Young Researcher's Prize Presentations

R1

General dental practitioners' knowledge and perceptions of secondary care services in paediatric dentistry services within Scotland

F. A. SOLDANI, C. HARRIS & J. FOLEY
Edinburgh Dental Institute, Edinburgh, Scotland, UK

Objective: To assess general dental practitioners' (GDP) pattern of referral to, knowledge and perceptions of specialist paediatric dentistry services (SPDS) within Scotland.
Sample and method: A postal questionnaire distributed to all GDP's registered on the Scottish Dental Practice Board list in June 2007.
Results: Data were available for 1,207 questionnaires (a 50% response rate), and of these, 58% of respondents had a mixed National Health Service (NHS)/private practice, 39% worked in the NHS and the remainder were private practitioners. Geographically a quarter of GDPs were in the Greater Glasgow Health Board area, 17% were in the Lothian Health Board area and the remainder were based elsewhere. The majority (35%) of GDPs referred to the Community Dental Services with a further 32% referring to Glasgow Dental Hospital and School, 19% to the Edinburgh Dental Institute and 9% to Dundee Dental Hospital and School. The vast majority (72%) had no specific guidelines in place regarding SPDS referrals with 26% and 7% of GDPs having never referred to the SPDS for advice and/or treatment, respectively. Of those who had received a treatment plan over half stated that treatment plans were too technically demanding to be completed. 47% of respondents felt that they were aware of the services provided by the SPDS with 49% being happy with the services provided.
Conclusion: A considerable number of GDPs in Scotland reported being unaware of, and/or unhappy with, the current SPDS in Scotland. Comments from GDPs suggested that more specialists in paediatric dentistry are needed. (This study was funded by the University of Dundee.)

R2

Oral findings in patients with Hurler syndrome post stem cell transplantation

E. McGOVERN[1], L. OWENS[1], J. NUNN[2], A. BOLAS[3], A. O MEARA[1] & P. FLEMING[1,2]
[1]*Our Lady's Children's Hospital, Crumlin, Dublin, Ireland* [2]*Dublin Dental School and Hospital, Lincoln Place, Dublin, Ireland* [3]*Dental Department, Sligo General Hospital, Sligo, Ireland*

Objective: Hurler syndrome (Mucoploysaccharidoses Type IH) is an autosomal recessive condition, associated with a deficiency of specific lysosomal enzymes involved in the degradation of glycosaminoglycans. Haemopoietic stem cell transplantation (SCT) in early infancy is undertaken to help prevent the accumulation of glycosaminoglycans and improve organ function in patients with Hurler syndrome. The objective of this study was to investigate oral features specific to patients with Hurler Syndrome who had been treated by SCT.
Sample and methods: An oral assessment was undertaken of 25 patients with Hurler syndrome (age range 6 months–20 years, mean age 8.7 years) who had received SCT at a mean age of 9.5 months (age range 5–20 months).
Results: Dental development and tooth eruption were generally delayed. Numerous occlusal anomalies were present including an anterior openbite with or without macroglossia, a class III skeletal base, generalised dental spacing, primary molar infraocclusion and ectopic eruption of first permanent molar teeth. Dental anomalies included thin tapering canine crowns, pointed molar cusps, and bulbous molar crowns with marked cervical constriction. Radiographically, tooth roots were usually short and blunted, and/or spindle-like in permanent molars. Taurodontism was noted in both primary and permanent molars. Microdontia and hypodontia were highly prevalent in the permanent dentition. The prevalence of dental caries was low in the permanent dentition.
Conclusion: Patients with Hurler syndrome post-SCT are likely to have delayed dental development, a malocclusion and spaced dentition, with dental anomalies particularly hypodontia and microdontia.

R3

An essential extra: undergraduate experience in salaried primary care settings

U. CHAUDHRY & M. L. HUNTER
University Dental Hospital, Cardiff and School of Dentistry, Cardiff University, Wales, UK

Objective: To assess the experience gained by final year dental students through outreach placements in salaried primary care settings.
Setting: School of Dentistry, Cardiff University.
Sample and methods: Fifth (final) year undergraduate dental students at Cardiff University complete community dental service placements in North and South Wales. On completion of each student's placement, an assessment proforma identical to that used within the School of Dentistry is returned to the outreach co-ordinator to inform the Academic Review process. Assessment proformas were available for 49 students completing placements in South Wales and 51 students completing placements in North Wales during the academic year 2006/7. Activity data were extracted and entered into an Excel spreadsheet for analysis.
Results: Both placements provided students with a considerable amount of clinical experience. Experience in the two settings was complementary, the South Wales placement offering experience of 'routine' paediatric dentistry and the North Wales placement experience of providing treatment for children and adults with 'special needs', including the use of relative analgesia. The amount and type of experience gained varied between students and between centres.
Conclusion: Placement learning plays an invaluable part in the modern undergraduate dental curriculum.

R4

Do you judge me because of how my teeth look?

C. S. BARKER, H. D. RODD, S. R. BAKER, Z. MARSHMAN & P. G. ROBINSON
Department of Oral Health and Development, School of Dentistry, Sheffield, UK

Objective: To determine whether, and if so, the extent to which, children pass judgement on other children on the basis of visible incisor trauma.
Design: Cross-sectional survey.
Setting: A mixed secondary school in southwest England.
Sample and methods: Year 7 (11–12-year-olds) pupils (the participants) were invited to look at colour photographs of four different children's faces (the subjects) and to make a social judgement about the children in the photographs. Four classes were randomly allocated pictures of children with visible incisor trauma, and four classes were given pictures of the same children whose photographs had been digitally modified to restore incisor aesthetics. Using a previously validated child-centred questionnaire, participants rated subjects using a four-point Likert scale for three negative and six positive attributes within three different domains: social competence; psychosocial adjustment and intellectual competence.
Results: 125 children with equal gender distribution completed the questionnaires, giving a response rate of 74%. In three of the four photographs, children with visible incisor trauma were viewed significantly more negatively than the same child with normal incisor appearance ($P < 0.05$, independent *t*-test). Girls tended to rate all subjects more favourably than their male peers, although this did not reach statistical significance ($P = 0.09$, multivariate analysis).
Conclusion: Findings from this study concur with those from adult populations in that negative social judgements are made on the basis of dental appearance. In view of the recognised importance of appearance in adolescent social interaction and self-concept, clinicians should endeavour to provide aesthetic dental treatment for children following incisor injury.

R5

Macronutrients and sugars intake among children in Gaza Strip

L. ABU-HALOOB, A. MAGUIRE & P. MOYNIHAN
School of Dental Sciences, Newcastle University, Newcastle upon Tyne, UK

Background: A number of studies have suggested that inappropriate intake of some nutrients negatively impacts upon oral health.
Objectives: To measure macronutrients and sugars intake and anthropometric indices among 4-year-old children in Gaza Strip (GS).
Design: A cross-sectional, observational study.
Setting: The homes of children in GS receiving low, moderate and high fluoride concentrations in tap water (< 0.7, 0.7–1.2 and > 1.2 ppm F respectively).
Sample and methods: Following recruitment of 216, 4-year-old children, their parents were asked to complete a 3-day food diary with post diary structured interview. Amounts of foods consumed were estimated using pictures for common home-serving receptacles. The 3-day food diaries were coded and entered into a Food Tables Access Database to estimate the daily intake of macronutrients and sugars.
Results: Mean (±SD) Body Mass Index and total energy intake for females ($n = 112$) and males ($n = 104$) were 15.8(+ 1.5), 16.5(+ 4.9) kg/m^2 and 5.1(+ 1.5), 5.3(+ 1.3) MJ/day respectively. Mean (±SD) protein intake was 42.1(+ 13.7) g/day. Fat, carbohydrate, total sugars and non-milk-extrinsic (NME) sugars contribution to total energy was 34.7(+ 6.4)%, 51.5(+ 7.1)%, 20.1(+ 6.8)% and 12.2(+ 5.8)% respectively. Total energy intake was below the UK and WHO estimated average requirements. Mean intake of NME sugars was above the WHO recommended level (≤ 10% energy).
Conclusion: Children in GS have a low overall energy intake but obtain a higher than recommended proportion of this from NME sugars. This may increase their risk of dental caries. Preventive programmes for oral and general health in GS should encourage a balanced diet aiming to reduce NME sugars intake.

Clinical Case Prize Presentations

C1

Multiple denticles and exostoses: a unique case

G. ABOU AMEIRA & M. HARRISON
King's College Hospital, London, UK

Presenting problem: A 14-year-old girl presented with retained maxillary primary incisors, seeking an improvement in her smile. Radiographic examination revealed several unexpected findings, notably; multiple denticles in the anterior maxilla and mandible, dense sclerotic bone in both jaws, multiple exostoses at the angles of the mandible, and high unerupted maxillary permanent incisors.
Clinical management: A full skeletal survey revealed no bone involvement elsewhere, but cranial CT scans demonstrated additional exostoses around the mandibular condyles and into the floor of the left orbit. Jaw opening became progressively more limited over a period of several months, resulting in a 14 mm inter-incisor maximal opening. Initial plans for surgical exposure and orthodontic traction on the unerupted maxillary incisors were drastically modified as a result. A removable partial denture has been a successful compromise to improve aesthetics but still allow emergency access to the airway.
Discussion: This case presents a unique combination of clinical and radiographic problems which do not fit comfortably with any single diagnosis. The differential diagnosis includes Gardner syndrome or an atypical fibrous dysplasia confined to the facial skeleton. The limited opening is probably due to condylar exostoses interfering with TMJ articulation, and will require invasive surgery beyond the remit of paediatric dentistry. Orbital involvement is of particular concern, although is currently asymptomatic. Our role will be to maintain the improvement to the patient's smile whilst guiding their care through complex multidisciplinary management.

C2

Facilitating management for an autistic patient: a photographic preparation package

L. McCLEAN & M. MOFFAT
Newcastle Dental Hospital, UK

Presenting Problem: A 10-year-old boy was referred by his General Dental Practitioner regarding dental caries, tooth wear, a history of trauma, and behavioural management issues. His medical history included Foetal Alcohol Syndrome, Epilepsy and Autism. In addition, he was being investigated for Prader–Willi Syndrome. Examination revealed multiple dental caries, significant wear of the primary molars, and retained primary incisors with a discoloured 51 indicating loss of vitality. Radiographs confirmed the carious lesions and indicated the presence of two supernumerary teeth palatal to the unerupted upper central incisors.
Clinical management: Prior to his initial consultation the patient's mother requested photographs to prepare him for appointments. The preparation package compiled included photographs with explanations of the relevant clinical stages. Treatment under general anaesthesia was performed for surgical removal of the two supernumerary teeth, preventive resin restoration of 26, fissure sealants of 16, 36 and 46 and extraction of 51, 54, 61, 62, 64, 74 and 84. An upper alginate impression was recorded for fabrication of a space maintainer. The patient coped well with the procedure. Blood samples were also taken in theatre following a request from the patient's Paediatrician.
Discussion: The preparation package was successful in relieving this patient's anxiety. It allowed clinical and radiographic examination for full diagnosis and appropriate subsequent management. Use of this preparation package will be considered in the future.

