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1. Purpose of this Report

This 2010 Dental Health Services and Research Unit (DHSRU) Annual Report has been prepared as a communication tool in order to give an accessible summary of DHSRU activities for the period November 2009 – December 2010. It is intended for all interested parties, from research funders to University and NHS collaborators and wider stakeholders, as well as the broad range of “users” of our research and development activities. The DHSRU website, http://www.dundee.ac.uk/dhsru/ contains more information on the Unit over a wider time horizon and will be developed further to provide updated information on the Unit activities and the academic and non-academic impacts that flow from our work.

2. Structure and Ways of Working at DHSRU in 2010

In 2010 DHSRU continued to focus on its remit:

‘to contribute to improving oral health and effective dental healthcare in Scotland and beyond by undertaking and facilitating collaborative, health related, research and development which is delivered and implemented to international quality standards.’

in addition:

‘the Unit’s role in dissemination and promoting implementation 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 which seek to facilitate the implementation and impact of our research efforts.’

This focus on the Unit remit, which has been developed incrementally with external stakeholders over many years, is delivered through three Research Programmes, each led by a Programme Director, taking forward research, development and implementation activities around Dental Caries Control, Effective Dental Practice and Oral Health & Health Research:

Dental Caries Control Programme - Programme Director – Professor Nigel Pitts

This research programme focuses on research questions around:

• What leads to improvements in deliverable caries prevention?
• What leads to improvements in caries diagnosis and risk assessment, which can be used meaningfully at the population, clinical research or clinical practice levels?
• What leads to improvements in the appropriate clinical management of dental caries?
Effective Dental Practice Programme - Programme Director – Professor Jan Clarkson

This research programme focuses on research questions around:

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

Oral Health & Health Research Programme - Programme Director - Professor Ruth Freeman

This research programme focuses on research questions around:

- What leads to a greater understanding of oral health inequalities and disparities?
- How can implementation of oral health and health promotion programmes reduce inequalities for socially excluded populations?
- How can methodology assist in evaluating oral health and health promotion programmes for socially excluded populations?

All Programmes contribute to a number of elements of the DHSRU Strategic Framework. This framework is illustrated below and is described in further detail later in this overview. The 12 Framework Elements also provide a structure with which to highlight some of the key achievements and progress of the Unit over 2010, which appears later in this Report.
A key factor in the way the Unit achieves its goals, makes a difference and contributes to meaningful impacts, is by working in a highly collaborative way with a broad range of stakeholders. We could not achieve what we do without this wide range of partners. These extend from academic colleagues in Dundee, elsewhere in Scotland and internationally, to those leading and working in many parts of the National Health Service (NHS) in Scotland, particularly within NHS Education for Scotland (NES), NHS Tayside and NHS Highland and across the UK, to our many other colleagues in research funding organisations, research associations and those working in the oral and wider health industry. The contributions from all individual and organisational collaborators are gratefully and fully acknowledged.

The DHSRU CID model (see graphic below) seeks to summarise the logic used by the Unit and its Collaborators to improve dentistry, health and oral health. This involves the strategic and iterative linkage of an informed and focussed research agenda, effective dissemination of research results and specific initiatives to secure effective implementation of research findings in policy and practice. It is used at the Scottish, UK and International levels in both clinical and public health domains and has, in 2010, also been adopted by the FDI World Dental Federation (a grouping of all of the World’s Dental Associations) in their work to support the implementation of research findings.
3. Key messages from DHSRU in 2010

Both globally and locally, the pace of complex changes in society, economic development, health care, professional development and higher education continues to accelerate. DHSRU, drawing on its heritage dating back some thirty years, continues to evolve in order that it stays “fit for purpose” and can continue to deliver its core remit in a viable and useful way.

Transition to the future: within these wider contexts, the Unit is continuing its own transition to accommodate new realities and opportunities of funding, collaboration and partnerships. Frames of reference for these transitions include:

3.1 An evolving University-level strategic review.

3.2 The developing UK Research Excellence Framework (REF) of assessment - with its increased concentration upon the impact of research in addition to the quality of science and research outputs.

3.3 The more specific developments at College, School and Division levels.

3.4 Developments at DHSRU working with Dundee Dental School.

We are also active participants and influencers in the changing models of dentistry, oral health and health research/education world-wide, as detailed later.

3.1 The University of Dundee Strategic Review

The Strategic Review, led by Principal and Vice-Chancellor Professor Peter Downes, ensures that the University continues to concentrate on the interwoven themes of Excellence, Focus and Impact, while also balancing its continuing international ambitions with financial viability for both the Education and Research missions. The requirements are that across the University we achieve:

Excellence

• Internationally competitive research
• Leading in key areas
• Maintaining and developing International reputations
• Recognising and contributing to the reality of globally mobile partnerships
• Building International-standard research support

Focus

• On research subjects that are important and where we have the skills to advance the field
• On effective research partnerships with leading, long-term, collaborators
• On deploying resources to support priority areas

Impact

• Delivering research-led impacts

This has long been a distinctive characteristic of DHSRU. Examples include:

• our twin track Dissemination Policy
• developing the evidence-led Collaboration for Improving Dentistry model (CID)
• taking the Dissemination and Implementation activities as well as Implementation Science research activities beyond dentistry
• linking with the Centre for Clinical Innovations (CCI) for technology transfer activities.
3.2 Taking a Research Excellence Framework (REF) aware approach

It is clear from current flow of documentation that the primary focus of the upcoming UK Research Excellence Framework (REF) will be “to identify excellent research... and the impact arising from excellent research...”. The REF should be an evolution from the previous Research Assessment Exercises (RAEs); it is hoped that REF will be seen as a vehicle for improving research quality nationally. After the major consultation exercises which took place in 2009-2010, clear details are now emerging with a timetable to submit materials at the end of 2013. DHSRU research is most likely to be submitted to the new Unit of Assessment (UoA) 3, which encompasses Allied Health Professionals, Dentistry, Nursing and Pharmacy. We also contribute to research more likely to be returned to UoAs 2 (Public Health, Health Services and Primary Care) and 1 (Clinical Medicine).

One key area which helps set out the new REF agenda is the revised definition of research that has emerged from the process. The documentation states that, for the purposes of the REF, we define research as ‘a process of investigation leading to new insights effectively shared’. We believe that this is a positive step forward and fits well with the ethos and traditions of DHSRU as well as with our current activities and plans. We also believe that we are building from an excellent base to being able to show the key characteristics of excellence in the REF domains of Outputs, Impact and Environment.

Outputs:

The Appendix outlining the Unit’s Publications for the 2010 period gives a good indication of the range and quality of our published outputs. More complete listings are available on the Unit website at: [http://www.dundee.ac.uk/dhsru/publications/](http://www.dundee.ac.uk/dhsru/publications/)

In recent years, because of the need to plan through serial changes, we have had the opportunity for the quality and impact of what we do to be assessed in four complementary ways with serial external peer-reviews. These peer-review processes have been: the UK “RAE2008”, a Scottish NHS Chief Scientist Office-led Review of the work of DHSRU 2002-8, a Strategic Review of Scotland’s Oral Health Research Needs and an External Review of Dental Research at the University of Dundee.

It is very gratifying that each of these exercises has produced very positive assessments of the quality of the research outputs that we publish as well as the impact that results from our activities. One example is the published feedback relating to DHSRU from RAE 2008. This stated that: “Research outputs were assessed as internationally excellent or above, some outputs were judged as world leading”. A further example is the findings of the External Review of Dental Research at the University of Dundee – the Report of the Review (carried out by a very senior Panel) indicates that the visitors concluded “a number of areas of real research strength exist” allied to “first class education” in Dentistry in Dundee. They single out for particular recognition:

- Dental Health Services and Research Unit
- Cariology Research (joint Unit, CCI and the Dental School)
- Craniofacial Anomalies Research Group (carried out by the Dental School)

and judged that “the research in these areas is distinguished and of the highest order”.


Impact:

The REF consultation and other documents make clear that “impact” will be a major component of the new exercise. A positive external assessment of our performance in this aspect is once again provided by the published feedback from RAE 2008 relating to DHSRU. This stated that: “The sub-panel recognised … the impact of this group’s research on international health policy and practice”.

The “REF Impact Pilot Exercise”, which reported at the end of 2010, has now made very clear that, “It is essential that impact should be defined broadly to include social, economic, cultural, environmental, health and quality of life benefits” and that “Impacts from research typically develop over extended periods of time”. This exercise also found that “the two criteria suggested for assessing impact – ‘reach’ and ‘significance’ – are appropriate and should be broadly applicable across all panels”.

The next part of this Annual Report: DHSRU Strategic Framework - Highlights 2010 gives a series of examples of the Unit’s work across the 12 Elements (outlined from page 17) which make up the Information Services and Knowledge Services activities of the Unit. At the end of each Highlight there is a specific Impact Statement outlining particular impacts for stakeholders in each element of this years’ work.

An additional part of the Unit’s overall research-led impact is the very significant number of presentations that we make systematically each year to a wide range of diverse target audiences with a reach beyond direct academic contacts in the field of study – these are detailed in the Appendix which lists DHSRU Presentations for 2010.

DHSRU is now linked administratively with CCI within the College of Medicine Dentistry & Nursing. This Centre provides a ready-made REF Impact route and case study for technology transfer of key protected intellectual property and research know-how in certain areas of long-term study that DHSRU has international expertise in.

The Centre Director is Nigel Pitts and the Associate Director is Chris Longbottom. CCI acts as a halfway house between University Research & Development on the one hand and the broad transfer of knowledge via Industry applications of research on the other. This type of translational medicine and dentistry activity is not just from bench to bedside, but extends further, to also include patients in primary care and the wider population. CCI seeks to develop and transfer new knowledge in practical ways to help control disease and maintain health. The purpose of CCI is to innovate in order to identify and move forward technologies capable of helping clinicians overcome unmet needs to improve the health of their patients. Implicit in this activity is an awareness of the commercial challenges in moving technologies from the laboratory setting to commercially available products, devices or “vehicles”.

