

# **ABSTRACTS from 2nd EADPH Congress**

**25–26<sup>th</sup> September 1998, Santander, Spain**

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The second congress of the European Association of Dental Public Health, EADPH, was held in Santander, Spain on September 25th and 26th.. The Co-President of the congress was Professor Javier Goiriena de Gandarias. The abstracts were refereed by the Programme Committee consisting of Professor Gert-Jan Truin (Editor), Nijmegen, the Netherlands; Dr. Cynthia Pine (President), Dundee, Scotland; Dr. Roberto Ferro (Vice President), Cittadella, Italy; Professor Klaus Pieper (Treasurer) Marburg, Germany.

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## **Invited Speakers**

### **Professor M Garcilazo Ambriz**

University of Mexico

### **Professor Montserrat Barranquero**

Head of the Department of Stomatology of the University of the Basque Country, Spain  
Executive Officer – Membership of EADPH

### **Dr David Barmes, PhD**

Special Expert for International Health, Office of International Health, National Institute of Dental Research, National Institutes of Health, Bethesda, Maryland, USA

### **Dr Dominique Declerck, PhD**

Professor of Paediatric and Preventive Dentistry, School for Dentistry, Oral Pathology and Maxillofacial Surgery, Catholic University, Leuven, Belgium

### **Professor Giuliano Falcolini**

Professor and Chairman of Paediatric Dentistry, Dean of the Dental School, University of Sassari, Italy

### **Professor F J Goiriena de Gandarias**

Dean of the Faculty of Medicine and Odontology of the University of the Basque Country, Spain

### **Professor Franklyn Garcia-Godoy**

Chairman of Investigation of the University of San Antonio, Texas, USA.

### **Professor K W Stephen, DDS**

Professor of Dental Public Health, University of Glasgow Dental School, Glasgow, Scotland, UK

### **Professor W Wertelecky M.D.**

Chairman of the Department of Medical Genetics of the University of South Alabama, USA

### **Dr Miguel Pellón Ortega**

President of the Spanish Society of Prevention and Community Dentistry (SEOEPYC) and Chief

## Headings

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### Invited Speakers' Abstracts

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| Group  | Invited Speakers                                       |
| Title  | Odontology and law                                     |
| Author | M Barranquero, University of the Basque Country, Spain |

Between oral health professionals and the Law there is more confrontation in some countries such as the United States. The Law sees in the practice of odontology, an activity that is profitable and even lucrative; but at the same time potentially harmful, in that the health and life of the patient are at stake. Therefore, it seeks guarantees that treatment is properly performed. Given this situation, the health professional finds himself at times with a normative, formalistic duty where the Law is concerned, without sufficient flexibility to apply it in accordance with the complex circumstances and the biological reality of the disease, and this state of affairs may run counter to the patient's real interests in the area of health. We have to create a framework to help show that odontology does not have to fear the Law, and that the Law may be sure of the collaboration of odontologists and stomatologists to define acceptable practice. Malpractice should not be based only on deviations from legal norms, but particularly, from accepted odontological practice. It is difficult to deal with ethical and legal subjects without introducing dialogue and reasoning, giving voice to all the parties making up the odontologist-patient process. The establishment of this dialogue in odontological problems entails not only approaching them from the point of view of general practical-operating criteria via a method of abstraction and deduction. It is also necessary to install therapeutic *relationality* so that the patient and the professional recognise themselves and each other on the basis of this relation and not that mediated by extrinsic judgements. The moral problems that confront us vary from routine to important. Often they are highly complex and require that we take decisions. Interventions are carried out in accordance with ethical norms with the use of appropriate technology. The mere fact that an intervention can be performed does not mean that it ethically should be. We have to establish bridges between one another so that we can arrive at a synthesis between different religious, cultural and health beliefs that can impact on odontological care.

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| Group  | Invited Speakers  |
| Title  | International collaborative research in oral health – new opportunities |
| Author | D Barmes, Office of International Health, National Institute of Dental  |

Since the late 80s and early 90s when the ICOHR initiative developed, first through collaboration between NIH/NIDR and WHO and later with involvement of international dental associations, there has been a vigorous renewal of interest in International Health. That element of the NIDR's work has been strengthened by creation of the Office of International Health (OIH). Within the OIH, resides the International Collaborative Research initiative, broad in scope, but with origins in oral health ideas. This renewed initiative uses the acronym ICR both to differentiate it from the former ICOHR and to emphasise the intention to address cross-cutting issues which will require multi-disciplinary, multi-partner and multi-country approaches. The priority list of five items from the ICOHR has been retained in the ICR. However, a rigorous approach has been taken towards setting targets and expected outcomes which will break new ground and notably improve community health. There is also scope for addition of other items provided that criteria to support the international approach are fulfilled. The OIH is reviewing a broad range of international links and also mechanisms for supporting international co-operation and research, not the least being the network(s) of WHO Collaborating Centres.

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| Group  | Invited Speakers   |
| Title  | The Signal Tandmobieler-project – A unique epidemiological study   |
| Author | D Declerck, Catholic University of Leuven School for Dentistry, Oral Pathology and Maxillofacial Surgery, Capucijnenvoer 7, B-3000 Leuven, Belgium |

The Signal Tandmobieler-project, an epidemiological survey in primary schoolchildren in Flanders (Belgium) is in many ways a unique project. It is the results of the collaborative efforts of different partners, including the dental schools of 3 different Flemish universities, the Flemish Dental Association, school health care services, university youth health care department and biostatistical centre and an industrial partner (LeverElida). The project was constructed in such a way that the participation of each partner resulted in an extra dimension. The aim of this project is not only the collection of epidemiological data, but also a screening of the oral health condition of children in Flanders (with referral to their own dentist) and oral health promotion and education. The project consists of a longitudinal follow-up (1996–2002) of more than 5000 school children (stratified cluster sample) between the age of 7 and 12, with yearly clinical examinations. These examinations are performed by trained dentists with calibration at regular intervals, using standardised criteria and techniques. The clinical examination takes place at school in a mobile dental clinic (bus) especially designed for this project. On each occasion a wide variety of variables is recorded (oral health habits, oral hygiene, gingival condition, caries experience, tooth eruption stage, fluorosis, enamel developmental defects, trauma) and advanced statistical techniques are developed for analysis of the data. Oral health education and counselling receives much attention, with especially developed educational material and the long-term outcome of this will be evaluated over the 6 year study period (control group included). *Partners in the Signal Tandmobieler-project are: Catholic University of Leuven (Prof D Declerck, Prof E Lesaffre, Dr K Hoppenbrouwers), University of Gent (Prof L Martens), Free University of Brussels (Prof P Bottenberg), Flemish Dental Association – Section Oral Health Promotion (J Vanobbergen), Association for Youth Health Care (Dr G Mertens) and Unilever (LeverElida).*

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| Group  | Invited Speakers                          |
| Title  | Prevention in dental public health        |
| Author | G Falcolini, University of Sassari, Italy |

Public Dental Health Services should be concerned with the prevention of dental diseases, especially of dental caries, not only for ethical reasons, but also for economical ones. However, prevention can not exclude active therapy; since, although dental decay is a disease in decline, it is still prevalent in many groups within the population. Prevention is of greater benefit when it

is applied early with childhood being the optimum time. As caries has declined, a total population approach to caries prevention is inappropriate and should be targeted. Therefore, it is useful to be able to identify risk-patients to deliver more intensive prevention. Criteria for early diagnosis of risk and diagnosis of initial lesions to trigger interceptive therapy are discussed. Preventive measures as carbohydrate intake, fluoride therapy and plaque removal are examined from a modern point of view. Other factors such as salivary flow and immunity status are considered in the genesis of caries and in preventive strategies. Experience from outside Europe and from Northern European and Southern European countries are considered to study the organisation of prevention in a Public Dental Health Service.

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| Group  | Invited Speakers   |
| Title  | Genetics and prevention of oral cancer                             |
| Author | F J Goiriena de Gandarias, University of the Basque Country, Spain |

Neoplastic pathologies have increased considerably in this century. Cancer is a multifactorial genetic disease in which there appear accumulative multiple mutations with from three to six mutations being necessary for it to be manifested. These variations can be hereditary, familial, spontaneous, etc. They are influenced by a variety of risk and protective factors. Gene mutations are relatively frequent, but it is clear that on most occasions they do not alter the significance of the gene, and lead to no pathology. The genes that have been associated with carcinogenesis are the following: oncogenes that are encountered in the form of protooncogenes, which have a positive effect on the cell cycle; suppressor genes, which function as a brake to growth; genes responsible for the correction of errors in DNA replication. In oral cancer studies, oncogenes have been detected that are associated with these processes, such as C-myc, N-myc, N-ras, and Ki-ras. The myc act on the nucleus, the ras on the plasmatic membrane. In India, there are high percentages of the population exhibiting the N-myc gene. The main problem in the early detection of cancer lies in the difficulty of searching for the isolated mutation. The American Society of Clinical Oncology has pointed out that when genetic tests are performed on the population at risk, it is necessary to report first of all to the oncologists so that tumours can be detected early. It will be necessary concurrently to assess the effect of this information, above all on patients, since it may be highly beneficial or damaging psychologically and sociologically, both for the patient and for the family. It is also necessary to determine the limits of the tests, since there are still many tumours for which screening methods are inadequate. At the same time, genetics is providing new therapeutic weapons. Most promising is the gene-transfer method involving the use of a virus into which a therapeutic gene is inserted to replace part of the viral genome. At this time, they constitute the preferred gene-transfer method for the long-term treatment of gene defects. In spite of the brilliance of this idea, there are still a lot of questions surrounding the technique.

