osaka, Japan  
Date: 3 November 2005  
*Keynote lecture to researchers from across Japanese Universities

297. Presenter: Pitts NB  
Title: “Caries management in Scotland”  
Meeting: Evidence from Research Used in Preventive Treatment (ERUPT) Conference  
Venue: Perth Concert Hall, Scotland  
Date: 9 November 2005  
*General Dental Practitioners (including participants in the ERUPT Study) and public health opinion leaders in Scotland

298. Presenter: Clarkson J  
Title: “The ERUPT Study”  
Meeting: Evidence from Research Used in Preventive Treatment (ERUPT) Conference  
Venue: Perth Concert Hall, Scotland  
Date: 9 November 2005

299. Presenter: Turner S  
Title: “Evidence for fissure sealants in Primary Dental Care”  
Meeting: Oral Health Promotion Research Group  
Venue: Franklin Wilkins Building, London  
Date: 10 November 2005
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<tr>
<th>Presenter</th>
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</thead>
<tbody>
<tr>
<td>Topping G</td>
<td>“International Caries Detection and Assessment System”</td>
<td>Portuguese Dental Association, Annual Scientific Meeting</td>
<td>Lisbon, Portugal</td>
<td>19 November 2005</td>
<td>*Invited lecture to General Dental Practitioners and researchers from across France.</td>
</tr>
<tr>
<td>Topping G</td>
<td>“Oral health promotion course”</td>
<td>Postgraduate Course</td>
<td>Aberdeen</td>
<td>7 December 2005</td>
<td>*Invited</td>
</tr>
<tr>
<td>Clarkson JE</td>
<td>“Critical appraisal and evidence in practice”</td>
<td>Edinburgh</td>
<td></td>
<td>December 2005</td>
<td>*Vocational trainees</td>
</tr>
</tbody>
</table>

**2006**

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<tr>
<th>Presenter</th>
<th>Title</th>
<th>Meeting</th>
<th>Venue</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Pitts NB</td>
<td>“Modern strategies for the diagnosis and preventive management of dental caries”</td>
<td>Sunstar Cariology Symposium 2006</td>
<td>Tokyo, Japan</td>
<td>21 January 2006</td>
<td>*General dentists from across Japan.</td>
</tr>
<tr>
<td>Hally J</td>
<td>“The Dental Care Pathways Project – The user’s perspective”</td>
<td>Applied Computing Seminar</td>
<td>Department of Applied Computing, University of Dundee</td>
<td>16 February 2006</td>
<td>*3rd year Applied Computing students (invited)</td>
</tr>
</tbody>
</table>
307. Presenter: Pitts NB  
Title: “ICDAS – scientific rationale and practical use”  
Meeting: Thai Society of Dental Public Health and Thammasat University Dental School Workshop on ICDAS (International Caries Detection and Assessment System)  
Venue: Thailand  
Date: 20 February 2006  
*Public Health Dentists in Thailand responsible for preventive programmes and dental surveys.

308. Presenter: Pitts NB  
Title: “Modern concepts of dental caries assessment”  
Meeting: Thammasat University Dental School (TUDS) International Forum on Modern concepts for the management of dental caries – an international perspective  
Venue: Thailand  
Date: 21 February 2006  
*Dental educators, general dentists and public health dentists across Thailand.

309. Presenter: Pitts NB  
Title: “Evidence-based management of dental caries”  
Meeting: Thammasat University Dental School (TUDS) International Forum on Modern concepts for the management of dental caries – an international perspective  
Venue: Thailand  
Date: 22 February 2006  
*Dental educators, general dentists and public health dentists across Thailand.

310. Presenter: Clarkson JE  
Title: “Critical appraisal and evidence in practice”  
Venue: Edinburgh  
Date: February 2006  
*Vocational trainees

311. Presenter: Anderson C  
Title: “Targeted caries prevention for pre-school children”  
Meeting: Scottish Senior Dental Officers’ Meeting  
Venue: Royal Hospital, Perth  
Date: 10 March 2006  
*CDS Senior Dental Officers

312. Presenter: Anderson C  
Title: “Integrated Primary Care approach to targeted caries prevention for pre-school children”  
Meeting: Scottish Salaried Senior Clinicians’ Group  
Venue: Perth  
Date: 12 March 2006

313. Presenter: Pitts NB  
Title: “The complexity of dental caries and its importance from a range of public health perspectives – A European view of the evidence”  
Meeting: Blackerby Lecture in Public Health  
Venue: University of Michigan School of Public Health  
Date: 15 March 2006
314. Presenters: Young L and Clarkson JE
Title: “Public Services: Creating a clinical, economic and psychological
research resource”
Meeting: Economic and Social Research Council (ESRC) Public Services
Programme, Second Projects Meeting
Venue: King’s College, London
Date: 29 March 2006

315. Presenter: Pitts NB
Title: “Obtaining valid clinical data – Part I: Dental caries data, what are the
contemporary choices and what is appropriate when?”
Meeting: International Meeting of Methodological Issues in Oral Health Research
Venue: Ghent, Belgium
Date: 19-21 April 2006

316. Presenter: Levin KA
Title: “Obtaining valid clinical data – Part II: Practical and statistical
experience of the National Dental Inspection Programme in Scotland”
Meeting: International Meeting of Methodological Issues in Oral Health Research
Venue: Ghent, Belgium
Date: 19-21 April 2006

317. Presenter: Pitts NB
Title: “How your office can help change the practice of dentistry ”
Meeting: Practitioners Engaged in Applied Research and Learning (PEARL)
Annual Meeting
Venue: Washington DC
Date: 22 April 2006