C3

Management of severe dental fluorosis in a Somali child

A. G. MORGAN & H. D. RODD
Department of Paediatric Dentistry, Charles Clifford Dental Hospital, Sheffield, UK

Presenting problem: Dental fluorosis is endemic in many parts of the world, particularly Africa. An 8-year-old girl, in the mixed dentition, presented to us complaining of brown marks on her front teeth. She had recently emigrated from Somalia, where enamel defects are locally attributed to 'bad water'. Examination revealed severe brown and white enamel opacities involving all erupted permanent teeth, consistent with the appearance of dental fluorosis. Carious lesions were found on 16, 55, 26, 65, and 46. Interestingly, all four primary canine teeth were missing.
Clinical management: The patient was provided with oral hygiene education and diet analysis. All four first permanent molar teeth were restored with preformed metal crowns and 55 and 65 were restored with composite restorations, under local anaesthesia. 11, 12, 21, 22 underwent two cycles of 18% hydrochloric acid and pumice microabrasion followed by direct composite veneers. The patient was very pleased with her improved dental appearance.
Discussion: In our aesthetics-driven society, enamel defects may have considerable negative impact on a young person's self-esteem and social interactions. It is imperative, therefore, that clinicians listen to their young patient's concerns and provide optimal but conservative treatment solutions. It was also noted that this young girl appeared to have undergone ritual primary canine enucleation. This harmful custom, common throughout Africa, may have numerous sequaele including inadvertent damage to the permanent successors. In a multiethnic society, dental professionals need to be aware of differing cultural practices, attitudes and population-specific dental conditions which may have considerable oral health implications.

C4

Continued root development following avulsion and pulpectomy requiring surgical intervention

A. MOORE & A. O'CONNELL
Dublin Dental School and Hospital, Ireland

Presenting problem: A healthy 6-year-old boy presented to the A&E department of Dublin Dental Hospital following avulsion of an immature central incisor one week previously. The tooth had been replanted, devitalised and splinted by the referring GDP.
Clinical management: The patient was referred to the Trauma Clinic of Dublin Dental Hospital. Calcium hydroxide apexification treatment was initiated. The incisor suffered recurrent episodes of abscess

formation and inflammation requiring antibiotics. Once clinically stable, MTA apexification was performed to achieve an apical seal. During treatment, development of a separate, displaced, root tip was observed. The displaced root fragment developed an associated, progressive, well-circumscribed radiographic radiolucency following apexification. The root tip was removed under general anaesthesia and histological examination revealed hard dental tissue with associated, inflamed granulation tissue. On follow-up, the tooth is clinically stable and radiographs show bony healing, identifying the displaced root fragment as the infection source.

Discussion: Hertwig's root sheath (HERS) dictates root development. It is extremely susceptible to damage from trauma or pulpal pathology. Complete destruction of the root sheath will halt normal development of the root and continued root development is rare in the presence of a necrotic pulp. Sheath remnants may however, survive inflammation and endodontics allowing continued root growth. This interesting case illustrates survival of HERS remnants, allowing continued root development despite severe trauma, infection and lack of vital pulp tissue. It also demonstrates how this anomaly may result in pathology, requiring surgical intervention.

C5

Management of a case of hypoplastic enamel resulting from hypocalcaemia

T. KANDIAH & J. FEARNE
Barts and the London NHS Trust, UK

Presenting problem: A 15-year-old boy (JD) presented concerned about the appearance of his front teeth. Although symptom free, clinical examination revealed a draining buccal sinus associated with 11. In addition all teeth except 2nd molars and premolars showed areas of hypoplastic enamel. Radiographs revealed areas of reduced enamel thickness of the affected dentition and apical pathology associated with 11. He was born in Nigeria and had a medical history of bowing of his legs at about 2–3-years-old which was successfully treated with medication. Chronological hypoplasia associated with hypocalcaemia/rickets was diagnosed.

Clinical management: Root canal treatment was carried out on the upper central incisors. Composite veneers were initially placed on the upper centrals in order to improve his self-confidence. The permanent molars were then restored with stainless steel crowns followed by composite veneers to the remaining hypoplastic teeth.

Discussion: Vitamin D deficiency hypocalcaemia, has been implicated in the aetiology of enamel hypoplasia. X-linked Vitamin D resistant rickets has also been implicated and is also associated with spontaneous abscess formation. The chronological pattern of enamel hypoplasia and medical history would support Vitamin D deficiency at age 2–3 years. However JD has three brothers the youngest of whom is apparently similarly affected. This, together with abscessed incisors and no history of trauma, suggests that an X-linked condition can not be ruled out. Examination of family members is planned and continued monitoring of the patients oral hygiene and restorative needs is essential.

C6

Management of a liver transplant patient with persistent tongue ulcer

J. C. MITCHELL[1], M. AHLUWALLA[1] &
S. WARNAKULASURYIA[2]
[1]*Departments of Paediatric Dentistry and* [2]*Oral Medicine, King's College Dental Institute, London, UK*

Presenting problem: A 14-year-old boy presented with an erythematous mucosal lesion 2 × 3 cm on the lateral margin of the tongue, that had failed to resolve with local measures for over 2 months. In addition, he had retained primary teeth, multiple carious lesions, and impacted maxillary right canine and left 2nd premolar. In December 2003, he had a liver transplant for acute idiopathic liver failure and, following chronic rejection, a repeat transplant in October 2004. He developed hepatic artery thrombosis in 2004 and was an insulin dependent diabetic. The differential diagnosis included a lichenoid reaction, cGVHD or premalignancy. Regular medications included; Tacrolimus, Prednisolone, Warfarin, Sirolimus, Fluconazole, Co-trimoxazole, Human isophane insulin and Ranitidine.

Clinical management: Medical management was coordinated by the Liver Team and involved admission for the peri-operative period. Under GA and antibiotic cover restorations, extractions and an incisional biopsy of the tongue lesion were carried out. Microbipolar diathermy, haemostat oxidised regenerated cellulose and resorbable sutures were used to achieve haemostasis. Post-operative regime included tranexamic acid mouthwash and amoxicillin. Two months post-operatively the lesion had resolved and the impacted teeth were erupting. Microscopy revealed ulcerated chronically inflamed mucosa and excluded cHVGD. Long-term management will involve reinforcing prevention, monitoring oral health with access to oral medicine specialists and possible orthodontic intervention.

Discussion: This case highlights the importance of a multi-disciplinary approach to managing the oral health and disease of medically compromised children. The paediatric dentist has an important role in ensuring such children achieve and maintain good oral health.

C7

Comprehensive management of an intrusion injury

R. MATUSIAK & V. SRINIVASAN
Edinburgh Postgraduate Dental Institute, Edinburgh, UK

Presenting problem: This presentation describes the management of a traumatic intrusion injury sustained by a fit and well 14-year-old boy. He was referred to our department 24 hours following the trauma. Clinical examination revealed lip swelling, gingival contusion and an intruded maxillary right central incisor associated with generalised tenderness. Radiographic examination confirmed palatal luxation and intrusion of the maxillary right central incisor with a mature root apex.

Clinical management: *Immediate:* antibiotics and topical chlorhexidine were prescribed. Orthodontic extrusion was initiated to reposition the incisor and facilitate endodontic access. *Intermediate:* the pulp of the tooth was extirpated when the required crown length was visible to allow access cavity preparation. An intracanal therapeutic calcium hydroxide dressing was maintained during orthodontic extrusion. Repositioning was completed in 5 months. *Long-term:* after maintaining the dressing for a further 3 months, the root canal of the incisor was obturated. Discoloration of the tooth was evident at the one-year review. At the patient's request, non-vital bleaching was carried out to achieve a satisfactory aesthetic outcome.

Discussion: Complications arising from intrusion injuries are pulp necrosis, external root resorption, marginal bone loss and inflammatory resorption. Current evidence indicates that orthodontic repositioning of mature intruded teeth (< 7 mm) results in minimal amounts of root resorption and marginal bone loss compared to other management strategies. This case has been followed up for a period of 1 year and 9 months. The patient will be reviewed annually to confirm continued healing.

Poster Prize Presentations

PP1

Statherin (and a related salivary peptide) does not influence remineralisation

S. ALFAWAZ, P. ANDERSON, J. KOSORIC, M. P. HECTOR & P. W. GROSVENOR
Barts and the London School of Medicine and Dentistry, Queen Mary's University, London, UK

Objective: Saliva plays a major role in enamel homeostasis. One mechanism is by maintenance of high calcium concentrations supersaturated with respect to calcium hydroxyapatite, reducing driving forces for enamel dissolution during a caries or erosive challenge. These concentrations are sufficiently high that unwanted precipitation should occur, but biomineralisation control is exerted by various salivary proteins, *eg* statherin (STN43), which may block dissolution sites on hydroxyapatite surfaces. These sites may also be sites for remineralisation, and therefore STN43 could be expected inhibit remineralisation. The objective was to measure the influence of STN43 and STN21 (a peptide comprising the first 21 N-terminal residues of STN43) on the rate of remineralisation of artificial carious/erosive lesions in HAp tooth analogues.
Sample and method: Previously demineralised HAP blocks were coated with StN21 for 24 hour, (control blocks were coated with buffer only) and then exposed to remineralising conditions for 4 weeks. The rate of de- and remineralisation in the HAp blocks was monitored throughout using scanning microradiography.
Results: There was no significant difference between rates of mineral deposition in the peptide treated and the untreated control HAp blocks during remineralisation.
Conclusion: Statherin (and STN21) play an important role as an inhibitor of enamel mineral destruction, but do not inhibit mineral deposition during rermineralisation. Thus it is likely that the sites of enamel dissolution are different from those of redeposition. STN21 is a potential therapeutic treatment for reducing demineralisation rates in human enamel during an acid challenge. This study was supported by the Heptagon Fund (QMUL/TC03).

PP2

The value of sickle cell screening prior to general anaesthesia

A. ABDEL-KARIM, O. CHAWLA, C. H. DEERY & J. M. YATES
Charles Clifford Dental Hospital, Sheffield, UK

Objective: To assess the effectiveness of the Sickle Cell Newborn Screening Programme (NSP) amongst children undergoing dental general anaesthesia.
Design: Retrospective service evaluation.
Setting: Paediatric Dentistry Department, Charles Clifford Dental Hospital, Sheffield.
Sample and method: Dental records were examined of 132 non-Caucasian children who required haematological testing prior to dental extractions under GA, April 2006-March 2007. The presence of sickle cell variation, anaemia (Hb < 10g/dL) and other abnormalities were noted. The Children's Health Records Database was used to assess whether screening at birth under the NSP had already been performed.
Results: The study group had a mean age of 8 years, and all 132 had undergone screening prior to GA. Four patients (3%) demonstrated sickle cell trait. Anaemia (Hb < 10g/dL) was found in 10% of patients. 113/132 (86%) patients were born before the introduction of the NSP in 2004 and therefore had not undergone screening at birth. Of the 19/132 (14 %) patients born after the introduction of the NSP, 14 patients had been screened at birth. Information for the remaining five patients who were born outside Sheffield was held at local databases but was inaccessible.
Conclusion: This study only found a small proportion of children undergoing a dental GA who had been subjected to NSP. The NSP does not take into account children born outside of the UK and falls short in the relay and accessibility of information. However, in the future this service will hopefully allow better identification of sickle cell carriers, who require more vigilant monitoring during anaesthesia.

PP3

Oral management of oncology patients at Alder Hey: an audit

Z. T. SHRIVASTVA[1], H. ZAITOUN[2], D. R. LLEWELLYN[2] & B. PIZER[2]
Royal Liverpool Children's Hospital[1]Leeds Salaried Primary Care Dental Service, [2]Royal Liverpool Children's Hospital, UK

Objective: To assess whether oncology patients at Alder Hey (requiring chemotherapy, radiotherapy or bone marrow transplant) received adequate dental support pre-therapy, during and after therapy, as per the Mouthcare Guideline Report, 2006 (UKCCSG-PONF mouthcare group), and Royal College guidelines, 2004.
Design: Retrospective analysis of case notes.
Sample and methods: The case notes of all new oncology admissions, diagnosed between January 2005 and January 2006, were studied. After exclusions, (patients who had died, or who had not had chemotherapy, radiotherapy or bone marrow transplant), 50 case notes were included. These were studied from the point of admission by the oncology team to the last entry. All relevant information was extracted and entered on a clinical pro forma.
Results: Of the 38 patients referred by the oncology team, 100% were assessed by a paediatric dentist. 12 children (32%) had their dental assessment prior to the start of therapy, and of those who needed treatment, 2 (12%) received this before cancer therapy. Soft tissue examination and prevention, including oral hygiene instruction and dietary advice, was only documented in 5% and 11% respectively. 90% of children had regular oral examination during therapy, most commonly by an advanced nurse practitioner. Follow-up in the paediatric dental department was arranged in 12 cases (32%).
Discussion: This audit identified a need for improved communication between the oncology and dental departments, and more thorough dental examination/recording of information by the dental team.