Environment:

DHSRU are fortunate to have been part of the successful SRIF bid (Scottish Research Infrastructure Fund) some years ago that allowed the building of purpose-designed, high-quality, research accommodation with cognate groups in primary care and population health sciences research within the Medical School at Dundee. The physical, intellectual and IT environments in the Mackenzie Building facility are excellent.

Our close links with the Centre for Primary Care and Population Research, now evolving into Population Health Sciences, provide opportunities for synergy and collaboration in a vibrant and expanding research environment. We have built up a research team with unrivalled cognate experience in the work we undertake (from UK-wide trials to studies seeking to understand clinician and patient behaviours). The DHSRU Staff list details the Unit staff employed in 2010.
At the same time, we also collaborate with colleagues housed in Dundee Dental Education Centre and are continuing to build closer links with focused researchers at the Dental Hospital and School (see section 3.4).

DHSRU are fortunate to be part of dynamic research environments in the College of Medicine, Dentistry and Nursing and to benefit from the re-organised research management arrangements within the College. This is the springboard environment from which researchers in the Unit collaborate over the long term with excellent colleagues from other organisations; locally, nationally and internationally.

3.3 Developments at College, School and Division levels

The Vision articulated in the College's current Strategy includes a research section stating clearly that: “We aspire to international excellence in research in clinical and biomedical science and in its translation to both clinical and professional practice.” The College research focus also indicates that we are “cognisant of the University strategy to facilitate new developments in translational medicine”. DHSRU is fully engaged with these aspirations.

Evolving Research Structures 2010 Onward

Medical School
Division of Translational Research

- Neurosciences
- Diabetes & Cardiovascular
- Cancer
- Population Health Sciences (includes cross-theme platforms)

Molecular Dermatology
Dundee Cancer Centre

CLS Research

TASC
- NHS research
- Research facilities and support

IMSaT (imaging)

School of Dentistry and School of Nursing
Following the appointment of Professor John Connell as Dean of Medicine and College Research Lead, the Medical School in Dundee is being re-organised into Education and Research Divisions. Within the Division of Translational Research, a series of focused research Themes are being developed (as depicted on the diagram on the facing page). These Themes articulate with researchers in the College of Life Sciences (CLS), the Schools of Dentistry and Nursing, the Institute for Medical Science & Technology (IMSaT) and the Tayside medical Science Centre (TASC). DHSRU is positioned to continue to work with Population Health Sciences while also strengthening its links with the Dental School.

The way in which the College Themes are being taken forward across the three Schools is summarised in the table below which was debated at a Dentistry in Dundee research “awayday” held in November at Discovery Point. This event brought together College, Unit and Dental School staff as well as representatives from TASC to help shape future plans.

<table>
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<th>Medicine</th>
<th>Dentistry</th>
<th>Nursing</th>
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<td>Cancer/pharmacogenomics</td>
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<tr>
<td>Cardiovascular/metabolic</td>
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<tr>
<td>Neurosciences/psychiatry</td>
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<td>Population Health Sciences</td>
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<tr>
<td>(including DHSRU)</td>
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<tr>
<td>Craniofacial abnormalities</td>
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<tr>
<td>Cariology</td>
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The particular focus for DHSRU is in our contributions to Population Health Sciences and Cariology, although other research questions which fit with our remit and strategic matrix may be developed with the Dental School in time.

As we move forward, our aim remains: “To provide a multi-disciplinary research environment where population sciences interact with clinical care, with a focus on the application of information and knowledge through appropriate technology” and to pay particular attention to Type II Cooksey Translational Medicine. This means that we will continue to investigate optimal ways of Getting Research findings into routine Practice (GRiP). We will also pay particular attention to the variety of ways in which Patients, Professionals, Policy makers, Publishers and the Public influence clinical Practice. The key areas emerging as sub-Themes in Population Health Sciences are: “Quality, Safety and Informatics (QSI)” and “Disease Prevention”.

Dr Debbie Bonetti
Senior Research Fellow
Effective Dental Practice Programme
3.4 Developments at DHSRU working with Dundee Dental School

The graphic below summarises some of the key DHSRU Collaborations active in 2010 which range across the Unit, the Dental School and our wider partner organisations.

Other 2010 developments include:

- **Continuation of the DHSRU – Dental School Interface Committee.** Initial membership of the Committee comprises: Professors Peter Mossey and David Ricketts and Dr Nicola Innes from the Dental School with Professors Nigel Pitts, Jan Clarkson, Ruth Freeman and Dr Chris Longbottom from DHSRU. The Committee now links to a re-formatted Dental School Research Affairs Committee and considers the future strategic direction of Research in Dentistry and Oral Health in Dundee.

- **The Development of a Dental Research Strategy for Scotland.** This follows on from the earlier “Shaw & Speight” Strategic Review of Scotland’s Oral Health Research Needs. The details of this Report have now been used to help shape an agreed integrated Research Strategy for Scotland in which DHSRU will be an active, collaborating, participant with the University of Glasgow and other stakeholders such as NES.
4. Discovery and Delivery by DHRSU

As outlined earlier, Discovery and Delivery of a wide range of research and development activities by DHRSU is achieved with local, national and international collaborators using the Strategic Framework for DHRSU, with its elements of Knowledge and Information Services. Studies vary from a focus on the individual, to large scale studies at the population level using both qualitative and quantitative methodologies, to a unique portfolio of National Institute for Health Research Health Technology Assessment (NIHR HTA) funded UK-wide randomised clinical trials in dental primary care and Scottish Government Health Directorates Chief Scientist Office awards.

The World Health Organization (WHO)-inspired Framework used by the Unit to maintain a coherent theme in all its activities has been set out graphically above as twelve discrete, but linked, elements. The strategic framework is employed by the Unit in order to:

• Deliver DHRSU's remit
• Ensure our research stays focused and on track
• Identify opportunities for new focused collaborations with Dental School and Hospital colleagues
• 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

Highlights for each of the elements over this period are summarised below, while further details are provided in a later section of the Report.

The DHRSU Strategic Framework highlights at 2010

Highlights from DHRSU's work over the last period have been selected for each of the twelve elements of the DHRSU Strategic Framework which were outlined above. The information presented here and in the later section of the Report is not meant to be comprehensive or exhaustive; it aims merely to provide a record of recent progress achieved in some areas and to demonstrate the range, utility and impact of the Unit's work. 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 having an impact.

Element 1 • Surveillance and Oral Health Monitoring at Population Level

Through DHRSU's research and development activities in survey methodology, the Unit has continued to influence policy and practice in the surveillance of oral health and disease at the local, UK National and International levels.

Element 2 • Surveillance and Oral Health Monitoring at Practice Level

Syntheses of available evidence on best practice to facilitate the assessment and monitoring of oral health and review in primary care dental practice have been undertaken by DHRSU with strategic partners over many years. Guidance material produced in collaboration with the Faculty of General Practice, National Institute for Clinical Excellence (NICE), EGOHID, the “Steele Pilots” of Oral Health Assessment for DoH England and SDCEP all combine to support more effective oral health monitoring.
Element 3 • Health and Oral Health Promotion including Inequalities
This programme of research is concerned with social inclusion, social capital, the promotion of health and oral health and is contributing to reducing health disparities in socially excluded groups in Scotland and Europe. This programme of work has informed national and international policy regarding the introduction of oral health promotion for people residing in areas of social deprivation.

Element 4 • Caries Risk Assessment and Preventive Caries Management
High quality research (both primary and secondary) in caries risk assessment and preventive caries management carried out by DHSRU over many years has been disseminated, packaged and implemented with international partners to secure far reaching impacts in dental education and clinical practice.

Element 5 • Randomised Clinical Trials in Dental Primary Care
By conducting high quality trials, analyses and following broad-ranging result dissemination strategies through professional, primary care, public and scientific routes, DHSRU continues to have direct impacts on dental practice and national policy.

Element 6 • Development of Dental Informatics and e-health
DHSRU is using its eHealth and Informatics research knowledge and collaborations to continue to develop, evaluate and refine practical e-solutions to dental service development in Scotland. These also then create research opportunities through the secure provision of routine data that can be anonymised when necessary and shared through Information Services Division of the NHS and the University of Glasgow team led by Professor Lorna Macpherson.

Element 7 • Understanding Behaviour and Behaviour Change
This programme of research will improve patient care by informing service and education policy makers on the design of effective interventions.

Element 8 • Evaluation of Education to Operationalise Research
Research findings have been shared widely and, in partnership with Scotland’s Dental Hospitals and Schools, have led to beneficial changes in the education and training processes. Evaluating undergraduate education in this longitudinal manner has led to informed curriculum development and provides a quality management tool for education providers.

Element 9 • Supporting and Evaluating Continuous Quality Improvement
The embedding of TRiA DS within the SDCEP guidance development process offers an unparalleled opportunity to influence patient safety by shaping the guidance development process to promote the implementability of the guidance. It also provides a unique platform to study the sustainability of getting evidence into routine clinical practice. The TRiA DS evaluative process is readily transferable across professional disciplines and serves the wider health system using dentistry as an example.

Element 10 • NHS Scotland Links with Knowledge Services
This programme of work in collaboration with partners across Scotland, the UK and internationally, is enhancing the understanding of how best to translate evidence into practice.
Element 11 • NHS UK Links with Knowledge Services
DHSRU continues to make a major contribution to shaping Knowledge Services at the UK and International level by contributing methodological and content expertise to systematic reviews and guidance development.

Element 12 • International Links with Knowledge Services
DHSRU has developed, nurtured and maintained a broad range of effective international collaborations and links with research and professional organisations to disseminate knowledge and Get Research-findings into routine Practice (GRiP) while influencing policy at the International level. We also continue to develop new methods to open up Knowledge Services to dental practices, community settings and the public.