318. Presenter: Levin EJ, Levin KA
Title: “NHS treatment quality, waiting lists and private sector healthcare”
Meeting: Scottish Economic Society Annual Conference
Venue: Perth
Date: 24 April 2006

319. Presenter: Clarkson JE
Title: “Critical appraisal and evidence in practice”
Venue: Glasgow
Date: April 2006
*Vocational trainees

320. Presenter: Clarkson JE
Title: “Evidence based dentistry and the Cochrane Collaboration”
Meeting: Harvard Dental School
Venue: Boston
Date: May 2006

321. Presenter: Topping G
Title: “Benefits of the International Caries Detection and Assessment
System (ICDAS) in Primary Care”
Meeting: Scottish Dental Practice Based Research Network Symposium
Venue: Dundee Dental Education Centre, Frankland Building,
University of Dundee
Date: 5 May 2006
322. Presenter: Turner S  
Title: “The ERUPT study: A brief report”  
Meeting: Scottish Dental Practice Based Research Network Symposium  
Venue: Dundee Dental Education Centre, Frankland Building, University of Dundee  
Date: 5 May 2006

323. Presenter: Clarkson JE  
Title: “Getting research into practice”  
Venue: Newcastle Dental School  
Date: 25 May 2006  
*Staff and students

324. Presenter: Clarkson JE  
Title: “Implementation of research”  
Meeting: Cochrane Oral Health Group Symposium  
Venue: Manchester  
Date: 30-31 May 2006  
*Vocational trainees

325. Presenter: Turner S  
Title: “Impact of caries prevention implementation strategies: a Cluster RCT in dental primary care”  
Meeting: Evidence, Policy and Practice Conference 2006  
Venue: Edinburgh University  
Date: 1-2 June 2006

326. Presenter: Turner S  
Title: “Current oral health issues among Special Olympics athletes”  
Meeting: Special Care Dentistry Conference 2006  
Venue: Chicago  
Date: 6-10 June 2006

327. Presenter: Pitts NBP  
Title: “Caries detection and assessment - a preventive (and collaborative) approach”  
Meeting: European Academy for Paediatric Dentistry joint symposium with European Organisation for Caries Research on “The vulnerable child - prevention”  
Venue: Amsterdam  
Date: 10 June 2006  
*Invited keynote presentation

328. Presenter: Clarkson JE  
Title: “Hospital guidelines and the Institute of Healthcare Improvement (IHI) experience”  
Meeting: Consultants and Specialists in Paediatric Dentistry  
Venue: Dundee Dental Education Centre  
Date: 19 June 2006
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<td>329</td>
<td>Clarkson JE</td>
<td>“Getting research into dental practice”</td>
<td>Nurses’ Forum</td>
<td>Ninewells Hospital, Dundee</td>
<td>25 June 2006</td>
</tr>
<tr>
<td>330</td>
<td>Turner S</td>
<td>“Implementation RCT of caries prevention treatment and caries risk”</td>
<td>International Association for Dental Research Conference 2006</td>
<td>Brisbane, Australia</td>
<td>28 June – 1 July 2006</td>
</tr>
</tbody>
</table>
future presentations

335. Presenter: Turner S
Title: “Uptake of caries prevention implementation strategies and dental hygienist employment”
Meeting: European Association of Dental Public Health Conference 2006
Venue: Prague
Date: 6-8 September 2006

336. Presenter: Smith PA
Title: Parental perceptions of their child’s pathway to severe dental decay: a qualitative study
Meeting: European Association of Dental Public Health Conference 2006
Venue: Prague
Date: 6-8 September 2006
*Poster

337. Presenters: Thomas RE, Glidewell L, Bonetti D, MacLennan G, Johnston M, Eccles MP, Grimshaw JM, Pitts NB
Title: “Interventions to increase response rates among health care professionals”
Meeting: Division of Health Psychology Annual Conference 2006
Venue: Essex University
Date: 13-15 September 2006

Title: “Predicting behaviours of general dental practitioners”
Meeting: Division of Health Psychology Annual Conference 2006
Venue: Essex University
Date: 13-15 September 2006

Title: “Using psychological models to predict GPs’ intentions: Theoretical and measurement issues”
Meeting: Division of Health Psychology Annual Conference 2006
Venue: Essex University
Date: 13-15 September 2006

340. Presenters: Levin KA, Topping G, Pitts NB
Title: “Inequalities in decayed, missing and filled teeth in 5-year-old children in Scotland, 1993-2003”
Meeting: Society for Social Medicine
Venue: Leeds
Date: September 2006

341. Presenters: Bonetti D, Clarkson JE, Young L, Ramsay C, Bonner BC
Title: “But we always tell people to brush their teeth! Evaluating the effectiveness of framing the delivery of oral hygiene advice using psychological theory”
Meeting: 2nd Scientific Meeting, Behavioural Medicine – Advancing Science, Policy and Practice
Venue: University of Cambridge
Date: 6 December 2006
*This abstract has been submitted. Awaiting confirmation of acceptance.


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2002


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2003
3. Bonner, B. C. (2003) How are other levels of evidence being used? Chapter 8 in Evidence Based Dentistry for Effective Practice. p111-121. Martin Dunitz Ltd. Programme: EDP.

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invited critical commentaries

2005


conference proceedings

2003

   Proceedings: 52. Programme: EDP.

   Proceedings: 72. Programme: EDP.

2004


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10. “Researchers aim to root out decay” The Courier 1 October 2003. Programme: DCC.

11. “Success in cutting tooth decay” The Courier and Advertiser 4 October 2003. Programme: DCC.


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If you are interested in finding out more about DHSRU, please contact:

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Dental Health Research Services Unit  
The Mackenzie Building  
Kirsty Semple Way  
Dundee  
DD2 4BF  
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