PP4

UK evaluation of the short-form of the Child perceptions Questionnaire

F. GILCHRIST, Z. MARSHMAN, S. R. BAKER, J. BRADBURY & H. D. RODD
Department of Oral Health and Development, School of Clinical Dentistry, University of Sheffield, UK

Objective: To evaluate the 16 item short-form of the Child Perceptions Questionnaire ($CPQ_{11–14}$-ISF), an oral health related quality of life measure, for use in the UK.
Sample and methods: 216 patients attending the Dental Hospital, Sheffield with a range of visible (affecting the upper incisors with or without orthodontic malocclusion) and non-visible dental and orofacial conditions were included. Questionnaires including the $CPQ_{11–14}$-ISF and global ratings of oral health and affect on life overall were posted to their homes. Clinical data were obtained from their dental records.
Results: Ninety-two children returned completed questionnaires, giving a response rate of 43%. The sample consisted of 60 girls and 32 boys with a mean age of 11.3 years (SD = 0.3). Fifty-two had a visible dental condition and 40 had a non-visible condition. Cronbach's alpha for the total scale was 0.89 and ranged from 0.59–0.84 for the subscales signifying acceptable internal consistency. Summary measures of the $CPQ_{11–14}$-ISF correlated with the global oral health rating and life overall rating demonstrating satisfactory criterion validity ($P < 0.01$). CPQ total score was significantly higher in the visible compared with non-visible condition group ($P < 0.001$). The visible conditions group scored significantly higher on functional limitations ($P = 0.003$), emotional well-being ($P = 0.001$) and social well-being ($P < 0.001$) but not on oral symptoms ($P = 0.06$) indicating acceptable construct validity.
Conclusion: From this study, the $CPQ_{11–14}$-ISF appears to show acceptable reliability, criterion and construct validity. However, the sample size was small and data cross-sectional. Further testing is required with a larger sample and also including reproducibility, and evaluation of face and content validity.

PP5

Child protection: experiences and knowledge of dental therapists

S. K. BHATIA, C. ROONEY, N. McCUSKER & B. L. CHADWICK
Department of Paediatric Dentistry, University Dental Hospital, Cardiff, Wales, UK

Objective: Evidence shows that dentists feel unprepared to deal with and report suspected child abuse cases. There are no similar data on training perceptions and experiences of Dental Therapists. The aim of this study was to identify the experiences, management and knowledge of child protection procedures in practicing dental therapists in the UK.
Sample and methods: A Questionnaire was posted to all 851 registered dental therapists in the UK. Responses were analysed.
Results: The response rate was 49% ($n = 417$). Of the respondents, 62.5% ($n = 246$) had not received child protection training at undergraduate level, 37% ($n = 146$) at postgraduate level and 17% ($n = 66$) at either undergraduate or postgraduate level. Local child protection guidelines were seen by 54% of the respondents and department of health booklet on child protection by 49%. One third of the respondents ($n = 134$) had seen suspected cases, 54% ($n = 72$) of these had not made a referral. Reluctance to refer was commonly due to lack of certainty ($n = 278$) and fear of violence to child ($n = 242$). The majority (69%) felt further training was needed.
Conclusion: Dental therapists are reluctant to refer cases suspected of child abuse. Under reporting of child abuse and neglect needs to be addressed. This study highlights the need for improved educational opportunities.(This study was supported by a Colgate DCP Research Award in partnership with The Oral & Dental Research Trust.)

PP6

An audit of cancelled paediatric dental general anaesthesia (DGA) extraction appointments

J. KELLY[1], H. SPRATT[2] & B. BREISTEIN[2]
[1]*Paediatric Department, School of Dentistry,* [2]*Community Dental Service, Belfast Health and Social Care Trust (BHSCT), Northern Ireland*

Objective: Cancellations may have detrimental implications to paediatric patients, their carers and the delivery of service in terms of availability, productivity and cost. The aims of this audit were to examine the reasons generally given for cancellation of DGA appointments and to identify if any seasonal variations exist. Additionally, the percentage of 'wasted' theatre slots was to be evaluated.
Design: Prospective audit over a 6-month period, February to July, 2007.
Setting: Day Procedure Unit, Mater Hospital, BHSCT.
Sample and methods: A data capture form was designed to record the reasons for any cancellations and the total number of theatre slots allocated per weekly list. All cancellations within 48 hours of allotted theatre time were included.
Results: During the 6-month period 19 lists were operational, equating to 148 appointments. Of these, 33 were cancelled within the crucial 48-hour period, with an average of 1.7 (range of 0–4) per list. This corresponded to 22% of theatre slots being 'wasted'. Illness was the most frequently quoted reason (39% of total cancellations), followed by child being sent to school on morning of DGA (18%) and failure to attend (18%). Patient refusals due to anxiety on attending theatre accounted for 15% of cancellations.
Conclusion: 'Potentially avoidable' reasons accounted for 42% of the cancellations. Recommendations have therefore been made, aiming to reduce this number and improve productivity of the service. Additionally, the number of patients refusing DGA has highlighted an area that requires further exploration, and a need to manage anxious patients more effectively. A seasonal variation was also identified.

PP7

Mouth protectors in junior rugby in Scottish Rugby Union (SRU) clubs

M. T. BROAD, R. R. WELBURY & J. F. McCORD
University of Glasgow Dental School, Scotland, UK

Objective: To ascertain club policy/advice for mouth protectors in Junior Rugby in Scotland.
Design: Postal questionnaire.
Sample and methods: The questionnaire was sent to each affiliated SRU club with a supporting letter from the Chief Medical Officer of the SRU who had been involved in the questionnaire design. The questionnaire requested details of club

policies for training and match days, type of protector used/recommended, and details of any oral injuries sustained in the previous 5 years.

Results: 231 questionnaires were sent with a stamped addressed envelope for reply. Only 27% ($n = 64$) responded, 4% ($n = 4$) were void with questionnaire not completed. Of the respondents ($n = 64$), 57% ($n = 37$) had a mandatory policy for the wearing of a mouth protector on training and playing days; this represents only 16% of the total 231 clubs. Most clubs advised or recommend the use of a mouth protector for both training and playing. However only 10/64 (15.6%) excluded players from training without a mouth protector and only 13/64 (20.3%) excluded players from playing without a mouth protector. Advice given was generally for junior members to purchase a 'boil-in-the-bag' ($n = 41$) and then to have a custom made mouth protector when older ($n = 36$). Twelve clubs reported soft tissue and tooth injuries when a mouth protector was not worn. There were no similar injuries when a mouth protector was worn.

Conclusion: 79.3% of respondent clubs permit players to participate in rugby matches without wearing any mouth protector therefore increasing the risk of dental and maxillofacial trauma.(This study was supported by the Scottish Rugby Union, Murrayfield, Raeburn Place, Edinburgh.)

Poster (Non-Prize) Presentations

P1

The role of bitewing radiographs: a review of current guidelines

D. CALLAGHAN *Royal London Dental Institute, UK*

Objective: This poster presentation sets out the guidelines on the use of bitewing radiographs for the detection of dental caries, with suggested risk factors and recall intervals. It describes a case in which extensive carious lesions were not detected clinically, but were revealed when radiographs were taken during an orthodontic assessment.

Method: A summary of the current guidelines for taking of bitewing radiographs will be given. A literature review will demonstrate the evidence for taking bitewing radiographs and the phenomenon of hidden caries which cannot be detected clinically until the caries is advanced. A case report will include clinical photographs and radiographs, which demonstrate the presence of hidden caries in several molar teeth.

Conclusion: The current guidelines for the use of bitewing radiographs in dentistry state that their use is important in the detection of caries, and should be based on a caries risk assessment. Intervals between subsequent bitewings radiographic examination must be reassessed for each new period, as individuals can move in and out of caries risk categories with time. Useful guidelines have been produced, but each case needs to be taken individually and full justification for radiographic exposure given.

P2

Dental anomalies in oculo-ectodermal syndrome

S. DUNKLEY, A. R. JOHNSON & J. R. GOODMAN
The Eastman Dental Hospital, London, UK

Presenting problem: Oculo-ectodermal syndrome is a rare congenital condition characterised by aplasia cutis congenita and epibulbar dermoids. To date there have been six case reports, none in the dental literature. Two of these cases have described patients with giant cell granulomas which appear to be within the phenotype of oculo-ectodermal syndrome suggesting that it is a tumour-predisposition syndrome. This report describes an 11-year-old girl who first presented in 2000 with delayed eruption of a left maxillary primary canine.

Clinical management: Radiographic examination confirmed the presence of this tooth which erupted 7 months later. In 2003 a non-healing ulcer of three weeks duration was noted on the palatal mucosa associated with the left maxillary primary canine. The ulcer was 5 mm in diameter with a raised border. The aetiology was felt to be traumatic and it was treated on a symptomatic basis. Healing failed and an excisional biopsy was performed under general anaesthesia. Histopathology diagnosed a peripheral giant cell granuloma. Haematological investigations excluded hyperparathyroidism. Radiographic examination in 2005 revealed the left maxillary antrum to be significantly smaller than the right. The exfoliation of the left maxillary primary canine has been delayed.

Discussion: Patients with oculo-ectodermal syndrome require regular clinical and radiographic monitoring for the development of giant cell granulomas.

P3

Pyknodysostosis: case report and review of the literature

E. J. GIBSON[1], A. J. HOBKIRK[2] & D. R. LLEWELYN[1]
[1]*Department of Paediatric Dentistry, Alder Hey Children's Hospital, Liverpool, UK* [2]*Liverpool Regional Centre for Oral and Maxillofacial Surgery, Aintree University Hospital, Liverpool, UK*

Presenting problem: Pyknodysostosis is a very rare autosomal recessive genetic disorder characterised by oral, facial, cranial, and skeletal abnormalities. Fewer than 200 cases have been reported in the world literature since it was first described by Montanari in 1923. Key oral features are a retrognathic mandible, grooved or furrowed palate, delayed exfoliation of the primary dentition, premature eruption of the permanent dentition, abscesses of unerupted follicles, tooth crowding, dental caries and hypomineralisation. Patients may also have poor vision and glue ear. Associated respiratory and cardiovascular system abnormalities increase the risk of general anaesthesia. Pathological long bone fractures occur secondary to osteopetrosis, especially in childhood, and stature is short. Genetic counselling plays an important role, with parental consanguity found in 30–80% of cases.

Clinical management: We present an 11-year-old Somalian boy with pyknodysostosis and highlight the management challenges of his dental, medical and surgical care by a specialist multidisciplinary team.

P4

Opinions of younger patients regarding dental clinical attire

A. J. GEMMELL, A. THOMPSON & L. BURBRIDGE
Newcastle Dental Hospital, UK

Objective: In light of recent government directives regarding clinical attire and potential risks of cross infection, there have been drastic changes nationwide in the attire worn by clinical staff. This study is designed to allow us to take into account the opinions of the patients we treat when deciding which uniform protocols to instigate.