In the more detailed section that follows, some of the highlight areas are tagged with a symbol indicating the geographical breadth of the research enterprise. The following key applies:

- Scotland wide
- UK wide
- EU wide
- Global

We hope that you will find in this Director’s Overview and the other detailed materials set out in this Annual Report evidence that the wide range of DHSRU activities described, from all over Scotland on one hand, to the rest of the UK and the wider reaches of Europe, North and South America 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 in Scotland and beyond. We also believe that we are playing our full part in undertaking and facilitating collaborative health related research and development, delivering and implementing this research to international quality standards and communicating our work, via a broad range of methods, to appropriate target audiences to achieve a range of impacts.

Please do not hesitate to contact me at n.b.pitts@cpse.dundee.ac.uk (or through the 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 and Research Unit
DHSRU Staff List (at 31st December 2010)
Identifying the source of funding below each name

<table>
<thead>
<tr>
<th>NAME</th>
<th>DESIGNATION</th>
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<td>Miss Hazel Braid</td>
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<td>Professor Ruth Freeman BDS PhD MSc</td>
<td>Programme Director, Oral Health &amp; Health Research Programme Programme Administrator</td>
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Funder: KTP funded; Awarded June 2010
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DHSRU researching and facilitating delivery of Information Services for Improving Oral Health

DHSRU researching and facilitating delivery of Knowledge Services for Improving Oral Health

International links with knowledge services

NHS UK links with knowledge services

NHS Scotland links with knowledge services

Supporting & evaluating continuous quality improvement

Evaluation of education to operationalise research

Understanding behaviour & behaviour change

Surveillance & oral health monitoring at population level

Surveillance & oral health monitoring at practice level

Health & oral health promotion including inequalities

Caries risk assessment & preventive care management

Randomised clinical trials in dental primary care

Development of dental informatics & e-health

12

Surveillance & oral health monitoring at practice level

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Surveillance & oral health monitoring at population level

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Exaining & evaluating continuous quality improvement

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Evaluation of education to operationalise research

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Understanding behaviour & behaviour change

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International links with knowledge services

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Surveillance & oral health monitoring at population level

5

Surveillance & oral health monitoring at practice level

4

Caries risk assessment & preventive care management

3

Randomised clinical trials in dental primary care

2

Development of dental informatics & e-health

1

Surveillance & oral health monitoring at population level

Adult Dental Health Survey 2009 – First Release

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Over the past three decades, DHSRU has built up an international reputation for its collaborative work in dental epidemiology and health surveillance at the population level. This work continues to develop on a number of fronts.

1) Adult Dental Health Survey for England, Wales and Northern Ireland (ADHS - E,W&NI):
The First Release (http://www.ic.nhs.uk/pubs/dentalsurvey09) presents preliminary results on the proportion of the population who are dentate, self-reported dental attendance and dental anxiety from the 2009 Adult Dental Health Survey. A series of more detailed reports will be published electronically in March 2011. This Survey, the 5th in a series of national decennial dental surveys, was commissioned by the NHS Information Centre for Health and Social Care and was conducted by the Office for National Statistics working in consortium with other agencies and the Universities of Birmingham, Cardiff, Dundee, Newcastle, and University College London. The survey consisted of an interview with all adults at sampled households and an oral examination of adults with at least one natural tooth. A total of 11,380 individuals were interviewed, and 6,469 dentate adults were examined, making this the largest ever UK epidemiological survey of adult dental health.

2) New approaches to monitoring Adult Dental Health in Scotland: The Unit Director is part of a group convened by the Chief Dental Officer in Scotland (together with representatives of the Information Services Division, NHS Boards and Glasgow University) seeking to develop new and more efficient ways to assemble robust surveillance data.

3) Developing the NHS/ British Association for the Study of Community Dentistry (BASCD) Dental Epidemiology Programme: Working with a range of NHS partners across the UK, this Programme, which has been running for more than two decades, is being developed to cope with different legal bases of consent and different NHS needs across the devolved UK. Illustrative papers are in press.

4) Collaborating with the International Association for Dental Research (IADR) and FDI World Dental Federation on the use of ICDAS for epidemiology: The International Caries Assessment and Detection System (ICDAS) methodology (co-developed by the Unit, Dundee Dental School staff and international Collaborators) is increasingly being used for epidemiology and the National Child Dental Health Survey of Iceland reported in 2010 is an exemplar. In Latin America, the IADR Regional Development Programme has been undertaking training and standardisation of trainers on ICDAS criteria for assessing dental caries in infants. In phase I, one trainer from eight Latin American countries was trained and calibrated by an ICDAS trainer and an epidemiologist. In phase II, these eight trainers trained examiners in their own countries. Phase III will involve Epidemiological Pilot studies. Excellent reliability data has been achieved and, for the first time, comparable data across the full range of caries severity for infants in these countries is being collected. This work has dovetailed with DHSRU’s work with the FDI’s Global Caries Initiative (GCI). We have contributed to GCI events in Kuwait; Dubai and Brazil during the year.

The front page of the “Adult Dental Health Survey 2009 - First Release” is shown with the material from the IADR Regional Development Programme to train and standardise lead survey examiners in eight Latin American countries.

Through DHSRU’s research and development activities in survey methodology, the Unit has continued to influence policy and practice in the surveillance of oral health and disease at the local, UK National and International levels.
The systematic collection and monitoring of oral health information at the practice level is becoming more important as concerns about clinical governance, evidence-based and patient-centred care meet increasingly stringent medico-legal requirements. Practices must understand and monitor the care they provide and meet the needs of health services and dental insurers, in order to assess whether oral health is being achieved and maintained. There is also increasing interest in aggregating electronic data from practices in order to monitor wider population health.

DHSRU continues to play important roles with partners in the development of the Scottish Dental Clinical Effectiveness Programme (SDCEP). Professor Clarkson is Director of SDCEP, reporting to Professor Jeremy Bagg, Chair of the National Dental Advisory Committee and the Chief Dental Officer, Scotland. Professor Pitts is Chair of the SDCEP Guidance Development Group on Oral Health Assessment and Review (which has completed its initial work in 2010) and is an SDCEP Steering Group member. The guidance on Oral Health Assessment and Review is being distributed as Guidance in Brief to all General Dental Practices in Scotland to complement a more comprehensive resource available on the SDCEP website http://www.sdcep.org.uk/.

The use of ICDAS in General Practice – a Scottish perspective: Unit research, conducted with a practitioner, sought to investigate the implications of using the ICDAS caries grading and monitoring system in NHS general practice and, in particular, to assess the time taken to use the system. After online and in-practice training and calibration, 50 adults and 50 child patients were randomly allocated for assessment using ICDAS detection codes. All patients had their teeth brushed by the dentist before the assessment and the data were recorded on draft ICDAS clinical proforma sheets. The results suggested that with training and experience it is possible to carry out ICDAS assessments in times which are practical for practice.

The use of ICDAS in General Practice – a European and international perspective: DHSRU has been a key player in the EU-funded collaborative European Global Oral Health Indicators Development (EGOHID) II project, which proposed the use of sentinel primary care dentists to collect epidemiological information. This resource is being developed with the FDI for use in Africa and is included in current discussions about the FDI Global Caries Initiative. A paper outlining the feasibility of data collection in dental practices, using ICDAS codes is accepted and in press with Primary Dental Care. This concluded that volunteer general dental practitioners from six European countries were able to successfully perform data collection for survey work in addition to their routine practice.

The Cover of the SDCEP Guidance in Brief on Oral Health Assessment and Review is shown with the first page of a paper in Primary Dental Care from a Scottish General Dental Practitioner on use of ICDAS in General Dental Practice.

Syntheses of available evidence on best practice to facilitate the assessment and monitoring of oral health and review in primary care dental practice have been undertaken by DHSRU with strategic partners over many years. Guidance material produced in collaboration with the Faculty of General Practice, National Institute for Clinical Excellence (NICE), EGOHID, the “Steele Pilots” of Oral Health Assessment for DoH England and SDCEP all combine to support more effective oral health monitoring.
The Use of the International Caries Detection and Assessment System (ICDAS) in a National Health Service General Dental Practice as Part of an Oral Health Assessment

Charles Omonor, Gail Douglas and Nigel Pitts

INTRODUCTION

In 2004, the Scottish Dental Clinical Effectiveness Programme (SDCEP) formed a group to research and develop guidelines for a comprehensive oral health assessment. This guidance was used to produce an oral health assessment tool, which was then incorporated into the Dental Health Surveillance and Assessment Framework (DHSAF) (1). The guidelines were developed in line with the National Dental Service Guidelines for General Dental Practice (2). The guidelines were designed to include a comprehensive oral health assessment, focusing on caries risk assessment and preventive caries management.

The guidelines were based on the Oral Health Assessment and Review Guidance in Brief (3), which was developed to help practitioners in general dental practice evaluate the oral health of their patients. The guidelines were designed to be used in conjunction with the ICDAS system, which is a visual assessment system that allows for the accurate diagnosis of early caries lesions.

The ICDAS system is based on a 0-5 scoring system, where 0 represents no caries, 1 represents a white spot lesion, 2 represents an initial caries lesion, 3 represents a visible caries lesion, 4 represents a palpable caries lesion, and 5 represents a carious lesion that is visible and palpable.

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‘In prison today, I think it’s one of the best things you could ever do... in prison, you should go and see the people you need to see, especially dentists and anybody else you need to see... I was quite surprised, made me more confident with myself... going to see these people ’cos they never put me off ’cos it’s in prison. I was more happy to go and see ’em. It was me really at the end of the day. You hear some of these stories, but, half of them are just fabricated. Any experience that I’ve ever had with ’em, I’ve always been looked after; they have been good, really good actually.’

(Extract from an interview with a prisoner participating in the SOHIPP study)
The Oral Health and Health Research (OHHR) Programme at DHSRU works on reducing health inequalities by increasing social inclusion, social capital and health. Adopting a community development approach allows people’s felt needs to be incorporated into evidence-based health promotion interventions.