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| Group   | Invited Speakers  |
| Title   | Salt fluoridation cessation in Hungary – caries and fluorosis data 12 years later   |
| Authors | K Stephen(1), L Macpherson(1), I Gorzo(2) and W Gilmour(1)<br>(1)University of Glasgow, Scotland, UK<br>(2)Albert-Szent Gyorgyi University, Szeged, Hungary |

From 1976–85, domestic salt for 4 villages near Szeged had 350 mg F-/kg added and, by 1983, 53% dmft & 68% DMFT reductions were noted, compared to non-F- Szeged subjects, but no fluorosis data were scored. Hence, 14-year-olds from each F- (N=49) and non-F- (N=59) area were examined by KS and had blind clinical (+ 10% repeat), X-ray and photographic recordings completed at one site. Fluorosis was scored by TF and TSIF indices on teeth 13–23. In Scotland, data were processed, X-rays read blind (+ 10% repeats) and 35 mm slides projected randomly, viewed by a 'jury' of 2 lay and 4 dental personnel, and scored for aesthetic acceptability (+ 10% repeats). Mean DMFS scores were 9.18 (+/- 10.7 SD) and 4.51

(+/- 6.2 SD) for previous F- salt and non-F- salt users respectively (clinical reliability=0.99; X-ray reliability=0.95;  $P<0.01$ ). Clinically, 3 Test children had fluorosis (6 teeth @ TF=1; 4 @ TF=2; 6 @ TSIF=1; 2 @ TSIF=2 & 2 @ TSIF=3), with 8 teeth @ TF & TSIF=1 in 2 Controls. Photographic scoring by KS gave 97.2% clinical match, while 'jury' photo agreements for all 4 dentist pairs were from 92.5%–97.2%, with lay observers' agreement at 89.8%. For both groups, 10% repeats gave 98.5% agreements. In only 1 Test case was fluorosis photographic unanimity found, and "possible fluorosis" in only 3 other Test and 2 Control subjects. Thus, no significant fluorosis resulted from exposure to F- salt up to age 3 years. Lack of caries-benefit seemed socio-economically related, the city-based Controls having less caries than rural Test subjects, even with identical F- tablet regimens from 1987 until 1991, when subjects were 8–10 years old. However, the data suggest sub-optimal tablet usage and emphasise, yet again, the superiority of community-delivered fluoridation. *Funded by SODoH grant K/OPR/15/9/F13.*

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| Group  | Invited Speakers  |
| Title  | Public dental services; methods, mechanisms of payment and incentives   |
| Author | D M Pellón Ortega, Spanish Society of Prevention and Community Dentistry and Service of Oral Health in Cantabria, Spain |

The basic forms of organising dental services are: first, via a public care system which is administered by state employees, and is found to a greater or lesser extent in most European countries. This is the ideal form of organisation to carry out massive preventive programmes or integral odontological assistance (education, prevention, care). Second, Health Maintenance Organisations (HMO's), which may be financed either publicly or privately and can be an efficient alternative to controlling costs. A third example is the contactation of services individually with private sector professionals. Each one of the organisation types generate their own incentives regarding cost minimisation, with its own pros and cons that affect the quality of care and efficient use of resources. Payment mechanisms determine the amount and cash flow that goes from a third party or the patient or both, to the suppliers in exchange for their services, defining the service item or combinations which are being paid for and the price, and likewise defining a complex series of behavioural incentives to the professionals that influence their relationship with the payers, either patients or a third party. Experience shows that if the providers are rewarded by a payment mechanism relying on a certain work indicator, then there is an incentive for them to concentrate their service provision on this indicator alone. The most frequently used payment mechanisms are reported first, in their "pure" form, secondly, as the incentive structure concerning the suppliers behaviour towards the amount of services provided (number of patients and items) and the gross indicators of the "intensity" of care provided. Finally, as these payment mechanisms are a very important method of regulation and a common element in the patient/payer/ provider relationship, and because of their influence on total expenses of the systems and financial viability of health care, we suggest that this field of research be developed.

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## Epidemiology (1)

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| Group     | Epidemiology   |
| 1 Title   | Normative, perceived oral health and consumer satisfaction among adult   |
| Author(s) | A Borutta*, A Je and M Brocker. Department of Preventive Dentistry, Friedrich-Schiller-University of Jena, Germany |

A sub-objective of a cross-sectional study (1995) was to examine the influence of political changes in Eastern Germany on changes in socio-environmental characteristics, oral health care system and behavioural practices in relation to objective and perceived oral health, and

consumer satisfaction among adults. The methodology of the ICS-II was applied. A random sample of 1000 subjects in Thuringia, a new Federal State in Germany, was selected. All subjects had to fill in a questionnaire and to undergo a clinical examination. The oral health status parameters used were caries status (DMFT), periodontal status (CPITN) and prosthetic status (bridges, dentures). The adults had on average 24.6 teeth. Caries prevalence was moderate (16.1 DMFT). Regarding the periodontal status, the majority of subjects had shallow pockets (50.6%). The percentages of those wearing bridges was 14%. Very few adults had full dentures. Overall, the adults rated their general health better than their oral health. 85.7% of subjects perceived their general health as "better than OK", whilst only 52.3% of individuals indicated this level for their oral health. Most symptoms were related to gum problems (23%) compared to tooth problems (10%). The levels of satisfaction with the oral health care system were extremely high in terms of the quality of care (99%) and of the quality and modernity of the equipment (99%). It can be concluded that the changes in socio-environmental factors did not show any negative effect on the three outcomes, which revealed an acceptable oral health and a high consumer satisfaction.

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| Group          | Epidemiology  |
| <b>2</b> Title | Dental health in two groups of working communities in Kazakhstan                                      |
| Author(s)      | E Mossessyants* and L Zazulevskaya. Republican Scientific and Research Centre Stomatology, Kazakhstan |

Concern has been expressed of possible environmental influences on both general and dental health. The aim of this epidemiological study was to compare the dental health of two groups of adults in a working community in Kazakhstan. The methodology followed that described by WHO in Basic Methods of Oral Health Surveys and involved the examination of a group (n=301) of adults working entirely in chemical production facilities and of a adults control group (n=511), working in a neighbouring community without contact with chemical production. Both groups had lived and worked in the community for an average of 10–15 years. In both communities, filled teeth were the lowest component of the DMFT score. The highest F-component was 1.9. The mean DMFT ranged from 5.0 to 13.3. Many teeth were found extracted. Workers in the chemicals producing factories had lower mean DMFT values. The mean DMFT of 35–44-year-olds in the chemicals producing factories comprised of 1.9 DT, 5.3 MT and 0.8 FT compared to the non-chemical group with 2.2 DT, 7.2 MT and 1.0 FT. The majority of adults working in chemical production factories had lower levels of caries experience than their age-mates working in general production. This finding may be related to the greater availability and need to follow higher general hygiene and preventive measures by those working in chemical factories.

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| Group          | Epidemiology   |
| <b>3</b> Title | A comparative study of the dental health of children living in a highly industrialised region and a neighbouring village community in Kazakhstan |
| Author(s)      | G Nurasheva. Republican Scientific Research Centre Stomatology, Kazakhstan   |

It is well documented that living in highly industrialised regions with excessive levels of environmental pollutants can have harmful effects on human health. This situation often exists in regions of gas and oil exploration but their effects may be compounded by deprivation. The aim of this study was to compare the dental health of children aged 2 to 15 years living in the region of the Karashaganac gas field with same aged children living in a village community 45 km away from the gas field. WHO criteria were used and 997 children were examined in the industrial area and 728 in the village community. Caries was experienced by 77% of all children with 81% affected in the industrial area and 73% in the village. The mean DMFT score was 3.6 and 2.9, respectively. Poor oral hygiene was a common feature for most children.

Periodontal disease was recorded in 49% of children in the industrial area and 47% in the village children. It was clear that deprivation, poor living conditions and poor oral hygiene of the children living in the gas field contributed to poorer levels of dental health. Conclusion: a programme of preventive measures is needed for children in both areas with a greater effort needed in the more deprived industrial community.

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| Group     | Epidemiology  |
| 4 Title   | Relationship among socio-economic determinants, habits and malocclusion in pre-school children in Bauro, Brazil                                   |
| Author(s) | N Tomita, A Sheiham, V T Bijella and L J Franco. School of Dentistry of Bauru-USP, University College London, Paulista School of Medicine-UNIFESP |

In order to evaluate how particular social determinants affect occlusion in pre-school children, this cross-sectional study was developed in three steps: occlusion assessment, anthropometric measures and socio-economic questionnaire. The survey was carried out from October 1994 to December 1995. A random sample of 2139 children aged 3–5 years old was selected. The children were enrolled from private or state institutions in the Municipal District of Bauru-SP, Brazil. The occlusal anatomic-functional characteristics assessment was realised according to ANGLE classification. A sub-sample of 618 children responded the socio-economic questionnaire. The prevalence of malocclusion and some variables of exposition were tested by bivariate analysis (Chi-square). The prevalence of malocclusion was 51.3 % for the male group and 56.9 % for the female group. There were no differences related to ethnical group or type of educational institution. In relation to age, a higher prevalence of malocclusion was present in the three year old group, decreasing significantly with age ( $P<0.05$ ). Among the environmental factors evaluated, the dummy- sucking habit was the most important in the association with malocclusion. Some social determinants, like mother's employment and parents' job, were related to oral habits that were strongly associated with malocclusion. These findings point to the importance of developing a longitudinal study in order to confirm how socio-economic status can influence the process of growth and development of the child.

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| Group     | Epidemiology   |
| 5 Title   | Oral health among 6-to 12-year-old schoolchildren in the El Bierzo district                    |
| Author(s) | M Esteban Quiros* and L Mallo Pèrez. C/Monasterio de Carracedo 3, 1111, 2440 Ponferrada, Spain |

A cross-section epidemiological study was carried out on children of ages 6 to 12 year in the El Bierzo Health District (Spain). The number of subjects examined was 8143. Each child was given a complete oral examination, with particular attention to caries, periodontal condition and oral habits. We followed the WHO criteria and used the WHO card. The prevalence of caries ranged from 46.9% at six to 61.6% at 12 years. The DFMT index ranged from 0.06 in children of 6 years to 1.1 in those of 12. Most of the children were in need of minimal periodontal treatment (TN1). The absence of any need for treatment (TN0) was lowest at 8 years (1.9%) and highest at 6 years (11.4%). Type-2 needs ranged from 20.2% at 6 years up to 39.2% at 12. Most of the children consumed refined carbohydrates. The percentages of children who brushed their teeth more than once a day ranged from 40.4% at age of 6 to 46.1% at age of 12 years.

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| Group     | Epidemiology  |
| 6 Title   | Oral health status among 21-year-old recruits   |
| Author(s) | M Boss*, A Barbato, A M Onali, G Campus and G Falcolini. University of Sassari, Italy |

The objective of this investigation was to collect clinical data for monitoring oral diseases (caries, periodontal and malocclusion) in recruits of a naval base in Italy (La Maddalena). 1001 subjects (mean age 21.1 years) were examined using the DMFT, CPTIN and IOTN index according to WHO instructions by calibrated examiners. The mean DMFT was  $4.6 \pm 3.8$ . 35.6% of the recruits had a healthy gingival status, bleeding/visible plaque and calculus was observed in 64.25% of the recruits and 0.2% had one or more pockets with a depth of more than 4 mm. The IOTN score 'no or minor' need of orthodontic treatment (grade 1 and 2) was 46.4%, 'borderline' need (grade 3) was observed in 28.5% of the recruits, 'definite' need (grade 4 and 5) was scored in 24.0% of the sample. The study showed a low level of dental decay and periodontal diseases and a medium level of treatment need for orthodontic practice in young recruits.

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| Group          | Epidemiology  |
| <b>7</b> Title | Oral hygiene habits in a university population at the University of the Basque Country, UPV/EHU     |
| Author(s)      | L A Cerecedo, E Diez, I Tabernero and J Rodriguez. Urbanizacion J M Herrera, Mioo, Cantabria, Spain |

The purpose of this study was to determine the level of oral hygiene in university students aged 20 to 23 years. A survey was carried out on a group of 200 university students registered for the 3rd year of studies on different degree programmes in the current academic year (1997–1998). The data gathered were processed with the statistical program SPSS and database V. The research questions were answered as follows: (a) it is important to brush the teeth, answered yes by 81.3–84.4%, 62.5–95.5% and 71.4–93.9% of the students in dentistry, medicine and biology respectively; (b) 'brushing 3 times per day' answered yes by students in dentistry (68.7–72.1%), medicine (37.5–61.4%), biology (57.1–69.7%); (c) 'toothbrush changed every 3–6 months', yes answered by students in dentistry (50.0–55.8%), medicine (18.8–56.8%), biology (28.0–48.5%); (d) 'refined sugars are the main cause of tooth and gum disease', yes answered by students in dentistry (56.3–65.1%), medicine (62.5–79.5%), biology (57.1–84.8%). Independently of the degree course taken, students considered it important to brush the teeth, male students in medicine being the least concerned. In most cases they believed in brushing three times a day, except for male students in medicine, who brushed less frequently. Students in medicine and biology considered refined sugars to be the main cause of tooth and gum disease, while dental students also blamed acid foodstuffs. In the population studied, female students took more care and exhibited better oral hygiene.