Design: With a specific focus on younger patients (aged 6–16) a questionnaire survey of preference was conducted regarding clinical attire most suited to be worn by the Dentist, Dental Nurse and Consultant.

Setting: The Department of Child Dental Health at the Dental Hospital, Newcastle Upon Tyne Hospitals NHS Foundation Trust.

Sample and methods: A questionnaire, accompanied by images of male and female models wearing five different dental uniforms compliant with cross infection directives were handed to patients aged between 6–16 years, attending a paediatric dental department.

Results: 150 completed questionnaires were returned that were compliant with the inclusion criteria. These returned questionnaires show that younger patients are concerned about how the clinical staffs they are treated by are dressed and that there are trends in particular outfits preferred.

Conclusions: Younger patients are interested in what their dentist, dental nurse and consultant are wearing and have definite ideas of which attire they prefer. As children feel what the people involved

in their care wear is important, it is imperative to take their views into account when deciding uniform protocols.

P5

Rapid periodontal breakdown in three young apparently healthy children

M. VAIDYANATHAN & J. SMALLRIDGE
Guy's and St Thomas' NHS Foundation Trust, London, UK

Presenting problem: Three healthy children aged 3, 5 and 6 years of age presented with recession of their gingivae. There was no positive family history and no other symptoms. Clinical examination revealed severe recession exposing the buccal root surfaces associated with good oral hygiene in all three patients. Buccal cervical caries was also noted in two of the cases.
Clinical management: Initial management involved dental radiographs, full blood count, and microbial swabs. In two of the cases, blood results revealed slight reduction in lymphocytes but no other abnormalities. Discussion with the haematology department advised that the lymphocyte reduction was not significant and to repeat blood tests at a later date. Oral hygiene instruction was given and the severely affected teeth were extracted under general anaesthesia in all three cases. Gingival biopsies were performed in two cases indicating the presence of granulation tissue. In two cases an extracted tooth was sent for histological examination but this revealed no hard tissue abnormalities. Regular review and professional cleaning is planned particularly once the first permanent molars have erupted.
Discussion: The clinical appearance is consistent with periodontitis as a manifestation of systemic disease (previously known as prepubertal periodontitis). However, investigations did not reveal haematological, connective tissue or hard tissue abnormalities. Other possible factors could be gingivitis artifacta as a result of aggressive brushing or fingernail picking with cases documented in the literature. These cases highlight the presentation of periodontitis in the primary dentition and the significance of iatrogenic causes in the aetiology.

P6

Young people's experiences relating to cosmetic treatment of enamel defects

H. D. RODD, J. O'MAHONY, A. ABDEL-KARIM & Z. MARSHMAN
Department of Oral Health and Development, School of Dentistry, Sheffield, UK

Objective: To develop a child-centred instrument to explore children's experiences of, and satisfaction following, treatment of discoloured permanent incisors.
Design: Open-ended self-completed questionnaires.
Setting: Paediatric dentistry clinic, Sheffield Dental Hospital.
Sample and methods: Children receiving microabrasion treatment, with/without additional composite placement, for the improvement of permanent incisor teeth, were invited to participate. All children had undergone treatment following self-reported concerns about their dental appearance, due to a variety of visible enamel defects including: amelogenesis imperfecta, molar incisor hypomineralisation, and dental fluorosis. Postal questionnaires were sent to 50 children to explore how they felt, in their own words, about their teeth before and after treatment and to ascertain their views on the clinic, staff and treatment.
Results: Anonymous responses were obtained from 32 children, aged 7–16 years, giving a response rate of 64%. Prior to treatment, children most commonly reported that they felt 'self-conscious', had 'low self-esteem', were 'worried', 'embarrassed' and 'unhappy'. Following treatment, participants said that they were 'happier', 'more confident' and 'smiled more'. Feedback about clinical treatment was generally positive with children saying that 'staff were friendly', 'good at what they did', and 'explained things clearly'. Some children thought the treatment 'should have been quicker' and they 'should not be treated by students'.
Conclusion: These child-generated comments are now being used in a more comprehensive quantitative patient satisfaction and service evaluation. It is essential that child-centred instruments are used in health service research rather than modification of adult tools which may fail to capture the children's own perspectives.

P7

Audit on the use of the children's dental emergency clinic at The Royal London Dental Hospital

A. PATEL & J. FERNE
Paediatric Dental Department, The Royal London Dental Institute, UK

Objective: The primary aim of the children's dental emergency clinic at The Royal London Dental Institute is to provide emergency care for children during weekday working hours. Due to the high demand of this service it was felt triage criteria should be developed. The objective of the audit was to assess the patient's reasons for attending the children's emergency dental service and to develop triage criteria.
Sample and method: Criteria were produced by consensus of opinion from the senior clinicians by completing a questionnaire. Triage criteria worked well for trauma, facial swellings, and medical classification of ASA III, however diagnosis of toothache as an emergency was difficult to determine. The clinician completed a questionnaire on all children that attended the emergency dental service during the month of February 2008. These were then assessed relative to the triage criteria.
Results: 112 patients were examined. Data were collected for 81 of those patients (72% compliance). 63% of patients complained of toothache as the emergency presentation which clinically was diagnosed in 49% of cases. 15% of patients stated 'swelling' as the primary complaint however clinically 21% of patients were categorised as 'swelling'. Similar results were found for trauma cases.
Conclusion: There is a great deal of variation between a patient's perception of a dental emergency and a clinician's in all categories. Establishing triage criteria proved to be challenging and will require further development.

P8

Improving undergraduate competency in paediatric referral letter and prescription writing

G. YESUDIAN, S. NORTH & H. D. RODD
Department of Paediatric Dentistry, Charles Clifford Dental Hospital, Sheffield, UK

Objective: To assess improvements in the quality of referral letter and prescription writing amongst final year dental students following structured teaching on paediatric dentistry new patient clinics.
Design: Longitudinal non-experimental educational study.
Setting: Sheffield Dental Hospital.
Sample and methods: Sixty-four (36 female, 28 male) final year dental students were asked to write a referral letter and a prescription for a child patient. These were marked according to 10 key criteria established by the Royal College of Surgeons of

England and the British National Formulary. Students then attended three consultant-led paediatric dentistry new patient clinics where they were given didactic instruction on prescription writing and were asked to appraise referral letters. At the end of the three sessions, students were asked to rewrite a paediatric dental referral letter and prescription. A paired *t*-test was undertaken to see if there were any significant differences in total scores for these two tasks before and after the teaching sessions (10 being the best possible mark).

Results: There was a significant improvement in the mean total score for referral letter writing following the teaching intervention (mean pre-clinic score = 8.59, SD = 2.20, range = 0–10; mean post-clinic score = 9.25, SD = 1.82, range = 0–10, $P = 0.028$). There was also a significant improvement in mean scores for prescription writing (mean pre-clinic score = 7.31, SD = 2.66, range = 0–10; mean post-clinic score = 8.48, SD = 2.33, range = 0–10, $P = 0.002$). Gender had no effect on performance.

Conclusions: Final year dental students have a good level of competency in referral letter and prescription writing, but improvements were achieved through structured teaching on paediatric dentistry new patient clinics.

P9

The use of silver diamine fluoride as a topical fluoride agent in the management and prevention of dental caries

N. J. PERKINS[1] & J. C. LLODRA[2]
[1]*St. Helen's Dental Practice, Cumbria, UK* [2]*Department of Preventive Dentistry, School of Dentistry, University of Granada, Spain*

Objective: 1) To describe a clinical protocol for the use of Silver diamine fluoride (SDF) as a topical fluoride agent; 2) To describe the mechanism of action of SDF; 3) To describe the advantages and potential disadvantages of this approach.

Discussion: Silver diamine fluoride (SDF) is available as a 38% (44,800 ppm F) aqueous solution (Saforide® or Fluoroplat®) and is widely used by dentists in Japan to arrest caries in deciduous teeth. Application of SDF to carious dentine, results in the formation of a hard, black impermeable layer of silver phosphate, which is resistant to decay. Several prospective controlled clinical trials have shown the effectiveness of SDF in arresting and preventing dental caries on deciduous teeth and first permanent molars. There are no published recommendations for the frequency of SDF applications, with both annual and 6-monthly applications being employed successfully. Care should be taken to only use a small quantity of solution, and a post-operative water rinse is recommended due to the alkaline pH of SDF and the possibility of minor mucosal injury. Use of SDF is a simple, low-cost preventive approach, which can be used successfully in communities with limited resources. Further studies are required to investigate alternative protocols, different age groups and high-risk groups, in order to evaluate longer term outcomes and to continue to evaluate the efficiency of this approach.

P10

A Case of traumatic intrusion of deciduous incisors

T. BUTLER & M. M. COLLARD
Department of Paediatric Dentistry, University Dental Hospital, Cardiff, Wales, UK

Presenting problem: A fit and well 5-year-old female presented with traumatised maxillary primary incisors following a fall. Extra-orally there was a firm swelling inferior to her left nostril. Intra-orally soft tissue swelling was found in the region of 61 and 62. The teeth were absent and missing from the scene of the trauma. Radiographic examination revealed the location of the intruded incisors in relation to the developing permanent dentition. The 61 and 62 were found to be situated within labial soft tissues superior to the anterior alveolus.

Clinical management: Examination and extraction of the traumatised incisors under general anaesthesia was undertaken which revealed the 61 and 62 in addition to several fragments of cortical bone to be 'floating' within the soft tissues inferior to the nasal region. The intruded teeth were removed and the area thoroughly debrided of all loose bone fragments. The developing permanent incisors were located prior to the tooth removal in order to avoid traumatising them. At review 2 weeks post surgery the patient was healing well. The child will be periodically reviewed within the unit to monitor the development of the permanent successors.

Discussion: Intrusion is the most common deciduous dentition injury with possible sequelae to the permanent successors including enamel developmental defects or root/crown dilacerations. This case highlights how appropriate radiographs can help in tooth location, rule out inhalation, aid removal and possibly predict damage to successors.

P11

Developing a special service for special children

J. FITZGERALD[1,2], L. ANGUS[4], B. COLE[2], L. LOWRY[2], M. MOFFAT[2], A. MAGUIRE[3] & P. WATERHOUSE[3]
[1]*South of Tyne and Wear SDS,* [2]*Newcastle Dental Hospital,* [3]*School of Dental Sciences,* [4]*Community Nursing Learning Disability Service, Newcastle, UK*

Background: An audit in South Tyneside revealed that children requiring care from paediatricians because of their special need should have the opportunity to see a dentist providing special care. Parents indicated they would have preferred their child to have been seen at a very young age, as many were referred with an acute dental need requiring secondary care. Failure to attend a dentist or receiving little preventive advice or intervention was a common finding in this group.

Objective: To develop a service to improve the oral health care of all children in the region diagnosed with a disability. To prioritise these children with an intensive and regular preventive programme following early referral from the two lead Paediatricians.

Method: In the Disability Nursing Team the opportunity arose for an individual to work closely with the dental team. Becoming lead for her team in oral health issues was enhanced by shadowing Senior Dental Officers in Special Needs (SDO), Consultants in Paediatric Dentistry, and observing undergraduate student clinics and seminars. This resulted in the development of a knowledgeable member of the Disability Nursing Team ideally placed to reinforce preventive advice for parents and facilitate regular dental attendance.

Results: The nursing team leader is now an established member of the multidisciplinary team. SDOs are now an integral part of the multidisciplinary team and dental referral is part of these patients care pathways.

Conclusion: The group plan to establish the same structure in Gateshead and Sunderland and will work closely with paediatricians to ensure early referrals.