Developing, Implementing and Evaluating an Oral Health Preventive Programme for Homeless Populations across Scotland (Smile4life): This project aims to evaluate current models of preventive service and practice and develop an evidence-based oral health care preventive package for the homeless in Scotland. A report of the completed Homeless Oral Health Survey in Scotland 2008-2009, Smile4life, will be launched in May 2011. An important finding to date has been that oral health related factors are implicated in depression in Scottish homeless people. Something to Smile About, a national oral health promotion and training programme will also be rolled out in 2011 enabling staff to deliver a tailored oral health intervention to their homeless client groups.

Developing, Implementing and Evaluating an Oral Health Preventive Programme for Prison Populations across Scotland: A Qualitative Assessment of Prisoners’ Needs (SOHIPP Interviews): This study aims to assess the main concerns of the prison population in Scotland in order to inform the development of an evidence-based oral health promotion intervention for prisoners. Interviews with women, young offenders, long-term, and remand/short-term prisoners are underway and a series with prison dentists completed. The overall outcome of the client-centred work is the enablement of prisoners to actively care for their own oral health and general health. In tandem with this, DHSRU is organising and analysing an oral health needs assessment survey of a sample of prisoners consisting of a dental examination and oral health questionnaire.

Equally Well is a government initiative to test new ways of working within public services to reduce health inequalities and increase mental wellbeing within defined, disadvantaged communities. The evaluation of the local test site in Stobswell, Dundee is being carried out by the OHHR programme using a mixed-method approach with an emphasis on gathering performance stories of stakeholders involved in the test site.

Developing an inventory to Assess Parental concerns and Enable child dental Registration (The DAPER study) aims to develop a questionnaire to assess parental concerns and enable ‘at-risk’ families to access preventive dental services such as Childsmile. A Parental Dental Concerns questionnaire was developed in Phase 1 which was assessed for reliability and validity in Phase 2, with almost 400 parents answering questions on dental anxiety, lack of social support, attitudes towards attending the dentist, and everyday family life. In 2011, 400 parents taking part in Childsmile will also test the questionnaire’s predictive validity. A field trial of the new measure will then aim to identify ‘at-risk’ families who would benefit from additional support in accessing preventive dental care.

Extract from an interview with a prisoner participating in the SOHIPP study and a self-portrait painted by a prisoner reproduced courtesy of the Koestler Trust.

This programme of research is concerned with social inclusion, social capital, the promotion of health and oral health and is contributing to reducing health disparities in socially excluded groups in Scotland and Europe. This programme of work has informed national and international policy regarding the introduction of oral health promotion for people residing in areas of social deprivation.
DHSRU has made major contributions to the evidence base in cariology over the last two decades. We have a well-established international reputation in the areas of risk assessment and clinical caries management. A key focus this year has been on making an impact by getting best evidence into cariology education. The clinical caries management system approach has also been advanced by the work of a new, focussed ICDAS group.

Workshop on the development of the European Curriculum for Cariology

The Unit Director, with colleagues from the Board of the European Organisation for Caries Research (ORCA), has been working up a project over the last three years to ensure the findings of high quality science are fed into a core Cariology Curriculum for teaching and updating dentists across Europe. In 2010 this effort crystallised, working in partnership with the Association for Dental Education in Europe (ADEE) and colleagues from across Europe. Initial questionnaires were sent out to 170 dental schools with 90% of the respondents supportive of the idea of developing a European cariology curriculum. A workshop was held in Berlin in June 2010 attended by 75 dental academics from 27 countries. Professor Pitts chaired one of the five working groups and research collaborators from DHSRU and Dundee Dental School participated in the other four groups. The main aims in developing the core curriculum guidelines in these domains were by evidence review and consensus development:

1) to determine major competences
2) to determine supporting competences and
3) to assign three different levels to the supporting competences:
   a) to be competent at, b) to have knowledge of and c) to be familiar with.

Currently, the chairs of the five working groups are preparing consistent final documents from which guidelines for a European core curriculum in cariology for undergraduate students will be produced, published initially in the European Journal for Dental Education. The material will later be available for general download from the websites of the ORCA and the ADEE.

ICDAS – International Classification and Caries Management System: ICCMS™

The ICDAS Foundation took forward its clinical caries management agenda by holding an International workshop at Temple University (Philadelphia, USA) in April. Using a Workshop format, consensus was developed on a prevention-prioritised approach to treatment planning and caries management. This was developed and refined into the International Classification and Caries Management System™. The System was internationally peer reviewed at an open Symposium held in Montpelier, France in June.

The final consensus educational framework model for a European Curriculum for Cariology developed at the Berlin Workshop held by ORCA / ADEE is shown with a list of participating countries. The other figure is a summary overview of the ICDAS Foundation’s International Classification and Caries Management System™ developed in 2010 by eleven Universities.

High quality research (both primary and secondary) in caries risk assessment and preventive caries management carried out by DHSRU over many years has been disseminated, packaged and implemented with international partners to secure far reaching impacts in dental education and clinical practice.
Goal: to improve oral health through the implementation of a new paradigm for managing dental caries and its consequences, one that is based on our current knowledge of the disease process and its prevention, so as to deliver optimal oral and thus general health and well-being to all peoples (FDI Global Caries Initiative).


In concert with other improvements in Oral and Systemic Health.

The International Caries Classification and Management System (ICDAS-ICCMS™)

Monitoring & Review
DHSRU researching and facilitating delivery of Information Services for Improving Oral Health

DHSRU researching and facilitating delivery of Knowledge Services for Improving Oral Health

International links with knowledge services

NHS UK links with knowledge services

NHS Scotland links with knowledge services

Supporting & evaluating continuous quality improvement

Evaluation of education to operationalise research understanding & behaviour change

Surveillance & oral health monitoring at population level

Surveillance & oral health monitoring at practice level

Health & oral health promotion including inequalities

Caries risk assessment & preventive caries management

Randomised clinical trials in dental primary care

Development of dental informatics & e-health

NHR HTA INTERVAL AND FICTION: RECRUITMENT SITES

Locations where FICTIO patients have been recruited for the Pilot Rehearsal Trial

Locations where FICTIO patients will be recruited for the Main Trial

Locations where INTERVAL dentists have been recruited (Number indicates how many dentists recruited in that area)

INTERVAL Collaborators

FICTION Collaborators

FiCTION Patients have been recruited for the Pilot Rehearsal Trial

FiCTION Patients will be recruited for the Main Trial

INTERVAL Dentists have been recruited (Number indicates how many dentists recruited in that area)
DHSRU has, over decades conducted randomised clinical trials (RCTs) in dental primary care. This has made an impact on dental practice and national policy (e.g. in the provision of fissure sealants) and has led to the development of research tools, infrastructure and maintenance of network links necessary to inform future high quality RCTs.

DHSRU works collaboratively with the Scottish Dental Practice Based Research Network (SDPBRN) and colleagues in Dundee Dental Hospital and School and throughout the UK. Currently, two National Institute of Health Research Health Technology Assessment (NIHR HTA) funded trials have been awarded. A third will be awarded in 2011, conditional on receipt of a favourable ethical opinion. This track record is exceptional in the UK and international contexts.

NIHR HTA INTERVAL Dental Recalls Trial (Investigation of NICE Technologies for Enabling Risk-Variable-Adjusted-Length Dental Recalls Trial)

This ongoing UK collaborative study is designed to evaluate the effectiveness and cost effectiveness of three dental recall strategies by assessing their impact on maintaining oral health. The first recall strategy is as advocated by NICE guidance: personalised variable intervals determined by risk information derived from comprehensive oral health assessment and review. The second strategy is the conventional 6 month interval between routine check ups; the third strategy is 24 month recall intervals. Professors Pitts & Clarkson are joint Principal Investigators working with the CSO Health Services Research Unit and the Centre for Healthcare Randomised Trials at the University of Aberdeen. The study is being delivered in dental practices in both fluoridated and non-fluoridated areas in Scotland, England, Wales, and Northern Ireland and, on completion of Phase I (Feasibility) in ten practices, the team await approval to proceed to Phase 2 (Main Trial). Outcomes will be assessed by validated measures of quality of life, dental caries and periodontal disease. Further information is available at http://public.ukcrn.org.uk/search/StudyDetail.aspx?StudyID=8812

NIHR HTA FiCTION Trial (Filling Children’s Teeth: Indicated Or Not)

This UK collaborative RCT is comparing the clinical and cost-effectiveness of three management approaches for dental decay in primary teeth: surgical management with best practice prevention; biological management with best practice prevention; and best practice prevention alone. Joint Principal Investigators are Professor Clarkson, Dr Nicola Innes (Dundee Dental School, University of Dundee), and Professor Gail Douglas (University of Leeds). The FiCTION Pilot Rehearsal Trial started on 1 April 2010. Collaborators are the Universities of Dundee, Leeds, Newcastle, Sheffield, Cardiff, Glasgow, Kings College London and Barts and the London hospitals. Further information on the FiCTION Trial is available at http://public.ukcrn.org.uk/Search/StudyDetail.aspx?StudyID=8220

Collaborative ties with SDPBRN have also been strengthened by DHSRU input into a number of research projects including attitudinal surveys for a variety of primary care dental behaviours, as well as RCTs evaluating interventions specifically designed to encourage quality health care delivery.

Recruitment sites for NIHR HTA INTERVAL and FiCTION trials.

By conducting high quality trials, analyses and following broad-ranging result dissemination strategies through professional, primary care, public and scientific routes, DHSRU continues to have direct impacts on dental practice and national policy.
DHSRU has been involved with the Health Informatics Centre (HIC) in Dundee since its inception in 2003. As collaborating members of the developing Population Health Sciences theme in the Medical School, we also work with colleagues in Quality, Safety & Informatics Research. In this example, Informatics expertise is being brought to Childsmile, the national dental health improvement programme for children in Scotland.

Both HIC and DHSRU are now linked to Tayside medical Science Centre (TASC). The Centre combines the research strengths of the University of Dundee with NHS Tayside and is a node of the national Scottish Academic Health Sciences Collaboration. Since the Childsmile@HIC-DHSRU e-Health System began in 2006 there has been incremental progress in line with the development and refinement of various Childsmile components.