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| Group          | Epidemiology  |
| <b>8</b> Title | Prevalence of dental caries in schoolchildren of ages 6–10 years in the geographic area of Rosas (Gerona) |
| Author(s)      | C Climent Vallejo. ICS-ABS Roses – Odontology Service, Girona, Spain                                      |

The aim of this study was to establish the prevalence of dental caries in schoolchildren aged 6–12 years in the Rosas area (Gerona), to compare these with the prevalence data of children from other areas of Catalonia, and to determine the influence of the immigrant population on the dental caries index. The study involved all 6- to 12-year-old children receiving check-ups in the academic year 1996–1997 and attending schools in the municipalities of Rosas, Castello d'Empuries, Cadaques, Pau, or Palau Saverdera. 42.7% and 70.5% of the 6- and 12-year-old children had dental caries. The percentage of caries amongst 6-year olds was 39.5% (Spain), 56.3% (Magreb countries) and 68.8 (rest of Europe). Amongst 12-year olds, caries prevalence was 67.3 (Spain), 09% (both Magreb and non-Spain European countries). The current data showed a higher percentage of 6- and 12-year-old children with dental caries compared to children from other areas of Catalonia. Children from the Magreb and European countries had the highest percentages of non caries free children.

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|   | Group     | Epidemiology  |
| 9 | Title     | Can the phone method be used for oral health surveys in England?  |
|   | Author(s) | R C Craven* and A S Blinkhorn. Oral Health and Development Group, University of Manchester, England, UK |

The aim of this study was to compare the mail and phone methods in a survey of the subjective oral health of adults. A well established questionnaire for measuring subjective oral health (SOHSI – Subjective Oral Health Status Indicators) was administered to 784 subjects randomly selected from the adult population of Stockport, in North West England. Sixty seven of them received both methods within a 4 week period. Twenty respondents took part in the mail survey first, the remainder did the phone interview first. Logistic regression was applied to control for other differences between the groups. In the cross-over study there was an interaction for three scales between the methods and the order in which they were used. However these three scales showed a strong association, suggestive of a method effect, between the mail survey method and more reports of pain and worry about the dentition. A systematic bias was shown in two further scales: reports of problems with chewing were more likely by phone and problems with social relations by the mail method. The two methods of administration give different results and cannot be used interchangeably. The instrument was developed as a self-administered questionnaire and this study was its first documented use with a phone methodology. These results suggest that such use cannot be recommended until its performance is better understood.

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|    | Group     | Epidemiology  |
| 10 | Title     | Dental health and treatment needs of 7- and 12-year-old Polish children from the Gdansk region                        |
|    | Author(s) | K Emerich-Poplatek* and B Adamowicz-Klepalska. Department of Pedodontics Medical University of Gdansk, Gdansk, Poland |

Epidemiological dental examinations carried out in Poland in collaboration with the WHO have resulted in representative data on dental caries in permanent teeth of 7 and 12-years-old from the Gdansk region. In 1987 and 1995, 360 and 365 children in urban and rural areas were examined. Amongst 7-year olds, the data showed an increase in DMFT from 0.73 to 0.84 between 1987 and 1995. The mean DMFT score of 12-year olds was 4.1 in 1987 and 4.4 in 1995. Between 1987 and 1995 the D-component in 12-year-old children from urban areas increased significantly. In both years the M-component was low in children of urban and rural areas. The mean number of DMFT was significantly higher in girls than in boys in both age groups. In 1995, 23.9% and 12.8% of the teeth in 7- and 12-year olds, respectively needed dental treatment. These percentages were substantially higher than in 1987.

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|    | Group     | Epidemiology   |
| 11 | Title     | Prevalence of dental caries in Italy – A survey co-ordinated by the Working Group of Preventive Dentistry of SIOI.                             |
|    | Author(s) | G. Falcolini, G.A. Favero, *R. Ferro, C. Ghirlanda, F. Olivi, L. Stohmenger, G. Saran, M. Ggagliani. (Italian Society of Pediatric Dentistry). |

Historically Italy has had no epidemiological data on a national basis about the severity of dental disease. Within the Italian Society for Pediatric Dentistry (SIOI) a working group was created to carry out the first epidemiological survey on the prevalence of caries in collaboration with the WHO Collaborating Centre for Prevention and oral Epidemiology in Milan. **Method** In 1994–95, 12 year old children were randomly selected attending private and public schools throughout the Italian regions. They were examined in a dental chair inside a mobile dental van. Data were collected according to the WHO oral health assessment form by 20 trained and calibrated dentists as in a national pathfinder survey. **Results** Data was collected from 10 of

the 20 Italian regions. However, bureaucratic problems excluded the collection of data from the Southern regions of Italy. In total 5,064 children were examined, 2,679 boys and 2,385 girls. Mean DMFT was 2.12 and 36.5% were caries free. The mean number of sealants was 0.44. Discussion: The prevalence of dental caries in Italy is similar to most European countries (as shown in the 1995 ORCA Symposium) even though the lowest values were found in the Northern European countries. Data collected in the Veneto region over the last 20 years show a declining trend in caries from a mean DMFT of 4.4 in the early 80s to 2.2 in 1994. This is similar to the trend in other Southern European countries for example, Spain and France. These data suggest that the decline in caries occurred later than in the North. This difference may depend on the different dental health care delivery systems (public v. private). However, nowadays caries levels are similar in both regions, despite the different systems.

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| Group           | Epidemiology   |
| <b>12</b> Title | Dental caries prevalence in relation to socio-economic status of nursery school children in Goiania-GO, Brazil |
| Author(s)       | M Freire*, R Barbosa Melo, R and S Almeida e Silva. Faculty of Dentistry, Federal University of Goias, Brazil  |

The study was carried out to assess dental caries experience in the primary dentition of pre-school children in Goiania-GO, Brazil, and to assess the influence of socio-economic status. The study population comprised 0–6 year old pre-school children (n=2267) attending public (low SES children) and private (higher SES children) nursery schools. Mean dmft and percent caries free were 0.1 (96.4%) at 1 year and younger, 0.4 (87.3%) at 2 years, 1.1 (69.9%) at 3 years, 2.2 (49.5%) at 4 years, 3.1 (36.1%) at 5 years and 3.9 (29.4%) at the age of 6 years, respectively. Caries prevalence was higher in those attending public nursery schools than in those attending private schools ( $P<0.05$ ). Amongst children from public nursery schools the highest dmf component was untreated decay while in private nurseries it was filled teeth. The results indicate that social inequalities exist which influences dental caries experience. It was concluded that oral health programmes for pre-school children, emphasising preventive measures and dental health education, should be developed mainly in areas of social deprivation.

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| Group           | Epidemiology  |
| <b>13</b> Title | A comparison of two descriptive indices used for measuring enamel opacities                                   |
| Author(s)       | S Y L Kwan* and S A Williams. Community Dental Health, Leeds Dental Institute, University of Leeds, Leeds, UK |

The use of different indices complicates historical and concurrent comparisons between studies of dental enamel opacities. The recent introduction of the DDE Index leaves limited opportunities for comparison over time (Holloway and Ellwood, *Comm Dent Health* 1997; 14:148–155). This study explores to what extent the components of two descriptive indices, DDE and AI-Alousi, are equivalent. 759 12-year-old children resident in North Yorkshire were dentally examined by a trained and calibrated examiner, firstly using the AI-Alousi Index and later, under double blind conditions, the DDE Index. Data of labial surfaces of upper incisors were used for comparison. For AI-Alousi Index, the prevalence was 33% compared with 35% according to the DDE index, with a Kappa score 0.93. When DDE and AI-Alousi were cross-tabulated: of 214 demarcated defects, 64% were Type A, 26% Type B & 2% Type E. Corresponding values for 315 diffuse lesions were, 26% A, 27% B & 38% E. Further investigation examined symmetry of defects on upper central incisors, where both teeth were affected by the same type of defect. More diffuse than demarcated defects were symmetrical. Thus 61 pairs of diffuse defects produced 33 pairs type E, and 34 pairs of type E yielded 33 diffuse defects. It is concluded that there is close agreement for prevalence data for upper incisors between the two indices. However, while Type A corresponds more often to

demarcated defects and Type E to diffuse, Type B is more difficult to categorise. Thus there appears to be no clear cut way of transposing the data sets beyond standardising for prevalence values. *Funded by the Yorkshire Regional Health Authority, UK.*

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| Group     | Epidemiology  |
| Title     | Possible risk indicators of periodontitis using CPITN in an Saxonian population   |
| <b>14</b> |   |
| Author(s) | A Lehman*, M Walter and T H Hoffman. Medical Faculty of TU Dresden, Departments of Prosthodontics and Periodontology, Germany |

The aim was to study the periodontal status as well as possible risk indicators for periodontitis in a Saxonian (Germany) population. 714 subjects from all age groups were randomly, non stratified, included in the study. Questionnaires included age, gender, oral hygiene habits and significance of tooth-brushing, number of dental visits/year, education, as well as social status. All clinical parameters, probing pocket depth (PD), plaque accumulation (OHI) and bleeding on probing (BOP) were recorded on a partial mouth basis and documented according to CPITN. Additional missing teeth were documented. For each age group, we calculated CPITN-index, as well as the mean value of each parameter. Correlation significance was determined using Spearman-Rho correlation analysis. The results showed that with increasing age, there was a corresponding increase in the number of teeth missing, an increase in the number of deep pockets as well as an increase of average pocket depth. A three-fold increase in the number of deep pockets was observed in the 35–44 years age group; this was followed by an increase in the number of missing teeth in the 45–54 years age group. Significant correlations ( $P < 0.01$ ) were observed between increasing CPITN and increasing OHI (plaque as well as calculus) only. A weak correlation between education and CPITN was found in the age group of 15–24 years. All other data obtained by questionnaire had no influence on periodontal health. It is concluded that, in this Saxonian population, dental plaque and calculus are possible risk indicators for periodontal disease. Further studies using additional parameters (microbiologic and biochemical) are necessary to identify additional risk indicators and to clarify which of these are true risk factors for this population.