P12

Orofacial infection from a developmental enamel pit in a primary canine

N. ZAMMIT[1,2] & P. FLEMING[1,2]
[1]*Our Lady's Children's Hospital Crumlin, Dublin, Ireland,* [2]*Dublin Dental School and Hospital, Dublin, Ireland*

Presenting problem: A case is presented of a 2-year-old boy with no underlying medical condition who presented with an acute orofacial swelling. There was no history of dental trauma or early childhood caries.
Clinical management: Examination revealed a decay-free primary dentition with an acute swelling associated with the maxillary right primary canine. A pit in the cusp tip of the maxillary right primary canine was noted. A periapical radiograph revealed a deep pit extending from the cusp tip to the pulp chamber and a well-defined radiolucency was present around the apex of the tooth. A course of oral antibiotics was commenced and the primary canine was extracted under general anaesthesia. This led to successful resolution of the infection.
Discussion: A developmental pit in the cusp of a primary canine is a rare but possible origin of orofacial infection in a young child with a caries-free dentition and no history of trauma.

P13

Worster–Drought Syndrome

C. L. GARDENER & P. ASHLEY
Unit of Paediatric Dentistry, Eastman Dental Hospital, London, UK

Presenting problem: Worster–Drought Syndrome (WDS) is a rare condition characterised by congenital suprabulbar paresis. Typical features include speech and swallowing difficulties. There are no previous reports in the literature of associations of WDS with any related oral conditions. Two cases are presented describing a 9-year-old female and 10-year-old male referred in for management of drooling and malocclusion. Features of note included mild cognitive impairment, tooth surface loss and a skeletal class II, division 1 malocclusion.
Clinical management: Both children were treatment planned for comprehensive dental care.
Discussion: WDS is a rare genetic condition with no previously reported dental implications. The purpose of this poster is to highlight to dental and medical professionals that patients with WDS require early diagnosis, input and referral to a multidisciplinary team.

P14

Role of specialist dental assessment in paediatric cardiac surgery patients

G. L. RICHARDSON, E. L. GIBSON, H. MICHAEL, D. R. LLEWELYN & H. ZAITOUN
Department of Paediatric Dentistry, Alder Hey Children's Hospital, Liverpool, UK

Objective: Dental disease can complicate the management and well-being of patients requiring cardiac surgery. This audit sought to establish the need for specialist dental input for paediatric cardiology patients and develop a dental care assessment pathway.
Design: A prospective study of cases listed for cardiac surgery over 13 months.
Setting: Cardiology and Paediatric Dental Departments at Alder Hey Children's Hospital, Liverpool.
Sample and methods: A data collection tool was piloted and used to collect information from the standard Cardiology Department surgical pre-assessment documentation contained in the case notes of all children listed for surgery October 2006–October 2007 inclusive. Information obtained included patient personal details, cardiac diagnosis, cardiac/dental department oral assessment and dental attendance.
Results: Ninety-five children (mean age 4.9 years) were included in the audit. Only 24.2% (23) received regular dental care. A specialist dental opinion was sought by cardiology for 31.6% (30) cases at a mean 3.4 days prior to surgery. This was despite a 3-month mean time interval between listing for surgery and cardiac pre-assessment. Of those, 33.4% (10) had dental decay with active infection present in 7 (76.7%) cases resulting in the short-notice cancellation of surgery. Interestingly nine of these children (87.5%) did not receive regular dental care.
Conclusion: As a result of this audit the cardiac listing documentation has been changed so all children with visible decay or not receiving regular dental care are reviewed by the Paediatric Dentistry Department. This will help minimise short notice cancellations due to dental infection and maximise patient care.

P15

An urgent referral of a suspected case of child abuse

S. T. McDONNEL & I. C. MACKIE
Unit of Paediatric Dentistry, University of Manchester, School of Dentistry, Manchester, UK

Presenting problem: A 3-year-old girl was referred to the unit of Paediatric Dentistry by her dentist with regard to what he thought was a tack lodged in the alveolus above 53. Her mother was making allegations of child abuse against the child's father.
Clinical management: The mother attended with her child who was happy, playful and well presented. Her mother alleged a tack had been pushed into her child's gum by her father and implied her child was a victim of child abuse. She requested removal of the tack and documented evidence for use in court. She had already consulted a solicitor. The child was very cooperative on clinical examination, which revealed the presence of a silver disc 2.5 mm in diameter 2.5 mm above the gingival margin between 52 and 53. There was no surrounding inflammation, necrosis or tenderness. The disc could not be dislodged with light finger pressure. Radiographs did not reveal any radiopacity consistent with a nail or tack. It was therefore concluded that the material may be aluminium and was probably superficial. Topical anaesthetic was applied and a flat plastic slipped under the edge of the disc, which became dislodged. On closer inspection it appeared to be a concave sequin, which adhered to the soft tissues by suction. No abuse was suspected.
Discussion: This case highlights the need to fully investigate all cases of reported or suspected abuse and to follow proper procedures to ensure the interests of the victim and accused are protected.

P16

Fibre reinforced composites splints: an application in traumatised teeth

J. A. DAVIES & F. S. L. WONG
Barts and The London School of Medicine and Dentistry, UK

Presenting problem and clinical management: *Case 1:* A 15-year-old boy attended the Royal London Hospital having extruded 21 and avulsed 22 (which was lost at the scene of the accident). 21 was repositioned under local anaesthetic. EverStick® (StickTech, PO Box 114, Turku, Finland) was used to splint the 21 from 13 to 23

across the space of the lost 22. The splint was removed after 14 days. The 21 had satisfactory gingival healing and was subsequently root treated. *Case 2:* A 13-year-old boy avulsed 21 and sustained an enamel/dentine fracture 11. The avulsed tooth was placed in milk and reimplanted after 1 hour. 21 was splinted with EverStick® fibres from 22 to 12. The 11 showed good gingival re-attachment after 10 days when the splint was removed. The tooth was subsequently dressed with calcium hydroxide and eventually root-filled.

Discussion: Fibre reinforced composites (FRC) are a relatively recent technology. First introduced for repairing acrylic dentures, they are now used in fixed prosthodontics, in periodontal splinting and orthodontic retention. A novel FRC (EverStick®), which is composed of thousands of individual glass fibres pre-impregnated with a polymer matrix, has the potential to form an inter-penetrating network with composite cement. This material seems to fulfil the properties of an ideal trauma splint, which include promotion of physiological healing, adequate stabilisation of teeth, easy to apply and remove, facilitate oral hygiene and be aesthetically acceptable. The two cases described have demonstrated the successful use of Everstick® FRC as an alternative trauma splint to composite and orthodontic wire.

P17

Dental caries and body mass index: are they related?

C. CASEY, T. HARRIS & D. FRANKLIN
Bristol Dental Hospital, Bristol, UK

Objective: To see if there is any association between high levels of dental caries, and high or low body mass index (BMI), in children.

Design: A prospective study.

Setting: The Child Dental Health Clinic, Bristol Dental Hospital.

Sample and methods: One hundred and one children aged 10 years or under, attending new patient and general anaesthetic pre-assessment clinics at Bristol Dental Hospital were recruited to the study. Children with diabetes, specific dietary requirements or learning difficulties were excluded. The total dmft/DMFT score was recorded and children were weighed and measured. The BMI for each child was calculated using a BMI chart specific for children, and children were classified as overweight, normal weight or underweight using age and sex related charts. Data were analysed to see if there was any relationship between dental caries levels and BMI.

Results: The key findings were that 50% of children were classified as overweight. The mean dmft/DMFT for the overweight children was 5.94; for the children of normal weight it was 6.31 and for the children who were underweight it was eight. However as only two children fell into the underweight group this is insignificant.

Conclusion: From this study there appears to be no significant association between high levels of dental caries and either a high or low BMI.

P18

Quantity and quality of patient information on the internet: dental erosion

L. THORP, P. MOYNIHAN & A. SHAW
Newcastle Dental Hospital and School of Dental Sciences, Newcastle University, UK

Objective: To evaluate the quality and quantity of internet information available to patients on the topic of dental erosion.

Design: Prospective study of internet information.

Method: A literature search was undertaken to identify the 'different' words used by clinicians to describe erosion. The words identified, were used as search terms in the internet search engine Google UK. Information quantity was measured in terms of the total number of sites and sponsored links. The first 10 sites generated by each search term were assessed for duplication, relevance to dental erosion and authorship. Sites meeting the relevance criteria were evaluated by two independant assessors using the DISCERN Consumer Quality Assessment Criteria. Concensus agreement was reached and a third assessor used as arbitor if required. The BSPD Erosion guideline, and WHO Technical report on Diet, Nurtition and the Prevention of chronic Diseases were used as gold standards.

Results: Forty search terms were generated and used to perform internet searches. 6041459 sites and 42 sponsored links were found. 400 sites were evaluated. 147 sites met inclusion criteria, of these 29 met the relevance criteria, the rest were duplicates. Of these relevant 29 sites, 15 were produced by dental practices/corporate bodies. DICERN assessment revealed 20 sites had serious or extensive shortcomings and none recieved the highest quality rating.

Conclusion: The internet can be used to access information on dental erosion treatment(s). As publication quality is generally poor, there is a need for higher quality material so patients can make informed choices.

P19

Dental management of Hallervorden–Spatz siblings treated with deep brain stimulation

R. KAUR, J. JOHNSON & C. WILLIAMS
Paediatric Dental Department, Guy's Hospital, St Thomas Street, London, UK

Presenting problem: Two siblings, an 8-year-old female and a 10-year-old male, diagnosed with Hallervorden–Spatz disease (HSD), presented with toothache and documented trauma to the mouth from biting. Limited functional hand use, tea-soaked biscuits and previous extractions under a general anaesthetic were indicative of high caries risk. HSD is a rare neurodegenerative disorder with brain iron accumulation, and is characterised by progressive full body dystonia, leading to difficulties in speech, chewing and swallowing.

Clinical management: The siblings were wheelchair bound and had previously undergone bilateral deep brain stimulation at St Thomas' Hospital to improve the quality of their relatively short lifespan. The complicated medical and behavioural management lead to oral rehabilitation under a general anaesthetic. Treatment on the same day was organised because of social circumstances, and inpatient admission under Neurology care. HSD poses many risks under a general anaesthetic and liaising with Neurology regarding deep brain stimulators was essential. Deep brain stimulation has been used in the management of dystonias but why some dystonias respond better than others requires further research. There were no complications in recovery and the deep brain stimulators did not need resetting. Long-term review will be combined with neurology care, as the family resides in Leeds.

Discussion: HSD poses general anaesthetic complications and the rapid progression of the disease at an early age, leads to the best management as an inpatient in a hospital setting. A multidisciplinary management approach is also essential with the evolving field of managing dystonias with deep brain stimulation.

P20

An unusual case of highly invasive intra-oral Aspergillosis

F. KEMIDI[1], V. J. CLARK[1] & I. CHAPPLE[2]
[1]*Department of Paediatric Dentistry, Birmingham Children's Hospital,* [2]*Department of Periodontology, Birmingham Dental Hospital, Birmingham, UK*

Presenting problem: An immunocompromised 2-year-old girl previously diagnosed with severe aplastic anaemia presented with a 2 cm necrotising gingival lesion in the upper anterior arch.
Clinical management: The patient was referred to the Paediatric Dental Department at Birmingham Children's Hospital with a 7 day history of an intra-oral necrotic area on the labial gingival around the upper right primary central and lateral incisors. The lesion was noted to be rapidly increasing in size and was extending into the labial sulcus. Affected teeth were mobile and cementum exposed. A saliva swab and blood culture confirmed Aspergillosis. Excisional biopsy was undertaken and histopathology confirmed invasive aspergillosis. The patient was treated with intravenous broad spectrum antibiotics and antifungals (Gentamycin, Itraconazole and Voriconazole). Despite two bone marrow transplants the patient continues to exhibit aplastic anaemia but has had no further intra oral symptoms.
Discussion: A high mortality rate from Aspergillosis is common in haematological malignancies. Expedient investigation of necrotising gingival lesions in immunocompromised patients for deep mycoses is essential, given the tendency for rapid systemic spread, often with fatal consequences.