The electronic system was originally developed to support the then Childsmile East Schools/Nursery fluoride varnish programme. The software was expanded during 2009/10 to record data on the national Childsmile Tooth-brushing and Childsmile “Practice” programs within one integrated software package. For Childsmile “Practice” this allowed recording of basic child details such as name and address; Community Health Index number (CHI); how they were referred into the programme; the child’s health support worker’s name; consent details and contacts with the child.

The newly re-designed and integrated software was successfully launched in summer 2009 and the software adopted by all Scottish Health Boards by early 2010.

HIC developed an in-house “HIC CHI application” during 2009/10 to enable rapid adding of missing CHI numbers to records, using systems approved by the CHI Advisory Group. Communication between the various groups is through a “Childsmile/HIC-DHSRU Strategy Group” led by Mr. Graham Ball, Consultant in Dental Public Health for NHS Fife and Professor Pitts. HIC-DHSRU is continuing to re-develop on-line reports based on the new system, in collaboration with the Childsmile evaluation team and is working with NHS Scotland Information Services Division on the release and sharing of data for program evaluation, research and the measuring of HEAT targets (Scottish Government objectives, targets and measures for NHS Scotland). HIC-DHSRU, is developing the software further, while devolving maturing functionality to the Childsmile staff embedded within NHS Boards. There are also on-going developments in ePrescribing and an evolving process evaluation of the Childsmile@HIC-DHSRU System from the user perspective.

DHSRU participation in the NHS Scotland Dental Informatics Group (DIG) also allows us to share knowledge and expertise with other stakeholders and to participate in the development of Dental e-health in Scotland.

The web browser screens depict examples of how users at remote sites upload and manage service data, complete child consent forms on-line and record clinical findings associated with Fluoride Varnish applications.

DHSRU is using its eHealth and Informatics research knowledge and collaborations to continue to develop, evaluate and refine practical e-solutions to dental service development in Scotland. These also then create research opportunities through the secure provision of routine data that can be anonymised when necessary and shared through Information Services Division of the NHS and the University of Glasgow team led by Professor Lorna Macpherson.
DHSRU researching and facilitating delivery of Information Services for Improving Oral Health

DHSRU researching and facilitating delivery of Knowledge Services for Improving Oral Health

International links with knowledge services

NHS UK links with knowledge services

NHS Scotland links with knowledge services

Supporting and evaluating educational and behaviour change

Evaluation of education to operationalise research

Randomised clinical trials in dental primary care

Development of dental informatics & e-health

Surveillance & oral health monitoring at population level

Surveillance & oral health monitoring at practice level

Health & oral health promotion including inequalities

Preventive treatment & prevention clinics, management

Process & outcome measurement and evaluation primary care

Development of dental information & e-health

Newly refined software screens for the Childsmile@HIC/DHSRU eHealth System
1. To inform assessment of the individual, ask the patient to provide the following details:

- **Personal details** (Section 3)
- **Social history** (Section 3)
- **Dental details** (Section 3)
- **Personal history** (Section 3)
- **Anxiety level** (Section 3)

2. Review these details and assess the patient’s individual need for future dental treatment and risk of oral disease. Take note of any significant findings before undertaking a thorough examination of the patient’s oral health status, including:

- **Head and neck** (Section 4.1)
- **Oral mucosal tissue** (section 4.2)
- **Periodontal tissue** (Section 4.3)
- **Teeth (charting)** (Section 4.4)
- **Other** (Sections 4.2, 4.4, 4.5)

3. Record all findings (both positive and negative) and together with the findings from the patient’s histories:

   - Form diagnoses (Section 5)
   - Analyse risk information (Section 5)

4. Discuss the findings with the patient and draw up a:

   - **Personal Care Plan** that is specific for the patient and includes a risk-based interval (Section 6)

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**Results of a survey of dentists in Scotland on a recommended behaviour from SDCEP guidance on the prevention and management of caries in children**

- **I apply fluoride varnish**

   - %
   - rarely/never: 10
   - sometimes: 50
   - usually: 20
   - always: 0
Understanding behaviour and behaviour change is a critical part of effecting improvements in both the provision of dental services and the approach people adopt towards their oral health and general wellbeing. This multidisciplinary research involves academics, clinicians, students, government and community-based groups and individuals, and takes place in primary and secondary care, as well as in undergraduate and postgraduate training forums.

The results of the Scottish Dental Clinical Effectiveness Programme (SDCEP) survey into the prevention and management of caries in children suggest that there is great variation in what dentists in Scotland are doing and what they believe they should do, particularly in regard to the SDCEP guidance recommended behaviour of applying fluoride to the teeth of all children. The results of the survey suggest that an intervention will be required to enable the implementation of this evidence based behaviour and this work is at present being linked in with Childsmile, a national initiative.

Research is currently being carried out to identify the barriers and facilitators of the Oral Health Assessment, which involves a consistent and comprehensive method of developing a personal care plan for every patient by recording their social, dental and medical history, oral health status, as well as identifying any factors that might increase the likelihood of developing oral health problems and then assigning an overall risk level to determine a recall interval in line with the NICE guidelines.

An intervention is being developed based on the results of a survey identifying the barriers and facilitators of appropriate dental prescribing of antibiotics. This will take the form of a randomised controlled trial that will take place throughout Scotland.

Understanding Effective Communication in Primary Care Dentistry: the dentally anxious patient, an example of special care dentistry. This study is in the final stages of completion and the results are due early in 2011. This CSO funded project involved an intensive year long field work element, pioneering the use of video recording and analysis of the primary care patient-dentist interaction.

Rural Economy and Land Use Project (RELU): Consumer attitudes and behaviour towards local foods and healthy eating. Collaboration is underway with the University of Reading into improving diet and health behaviours. Results from this work suggest that theory-led, tailored interventions can improve behaviour change outcomes in relation to eating a healthier diet.

Communication, cues and framing MIXed methods research programme to promote motivation and compliance for fluoride toothpaste use (ComMIX) is a joint research programme between the University of Dundee and St Andrews concerned with the development of specific tools to enable detailed and scientific analysis of the observed behaviour of participants in routine dental treatment sessions. The interim report of the feasibility study was presented to the grant funder GlaxoSmithKline in August 2010.

This programme of research will improve patient care by informing service and education policy makers on the design of effective interventions.
A continuing focus of DHSRU work, in partnership with the Scottish Dental Practice Based Research Network (SDPBRN) and NHS Education for Scotland (NES), is evaluation and impact analysis of the training of undergraduate dental students and other educational initiatives.

The broad aim of the undergraduate dental curriculum is to produce caring, knowledgeable, competent, skilful and ethical dentists whose practice is in the best interest of patients. However, when evaluating whether or not this aim has been achieved it is necessary to consider not only educational outcomes which are formally assessed within the curriculum, but also outcomes which, typically, are not assessed. The Scottish Undergraduate Dental Student Study is conducting, in collaboration with the Dental Hospitals and Schools in Dundee and Glasgow, a longitudinal evaluation of non-assessed educational outcomes within Scotland’s undergraduate dental schools. Questionnaires assessing stakeholder-identified outcomes have been completed by final year students in Scotland’s dental schools over the last five years. These outcomes included clinical and non-clinical self-efficacy, attitudes and beliefs towards continued professional development and evidence-based clinical decision-making. The results suggest that, in general, Scotland’s dental schools provide an education which addresses not only traditionally assessed educational requirements, but also other equally important non-assessed requirements that are necessary for the development of caring, knowledgeable, competent, skilful and ethical dentists whose practice is in the best interest of patients. Each year individual reports are prepared for each of Scotland’s dental schools and results are discussed and considered at an annual national meeting.

The infrastructure is now established for continued data collection on Scotland’s undergraduate dental students and in 2011 data will be gathered from the first, final year undergraduate cohort in Aberdeen Dental School. Extended applications of the data gathered are currently being investigated including:

- whether it can be used to inform curriculum development by identifying areas which may particularly drive evidence-based practice and identify which behaviours are more likely to be evidence-based.
- the feasibility of conducting longitudinal follow-up of students following graduation to identify if future behaviour, for example, continuing professional development activities, can be predicted during the undergraduate years.

Research findings have been shared widely and, in partnership with Scotland’s Dental Hospitals and Schools, have led to beneficial changes in the education and training processes. Evaluating undergraduate education in this longitudinal manner has led to informed curriculum development and provides a quality management tool for education providers.
SECTION 6: OUTREACH

1. I think practicing in an outreach clinic
(a) is relevant to my training needs
(b) enhances theoretical knowledge
(c) enhances clinical skills
(d) develops interpersonal skills
(e) enhances an understanding of how theory relates to practice
(f) provides an opportunity to deliver appropriate dental care to patients in the primary care setting
(g) enhances an understanding of the role of the community dental service
(h) provides an opportunity to gain experience of practice management

2. Which aspect of Outreach did you find most useful?

3. Which aspect of Outreach did you find least useful?

4. If you would like to comment about any aspect of Outreach, please do so here.

SECTION 7: IN GENERAL

1. Please tell us why you chose to study at the Dundee Dental Hospital and School? e.g. close proximity to parental home, quality of NHS, particular aspect of the curriculum etc.

2. After graduation would you prefer to be working in?
   - General Dental Service
   - Community/Dental Service
   - Hospital Dental Service
   - Private Practice
   - Armed Forces

3. At this moment in time, would you prefer to be?
   - A Student
   - A VDP
   - An Assistant
   - Salaried
   - An Associate
   - A Principal

4. How would you prefer to be paid for the NHS dental care you provide?
   - A fixed monthly salary
   - Pay per item
   - Pay per visit
   - Pay per item & capitation
   - Salaried
   - Other

If you answered ‘other’ to question 4, please tell us how you would prefer to be paid.
The translation research in a dental setting (TRiADS) programme protocol

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Abstract

Background: It is well documented that the translation of knowledge into clinical practice is a slow and faltering process. This is no less true for dental healthcare than other types of healthcare. Other barriers to the translation of knowledge to practice are unclear and difficult to change unless we can identify them. Literature reviews on the facilitation of the translation of research to practice (e.g. the Knowledge to Action Programme (K2A), the Translating Research to Practice (TRiPS) projects) have been conducted, but have not identified an evidence-based approach that can be used to improve the translational process.