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| Group     | Epidemiology   |
| Title     | Periodontal status of army-recruits in Tenerife  |
| <b>15</b> |  |
| Author(s) | G Gomez-Santos*, N Garcia-Herranz, M Lopez-Bermejo and P Martìn-Santiago. Institution of General Directorate of Health, Canary Islands Health Service, Spain |

The purpose of this study was to assess the periodontal status of army recruits, as well as to determine the treatment needs. The field work was carried out in October and November of 1995. The sample consisted of 290 young people aged 18 and 19 years. The assessment of the periodontal status was carried out by one single investigator, using the extra-light periodontal probe designed by the WHO for measuring the CPITN index and following the diagnostic criteria described in the manual *Oral Health Surveys, 1987*. A healthy periodontium was observed in 21.1% of those examined. 10% displayed bleeding on probing. Plaque, whether or not accompanied by bleeding, was seen in 44.4% of those examined. 24.1% displayed 4–5mm pockets, while 0.3% had pockets exceeding 5mm. The mean number of sextants healthy was 2.87, with bleeding was 0.98, with plaque was 1.14, with 4–5mm pockets was 0.48, and with pockets of depth greater than 5 mm was 0.003. The results show the importance for awareness of good oral hygiene amongst army-recruits and the need for military institutions to facilitate this.

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| Group | Epidemiology  |
| Title | Oral status of 6 and 12 year old Polish children and European oral health goals for the year 2000 |

- 16** P E Petersen(1) , M Wierzbicka(2), F Szatko(3), B Adamowicz(4), M Salinger(2), K Rucinska(2), M Zawadzinski(2)  
 Author(s) (1)WHO Regional Office for Europe, Copenhagen  
 (2)Dept. Conservative Dentistry, The Medical University of Warsaw  
 (3)Dept. Hygiene Medical Academy of Lodz  
 (4)Dept. Pedodontics Academy of Medicine Gdansk), Poland

With transformation of the health care system in Poland, the need for information on oral health status has increased. It was decided therefore to apply the Oral Status Euro programme, as a simple tool for collecting data. This system was designed to help monitor and evaluate oral health goals at various levels of oral health care organisation. The criteria for recording dental caries are consistent to those of the WHO of 922 6 year old and 1743 12 year olds from 9 districts were examined. Examinations were preceded by collected data. Reliability of clinical diagnosis of the dentist was ensured by comparing with scores obtained by a calibrated epidemiologist who examined 7% of children. An analysis of data obtained showed that 17% of 6 year olds (19% from towns, 15% from rural areas), and 11% of 12 year olds with (11.5% from towns, 10.1% from rural areas) were caries free. DMFT at age 12 ranged from 2.6–6.3, mean value 4.0 (mean 3.7 in towns, 4.2 in rural areas). Mean MT was 0.2. The percentage of 12 year olds with missing teeth reached 13%, ranging from 7.5 to 18.4%, depending on the district. Conclusion: With the oral status observed in 1997, WHO/EURO goals cannot be reached in Poland by the year 2000. National goals for oral health shall be formulated to aid the adjustment of policy and planning or oral health services in Poland.

- Group Epidemiology  
 Title Maxillo-facial fractures in persons under sixteen years of age  
**17** Author(s) I Arteagoitia\*, R Martin, L Barbier, P Cearra, S Landa and J Santamaria. Department of Stomatology, University of the Basque Country, UPV/EHU; Hospital de Cruces, Hospital de Basurto, Servicio Vasco de Salud, Osakidetza, Spain

Maxillo-facial fractures occur less frequent in children than in adults. In the Basque Country, there exist no data on the prevalence of maxillo-facial fractures. In order to determine the profile of the children diagnosed with maxillo-facial fractures, the etiological factors involved, their characteristics and treatment required, a retrospective and multi-centre descriptive study was carried out. The study was performed between 1991 and 1996 in the Cruces and Basurto hospitals. The sample included 246 fractures in 224 patients (average age  $11.2 \pm 3.3$ ). The highest prevalence was found in boys (68.8%) and children living in cities (79.0%). The prevalence of maxillo-facial fractures was low in children younger than 6 years (6% of the total). Most fractures occurred in July. Falling down was the most frequent cause (44.6%) and the nasal isolated fracture (61.2%) was the most common location. In 182 patients (81.3%) there were associated lesions. Two hundred and four patients were surgically operated, of whom six exhibited immediate complications.

- Group Epidemiology  
 Title Diagnostic validity study of approximal caries in 15- and 19-year-old individuals from an area with low caries prevalence  
**18** Author(s) L G Petersson\*, H Andersson, K Magnusson K and P Herrstrom. Medical and Dental Health Centre, Halmstad, Sweden

Low caries prevalence has recently been reported from the County of Holland. To confirm these results we aimed to test the validity of yearly reported epidemiological data by sampling 464 15-year-old and 431 19-year-old individuals from 5 different Public Dental Health Clinics (PDHC) situated in an area with natural optimal F concentration in the drinking water (Kungsbacka). Bitewing radiographs were analysed following the criteria by Grondahl (1979) including all approximal surfaces between the distal surfaces of the canine and the mesial

surfaces of the 2nd molar, totally 28640 approximal surfaces. A comparison was made with yearly reported epidemiological data. The differences were tested using Students t-test. The results of the validity test showed that in 26% of the surfaces caries diagnosis could not be performed (overlapping orthodontic bands etc.). Among the 15-year-old children, the mean enamel caries score (DES) was significantly higher in the validity test, 2.7 vs. 2.1 ( $P<0.001$ ). The mean score DFS-a was significantly lower ( $P<0.05$ ) in the validity test (0.48 vs. 0.54). Among the 19-year-old subjects, there was a significantly higher mean score of DES recorded in the validity test (4.65 vs.3.88;  $P<0,005$ ). It is concluded that the quality of bitewing radiographs should be improved and that epidemiological data often underestimate the "true" caries prevalence.

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| Group           | Epidemiology  |
| <b>19</b> Title | Prevalence of developmental enamel defects in first permanent molars and incisors in children aged 5–9 years attending public and private schools |
| Author(s)       | S Martignon* and F Valbuena Luisa. Universidad El Bosque, Bogot, Colombia   |

Defects in the development of enamel (DDE) predispose the patient to caries, tooth sensitivity, malocclusion, and poor appearance. In recent years, an increase in DDE has been observed at the private odontopaediatric level in the permanent teeth of schoolchildren of high economic status. There is no current information available on this phenomenon in the population of Colombia. The study was carried out to assess the prevalence of DDE in first permanent molars and incisors. 660 schoolchildren aged 5–9 years in public and private schools in the area of influence of the Universidad El Bosque, Santa Fe, Bogot, were examined. Defects were recorded with the modified DDE index. The prevalence of DDE was 74.5%; 55.5% in children attending private schools and 44.5% in children attending public schools. Diffuse hypermineralization was observed most (61.1%) which is related in the literature to the chronic ingestion of fluoride. The prevalence of white/cream localised hypomineralization was 33.2%. Hypoplasia was seen in only 0.7%. These data show high prevalence of DDE and confirm the initial clinical observation (greater prevalence of DDE in private schools). They further call for a specific determination of fluorosis in the population studied.

## Health Services

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| Group           | Health Services  |
| <b>20</b> Title | Treatment needs of patients attending the Faculty of Medicine and Dentistry of the Basque Country University |
| Author(s)       | R M Granado, Y Fernandez*, L Aparicio, C Roncero and C Larrinaga. Vitoria, Alava, Spain                      |

The aim of the study was to determine the kind of treatment required by adults aged between 20 and 75 years, attending the dental clinics of the Faculty of Medicine and Dentistry of the Basque Country University (U.P.V./E.H.U.). Clinical files of 167 randomised chosen patients constituted the data base. Classification into age groups was as follows: 20–30 years, 31–40 years, 41–50 years, 51–60 years and 61–75 years. Treatment were categorized into: scaling, scaling and curettage and rootplaning, extraction, root canal treatment and prosthetic treatment. Scaling (64,4%) and extraction (55,5%) was mostly performed among 20- to 30-year olds. Prosthetic treatments were mostly performed in the 31–40-year age group (55,6%), followed by scaling, curettage and rootplaning. Crown and bridges (61,2%) and extractions (56,5%) was seen most among 41- to 50-year olds. Removable dentures and extractions were mostly performed among 61–75-year olds. It is concluded that periodontal treatments were needed most at younger ages and that the need for prosthetic treatments increased as one

gets older. The need for tooth extraction was high in all age groups.

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| Group           | Health Services   |
| <b>21</b> Title | Reasons for visiting dental clinics and treatment needs among young people              |
| Author(s)       | A Lejarreta, O Basterretxea, M Martin*, N Suarez and J Zorroza. Durango, Vizcaya, Spain |

The aim of the study was to assess the treatment needs of young people that visited the dental clinics of the Medical and Dental School in the Basque Country University (U.P.V./E.H.U.), Spain. The sample consisted of 116 individuals below the age of 20 years. They were asked the main reason for visiting the dentist. Reasons included common treatments such as fillings, root canal treatment, extraction and periodontal, prosthetic and orthodontic treatment. The following results were obtained: the main reason for visiting the dentist were check ups (45.7%) and orthodontic consult (17.2%). 13.8% needed one filling, 21.5% a root canal treatment, 26.7% extraction, 60.3% scaling. A crown, bridge and orthodontic treatment were needed by 9.5, 2.6 and 18.9%, respectively. In conclusion: the main reason for visiting the dentist is for a check up. Most of the young people studied required scaling. The high need for extraction and root canal treatment indicate poor oral health in the group.

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| Group           | Health Services  |
| <b>22</b> Title | Type of treatment provided in first permanent molars   |
| Author(s)       | C Magunagoicoechea, E Etxeberria, J Vivar*, J Lavin, J and T Rivas. Colegio Mayor Deusto, Bilbao, Vizcaya, Spain |

The study aimed to assess treatments provided in first permanent molars. The study sample contained 385 individuals (47.5% men, 52.5% women) aged 6 to 79 years, who attended the dental clinics of the Medical and Dental School in the Basque Country University (U.P.V./E.H.U.). The treatment possibilities considered included fillings, root canal treatments and extraction. The most frequent treatment provided were fillings (48%), followed by extractions (45%) and root canal treatments (7%). Fillings were seen most among 10- to 19-year olds (78%), whilst extraction was the most common treatment provided amongst 70- to 79-year olds (88%). Root canal treatment was done in 15% of 10- to 19-year olds. There were no differences observed for the four quadrants. The most common type of treatment was related to the age of the individual with fillings seen in the younger and extraction in the older age groups.

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| Group           | Health Services  |
| <b>23</b> Title | Reasons for consulting the Maxillofacial Surgery Department of the Santo Hospital Civil in Basurto (Spain) |
| Author(s)       | I Argote, A C Fernandez, R Gutierrez, A Matia*, Y Oraindi and S Landa. Galdakao, Vizcaya, Spain            |

The aim of the study was to determine the most common reasons for consulting the Maxillofacial Surgery Department of the Santo Hospital Civil in Basurto (Bilbao, Spain) and to establish a profile of patients visiting the department. The sample consisted of 113 patients (44,2% men, 55,8% women). They visited the department for the first time and were between 10 to 78 years. The majority of the patients were 21 to 30 years. Reasons for consulting the department were pathology in relation to third molar eruption (38%), mandible temporal joint problems (16.8%), ulcer of the tongue (4.4%) and white lesions of the tongue, lithiasic submaxillitis and cysts in the mandible (3.5, 3.5 and 1.7%, respectively). With regard to the profile of the patient, it is suggested that it concerns mainly women, between 11 to 30 years old, without superior studies that have impacted third molars.