P21

Solitary median maxillary central incisors: a report of two cases

L. M. DERBY & C. A. HOOD
Department of Paediatric Dentistry, Manchester University Dental Hospital, UK

Presenting problem and clinical management: Case 1 was a 15-year-old girl with an unremarkable medical history. She had a class three skeletal relationship with class three incisors. A solitary median maxillary central incisor (SMMCI) and all other teeth were erupted except the third molars. She had well aligned arches and no spacing. Following a multi-disciplinary assessment the treatment plan comprised a gingivectomy and modification of 22 with a direct composite veneer to mimic 21. Tooth 23 was modified with composite to resemble a lateral incisor. Case 2 was an 11-year-old boy under the care of Consultant Paediatricians, with a complex medical history comprising dysmorphic features, hypopituitarism, epilepsy, rectal atresia and a probable absent spleen. Of note was a SMMCI, a supernumerary tooth and transposition. Medical and dental features were consistent with a diagnosis of holoprosencephaly, this was confirmed by paediatricians. An initial treatment plan following a multi-disciplinary assessment was formulated to extract the supernumerary tooth and partially erupted 24 under GA as an in-patient.
Discussion: These cases represent opposite ends of the spectrum in the same rare condition of solitary median maxillary central incisor syndrome. Holoprosencephaly occurs in 1:16000 live births. It is considered a major developmental anomaly influencing the development of the anterior midline structures from the brain to the teeth. Early diagnosis of SMMCI is important as it may be a sign of more severe congenital malformations. Collaboration with medical and dental consultant colleagues is essential for appropriate multi-disciplinary management of children with complex and unusual conditions.

P22

Dental health of patients awaiting interventional or corrective cardiac surgery

C. L. PATCHETT & C. A. HOOD
Paediatric Dental Unit, Royal Manchester Children's Hospital, UK

Objective: To assess the dental needs of paediatric patients awaiting cardiac surgery and determine the impact of providing care on Children's Hospital Dental Services.
Sample and method: Patients listed for interventional or corrective cardiac surgery were invited to attend a newly established screening clinic in the Royal Manchester Children's Hospital. Those attending between September 2007 and March 2008 were prospectively audited. Information regarding their registration, attendance patterns, past dental experiences, current caries experience and future dental needs was collected using a standardised proforma.
Results: Forty-five patients (age range 4 months–17 years, 2 months) attended the service, of whom 17 (38%) reported to have no current General Dental Practitioner (GDP) registration. 18 (40%) described their dental attendance as irregular and for 6 (13%) this was their first dental assessment. 32 (71%) had no previous experience of dental treatment. On examination 9 (20%) had clinical or radiographic signs of sepsis and 17 (38%) required treatment prior to their forthcoming cardiac procedure including 9/25 (36%) patients with current GDP registration. 10 (22%) required listing for urgent treatment under general anaesthesia (GA).
Conclusion: The screening clinic identified patients, who might otherwise have had cardiac procedures postponed or cancelled due to poor oral health. This data supports the need for a care pathway incorporating assessment by a Consultant-led Paediatric Dental Service for all patients awaiting interventional or corrective cardiac surgery. The need for strong interdisciplinary management of this priority group is highlighted in order to facilitate timely and appropriate management of dental disease.

P23

Leri's pleonosteosis: a case with hypodontia, microdontia and supernumerary teeth

A. HOPKINS, C. L. PATCHETT & C. A. HOOD
University Dental Hospital of Manchester, UK

Presenting problem: A 7-year-old boy was referred to The University Dental Hospital of Manchester from local community dental services. The patient had a rare genetic disorder called Leri's pleonosteosis. He had features common with this condition, such as limited dexterity, and reduced neck and back movement. He was anxious about dental treatment and had poor oral hygiene. There was extensive tooth-surface loss in two primary teeth, caries in four teeth, mild crowding in the upper arch and severe crowding in the lower arch. In addition he had an unusual combination of dental anomalies not previously reported in this condition. There was congenital absence of one maxillary anterior tooth, erupted and unerupted supernumerary teeth and a megadont molar.
Clinical management: A multidisciplinary approach involving the paediatric dental team, an orthodontist and a specialist paediatric anaesthesist was required. A treatment plan involving intensive oral hygiene instruction and regular professional preventive care was formulated. The patient received comprehensive dental care under general anaesthesia. The anterior supernumerary tooth was retained and built up with a composite restoration, one posterior tooth was restored and seven teeth extracted including a supernumerary molar and the megadont molar. The patient is now under long-term review.
Discussion: This is the first published report of dental anomalies in a patient with Leri's pleonostosis. Cases of concomitant supernu-

merary teeth and hypodontia are also rare. The clinical presentation and multidisciplinary management of this patient are described.

P24

A legal action or a throw of the dice? Consent, Parental responsibility and legitimacy

F. KEMIDI, R. WILLIAMS & A. MONAGHAN
Birmingham Children's Hospital, UK

Objective: This study looked at the issue of consent on behalf of children. We aimed to identify whether legitimate consent was obtained prior to the children's surgery under general anaesthesia. Moreover, the parents' opinions regarding the parental responsibility, the social status and its affiliation with the consent were recorded.
Sample and method: The Dental and Maxillofacial Unit at Diana Princess of Wales Birmingham Children's Hospital in the United Kingdom serves a population of 5.2 million. Our department is a specialised regional and national paediatric centre for dental and maxillofacial referrals. Our study examines prospectively children who were treated in elective and emergency cases within a period of fifteen weeks (October 2007–February 2008). Patients' escorts were interviewed by the operating surgeons.
Results: Sixty-one patients were involved in the study. The ratio of male to female was 2:1 with mean age of 11.6 years. Overall 100% of children had surgery with a valid consent, with most escorts having parental responsibility by birth. However none of the consenters had any legal documents to prove their relationship to the child. Almost 65% of parents stated that marriage should not influence the consent form.
Conclusion: In conclusion, we have shown through our data that gold standards set by the Children's Act 1989 are met in our everyday clinical practice. Only legal guardians signed the consent form for the children. This study is a useful method to quantify our practice and maintain the delivery of high quality services within the principles of the Good Medical Practice towards the children.

P25

Clinical effectiveness of Gelclair in the treatment of oral mucositis: a patient based questionnaire

L. SHORT & D. FUNG
Dental Department, Royal Hospital for Sick Children (RHSC), Glasgow, Scotland, UK

Objective: Oral mucositis is a common debilitating complication of chemotherapy and radiotherapy. It presents as recurrent, erythematous, painful ulcers and can be so severe that patients suffer from dysphagia and have difficulty taking oral fluids. This study aimed to assess the clinical effectiveness of Gelclair as a treatment modality in the treatment/prevention of oral mucositis in oncology patients at RHSC Glasgow. Gelclair is a viscous oral gel which has been developed to aid the management of oral ulceration. Gelclair adheres to the mucosal surface providing a physical barrier therefore reducing the irritation caused by eating and drinking. The main ingredients in Gelclair include Polyvinylpyrrolidone, Hyaluronic acid and Glycyrrhetinic acid. Gelclair is alcohol free and does not contain any local anaesthetic properties and drying of the oral tissues should not occur.
Design: A questionnaire based pilot study.
Sample and method: Supervised questionnaire for patients attending the Oncology/Haematology clinics and Day Care at RHSC Glasgow.
Results: Interim results of 31 children (M:18, F:13), showed 61% had suffered from oral/oesophageal mucositis. 68.4% of these children used Gelclair and 76.9% found Gelclair resolved their mucositis symptoms (pain, debility, ability to eat and drink). 31.6% found Chlorhexidine alone; 15% Difflam alone, and 7.7% found Difflam in combination with Gelclair successful in the treatment of their mucositis.
Conclusion: Gelclair appears to be effective in reducing oral symptoms in young oncology patients.

P26

Paediatric dental general anaesthetic provision in two referral centres

J. MAY[1], S. McKAIG[1], C.E. EVANS[1], K.E. WILSON[2] & N. RANSFORD[3]
[1]*Birmingham Dental Hospital, UK,* [2]*Newcastle Dental Hospital, Newcastle, UK,* [3]*Warwickshire Special Care Dental Service, Warwickshire, UK*

Objective: To compare the factors influencing the provision of dental treatment under general anaesthetic (GA) for paediatric patients at a dental hospital and salaried dental service and assess compliance with current guidelines.
Design: Retrospective audit.
Setting: Birmingham Dental Hospital (BDH) and North Warwickshire Special Care Dental Service (NWSCDS).
Sample and methods: Clinical records were reviewed for all patients under the age of 16 years, who had received a general anaesthetic between January and June 2007 attending both centres. Data on demographics, treatment planning, treatment under GA and previous dental GA were collected.
Results: 698 patients underwent GA at BDH. The mean age was 6.2 years (range 1–15 years) and on average 4.07 deciduous teeth and 0.46 permanent teeth were extracted. At NWSCDS 51 patients underwent GA, mean age 7.9 years (range 2–15) and 3.4 deciduous teeth and 1.2 permanent teeth were extracted. Radiographs had been taken for only 22% of patients at BDH and 24% at NWSCDS had radiographs. 36% of patients had an orthodontic opinion prior to permanent tooth extraction at BDH compared with 50% at NWSCDS. 8.6% of patients at BDH had had at least one previous dental GA compared to 4% of NWSCDS patients.
Conclusion: British Society of Paediatric Dentistry guidelines for dental treatment under GA are not being followed, particularly with regard to radiographs and orthodontic opinions. Children treated in the salaried service tended to be older and have more permanent teeth extracted.

P27

Two cases of supplemental mandibular permanent canine teeth

L. A. BROWN & A. JOHNSON
Unit of Paediatric Dentistry, Eastman Dental Hospital, UCLH Foundation Trust, London, UK

Presenting problem: To date there are no reported cases of permanent supernumerary canines in the lower arch although there are some describing maxillary supernumerary canine teeth. The following two cases are examples of supernumerary mandibular canine teeth.
Clinical management: Case one was a healthy 9-year-old girl referred by her General Dental Practitioner for assessment of caries and treatment due to anxiety. Clinical and radiographic examination revealed dental caries in deciduous molars, and a supplemental lower right permanent canine. An orthodontic opinion was sought and a decision made to treat the caries and extract the supplemental canine under inhalational sedation. Case two was a healthy 12-year-old boy referred by his GDP regarding occasional pain

with a grossly carious lower left six. Clinical and radiographic examination revealed caries in LL6 to pulp, the permanent mandibular canines were ectopic, the primary lower canine teeth were retained and there were unerupted, bilateral mandibular supernumerary teeth in the canine region. An orthodontic opinion was sought. It was decided to extract the four primary deciduous canines, the upper right deciduous first molar, the four first permanent molars and the supernumerary canines, and expose and bond the permanent canines.

Discussion: These cases demonstrate that, although rare, the dental professional needs to be aware of the possibility of occurrence of supernumerary mandibular canines.

P28

Bell's Palsy in an 8-year-old child: case report and review of literature

A. PATEL

Paediatric Dental Department, The Royal London Dental Institute, UK

Presenting problem: An 8-year-old child developed sudden onset of complete right-sided unilateral facial palsy following a visit to her dentist for treatment under local anaesthetic. On questioning she reported a viral infection two weeks prior to the onset of symptoms. She also presented with mild right-sided mandibular swelling.