Methods: The aim of TRiADS is to develop a parallel, evidence-based research programme to develop methodology, tools, guidance and frameworks that can be used to support effective translation of dental healthcare research to practice. Data from the multi-centre pilot evaluation will provide insights into the facilitation, implementation and evaluation of knowledge translation interventions. A number of research elements will be developed and tested, including tools to measure the degree of translation of knowledge to practice, and tools to evaluate the effect of knowledge translation strategies. The framework will be tested within the NHS dental care setting in England and Wales.

Results: The TRiADS programme approach is a significant step forward towards the development of a practical, generalisable framework for knowledge translation research. The multi-disciplinary composition of the TRiADS team enables consideration of the individual organisational and system determinants of professional behaviour change. In addition the embedding of TRiADS within a national programme of guidance development offers a unique opportunity to inform and influence national guidance development and ensure that resources are developed to influence professional practice on both the national and local level.

Conclusion: The TRiADS programme approach is a significant step forward towards the development of a practical, generalisable framework for knowledge translation research. The multi-disciplinary composition of the TRiADS team enables consideration of the individual organisational and system determinants of professional behaviour change. In addition the embedding of TRiADS within a national programme of guidance development offers a unique opportunity to inform and influence national guidance development and ensure that resources are developed to influence professional practice on both the national and local level.

In this paper, we report the outcome of the TRiADS multi-centre pilot study. The paper will be published online in implementation science, and in addition, a full publication will appear in the British Dental Journal in the future.

In this paper, we report the outcome of the TRiADS multi-centre pilot study. The paper will be published online in implementation science, and in addition, a full publication will appear in the British Dental Journal in the future.
A consistent finding in health services research is that the transfer of research findings into practice is unpredictable. One common policy strategy to promote continuous quality improvement is the production of clinical guidance which in Scotland is the responsibility of the Scottish Dental Clinical Effectiveness Programme (SDCEP). However, the publication of guidance does not necessarily result in professional behaviour change. Other knowledge transfer interventions have shown varied effectiveness, much of this unexplained. The need for further translation research, and the development of a generalisable, theory-based, knowledge transfer framework has been identified.

Since 1998, a multidisciplinary collaboration of clinical and academic experts, involving implementation science researchers from across the UK and Canada, has been developing a programme of knowledge transfer research embedded in the SDCEP guidance development process. The aim of the Translation Research in a Dental Setting (TRiaDS) Programme, funded by NHS Education for Scotland (NES), is to improve the quality and safety of dental health care in Scotland by establishing a practical evaluative framework to support and provide continuous evaluation of the impact of guidance on the quality of health care in General Dental Practice. Professor Clarkson, DHSRU, and Dr Craig Ramsay, Health Services Research Unit, University of Aberdeen, are Joint Principal Investigators.

The TRiaDS programmatic evaluation uses a standardised method. At the start of the SDCEP guidance development process, information is gathered about current dental care activities. Key recommendations and their associated behaviours are identified and prioritised. Potential barriers and enablers towards these are identified by Stakeholder questionnaires and interviews. Routinely collected data is used to measure compliance with the guidance and to inform decisions on the need for a knowledge translation intervention. Interventions are theory-based and informed by evidence gathered during the diagnostic phase and prior published evidence. They are evaluated using experimental and quasi-experimental trial designs, and, where possible, data collection will continue beyond the intervention to investigate the sustainability of an intervention effect.

The TRiaDS evaluative process is now fully embedded into the SDCEP guidance development process. Programme activities in 2010 included diagnostic analyses for SDCEP’s guidance on ‘Prevention and Management of Dental Caries in Children’ and ‘Oral Health Management of Patients Prescribed Bisphosphonates’. For both these, the data suggests a gap between current practice and key guidance recommendations. An example of the evaluation of a knowledge translation intervention is the conduct of a randomised controlled trial (RCT) investigating the impact of theory-based, individualised practice support visits on the implementation of the SDCEP ‘Cleaning of Dental Instruments’ guidance. Two hundred and two general dental practices have participated in this RCT and the results will be reported in 2011.

A graphic showing how the TRiaDS evaluative programme works in partnership with the SDCEP guidance development process and the front cover of the TRiaDS Study Protocol.

The embedding of TRiaDS within the SDCEP guidance development process offers an unparalleled opportunity to influence patient safety by shaping the guidance development process to promote the implementability of the guidance. It also provides a unique platform to study the sustainability of getting evidence into routine clinical practice. The TRiaDS evaluative process is readily transferable across professional disciplines and serves the wider health system using dentistry as an example.
The Scottish Dental Clinical Effectiveness Programme (SDCEP) is an initiative of the National Dental Advisory Committee (NDAC) in partnership with NHS Education for Scotland (NES). Its primary aim is to provide user-friendly evidence-based guidance to support dental teams to provide quality dental care for their patients. For each guidance topic, a group of dental professionals works with the SDCEP Programme Development Team to develop the guidance.

The guidance initiative involves participation from all sectors of dentistry in Scotland, with members of DHSRU playing key roles. Professor Clarkson is Director of SDCEP and sits on the NDAC. Professor Pitts chairs the SDCEP Oral Health Assessment Guidance Development Group, is a member of the SDCEP Steering Committee and sits on the NDAC. Dr Bonetti has contributed to the writing of guidance and advises on guidance implementation.

- In April 2010, SDCEP published guidance entitled ‘Prevention and Management of Dental Caries in Children’. This guidance was distributed widely to the dental profession in Scotland and complements the Childsmile Programme.

- In June 2010, SDCEP launched its online Practice Support Manual (PSM) to provide advice on a range of topics related the organisation and management of a modern dental practice [http://www.psm.sdcep.org.uk](http://www.psm.sdcep.org.uk). Since the launch, new topics have been added with more to follow in 2011. In tandem with this, a PSM-branded folder was sent to all dental practices to aid collation of required regulatory documentation.

- SDCEP has designed a practice inspection related to the Practice Support Manual, that combines Health Board and NES Vocational Training inspections and elements of the National Standards for Dental Services. Piloting of this inspection began in 2010.

- ‘Oral Health Management of Patients Prescribed Bisphosphonates’, new guidance setting out measures to minimise potential side-effects of serious oral health problems was available for consultation in 2010 and is due to be published in spring 2011.

- ‘Oral Health Assessment and Review’ advises on best practice for dental examinations and personal care planning. A ‘Guidance in Brief’ version of the draft guidance put out for consultation in 2009 has been developed and will be published in spring 2011.

- SDCEP also works closely with the TRiaDS programme, an international multidisciplinary collaboration of researchers concerned with evaluating and improving the implementation of SDCEP guidance.

- Members of SDCEP staff contribute to several other national dental quality improvement initiatives that are related to SDCEP guidance topics to ensure consistency and to share knowledge gained through SDCEP’s work.

The SDCEP Practice Support manual website home page with the cover and double page spread from ‘Prevention and Management of Dental Caries in Children.’

This programme of work in collaboration with partners across Scotland, the UK and internationally, is enhancing the understanding of how best to translate evidence into practice.
surveillance & oral health monitoring at population level

surveillance & oral health monitoring at practice level

health & oral health promotion including inequalities

caries risk assessment & preventive caries management

randomised clinical trials in dental primary care

development of dental informatics & e-health

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reporting & evaluating continuous quality improvement

evaluation of education to generalised research

understanding behavioural & behaviour change

Prevention & Management of Dental Caries in Children

Clinical Dental Clinical Guidance

Scottish Dental Clinical Effectiveness Programme 2019

Prevention and Management of Dental Caries in Children

6. Caries Prevention

6.1 Dietary Advice

Welcome to the SDCEP Practice Support Manual

The Practice Support Manual (PSM) supports practice management and encourages dental care practitioners in Scotland to provide up-to-date advice on a range of topics that are relevant to the delivery of dental care in Scotland.

Why use the PSM?

The PSM is designed to help dental teams keep up to date with legislation and professional requirements, prepare for practice inspection and carry out best practice.

The PSM is a comprehensive guide that provides clear and accessible information and practical advice for health care practitioners. It includes advice on a range of topics, such as oral health, dental care, and patient management.

Who is the PSM for?

The PSM is written primarily for principal dentists and practice managers who are responsible for managing a dental practice. However, it is designed to be accessible to all dental care practitioners.

The PSM is freely available to the dental care profession in Scotland. It is intended to be a practical resource that practitioners can use to support their work.

Supporting tools

- Checklists
- Templates
- Access to information

Latest Updates

- Disability Equality - now available to all registered users
- Includes Disability and the Equality Act 2010: Improving Access for Disabled Patients
- Access to all
- Free to download for all registered users
DHSRU researching and facilitating delivery of Information Services for Improving Oral Health

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International links with knowledge services

NHS UK links with knowledge services

NHS Scotland links with knowledge services

Supporting & evaluating continuous quality improvement

Evaluation of education to operationalise research

Understanding behavioural & behavioural change

12 Surveillance & oral health monitoring at population level

10 Surveillance & oral health monitoring at practice level

9 Caries risk assessment & prevention care management

8 Development of dental information & e-health

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DHSRU has been involved in translating knowledge into action by aiding the development of Evidence-Based Dentistry at both the UK and International levels working collaboratively with key partners.

Highlights include the continued collaboration with the Cochrane Oral Health Group and the International Association for Dental Research (IADR) to prioritise systematic reviews into areas where there are important gaps in the current evidence base. These efforts have resulted in funding being secured for national trials, clinical guidelines and review summaries for the profession and public.

The Cochrane Oral Health Group based in the School of Dentistry, University of Manchester is one of 51 review groups belonging to the Cochrane Collaboration, an international non-profit and independent organisation providing up-to-date information about the effects of health care. Professor Clarkson, in her role as Joint Co-ordinating Editor with Professor Helen Worthington from the University of Manchester, has been involved in eliciting, disseminating and maintaining systematic reviews of randomised controlled trials in oral health. Many of the COHG reviews have been used in UK and international guidelines for evidence-based dental practice.