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| Group     | Health Services  |
| Title     | Developing a strategic framework for the development of specialised Head and Neck Cancer Services in 5 Health Authorities                        |
| <b>24</b> | D Richards*1 and D Thomas2. 1Berkshire and Northamptonshire Health Authorities, 2Buckinghamshire and Oxfordshire Health Authorities, England, UK |

Survival rates for most head and neck cancers have improved little over the past 40 years. Following a Government report on Cancer Services a review of Head and Neck Cancer Services was undertaken. The remit of this review group led by Dental Public Health was to develop a strategic framework for the development of services in 5 health authorities. Data for the period 1995–7 across the 5 health authorities for 16 different Head and Neck disease sites was compared. 11 hospitals in the 5 authorities wished to continue treating head and neck cancer patients. Each site was visited by members of the Head and Neck Review Group who compared the sites against standards proposed by the British Association of Head and Neck Oncologists (BAHNOC). Following data collection a report compiled by the Review Group was discussed with a panel of national experts. In all, 414 patients were treated by 178 consultants at 40 different hospitals. Only 18 consultants were involved with more than 20 episodes of care, with 101 involved in only a single episode of care. No single site complied with all the BAHNOC standards. As a result of this it was recommended that all major treatment provision be ultimately carried out at 3 sites, that multi-disciplinary functional teams and clinical leads should be established and a process for designating clinical leads should be developed. These teams should also develop clear guidelines and undertake regular audit.

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| Group     | Health Services  |
| Title     | The changing profile of patients using the Community Dental Service in Leeds, UK                     |
| <b>25</b> | M J Prendergast(1)*, J F Beal(1) and J R Clayton(2)  |
| Author(s) | (1)Leeds Health Authority<br>(2)Leeds Community and Mental Health Services Trust, Leeds, England, UK |

The role and functions of the Community Dental Service (CDS) in the UK have been changed in recent years. The emphasis for patient care provision should be towards those groups unable to obtain, or unwilling to seek care from general dental practitioners. This study investigated the socio-demographic profile of CDS patients in 1996/97 and determined any changes since 1991/92. Information from routinely collected patient care activity data was used to construct a profile of patients using the service for at least one course of treatment in each year. Using their postcodes, individuals were allocated to an area deprivation quintile according to the Townsend Score of their district of residence. The CDS was used by 8021 patients in 1996/97 compared with 9372 in 1991/92. The age profile of patients changed over the period with a reduction in the proportion aged 5–15 years from 75% to 65% and an increase in the 16–64 year olds from 13% to 19%. Almost one quarter (24%) of children under 16 years old seen in 1996/97 were of South Asian ethnic origin, a much higher proportion than the 6% reported for Leeds in the 1991 census. Two thirds of the patients in 1996/97 were from districts in the two most deprived quintiles, a small but significant increase in comparison with the 60% seen previously ( $P<0,001$ ). The proportion of patients with special needs increased from 19% to 29% ( $P<0,001$ ) over the 5 years of the study with the greatest increase being shown in 16–64 year olds. This study indicates that the CDS in Leeds is adopting its new role in the delivery of patient care to target groups. Profiling of patient care activity data is a useful tool for monitoring the progress of these changes.

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| Group     | Health Services   |
| Title     | Can glass ionomer sealants be economical?                     |
| <b>26</b> | S Kervanto-Seppala1*, E Lavonius1, I Pietila2 and E Kerosuo2. |

Author(s) 1Institute of Dentistry, University of Helsinki, Helsinki and 2Health Centre, Municipal of Varkaus, Varkaus, Finland

Glass ionomer (GI) applied as a pit and fissure sealant has been shown to be a promising method in caries prevention but not superior on the community level when compared to the resin based (RB) material. The purpose of this study was to evaluate the factors influencing the time used to apply a sealant, and thus the cost-effectiveness of the RB and GI sealants supposing they share an equal caries preventing effect. Children born between 1980 and 1983 were examined and the appropriate second molars sealed in 1993–6. The sealant material was either RB (Delton) or GI (Fuji III). The present study was based on a sub-sample where 131 teeth were sealed, 79 with RB and 52 with GI. The whole procedure of applying a sealant, beginning from the cleaning of the tooth to a finished sealant, took 332 ( $\pm 64$ ) seconds(s) with RB and 578 ( $\pm 99$ ) s with GI ( $P < 0.001$ ). There was no statistically significant difference in the time requested between the types of sealants made in the upper ( $409 \pm 151$  s) jaw. It took the dentists significantly ( $P < 0.01$ ) less time ( $351 \pm 118$  s) compared to the hygienists ( $446 \pm 145$  s). This is explained by the fact that the dental hygienists work alone and the dentists with a dental nurse. In an earlier retrospective study (unpublished) the need for resealing a second molar due to a completely or partly lost resin sealant was found to be 31.2%. Considered the resealing is done only to teeth previously sealed with RB and no GI sealants are resealed, RB still remains more cost-effective sealant material than GI, when the effectiveness is evaluated according to the time requested.

Group Health Services  
27 Title Changes in the socio-professional status of dentists in Bulgaria  
Author(s) L Katrova. Faculty of Stomatology, Department of Public Health, Sofia, Bulgaria

The aim of this study was to determine the influence of the revolutionary social changes in Bulgaria (1989–1997) on the socio-professional identification of dentists. A sociological survey was conducted involving 842 dentists from the total of 1707 working in Sofia. The majority worked in the salaried public sector (42%) with 30% working in mixed settings: public service and private practice and 28% were entirely in private practice. The questionnaires were completed by 86% of the dentists enrolled. It obtained information on the structure of the oral health service, the status of dentists, their mobility and attitudes towards the current state of dental education and service. Almost all dentists had started their career as salaried dentists. 43% of them had left the public sector after the Changes. Now more than 50% are working under private contracts. Although more than 70% of dentists are female with an average age of less than 40 years, the private sector was characterised by younger aged males and older-aged females. Private practitioners showed higher levels of satisfaction with their profession (97%) compared to salaried dentists (80%). The majority valued the quality of undergraduate dental education (74%) but only 25% considered postgraduate education and vocational training to be very good. In conclusion, after the Changes the dental profession in Bulgaria tends to follow a pluristic model of practice based on autonomous development. The impact of these significant socio-professional changes on dental health and access to care for the population will need to be carefully monitored in the future.

Group Health Services  
28 Title Demand for oral health related drugs in pharmacies on night duty  
Author(s) M C Balanzategui\*, A Rubalcaba, A Apellaniz and F J Goiriena. Department of Stomatology, Faculty of Medicine and Dentistry, University of the Basque Country, UPV/EHU, Spain

A study was carried out to determine the demand for oral drugs in pharmacies on night duty, the reason for asking drugs to and the specific drug dispensed. The data regarding dispensing (medicament, pharmacological principle, and type of prescription) were collected in pharmacies

on night duty (22:00–09:00) in Bilbao. In addition, the pharmacist on duty recorded the gender and age of the patient, and the particular disease. Results indicated that 3% of the medicines were related to oral diseases. Of these, 90% were given to men and 10% to women in the age 24 to 44 years. The reason for seeing the pharmacist was infection and dental pain. The drugs requested were antibiotics and analgesics. Among the former, the most handed out was Espiramicina (65%), and among the analgesics, Ibuprofen (40%). 68% of the dispensations were realised following pharmaceutical advice, while the rest were self-medication. Medical or dental prescription were not seen. It may therefore be concluded that emergency oral care place excessive demand on pharmaceutical emergency services.

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| 29 | <p>Group                      Health Services</p> <p>Title                        An investigation into the treatment of cleft lip and/or palate in Kent, England</p> <p>Author(s)                C Allen*, V Harrison and D E Gibbons. West Kent Health Authority and UMDS Guy's Hospital Dental School, England, UK</p> |
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A recent report by the Clinical Standards Advisory Group (CSAG 1998) suggested that there are too many centres in the UK offering cleft lip and palate services, which appear to result in poor clinical outcomes. Shaw (1996) recommends 30 new cases per operator per year as a minimum involvement for primary surgery. The aim of this study was to investigate the number of cleft lip and/or palate cases being treated in the Kent population (approx. 20,000 live births with an expected 30 cases per annum), where this treatment was taking place, by which operators and in what speciality. Cleft treatments were identified using operation codes and patient identifier. Two data sets were analysed for the three year period April 1993 to March 1996. One for children born in the survey period who would require a primary lip repair and a second for patients born before 1993 who would require revision operations or bone grafts. For the primary repair group, 67 cases were treated by five operators in 5 centres. Of these, 56 (86%) were treated in the same hospital by the same plastic surgeon. Only two (3%) were treated by an orolmaxillofacial surgeon. For the later treatment group, 191 cases were treated by 15 operators in 8 centres. The majority 135 (71%) were in the same hospital, 81 (60%) by the same plastic surgeon, 40 (30%) by four orolmaxillofacial surgeons and 14 (10%) an ENT surgeon. **Conclusions** From this study it can be seen that none of the operators met the suggested minimum criteria. There were no dedicated cleft lip and/or palate teams. The recording of information was poor, thus data were difficult to analyse.

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| 30 | <p>Group                      Health Services</p> <p>Title                        Frequency and reason for referral for dental impactions, excluding third molars, in order to plan a hospital-based service</p> <p>Author(s)                F Villar*, I Martín, G Santamaría, I Arteagoitia, P Cearra, J Gil, J Santamaría and S Landa. Department of Stomatology, University of the Basque Country, UPV/EHU; Hospital de Cruces, Hospital de Basurto, Spain</p> |
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**Introduction** Teeth failing to erupt and anomalies in number make up two of the most frequent pathologies in the area of stomatology. However, their study, excluding tertiary molars appears to be little considered since there are few reports in the bibliography. In order to plan the need for a hospital-based service to meet any referral requests, we carried out a retrospective, descriptive study on a randomised sample of 251 patients with these pathologies, who were diagnosed and treated in the Cruces and Basurto hospitals over the period 1987–1998. **Aims** To describe the relative frequency of the various dental inclusions, the reasons for visiting the dentist, their correlation with the tooth affected, the prevalence with respect to sex, and the jaw in question. **Results** 51% of the patients were women, and 49% men. The age mode was in the fourth decade of life. Maximum incidence was in the upper jaw (89%) and for the upper canine (52%). Of those of the lower jaw, the canine was again the most common tooth retained

accounting for 5% of total retentions. The main reasons for a visit were absence of the tooth (44%) and a chance X-ray finding. The most frequent positions for the impaction was a mesoangular inclination (58%) and a palatine location (80%). The prevalence of mesiodens was 3%, distomolars 0.45%, upper canine 7%, and lower canine 0.7. Retention of a *mesiodens* is most frequent in men, while retention of the canines is more frequent in women. Reabsorption of adjacent teeth accounted for 3.2% of the cases. **Conclusions** The retention most often displayed, apart from third molars, is that of the upper canine. Cases of retention are most frequent in the upper jaw for all teeth except in lower premolars. An average of 2 to 3 patients each year have accessed this hospital service.