Clinical management: The patient was diagnosed with Bell's Palsy and initially managed with hypromellose eye drops, an eye patch and oral corticosteroids. Subsequent management involved antibiotics and antiviral therapy due to the increasing mandibular swelling. On review, the patient showed significant recovery at 6 weeks and complete recovery after 3 months.

Discussion: Bell's palsy or idiopathic facial palsy is the commonest cause of unilateral lower motor neuron facial palsy, but rarely affecting children (incidence of 2.7 per 100,000 in children under the age of 10), and with a high rate of complete remission. Facial palsy can be caused by numerous conditions, all of which should be thoroughly excluded prior to diagnosing Bell's palsy. The aetiology of Bell's palsy remains uncertain; however there is a strong suggestion of an acute inflammatory mediated response caused by viral infection. At present there is controversy regarding management of Bell's palsy. Various treatment modalities cited in published literature include the use corticosteroids, antiviral therapy, surgery as well as acupuncture and physiotherapy.

P29

Crown fracture and stratification of composite restorations: replication on natural aesthetics

L. GIANNETTI & M. MURRI DELLO DIAGO

Department of Paediatric Dentistry, School of Dentistry, University of Modena and Reggio Emilia, Italy

Presenting problem: Traumatic dental injuries are frequent accidents that typically involve the maxillary anterior segment, where the most common injuries are crown fractures. Treatment of the dental trauma is complex and requires a comprehensive and accurate diagnostic and treatment plan. It is also important to consider the biological, functional, aesthetic and economic aspects, as well as the patient's desire.

Clinical management: The success depends on a harmonious integration of various elements, including a thorough knowledge of the internal structure of natural dentition, aesthetics, characteristics of current materials, and restorative techniques. A natural appearing aesthetics result can be achieved in a relatively simple and predictable manner: anatomic stratification with successive layers of dentin, enamel, and incisal composite. General dentists might find the proposed techniques to be complicated and demanding because bonding techniques are still considered intricate, sensitive and unpredictable. This doubt can be overcome by the application of the 'natural layering concept' which makes use of only two basic masses, dentin and enamel, perfectly mimicking natural tooth structure. The objective of this article is to present a personalized technique of stratification for each individual case in direct composite restorations.

Discussion: The presented protocol makes highly aesthetic restorations simple yet predictable.Identification and reproduction of the natural anatomy and nuance colour characteristics exhibited by natural dentition with composite resin, through a detailed evaluation of hue, chroma, opalescence and fluorescence, allow the dentist to satisfy most aesthetic demands and it offers an interesting alternative, minimising invasiveness, chair time and costs for patients.

P30

A 12-year-old girl with amelogenesis imperfecta: a restorative rehabilitation challenge

M. YADAVA, A. O'DONNELL & L. NUTTING

Guy's and St Thomas' NHS Foundation Trust, UK

Presenting problem: Amelogenesis imperfecta (AI) is a rare group of hereditary defects of enamel. It is not associated with any other generalised defects and has a variable occurrence of approximately 1:4,000–1:14,000 in Western populations. It results in poor development or complete absence of the enamel of the teeth, caused by improper differentiation of the ameloblasts. We present a young girl who was suffering the functional and psychological repercussions of the unsatisfactory appearance and sensitivity related to this disorder.

Clinical management: This demanding case incorporated contemporary restorative strategies. The fabrication of layered composite resin direct veneers utilising a combination of a transparent matrix to restore the lower anterior teeth and strip crowns for the upper. An emphasis on a light-composite interaction that closely resembles the interaction of light with natural dentition (as described by Vanini) was used to produce a natural-appearing, yet functional result. Indirect composite onlays were cemented posteriorly to enhance occlusion.

Discussion: The importance of a thorough understanding of function, aesthetics, current material properties and restorative techniques is highlighted. This case presents the success of conservative direct bonding to provide control of colour and contour and the benefit of mixing more than one technique with careful planning and patient input to produce the optimal aesthetic and functional result. It also shows the positive impact that effective composite rehabilitation can have on a child's quality of life.

P31

Management of a cystic lesion causing displacement of permanent teeth

S. SHAH & F. S. L. WONG

Barts and The London School of Medicine and Dentistry, UK

Presenting problem: An 8-year-old girl attended the Paediatric Dental Emergency Clinic at the Royal London Hospital with a right maxillary facial swelling. She was medically fit and healthy. Intraorally, 52 and 53 were mobile with a buccal swelling from 54 to 11. The 11 crown was displaced distally and 12 was unerupted. Radiographs revealed a large radiolucency in the maxillary region above 52 and 53. 13 and 12 were displaced towards the maxillary

sinus, 11 root was displaced mesially, and 52 and 53 roots were resorbed.

Clinical management: This involved extraction of 52 and 53 to allow decompression of the cyst. Antibiotics and chlorhexidine mouthwash were prescribed. Unfortunately, the extraction site closed and the cyst became infected. The lesion was then incised and drained followed by marsupialisation and the defect packed with ribbon gauze and Whitehead varnish. She was seen weekly for Chlorhexidine irrigation and change of Whitehead varnish dressing. After 6 weeks, the lesion showed signs of epithelialisation, therefore the dressing was removed. She was instructed to irrigate the defect with chlorhexidine at home. Histopathology revealed presence of parakeratinised stratified squamous epithelium, inflammatory cells and odontogenic epithelial rest cells. Subsequent examination revealed that the swelling had diminished with complete epithelialisation. Radiographs revealed that the defect was gradually filling in with bone with 12 and 13 moving into a more favourable eruption pathway.

Discussion: This case illustrates the importance of keeping a patent opening for large cystic lesion to allow oral epithelium migration into the marsupialised cystic cavity.

P32

Case report : a 5-year-old girl with oculo-dento-digital dysplasia (ODDD)

J. M. McNICOL & R. R. WELBURY
Glasgow Dental Hospital & School, Scotland, UK

Presenting problem: A 5-year -old girl (HS) with poor vision and communications skills and a diagnosis of ODDD was referred by her Consultant Ophthalmologist. HS was not registered with a GDP and it had been 2 years since her last examination. She had a one week history of dental pain and was currently on antibiotics for a dental abscess.

Clinical management: HS was shy but co-operative and examination revealed the following teeth; 45, 44, 43, 53, 54, 55, 65, 64, 63, 62, 61, 71, 72, 73, 74 & 75. Caries was affecting teeth 45, 44, 54 & 55 with abscesses associated with 44 and 73. There was a widespread enamel hypomineralisation, erosion, attrition and poor oral hygiene. An OPT radiograph and clinical photographs were taken. Arrangements were made for HS to return for treatment under general anaesthetic and thereafter for regular comprehensive care.

Discussion: ODDD has been mapped to chromosome 6q22-q24 and germline mutations have been identified in the connexin 43 gene, GJA1. It is a rare autosomal dominant disorder characterized by developmental anomalies of the face, eyes, skeletal system and the teeth. Patients with ODDD usually present with complete syndactyly of the fourth and fifth fingers (type III syndactyly), abnormalities of primary and permanent dentition and specific craniofacial malformations. The multidisciplinary approach for these patients must include early referral for dental care.

P33

An assessment of the clinical efficacy of oral midazolam sedation

L. L. MATHARU & G. J. ROBERTS
King's College Dental Hospital, London, UK

Objective: Conscious sedation in very young children remains poorly explored. Oral sedation has been investigated, mainly in the USA, using a mixture of drugs some of which cause deep sedation. Oral midazolam has been used and given very good results with few side effects. The objective of the present study was to evaluate the safety and efficacy of conscious sedation techniques using oral midazolam to enable delivery of dental treatment to young patients attending the Paediatric Dental Department at King's College Dental Hospital.

Design: A clinical evaluation of therapeutic oral midazolam on 66 consecutive cases.

Sample and methods: Children ranging from 12 months to 9 years of age referred for extraction of one or more primary teeth and/or conservative dental treatment. Oral midazolam 0.5 mg/kg in syrup was given to patients 15 min before the procedure. The Houpt Scale for evaluating behaviour and treatment outcome was used.

Results: A total of 66 patients were entered into the study. Three refused to drink oral midazolam syrup and had to have a GA. 54 patients had extractions with local anaesthesia, 2 patients had local anaesthesia for extractions and conservation, and 5 patients had conservation only. Two children did not allow extractions and had to have GA.

Conclusion: Oral conscious sedation using midazolam for simple dental treatment of young patients is safe and effective in an outpatient hospital setting. Treatment was not completed in 5 children (7.6%) giving a successful outcome for 61 (92.4%) of children.

P34

Microdont premolars in a child treated for bilateral retinoblastoma

D. J. BALDWIN & F. M. FEARNE
Department of Paediatric Dentistry, Royal London Dental Hospital, UK

Presenting problem: The patient was diagnosed at age 12 months with bilateral retinoblastoma. Treatment included surgical removal of the left eye and chemotherapy. A recurrence in the right eye at age 24 months was treated with radiotherapy and cryotherapy. Rampant dental caries at age 3 years was treated radically with restoration of the second deciduous molars and extraction of all remaining deciduous teeth. Dental follow-up to age 12 years showed no further caries however peg-shaped first premolar teeth were found to be present.

Clinical management: Extraction of the peg-shaped premolar teeth was carried out to encourage spontaneous space closure. The patient underwent regular follow-up in order to ascertain the need for orthodontic intervention.

Discussion: Retinoblastoma is a rare malignant tumour affecting the eye, its incidence in the UK is approximately 1:23,000. It presents most commonly in the under 5 year age group as it arises from primitive undifferentiated cells in the retina which are normally present only during embryonic life, but which can persist into post-natal life. Treatment regimens have varied over the years but include a combination of enucleation of the affected eye, and conservative management such as cryotherapy, photocoagulation, radiotherapy and chemotherapy. This case highlights the potential effects of the radiotherapy regimen used at the time on the developing dentition. However a coincidental congenital defect should not be ruled out. It prompts the clinician to be aware of the dental side effects of radiotherapy.

P35

Segmental Odontomaxillary Dysplasia: diagnosis of a rare disorder

S. K. BHATIA, N. DRAGE, A. J. CRONIN & M. L. HUNTER
University Dental Hospital, Cardiff, Wales, UK

Presenting problem: Segmental Odontomaxillary Dysplasia (SOD) is a rare developmental disorder of the maxilla characterised by abnormal growth and maturation of bone, teeth and gingivae of the affected segment. Less than thirty cases have

been reported in literature so far. Due to the rarity of the disorder the full range of clinical manifestations is unknown. Since there are concerns that cases may be subject to misdiagnosis, this presentation aims to increase awareness of the condition among Paediatric Dentists.

Clinical management: We report a case of a 7-year-old boy with SOD who was initially referred regarding failure of eruption of maxillary primary molars. Clinical findings included expansion of the left maxillary segment resulting in facial asymmetry, hypodontia, delayed eruption of teeth and abnormal root morphology of primary molars in the affected segment. There were ectopic eyelashes on the left lower eyelid, a previously unreported finding. Radiographic examination revealed coarse vertically oriented trabeculae. The differential diagnosis and management options at multidisciplinary level are discussed.

Discussion: SOD is a rare disorder which can lead to facial asymmetry. Diagnosis is based on characteristic clinical and radiographic findings. Prompt diagnosis can reassure both patient and healthcare professionals. Reporting of cases is encouraged to help determine the full range of clinical manifestations and establish a management protocol.