Cochrane Oral Health Group reviews are usually undertaken by clinicians with some limited methodological help from the editorial base. Once published each review needs regular updating (current Cochrane guidance is every two years). Due to increased commitments on clinicians’ time and more complex research methods being introduced centrally, the Cochrane Oral Health Group needs to fundamentally change the way that many of its reviews are conducted. The Group is unable to accept funding from industrial or pharmaceutical companies, so an alternative source of funding is required. Cochrane reviews have been utilised by almost all international dental organisations/specialties and it is imperative that this work continues.

The Cochrane Oral Health Group is therefore creating a Professional Global Alliance of national and international organisations working in the field of oral health to assist with the delivery of important/priority reviews in a timelier manner. The proposal is to generate collaborative funding to create an expert methodological and administrative team to lead the conduct of priority reviews with active consumer involvement.

The American Dental Association (ADA) has developed an Evidence Based Dentistry website for both professionals and public where critical summaries of systematic reviews are published. Cochrane Reviews are considered an important component of this.

Professor Clarkson is an advisor to the ADA and is involved in the training of the Evidence-Based Dentistry Champions.

Web pages from the Cochrane Oral Health Group and the ADA Centre for Evidence-Based Dentistry websites.

DHSRU continues to make a major contribution to shaping Knowledge Services at the UK and International level by contributing methodological and content expertise to systematic reviews and guidance development.
12 • International Links with Knowledge Services

Background

DHSRU has for decades followed a twin-track dissemination policy for its research and has collaborated across disciplines and geographies in order to work with the best groups to promote implementation of results into policy and practice. There are a wide range of Knowledge Transfer activities undertaken at the international level.

Progress highlighting collaborations to translate Knowledge into Action to improve dentistry internationally

DHSRU continues to play an active part in the FDI World Dental Federations’ Global Caries Initiative, which has a goal to “improve oral health through the implementation of a new paradigm for managing dental caries and its consequences, one that is based on our current knowledge of the disease process and its prevention, so as to deliver optimal oral and thus general health and well-being to all peoples”. In 2010 Professor Pitts was appointed to the FDI Science Committee and an FDI Position Statement on Caries Classification and Management was approved.

International Caries Classification and Management System™ (ICDAS-ICCMS™)

The ICDAS philosophy addresses Knowledge Transfer in both Education and Research, as well as the work reported in earlier highlights on the Epidemiology and Practice applications. The ICCMS™ is being developed with staff from Dental Schools in ten Universities from the USA, UK, Europe, South America and the Middle-East. There are at least 54 published peer-reviewed papers (with first authors from 13 countries), 6 book chapters and 45 abstracts which use ICDAS (see http://www.ICDAS.org).

International Association for Dental Research (IADR): Global Oral Health Inequalities Research Agenda (GOHIRA)

GOHIRA is a new initiative with a focus on inequalities in oral health and overcoming past failures to get research findings into policy and practice. Professor Pitts is the Chair of the Dental Caries Task Group, which includes wide representation, including the IADR Cariology Group and Evidence Based Dentistry (EBD) Network. The GOHIRA strategy is to address both implementation gaps and a research agenda. A full report of the Dental Caries Task Group is accepted for publication Advances in Dental Research (in March 2011).

Alliance for a Cavity Free Future (ACFF)

A new Alliance has been created to tackle the continuing global public health problem of caries. Initial work has been undertaken by an International Expert Panel in dental caries and dental public health convened by Professor Pitts and Professor Ramon Bedi (Kings College, London), working with the Colgate Company as a Foundation donor. The mission of ACFF is to: “Stop caries initiation and progression and move towards a cavity-free future by working with countries to build on existing initiatives with a new understanding of caries as a disease continuum and to adopt comprehensive strategies for caries prevention and management.” The Alliance’s first initiative is a web-based resource co-produced with the School of Public Health at Harvard featuring evidence-based advice, tools and support materials http://www.allianceforacavityfreefuture.org/en/us/home.

The first photograph shows the participants from 11 Universities at the Philadelphia ICDAS Workshop developing the ICCMS™. The second shows participating experts from around the world signing a declaration for the new Alliance.

Impact statement

DHSRU has developed, nurtured and maintained a broad range of effective international collaborations and links with research and professional organisations to disseminate knowledge and Get Research-findings into routine Practice (GRiP) while influencing policy at the International level. We also continue to develop new methods to open up Knowledge Services to dental practices, community settings and the public.
The Alliance for a Cavity-Free Future was officially launched on 3 September 2010 at the FDI World Dental Federation Congress, Salvador, Brazil. Participating experts from around the world committed to the goals of the Alliance by signing the Alliance declaration calling for global collaborative action.

Members of the Alliance’s expert panel

Representative for experts around the globe

Representative for international dental organisations

Representative for chief dental officers

Representative for dental schools

Representative for corporate dentistry
Entries alongside an asterisk * indicate audience details or the nature of presentation (by invitation or by application).

All presentations are verbal unless otherwise indicated.

### 2009 (from 22nd October 2009)

<table>
<thead>
<tr>
<th></th>
<th>Presenter:</th>
<th>Title:</th>
<th>Meeting:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chambers, S.</td>
<td>Understanding mother’s concerns in accessing childsmile practice</td>
<td>Scottish Dental Practice-Based Research Network 7th National Symposium, Stirling, UK</td>
<td>22 October 2009</td>
</tr>
<tr>
<td>2</td>
<td>Coles, E</td>
<td>Smile4life: Promoting oral health and well-being in homeless populations in Scotland</td>
<td>Scottish Dental Practice-Based Research Network 7th National Symposium, Stirling, UK</td>
<td>22 October 2009</td>
</tr>
<tr>
<td>3</td>
<td>Longbottom, C.</td>
<td>Practical issues in assessment. Caries Assessment</td>
<td>Scottish Dental Practice-Based Research Network 7th National Symposium, Stirling, UK</td>
<td>22 October 2009</td>
</tr>
<tr>
<td>6</td>
<td>Chambers, S.</td>
<td>Reducing barriers to Childsmile Practice: understanding the main concerns of mothers</td>
<td>Clinical and Population Sciences and Education Seminar Series</td>
<td>28 October 2009</td>
</tr>
<tr>
<td>7</td>
<td>Chambers, S.</td>
<td>Reducing barriers to Childsmile Practice: understanding the main concerns of mothers</td>
<td>Childsmile North Regional Co-ordinators Meeting, Inverness</td>
<td>10 November 2009</td>
</tr>
</tbody>
</table>
8. Presenter: Clarkson, J., Innes, N., Evans, D., Douglas, G.
   Title: HTA FiCTION Feasibility Trial
   Meeting: FiCTION Study Day, Bourne House, Durham
   Date: 01 December 2009
   *By Invitation

9. Presenter: Clarkson, J. E.
   Title: HTA FiCTION Feasibility Trial
   Meeting: NIHR Monitoring Meeting, Southampton
   Date: 16 December 2009
   *By Invitation

2010

1. Presenter: Clarkson, J.E.
   Title: Research Design
   Meeting: Systematic Reviews and Evidence in Dentistry, Philadelphia USA
   Date: 9 January 2010
   *Invited audience

2. Presenter: Clarkson, J.E.
   Title: Systematic Reviews and Evidence in Dentistry
   Meeting: Medical Faculty, Temple University, Philadelphia, USA
   Date: 10 January 2010
   *Invited audience

3. Presenter: Clarkson, J.E.
   Title: The Cochrane Collaboration and the Quest for Using Best Evidence in Health Care
   Meeting: HSC Biomedical Science and Translational Medicine Research Symposium
   Date: 12 January 2010
   *Invited audience

4. Presenter: Freeman, R.
   Title: Dental Research- what has social science got to do with it?
   Meeting: Research Symposium 2010, West Park Conference Centre, Dundee
   Date: 29 January 2010
   *By Invitation

5. Presenter: Innes, N.
   Title: Dental Research - Changes in Managing Tooth Decay for Children (FiCTION)
   Meeting: CMD&N - Research Symposium, Westpark Conference Centre, Dundee
   Date: 29 January 2010
   *Open

6. Presenter: Pitts, N.B.
   Title: Tools for Caries Prevention & Management at the Individual and Community setting
   Meeting: Co-Chair International Workshop and Expert Panel on Dental Caries, Washington DC, USA
   Date: 1 March 2010
   *By Invitation
7. Presenter: Clarkson, J. E., Daly, F.
Title: Evidence-Based Dentistry
Meeting: Evidence Based Dentistry Champions Conference, Chicago
Date: 10 March 2010
*Invited audience

8. Presenter: Pitts, N.B.
Title: Enabled by ICDAS: Caries Prevention and Control: Knowledge into Action
Meeting: FDI Session - AEEDC Dubai, Dubai, UAE
Date: 11 March 2010
*By Invitation

9. Presenter: Clarkson, J. E., Daly, F.
Title: HTA Interval Dental Recall Trial
Meeting: Dental Annexe, Heath Park, Cardiff
Date: 24 March 2010
*By Invitation

10. Presenter: Freeman, R.
Title: Differentiating dental phobia from dental anxiety: strategies for dental practice
Meeting: Health and Society Lecture Series. University of Bristol
Date: 24 March 2010
*By Invitation

11. Presenter: Clarkson, J. E.
Title: Evidence-Based Dentistry
Meeting: National Advisory Panel Meeting, Canadian Dental Hygienist Association
Date: 2 April 2010
*Invited audience

12. Presenter: Chambers, S.
Title: Understanding the concerns of mothers in accessing the Childsmile Practice oral health programme
Meeting: Bristol Dental School External Seminar Series, University of Bristol
Date: 14 April 2010
*By Invitation

13. Presenter: Daly, F.
Title: Briefing Meeting for Mr Colin Yule and Mr Gordon Fletcher
Meeting: Dundee Dental Education Centre
Date: 23 April 2010
*By Invitation

14. Presenter: Pitts, N.B.
Title: Scottish Dental Practice Based Research Network
Meeting: PEARL Network NIH, Washington DC, USA
Date: 24 April 2010
*By Invitation

15. Presenter: Pitts, N.B.
Title: Development of the ICDAS-CMS© (Caries Management System)
Meeting: ICDAS Workshop Temple University. Three day International Workshop, Philadelphia, USA
Date: 26 April 2010
*By Invitation
16. Presenter: Daly, F., Clarkson, J. E.
Title: HTA INTERVAL Dental Recalls Trial: Investigation of NICE Technologies for Enabling Risk-Variable-Adjusted-Length Dental Recalls Trial
Meeting: Birmingham Dental School
Date: 10 May 2010
*By Invitation

17. Presenter: Pitts, N.B., Clarkson, J.E., Daly, F.
Title: INTERVAL Trial Management Committee Meeting
Meeting: Edinburgh Post Graduate Dental Institute, Lauriston Place, Edinburgh EH3 9HA
Date: 15 June 2010
*Invited audience.