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| Group     | Health Services  |
| 31 Title  | The contribution of dental disorders to short term illness within a community of Bilbao (Osakidetza) over a twenty year period |
| Author(s) | C Prado, P Cearra, M L De Orte, J A Cearra* and J Prado. University of the Basque Country, Spain                               |

**Objective** The aim of this study was to measure the contribution made by dental disorders to the incidence of temporary disability reported within a community of Bilbao health district.

**Method** The database comprised clinical histories of the full range of patients attending the area's general medical practitioner with cases going off, going back on, or continuing.

**Results** The area has 1831 persons, of whom 56% were working. Over 20 years, 1870 cases (94 per year) of temporary disability were identified. 52% of the patients were male. The majority were married and of middle age or more. The most common professions were business (14%) and health (8%). The annual average frequency of temporary illness was 11%, most often caused by infectious pathologies. The main causes of short term illness were viral infections (28%) and trauma (22%). Temporary disability caused by oral pathologies accounted for 2% of the total. The principal oral conditions were cellulitis (47%) and problems with wisdom teeth (25%). Conclusion: Dental ill health can impact on the ability to work and although a minor component it does affect the economic activity of a community.

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| Group     | Health Services  |
| 32 Title  | Dental extractions are the principal treatment provided by the public clinics of Bilbao (Osakidetza) |
| Author(s) | N Minguetz, M L De Orte, A Blanco, P Cearra* and R Triana. University of the Basque Country, Spain   |

**Objective** The purpose of this study was to consider the contribution that dental extractions make to the service provided by Osakidetza public clinic over a 10 year period (1990–1998).

**Method** The medical attention sheets were delivered to the surgery, where we gathered the following data: time of the visit, number of patients, date, patient's personal particulars, teeth extracted, reason for the extraction, pharmacological treatment employed, complications, X-rays requested, consultation with other specialists and adverse reactions to medication.

**Results** The results show over 98 months 17,116 surgical operations were carried out. This comprises 56% of the total service rendered in the surgery. The average number of patients seen per day was 26, each for a period of 6.2 minutes. There were 25,580 teeth extracted. The reason for extraction was caries or mobility. Conclusion: Extractions account for 56% of the cases handled at the community centre. We would like to see a change in mentality, with a switch from surgical to preventive dentistry.

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| Group     | Health Services   |
| 33 Title  | Dental attendance among 20–25-year olds adults in Sweden                |
| Author(s) | P Stenberg. Lund University, Oral Diagnostics Department, Malmo, Sweden |

In Sweden, the aim of health policies has been to provide an equal distribution of dental services to all children and teenagers. Thus, dental care is annually offered free of charge until the 20th year of birth. Besides providing good clinical treatment, there has also been a strong ambition to inform children/adolescents and their parents about the aetiology of oral diseases and how to prevent its onset. The outcomes of dental health services are frequently measured by clinical parameters. But little is known about the behavioural and cognitive effects of such a treatment regime. The purpose of the present study was to investigate, in a population of young adults, patients' further attendance to dental care, attitudes to and experiences of dental care and self-assessment of dental health. The sample consisted of 650 individuals aged 20–25 years that were randomly selected. A mail questionnaire comprising 70 questions was returned by 476 individuals. The questions reflected behaviour, attitudes and experiences in dental care. 82% reported regular dental visits in 1995 and 1996. Those who reported postponement of their dental visit were, in general, dependent on study-support. 63% responded that they could afford to pay 400 SEK (40 UK) for an annual check-up which is in accordance with the standard rate. 59% answered that they felt satisfied with the teeth appearance. 39% responded that they had a high or very high need of dental treatment.

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| 34 | Group     | Health Services  |
|    | Title     | Capitation registrations in England 1997. An inverse "dental" care law or what?                                  |
|    | Author(s) | C M Jones* and D N Christensen. North West Dental Public Health Resource Centre, Wesham, Lancashire, England, UK |

The inverse care law, coined by Julian Tudor-Hart in 1971 (Lancet, 7696:405–412) describes how people most in need, are least able or likely to access medical care. Routine dental registration data from the English National Health Service and deprivation scores derived from a nation-wide Census in 1991 was used to see if an inverse "dental" care law exists for children. The analysis used Health Authorities (N=100) in England in 1996/97. The Department of the Environment (DoE) index of deprivation uses 7 census indicators to derive a score with an average of zero. Prior to 1997, children registered for free dental treatment under a capitation scheme with an NHS dentist in England. If the child did not attend within 12 to 24 months their registration lapsed on the January of the second year and they were deleted from the capitation list. The total number of children registered in England was 68% (5,515,029) in December 1996. The percentage registered in each HA was associated with deprivation ( $r^2=0.40$ ,  $P<0.001$ ). In January 1997, 17.8% of children registered lapsed (HA ranged 12.8% to 30.3%) and this was also significantly related to deprivation ( $r^2=0.66$ ,  $P<0.001$ ). In conclusion: variation in registration and lapse rates was significantly associated with poverty as measured by the DoE deprivation index. We conclude there is evidence of an inverse "dental" care law for children in England.

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| 35 | Group     | Health Services   |
|    | Title     | An analysis of Swedish general dentists' attitudes towards patient and treatment related factors with special reference to prosthodontics |
|    | Author(s) | M Kronstrom, S Palmqvist, B Soderfeldt* and G E Carlsson. Centre for Oral Health Sciences, Lund University, Sweden                        |

The aims of this study were to describe of responses to attitudinal questions to GP dentists in Sweden, to trace underlying dimensions and to explain the dimensions by age, gender, prosthodontic activity, comfort in profession and delivery system of dental care (public or private). The random sample consisted of 2100 general practitioners in Sweden. The response rate was 76% (1567 dentists, 42% female and 58% male, 50% employed in public and 50% in private). Ten attitude questions about co-operation, patient orientation, delegation and information were included in the questionnaire. There were great variations in responses which were factor analysed with three factors emerging, "patient influence", "delegation" and "patient

information". In regression models, working in private practice and young age of the dentist were related to a positive attitude to patient influence, while females, working privately, good comfort in profession and low prosthodontic activity were associated with a positive attitude to patient information. All models showed significant results but had a low precision for the explained variance. It was concluded that attitudes could be structured along few dimensions, that there were clear differences between the delivery systems, and that the degree of prosthodontic activity could be interpreted as an index of a professionalised attitudinal structure.

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| Group           | Health Services  |
| <b>36</b> Title | Work stress in human services in relation to an index of dental health                   |
| Author(s)       | M Soderfeldt* and B Soderfeldt. Centre for Oral Health Sciences, Lund University, Sweden |

The aim of this study was to analyse the relationship between work-related stress in human services and an index of dental health, testing the hypothesis that the emotional exertions in such work affected the dental health negatively. A questionnaire was sent to a random sample of 4169 employees in the Social Insurance Organisation in Sweden. The response rate was 76% (3173 persons). The questionnaire contained four questions on dental conditions that were used for an additive index of dental health and used in a regression model with social background variables and measures of work related stress. Of the study population, 22% were very satisfied with their teeth, 80% could chew without problems, 14 % had experienced toothache the previous year and 54 % had all their original teeth. These questions constituted the additive index, set as dependent variable in a multiple regression model. Age, education, and social network had independent effects. Of the work stress variables, only emotional demands had an effect. The model was significant with 7% explained variance. Except for the expected association with age and education, it was concluded that social network was related to dental health and that the special problems in human services also caused problems with dental health.

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| Group               | Health Services  |
| Title               | Dental treatment for children under day stay general anaesthesia at a London dental hospital   |
| <b>37</b> Author(s) | R D Holt(1)*, J S Kaufman(2) and D C Rule(3)<br>Departments of Transcultural Oral Health(1) and of Paediatric Dentistry(3), Eastman Dental Institute, and of Child Dental Health, Royal London Hospital College Medical and Dental Schools(2), England, UK |

Use of general anaesthesia for comprehensive dental treatment has been well documented but has changed with time. Information about morbidity after treatment using this method is also limited.

The objectives of this study were first, for a group of young patients attending for treatment under general anaesthesia, to determine the duration of the appointment and of anaesthesia, the nature of treatment and morbidity during recovery. Secondly, by means of a questionnaire to their parents, to investigate cost of attendance to the families, post-operative morbidity after discharge, and acceptability of the care received. Results relate to 100 patients (55 boys and 45 girls) who were observed and for whom questionnaires were completed and returned (76% of those attending during a 23 week period). Families spent a mean of 251 minutes ( $\pm 62.13$ ) at the centre. Forty of the children had minor oral surgical procedures carried out. 93 patients showed some degree of morbidity after treatment, most often in the form of anticipated oral pain, drowsiness or minor haemorrhage. Eighty three adults had needed to take time off work to attend for the appointment and 39 families required child care arrangements for other

children. Parents of 90 of the children said that they would be happy for their child to have treatment in the same way again if necessary. It was concluded that the service continues to be of considerable value, especially for child patients who require minor oral surgery or multiple dental interventions. Attendance had been at a cost to families in both time and money but may have been cheaper than alternative forms of treatment. The service has continued to be largely acceptable.

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## Health Promotion / Prevention

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| Group     | Health Promotion / Prevention   |
| Title     | Community workers as opportunistic dental health educators  |
| <b>38</b> | C Budd, A Newton, P Phillips, S Ramsey, S Saunders*, K Sutton and S Thomas. Southampton Community Health Services NHS Trust and University of Southampton Department of Teaching Support and Media Services, Southampton, England, UK |
| Author(s) |   |

In the UK, community workers assist people to identify their own needs and resources to meet them. They are employed in specific communities such as housing estates and centres of unrest, and promote key local policies and issues of national concern in areas such as health. They frequently come into contact with groups who are least likely to access dental care but have greatest need. Therefore, the aim of this study was to determine whether community workers in Southampton (n=30) could give dental health advice to parents of children under 5 living in deprived communities. Baseline knowledge levels of the community workers were assessed by questionnaires. 4 focus groups of parents (n=34) living in the deprived areas were recruited and a range of dental issues discussed using semi-structured interviews. A multi-disciplinary team developed a video script and animatic which was tested with the parents. Levels of dental knowledge were good with 83% of community workers aware of the importance of frequency of sugar consumption and appropriate use of toothpaste. Disappointingly, 33% were not worried about the premature loss of deciduous teeth as they would be replaced. Most (63%) agreed that community workers should be able to answer clients' questions about dental health issues but 25% did not know how to advise finding an NHS dentist. Parents wanted advice on reading food labels for sugar content, and positive alternative snacks. They preferred video as a medium for enhancing knowledge. In conclusion: community workers do see a role in promoting dental health, although information is needed to improve their baseline knowledge. Follow up studies are planned to evaluate the use of the video in the targeted communities, and the change in knowledge of parents and community workers. *This project was funded by the Department of Health, England, UK.*

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| Group     | Health Promotion / Prevention  |
| <b>39</b> | Evaluation of the motivation to oral health care in childhood          |
| Title     |  |
| Author(s) | L Frias-Bulhosa. Dept. Genetica ISCSN – Praceta de S. Mamede, Portugal |

The main purpose of the study was to evaluate the reasons which led children to be aware and take care of their oral health. The survey was carried out on a sample of 475 pupils, 220 boys and 255 girls, aged between 6 and 11 (average 8.3 years). These pupils attended the first grade of a primary school in Oporto District (Portugal). A questionnaire was used that was filled in at school. Pupils who had already filled in the questionnaire were not allowed to talk to the ones who had not. Results showed that the media played the most important role in childrens' basic oral health care. Not only the shape of the dental brushes, specially designed for kids, but also the flavour of the toothpastes were strong reasons that influenced the kids' oral health in a positive way. 56% of these pupils used the family toothpaste. Only 5% said they had started

brushing their teeth on a daily basis upon advice of their dentist. 28% of children had been to the dentist. It is very important to establish good relationships between the children and oral health professionals. For Portugal it will be necessary to re-evaluate the methods used or applied in oral public health including the analysis of cost-utility and cost-effectiveness of the official programmes of oral health for this age group.