P36

Epidermolysis Bullosa: dental management of paediatric patients under general anaesthesia

K. S. COOMARASWAMY[1] & V. J. CLARK[2]
[1]*Department of Paediatric Dentistry, Birmingham Dental Hospital and School,* [2]*Dental Specialties Unit, Birmingham Children's Hospital, UK*

Presenting problem: Epidermolysis Bullosa (EB) is a rare genetic condition characterised by exceptionally fragile skin/mucosa that can blister from the most minor trauma or mechanical friction. The disease comprises three sub-categories of disorders (relative to skin morphology): epidermolysis bullosa simplex, dystrophic epidermolysis bullosa and junctional epidermolysis bullosa. Significant variation in the severity of the disorders exist; from limitation of function/movement to early infant death. Oral blistering is evident in most manifestations of the disease; hypodontia, hypoplastic enamel, increased caries and periodontal disease are also associated with the condition. Experience has demonstrated that treatment of these cases, under local anaesthesia, is often difficult due to limited mouth opening and poor cooperation.

Clinical management: Birmingham Children's Hospital (BCH) is one of four 'super-regional centres', funded by the National Commissioning Group, providing holistic care for EB patients in the UK. Currently, 199 EB patients receive treatment at BCH. General anaesthetic (GA) procedures in particular require modifications in the handling and management of these cases to minimise any additional trauma caused. These interventions include protectively wrapping the patient, using special adhesives to attach electrodes/cannulae, atraumatically intubating with a lubricated airway tube, 'greasing' all instruments with cream (to prevent friction) and preventing unnecessary skin/mucosa contact with silicone gel sheets.

Discussion: On average, 2–4 paediatric EB cases are treated annually under GA by the Dental Specialties Unit of Birmingham Children's Hospital. Operating within the oral cavity of these special patients poses a significant challenge for the surgeon and the whole anaesthetic team. A typical case is presented here accompanied by GA management recommendations and a literature review.

P37

Common things are common

N. BHUJEL, S. GALE, E. HALL & S. MCKAIG
Birmingham Dental Hospital, UK

Presenting problem: Small objects are often found in ears and in noses of young children. This is commonly reported in children attending accident and emergency departments for the removal of these foreign bodies. Very few reports describe removal of foreign objects from the mouth. This report describes three unusual cases which presented to the Paediatric Dental Department of Birmingham Dental Hospital following referral from their general dental practitioner seeking advice and their subsequent management.

Clinical management: *Case 1:* An 11-year-old boy presented with localised oedema in the upper left lateral incisor region. Radiographic examination revealed localised bone loss. This was surgically explored and revealed a piece of nail of considerable size. *Case 2:* An 8-year-old girl presenting with increased width of 36 and associated gingival recession. Examination revealed a tooth coloured plastic toy ring, which was removed. *Case 3:* A 4-year-old girl presented with a gold coloured foreign body embedded in the gingival tissues around 76. A ring was noted and monitored.

Discussion: All of these cases had an unusual presentation. A thorough examination was required before diagnosis. It was evident that 'common things are common' in all of these cases.

P38

Impact of a new guideline on the socioeconomic burden of avulsion

S. L. CLARK, G. B. WRIGHT & R. R. WELBURY
Glasgow Dental Hospital and School, Scotland, UK

Objective: The International Association of Dental Traumatology (IADT) guidelines (May 2007) suggest that avulsed permanent teeth with a closed apex should be obturated within 1 month of trauma. This differs significantly from previous practice. The aim of this study was to assess the reduction in appointments and socioeconomic burden with the new guideline.

Sample and method: Case records of children aged 10 years or older presenting with avulsion of closed apex permanent incisors (2001–2007) were examined to assess the impact of the new guideline. This sample had demographic data available from a previous study. The number of visits for calcium hydroxide changes and the number of months with calcium hydroxide in place was recorded.

Results: Forty teeth from 26 patients were included. 60% were male. Mean age at time of avulsion was 12 year 7 months (range 10 year 1 month–16 year 5 months). The average number of visits for calcium hydroxide changes was 6 (range 1–16). The average number of visits saved applying the new guideline was 3.25 (range 0–13). The average number of treatment months with calcium hydroxide in place was 31 months (range 3–108). The average number of treatment months saved applying the new guideline was 33 (range 2–107). The average mileage saved applying the new guideline was 152 per patient (range 0–1008).

Conclusion: The new guideline will have a significant effect on the number of appointments saved and therefore available for other treatments, and on parental travel costs and parental time off work.

P39

Case report: radicular cyst formation following trauma to primary incisor

A. B. AMMARI & M. M. McCLAUGHLIN
Glasgow Dental Hospital and School, Scotland, UK

Presenting problem: A 9-year-old Caucasian boy presented with a recurrent swelling associated with retained 61 and 62. Radiographic examination revealed the unerupted 21 was in a relatively high position with mesially displacement of the root. 22 was also displaced with its root more distal and inferior than normal. The displacement of these teeth was in relation to a large radiolucent lesion in the left maxilla.
Clinical management: The immediate management was the prescription of antibiotics to treat the infected intra-oral swelling. Definitive management, carried out under general anaesthesia, was the enucleation of the lesion and extraction of 61 and 62. The pathological specimen was sent for histological examination. Four months later 21 and 22 had erupted in a displaced position. The patient is now undergoing orthodontic treatment.
Discussion: In this case, the patient had a history of trauma to his 61 and 62 when he was 2-years-old, which caused the loss of pulpal vitality of 61. This resulted in a radicular cyst formation. The cystic enlargement displaced the unerupted 21 and 22, preventing their eruption resulting in delayed exfoliation of 61, 62. Enuculeation of the cyst and removal of 61 and 62 was the ideal treatment. Previously traumatised primary teeth should be monitored clinically and radiographically. Retained primary incisors should be examined and the cause investigated. A detailed and thorough history is necessary in these cases.

P40

Schwannoma of the soft palate in a paediatric patient

O. CHAWLA, A. ABDEL-KARIM, J. M. YATES & S. NORTH
Charles Clifford Dental Hospital, Sheffield, UK

Presenting problem: A healthy 9-year-old boy was referred to the Paediatric Department at the Charles Clifford Dental Hospital, Sheffield, by his General Dental Practitioner, with a 3-week history of a palatal swelling. The patient reported that the mass had gradually increased in size and interfered with eating. Clinical examination revealed a non-carious mixed dentition. A solitary oval swelling, 1cm in size, was noted at the junction of the hard and soft palate. The lesion was soft, mobile and slightly tender on palpation. This was demarcated by an erythematous zone with evidence of sloughing.
Clinical Management: Following consultation with a consultant Oral and Maxillofacial Surgeon, haematological and biochemical investigations were undertaken, which were found to be within the normal reference range. A nasoendoscopy was then performed to define the parameters of the lesion and exclude invasion into the surrounding tissues. Subsequently, the patient underwent complete surgical excision of the lesion under general anaesthesia and a diagnosis of schwannoma was made following histopathological investigation.
Discussion: Schwannoma is a benign tumour originating from the schwann cells enveloping myelinated nerve fibres. Involvement of the soft palate is an extremely unusual presentation although there have been a few individual cases involving lingual tissue. This case offers a valuable clinical insight for dentists who are often presented with intra-oral swellings, including inflammatory lesions, cysts and tumours. It highlights the importance of considering this tumour in a differential diagnosis when examining a young patient with a palatal swelling.

P41

A comparison of emergency dental services in Wales and Australia

U. CHAUDHRY, E. J. HINGSTON & S. BHATIA
University Dental Hospital, Cardiff and Vale NHS Trust, Cardiff, Wales

Objective: To compare the emergency dental services provided for children in Wales and Australia.
Design: The operating dentist completed a proforma each time a paediatric patient attended as an emergency.
Setting: The Paediatric dentistry clinics at the University Dental Hospital, Cardiff, Wales and Westmead Centre for Oral Health, Sydney, Australia.
Sample and methods: Data was collected for all emergency patients over a 5-month period in Cardiff and a 3-month period in Sydney. Data, including reason for attendance, patient demographics and treatment provided, were analysed using Microsoft Excel.
Results: 272 and 53 children respectively attended as an emergency in Cardiff and Sydney. Peaks in attendance occurred for children aged 6, 9, 11 and 13 years in Cardiff and at 1–2 years of age in Sydney. In both centers the majority of patients attended with pain. Active caries were diagnosed in 24.5% of cases in Sydney, whereas almost double that number presented with active caries in Cardiff (48.5%). Sydney showed a much higher incidence of trauma (68%) than did Cardiff (18%). In Cardiff, treatment most frequently comprised extractions under general anaesthetic; in Sydney the majority of treatment was provided under local anaesthetic.
Conclusions: There was a large variation between service provision in Cardiff and Sydney. Fewer children appeared to be seen as an emergency in Sydney which may have reflected a failure to record all patients rather than a true reduction in patient numbers.

P42

Clinical pathway for autistic patients attending for dental general anaesthetic

H. SANDERS[1] & N. REYNOLDS[2]
[1]*Derbyshire County PCT Salaried Dental Services, UK,* [2]*Derbyshire Children's Hospital, UK*

Objective: General anaesthesia (GA) is a commonly required adjunct for dental treatment in children with autism. There are specific symptoms associated with the autistic spectrum which make such combined therapy a challenge. In particular, the propensity for solitary behaviour, desire for an unchanging environment and daily routine, ritualistic behaviour and the acute anxiety precipitated by changes to this. This clinical pathway was produced to promote best practice in the care of children with behavioural difficulties of the autistic spectrum, requiring dental treatment under GA.
Design: A clinical care pathway was formulated.
Setting: The pathway was developed for use in local Community Dental Clinics and within Derbyshire Children's Hospital.
Methods: The pathway was developed based on clinical experiences of the authors, and after multidisciplinary consultation with the local paediatricians, anaesthetists, community dentists and parents of autistic spectrum children previously needing our GA services.
Results: Following the introduction of the pathway into the community setting, this has resulted in several trends:
- A standardised overall management of autistic patients under GA.
- An almost abolished need for IM induction or restraint through improved pre-induction compliance.
- A zero cancellation rate.
- A less stressful GA experience for patients, parents and staff.

Conclusion: This illustrates how careful management of autistic patients in the paediatric dentistry setting can lead to successful treatment outcomes under general anaesthetic.

P43

A radicular cyst associated with a non-vital incisor

J. C. MITCHELL[1], M. AHLUWALIA[1], C. BRYANT[2] & R. W. J. PORTER[3]

[1]*Department of Paediatric Dentistry &* [2]*Oral Surgery, King's College Dental Institute, London, UK* [3]*Department of Restorative Dentistry, St George's Hospital, London, UK*

Presenting problem: A 14-year-old girl presented with a large radiolucent lesion in the left premaxilla associated with a non-vital, discoloured left maxillary central incisor.

Clinical management: Although there was no history of trauma the left maxillary central incisor was discoloured with grade 1 mobility and a discharging labial sinus. Radiographic examination demonstrated arrested root development of the maxillary left central incisor with an open apex. A large well circumscribed radiolucent area extending from the central incisor to 2nd premolar was present. The localised infection was managed by opening and draining the left maxillary central incisor and dressing the tooth with non-setting calcium hydroxide. Following resolution of the infection the canal was root filled with Mineral Trioxide Aggregate (MTA). The lesion was later explored and enucleated under general anaesthetic. Histopathological examination confirmed a radicular cyst. Five months on the patient was asymptomatic and the sinus had resolved. Radiographically there was bony infill confirming resolution of the cystic area. Future care will involve bleaching the left maxillary central incisor to improve aesthetics.

Discussion: Use of MTA to form a hard tissue barrier has been shown to be a successful method of managing non-vital immature incisors. Studies demonstrate that MTA favours periapical healing. In this case, it was used to create an apical barrier prior to the enucleation of a radicular cyst.