18. Presenter: Clarkson, J.E.
Title: Evidence-Based Dentistry
Meeting: Spanish Dental Public Health Congress, Valencia, Spain
Date: 17 June 2010
*Invited audience.

19. Presenter: Pitts, N.B.
Title: Chaired Working group 2 - Risk Assessment and Detection, Activity, Monitoring and Synthesis
Meeting: ORCA-ADEE European Caries Curriculum Workshop, Berlin, Germany
Date: 27-30 June 2010
*Co-chair Open Meeting
*By Invitation

20. Presenter: Pitts, N.B.
Title: Recommendations for the Preparation of Curriculum Guidelines
Meeting: ORCA-ADEE European Caries Curriculum Workshop, Berlin, Germany
Date: 29 June 2010
*By Invitation

21. Presenter: Pitts, N.B.
Title: Peer review and refining the ICDAS-ICCMS© (International Caries Classification and Management System)
Meeting: ICDAS International Symposium, Montpellier, France
Date: 8 July 2010
*By Invitation

22. Presenter: Pitts, N.B.
Title: Fluoride Rinsing and caries control – evidence for efficacy
Meeting: IADR / J&J Satellite Expert Panel Meeting, Barcelona, Spain
Date: 12 July 2010
*By Invitation

23. Presenter: Pitts, N.B.
Title: Implementation of Evidence-based Risk Assessment as Part of Modern Caries Management – International Opportunities and Challenges for Consensus
Meeting: IADR: Caries Risk Symposium, Barcelona, Spain
Date: 14 July 2010
*By Invitation
24. Presenter: Pitts, N.B.
   Title: The early clinical stages of dental caries - the pathway from risk assessment to preventive treatment options and review
   Meeting: IADR Caries Management Symposium, Barcelona, Spain
   Date: 15 July 2010
   *By Invitation

   Title: The development of virtual patients to support the Scottish dental workforce to tackle health inequalities
   Meeting: Association for Dental Education in Europe, 36th Annual Meeting, Amsterdam
   Date: 25 August 2010
   *Poster

26. Presenter: Pitts, N.B.
   Title: Dental Caries: a continuing public health challenge and frameworks for delivering caries prevention and management for early-stage lesions
   Meeting: FDI World Dental Congress Symposium, Salvador, Brazil
   Date: 2 September 2010
   *By Invitation

27. Presenter: Pitts, N.B.
   Title: ICDAS and its Applications in Paediatric Dentistry
   Meeting: FDI World Dental Congress Symposium, Salvador, Brazil
   Date: 3 September 2010
   *By Invitation

28. Presenter: Pitts, N.B.
   Title: Translating Dental Research into the Dental Office – Are we making Progress for Patients?
   Meeting: FDI World Dental Congress Symposium, Salvador, Brazil
   Date: 4 September 2010
   *By Invitation

29. Presenter: Freeman, R., Topping, G.
   Title: Development of an oral health improvement programme in prisons
   Meeting: Raploch Community Campus, Stirling
   Date: 20 September 2010
   *By invitation

30. Presenter: Clarkson, J.E.
    Title: The Role of Evidence in Dental Practice
    Meeting: 2010 ADA Annual Session
    Date: 11 October 2010
    *Specific group

31. Presenter: Freeman, R.
    Title: The Psychological Health of General Dental Practitioners - A Stress Audit in Practice
    Meeting: British Dental Association Meeting, Northern Ireland
    Date: 19 October 2010
    *By Invitation
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<td>Longbottom, C.</td>
<td>Diagnosis and Prevention of Caries in Children - The Scottish Perspective</td>
<td>University of Leeds</td>
<td>19 October 2010</td>
</tr>
<tr>
<td>Wanyonyi, L K., Coles, E., Mossey, P., Freeman, R., and Pitts, N.B.</td>
<td>Oral health research and the MDG's: Examples from Dundee, Scotland and beyond</td>
<td>IADR East and Southern Africa Division, Tanzania</td>
<td>29 October 2010</td>
</tr>
<tr>
<td>Pitts, N.B.</td>
<td>Preventive and Minimal Intervention Dentistry in the Undergraduate Curriculum</td>
<td>10th KuADR – IADR Conference, Kuwait University (December 2010), Kuwait, UAE</td>
<td>5 December 2010</td>
</tr>
<tr>
<td>Clarkson, J. E.</td>
<td>How often should you go to the dentist?</td>
<td>Discovery Days 2011</td>
<td>14 January 2011</td>
</tr>
</tbody>
</table>
2009 (November & December)


2010


conference proceedings

2009

1. Pitts, N.B. and Wefel, J.S. Remineralization/desensitization: What is known? What is the future? (Presented at the International Conference on Novel Anti-caries and Remineralizing Agents, Van del Mar, Chile, 10/12 January 2008.) Advances in Dental Research 21: 83-86. Programme DCC

reports

2010

1. Chambers, S.A. and Freeman, R. Developing an inventory to Assess Parental concerns and Enable child dental Registration: Year 1 report: a qualitative exploration. Published by Dental Health Services & Research Unit, University of Dundee. Programme OHHR
2. Chambers, S.A., Turner, S., and Freeman, R. Helping sick children and young people meet their healthcare needs, in partnership with parents, carers, and professionals. Special smiles dental project evaluation report. Published by Dental Health Services & Research Unit, Dundee, UK. Programme OHHR
3. Chambers, S.A., Turner, S., and Freeman, R. Helping sick children and young people meet their healthcare needs, in partnership with parents, carers, and professionals. Special smiles dental project evaluation report. Executive Summary. Published by Dental Health Services & Research Unit, Dundee, UK. Programme OHHR
4. Freeman, R., Wanyonyi L.K., Humphris G., Wright, A. The preliminary development of a Communication, cues and framing MIXed methods research programme to promote motivation and compliance for fluoride toothpaste use. ComMIX Interim Report February 2010-August 2010. Published by Dental Health Services & Research Unit, Dundee, UK. Programme OHHR.

Cochrane Reviews

2009

1. Lockhart, P., Daly, F., Pitkethly, M., Comerford, N., and Sullivan, F. Antiviral treatment for Bell's palsy (idiopathic facial paralysis). Cochrane Database of Systematic Reviews, 2009; Art no: CD001869. DOI: 10.1002/14651858.CD001869

2010


abstracts

2009


2010

Web based articles/activities

27th May 2009
BBC news website. £2.9m to study child tooth decay
http://news.bbc.co.uk/1/hi/scotland/tayside_and_central/8069774.stm

27th May 2009
The University of Dundee website. Scots lead study into children's tooth decay
http://www.dundee.ac.uk/pressreleases/2009/week290509.htm

27th May 2009
Dundee Evening Telegraph. Team from Dundee to lead dental project
www.eveningtelegraph.co.uk/
*article no longer active at this URL

27th May 2009
Dental news website. Kids to be quizzed in new tooth decay survey

28th May 2009
Scotsman website. Scots lead study into children's tooth decay
http://news.scotsman.com/health/Scots--lead-study-into.5309145.jp

28th May 2009
The Press and Journal website. Dundee University team to lead £2.78m child tooth-decay study. Six-year programme will look at treatment methods.
http://www.pressandjournal.co.uk/Article.aspx/1237062?UserKey=

28th May 2009
The University of Glasgow website. Study into children's tooth decay underway
http://www.gla.ac.uk/news/headline_120286_en.html

28th May 2009
NHS library website. £2.9m study of child tooth decay

29th May 2009
Medical News Today
Research assesses the benefits of different ways of treating tooth decay in children
http://www.medicalnewstoday.com/articles/151903.php

30th May 2009
STV.com. Study into tooth decay in Scottish children. A new study to look at the different ways tooth decay in children is treated is to be launched.

1st June 2009
The Star (South Yorkshire). University study on care of baby teeth.
http://www.thestar.co.uk/news/University-study-on-care-of.5320185.jp

1st June 2009
The Probe. Method assessment study commissioned.
http://www.purplems.com/probe.html
*article no longer active at this URL

1st June 2010
Scottish Dental Magazine. A range of guidance is set to offer dentists in Scotland vital advice.
http://www.sdmag.co.uk/index.php/articles/pm_article/new_leaf_support/
4th June 2009
Sheffield Telegraph. Sheffield dental experts in tooth decay study
http://www.sheffieldtelegraph.co.uk/university/Sheffield-dental-experts-in-tooth.5334354.jp

websites

FICTION Web-site  http://www.fictiontrial.info
A FICTION Facebook Group page has been set up to allow participating dentists to share their experiences with their counterparts, in the other Trial Centres, as well as the FICTION Trial Team. This channel will also be used by the researchers to keep trial collaborators updated on progress. Participation in the FICTION Facebook Group page is by invitation only.

INTERVAL Web-site  https://viis.abdn.ac.uk/hsru/interval
If you are interested in finding out more about DHSRU, please contact:

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