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| <b>40</b> | <p>Group                    Health Promotion / Prevention</p> <p>Title                     Knowledge and use of oral hygiene habits and the informative role of dentists</p> <p>Author(s)                B Zubiaur*, E Lopez, S Vuelta, A Anta and C Larrinaga. Ermua, Vizcaya, Spain</p> |
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The aim of the study was to assess the relationship of oral hygiene habits and the level of satisfaction by the patients with the number of visits to the dentist and the level of information that dentists provided. A questionnaire was sent to 285 subjects chosen at random, from Bilbao, Vitoria-Gasteiz and Ermua (Spain), equally divided by age and gender. 16% of the interviewed considered their oral hygiene excellent. 52,2% said to practice good oral hygiene (69.6% used dental floss and 51.3% used mouth rinses). 67% of the these interviewed said that the dentist had explained brushing techniques sometimes. Of the interviewed 9.6% never visited a dentist, 26.% only when they had pain and 62.6% visited the dentist once or twice a year. There is a relationship between the levels of knowledge on oral hygiene methods and the degree of satisfaction by the patients.

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| <b>41</b> | <p>Group                    Health Promotion / Prevention</p> <p>Title                     Attitudes, oral habits and knowledge of oral health in women participating in community activities</p> <p>Author(s)                F Gomez Perez de Mendiola<sup>1(2)*</sup>, H Parra Vinos<sup>(1)</sup>, R Preciado Ruiz de Gauna<sup>(1)</sup>, P Lafuente Urdinguio<sup>(2)</sup> and E Irurzun Zuazabal<sup>(2)</sup><br/> <sup>(1)</sup>Municipal Department of Health and Consumption<br/> <sup>(2)</sup>Faculty of Medicine and Dentistry, UPV/EHU, Spain</p> |
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The aim of the study was to investigate the attitudes, habits and knowledge about dental health in a sample of women from Vitoria-Gasteiz (Spain), who participated in community activities. A questionnaire was sent to a sample of 447 women randomly selected. The data were analysed using SPSS. The mean age of those interviewed was 45.7 years. 73.6% had no knowledge about fluoridation of the public water supply. 52.7% considered that some kind of dental treatment. was required. 20.1% said that they had gingival bleeding every time to quite frequently whilst brushing. 48.5% brushed their teeth three or more times each day and 27.3% replaced their old tooth brush every three months. This was lower in the older age group. 55.2% visited the dentist less than once a year and 34% only went when they had problems. 58.0% would like the Dental Services to be entirely free and be rendered by the National Health Service, while 29.6% preferred an entirely free Dental Service. In conclusion: the study group had little knowledge about the fluoridation of the public water supply. The frequency of applying oral hygiene habits and visiting the dentist were rather low.

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| <b>42</b> | <p>Group                    Health Promotion / Prevention</p> <p>Title                     Knowledge about aetiology and prevention of oral diseases in a school population in Alava, Spain</p> <p>Author(s)                P Pedraz*, P Lafuente, E Irurzun and B Gorritxo. Faculty of Medicine and Dentistry, University of the Basque Country, Spain</p> |
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Oral health education plays a very important role in improving population's oral health. It stimulates proper oral habits and reduces the risk of becoming diseased. The objective of the study was to determine the knowledge on oral health in a school population. A sample of 480

schoolchildren (262 boys and 218 girls), from two urban populations in the province of Alava (Spain), was randomly selected. The mean age was 12.2 years. The questionnaire was centered on aetiology and methods for prevention of caries and gingivitis. The results were analysed using SPSS. 45.2% of the scholars considered caries a disease. 26.9% were unaware that caries can affect milk teeth and only 29.0% knew that it can affect a tooth with a restoration. 52.5% thought that pain and cavitation were symptoms of incipient caries. 64.2% knew the importance of micro-organisms in its aetiology and 89.4% the importance of sugar. 53.8% thought that regular intake of sugar was less harmful. 45.6% believed that dental floss is the better method to clean the interproximal tooth surfaces. 92.1% didn't know the role of fluoride in preventing dental caries. 92.3% didn't know the meaning of gingival bleeding. Knowledge and prevention in oral health should be improved in the child population studied through adequate oral health education.

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| Group           | Health Promotion / Prevention  |
| <b>43</b> Title | Effects of a preventive program on root caries   |
| Author(s)       | A Brodzikowska. Department of Conservative Dentistry, The Medical University of Warsaw, Poland |

The study comprised 119 patients, aged 35–75 years, with exposed root surfaces. At the baseline examination, coronal caries was scored using DMFS and root caries was estimated using the RCI. Moreover, oral hygiene index (OHI), bleeding on probing and plaque formation rate after professional tooth cleaning were scored, and prevalence and activity of root caries (according to Katz and Nyvad-Fejerskov) were evaluated. In all patients *Streptococcus mutans* counts were calculated using Dentocult SM "Strep mutans". Three test subgroups were selected. In the first subgroup, which comprised individuals with PRFI=2 and *S. mutans* 0–1, fluoride varnish was applied every 3 months. In the second subgroup (SM=2, PRFI=3) and in the third group (SM=3, PRFI=4) root surfaces were treated with chlorhexidine varnish. The Control group received only professional mechanical tooth cleaning every 6 months. The results showed a decrease in the number of tooth surfaces with active root caries in all test groups, especially in subgroup 2 and 3. No new caries lesions were found. At the same time, patients from the control group developed new caries lesions and the existing ones were expanding. Chlorhexidine varnish and, to a lesser degree, fluoride varnish protected new caries development in root surfaces, and facilitated the conversion of existing, active lesions into inactive ones.

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| Group           | Health Promotion / Prevention  |
| <b>44</b> Title | Promoting oral health within an urban environment                        |
| Author(s)       | S Boulton. Dental Public Health Department, Coventry Health, England, UK |

The scientific basis of dental health education is well established. However, capturing the interest and attention of adults surrounded daily by sophisticated media messages is a continual challenge for oral health professionals. Methods involving community participation are advocated within a primary health care approach. The aim of this project was to involve a broad section of the community in the city of Coventry to develop an innovative display of an oral health message daily visible to people within the city. Discussions were undertaken with the city council to use central green areas within the city centre for a floral display of a dental health message, the design of which was to be judged through a city-wide competition. A series of meetings were conducted with head teachers across the city, a leaflet was designed illustrating how school curriculum activities could incorporate consideration of oral health messages and possible designs. Once the displays had been established a street survey was undertaken of 100 randomly selected adults in the city centre. The project led to co-operation and involvement of 63 schools, the chairman of the local dental committee, health promotion specialists, city councillors and the local media and over 400 applications. In conclusion: few campaigns within

the city centre have achieved so much interest and support and with less than 50% of adults attending the dentist with any regularity, it is important that health professionals maintain an open mind for innovative methods to bring messages to the attention of a wide spectrum of the population in a non-judgemental way. *The project was financially supported by Coventry City Council, England.*

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| Group           | Health Promotion / Prevention   |
| <b>45</b> Title | Oral health promotion and the general dental practitioner                                       |
| Author(s)       | V Binnie* and M McCann. Dental Public Health Unit, Glasgow Dental School, Glasgow, Scotland, UK |

For the purposes of determining the current practices and training needs of general dental practitioners (GDPs) in Scotland with regards to oral health promotion, a questionnaire was designed with sections relating to health education, prevention and health protection. This postal questionnaire was sent out to a random sample of 1:7 GDPs, 249 in all. One hundred and sixty nine practitioners replied, giving a response rate of 68%. With regards to health promoting practices which routinely took place within the surgery, high numbers of GDPs undertook traditional prevention/health education activities. Provision of tooth-brushing advice was cited by 96% (162) of GDPs, advice on interdental cleaning was provided by 89% (151), with 92% (156) reporting that they routinely gave dietary advice with regards to prevention of dental caries. When asked about the provision of fissure sealants and the prescribing of fluoride supplements, in both cases, 75% of GDPs answered in the affirmative. While high numbers participated in oral cancer detection (81%, 137), lower numbers were presently engaged in oral cancer prevention. Only 41 % gave smoking cessation advice, with 3% giving advice on alcohol consumption and its effects on oral health. A mere 10% lobbied for water fluoridation within their own practices. With regards to training needs, 67% wanted guidance on changing patients' behaviour, and 57% wanted updated on periodontology. Training in running a preventive dental unit was requested by 60% of the GDPs, with 57% wanting information on pre-fives oral health promotion. Disappointingly, only 10% (16) GDPs wanted training in smoking cessation counselling. While Scotland's GDPs are involved in attempting to improve the oral health of 5-year-old children, a key area of concern in Scotland, the promotion of general dental practice-based smoking cessation has the potential for further development.

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| Group           | Health Promotion / Prevention  |
| <b>46</b> Title | Oral hygiene and treatment needs in senior citizens in Godella, Valencia. Evaluation of a five-year assessment programme |
| Author(s)       | Q Macian Esteve*, P Ibuez Cabanell, L M Navarro Donderis, J M Roig. Garciaand P Sayas Alcayde, Spain                     |

The aims of the study were to determine the oral health of the senior citizens, to establish the appropriate preventive measures for this age group and to raise the level of oral health education. The randomised sample consisted of 221 patients (81 men, 140 women). The investigation was carried out according to WHO criteria. The questionnaire regarding oral health habits made at the Dental School of Newcastle (United Kingdom) and the appropriate macromodels for teaching and learning in relation to oral hygiene were used. The elderly subjects joined the programme voluntarily through their social worker at the Godella Health Centre. The oral examination and behavioural assessments were carried out by oral hygienists. A IHO score of 0–0.99 was found in 35.5% of the study group whereas 45.2% had a score of 1–1.99 and 19.4% a score of 2–3. 58.3% of the sample needed partial and 8.3% a full denture. The I-CR was 0,48. The results of the survey on oral hygiene were: 46% were highly satisfied with their ability to bite and chew. 91% visited the dentist only when they had some problem. In spite of the programme, there is still a large part of the study population that have low rates of oral hygiene and low attitude towards the need of visiting the dentist. There is a need to reinforce the health education programme.

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| Group           | Health Promotion / Prevention  |
| <b>47</b> Title | The influence of additive fluoride and filling load on the retention and quality of fissure sealants |
| Author(s)       | Ch Hirsch*, H Biedermann, H Schuster and M Waurick. Martin-Luther-Universität Halle, Germany         |

The effect of fluoride on the retention of fissure sealants was studied in 105 lower first permanent molars of children. A fluoride-free material (Fissurit, VOCO Germany, 50 teeth) was compared to an identical, fluoride-containing material (Fissurit F, 55 teeth) over a period of 18 months. Using the chi-test (SPSS), no differences in retention between the two materials could be detected ( $P>0.05$ ; evaluation in 3 categories: A=completely preserved, B=partial loss, C=total loss). After 12 months, the results were 75.5% (A), 22.2% (B) and 2.3% (C) whilst after 18 months the results were 61.9% (A), 33.3% (B) and 4.8% (C). To study the influence of filling load a comparison was made regarding the retention as well as the development of porosities or marginal defects (modified after USDPH) of two fluoridated but differently filled sealant materials (Fissurit F, VOCO, Germany and Helioseal F, VIVADENT, Liechtenstein). 61 participating children at the age of 5 to 11 years (average: 7.6 years) had their lower first permanent molars (n=122) sealed following the split- mouth-technique. Between the two materials, no significant difference in the retention behaviour could be detected (Log Rank-Test,  $P=0.25$ ). After two years, there was no total loss (category C=0%). After one year, 84.2% of the sealants were completely retained and 15.8% were partially lost. After two years, these figures were 38.9% and 61.1 %, respectively. The number of air inclusions (porosities) and marginal defects, however, was significantly higher for the non-filled FISSURIT F than for HELIOSEAL F (MANOVA,  $P<0.0001$ ). Thus, the use of fluoridated and filled fissure sealant materials should be preferred.

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| Group           | Health Promotion / Prevention   |
| <b>48</b> Title | Efficacy of three prophylactic programs for reduction of caries and gingivitis among schoolchildren |
| Author(s)       | K Grocholewicz*, E Weyna and D Banaszek. Pomeranian Medical University, Szczecin, Poland            |

The aim of the work was the assessment of three selected prophylactic-educational programs in relation to reduction of caries and gingivitis over a period of 4 years. Two hundred twenty-three Polish children were randomly allocated to three test groups (I, II, III) and one control group. Group 1 consisted of subjects that were individually trained in everyday tooth-brushing only. The program for group II was extended with educational activities among the children and their parents. The program for group III contained additionally PMTC, selective use of professionally applied fissure sealants on permanent molar teeth, flossing and intensive dental care. After four years a reduction of caries and GI was obtained. The programs in which the children's parents had been involved in the prophylactic-educational programs, showed higher efficacy.

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| Group           | Health Promotion / Prevention  |
| <b>49</b> Title | Caries occurrence in children after xylitol induced reduction in transmission of mutants streptococci                                  |
| Author(s)       | P Isokangas, E Soderling, K Pienihakkinen* and P Alanen. Ylivieska Health Centre, Institute of Dentistry, University of Turku, Finland |

The present study aimed at evaluating the effects on caries development in children after completion of the mother-child program for preventing transmission of mutans streptococci (MS) from mother to child. The mothers were invited to participate during pregnancy and screened for a high level of salivary MS. The mothers in the xylitol (X) group were requested to use xylitol chewing gum daily between 3 and 24 months after delivery. The control (C) group

was treated with a fluoride varnish (Duraphat) and the chlorhexidine (CHX) group with a chlorhexidine varnish (EC40) at 6, 12 and 18 months. The long term habitual xylitol consumption by mothers affected the mother-child transmission of MS. At 2 years of age, the child's risk of having MS colonisation in the dentition was 6-fold in the C-group in comparison with the X-group. Colonisation was strongly reflected in the occurrence of caries at the age of 5 years. Of those who were MS-free at the age of 2 years, 30% had caries at the age of 5 years, whereas for MS-carriers the corresponding figure was 75%. The dmf- index at the age of 5 years was 0.8 in the X-group (N=90), 2.9 in the C-group (N=30), and 3.2 in the CHX-group (N=23) ( $P<0.001$ ). The results indicate that mother's habitual use of xylitol chewing gum during eruption of children's teeth, has a beneficial effect in the prevention of caries in the children.

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| <b>50</b> | <p>Group Health Promotion / Prevention</p> <p>Title Community programmes related to oral health and gingivo-periodontal condition. A critical analysis</p> <p>Author(s) M J Martin-Perez, M S Martin-Perez and L Malo Perez. C/San Genadio, Ponferrada, Spain</p> |
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A community epidemiological study was carried out to assess the effect of the Oral Health Programmes (PSBD) regarding the periodontal condition of populations of children. Using the WHO criteria, 12-year-old schoolchildren in the El Bierzo Health District (Spain) were examined over a period of eight years. During this period there was a programme in operation to encourage the prevention of oral health, focussing on regular dental attendance, community fluoridation and the application of sealants. According to the CPITN criteria, 59.2% of the sextants were healthy, 27.5% bled after probing and in 13.3% of the sextants calculus was recorded. 50.4% of the sextants were in need of TN1 treatment and 30.5% of TN2. The severity of code CPITN2 was 0.8 sextants per child and 1.7 for CPITN1. The number of healthy sextants per child examined was 3.6. Over the eight year period, the prevalence of dental caries decreased by 59.2% and the mean DFMT score by 72.1% (from 3.3 to 1.1). The current community programmes for schoolchildren (PSBD) seem to be highly effective in reducing dental caries, but their effectiveness in the control of periodontal disease is questionable.

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| <b>51</b> | <p>Group Health Promotion / Prevention</p> <p>Title Xylitol based caries prevention without professionals suggests cost-effectiveness</p> <p>Author(s) P Alanen*, P Isokangas and K Gutmann. Institute of Dentistry, University of Turku, 20520 Turku, Finland</p> |
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Several studies have demonstrated the caries preventive effect of chewing gums sweetened by xylitol. A field study applying xylitol candies and chewing gums started in Estonia in 1994. 740 ten-year-old children participated at baseline. Twelve school classes were divided into a xylitol (n=9) and a control (n=3) group. The products were delivered by teachers during the school days, excluding Saturdays, Sundays and holidays. The daily administered dose of xylitol was 5 g. The children were re-examined every September. 80% of the participating children at baseline were examined blindly in 1997. Results after three years demonstrated no differences in caries rates within the xylitol groups. There was an overall caries reduction of 56–59% observed compared to the non-xylitol groups ( $P<0.001$ ). Despite the three-month break in the use of xylitol due to the summer holiday, the preventive effect was at the same level as in most xylitol field studies. Compared to previous studies, the annual use was reduced with almost 50%. Despite the fact that the economical analyses are not yet available, we suggest that caries prevention with xylitol may be cost-effective. There is no need for long-lasting education of personnel, specific equipment, and visits to dental clinics. The use of xylitol products can be supervised at school, and the preventive program can be implemented without delay and without large investments. This makes the Xylitol program suitable for countries with well running school system but shortage of health care resources.

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| Group           | Health Promotion / Prevention   |
| <b>52</b> Title | Perceived quality of dental treatment in the dental clinic                                    |
| Author(s)       | G Santamaria*, S Rodriguez-Poyo, J Vinuales, L A Villar and G Basauri. Gorliz, Vizcaya, Spain |

The objective of the study was to investigate the level of knowledge that patients had about education and oral hygiene. The patients were asked about the information of oral hygiene given by their dentist, and how the patients valued the quality of the treatment given. A sample of 200 patients randomly chosen was used. A questionnaire consisting of eight questions was used to interview the subjects. Questions were related to proper tooth-brushing techniques, proper use of dental floss, recommended and not recommended dentifrice, hygiene and auxiliary methods for cleaning of the dentures, time required to return for a check-ups and satisfaction with the treatment received. 41.8% of those interviewed answered that they hadn't been informed about a proper tooth-brushing technique. 63.1% didn't know how to use the dental floss properly, because they hadn't been told. 88.5% knew the kind of treatment they had received. 35,6% of those with dentures didn't know about the necessary hygienic measures. 28.3% only went to the dentist when they had pain. 15.9% were not advised about the next visit. Using a scale of 1 to 10, those interviewed rated the treatment received by the chairside assistant higher than that of the dentist.

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| Group               | Health Promotion / Prevention  |
| Title               | Scottish adults' knowledge and understanding of oral cancer  |
| <b>53</b> Author(s) | C M Pine(1)*, M C W Merrett(2), M C Curnow(3) and L Zakrewska(4)<br>(1)Section of Dental Public Health and Health Psychology, University of Dundee, Scotland<br>(2)Tayside Health Board, Scotland<br>(3)Perth and Kinross NHS Trust, Scotland<br>(4)St. Bartholomew and The Royal London Hospital, St. Mary and Westfield College, England, UK |

The study aimed to provide a baseline measure of the knowledge and understanding of oral cancer in relation to other cancers in a sample of Scottish adults, aged 50 to 70 years registered in general medical practice. A cohort of 500 patients aged 50–75 years were identified from registration lists of a general medical practice in Perth, Scotland and invited to complete a knowledge based questionnaire. To-date, 336 have completed the questionnaire and 1 in 4 have volunteered to join the next phase of small group discussions. Most patients (83%) knew a friend or relative with cancer and 31% felt at risk of developing cancer themselves. Opportunistic screening in dental practice would be difficult in this group since 43% had not visited a dentist for >1 year. Only 58% were aware that cancer of the lip can occur compared to 90% aware of skin cancer. Although 70% would visit their doctor if they had an ulcer for >3 weeks, only 24% would see a dentist with 5% worrying but taking no action and 14% preferring to ask a chemist's advice. Only 13% were aware that drinking of alcohol can be an aetiological factor in oral cancer. 58% would like to learn more about oral cancer. This study was undertaken because there is an increased prevalence of oral cancer in Scottish adults and it has been recognised as a priority health area. The National Advisory Group on Screening for Oral Cancer has recommended that case finding studies be undertaken to identify individuals at risk. This study has identified that many older adults are unaware of risk behaviour and would welcome more information. *Funding for this study came from the Scottish Office.*

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| Group           | Health Promotion / Prevention  |
| <b>54</b> Title | Developing a health education programme for the visually impaired  |
| Author(s)       | Mover Florentin Special Education Institute, Caracas, Venezuela. C Aristimuño Romero*. Mg.Sc. en Practica Social y Salud, Catedra de |

Staff at the only public special school that exists in Caracas (Venezuela) metropolitan area for children and young people with visual impairment wanted to make a health education program in accordance with the young people's physical, human and social requirements and to establish relationships with the ministry of education's official health education program. The project was developed with the Universidad Central de Venezuela incorporating suggestions to revise the main program. The health education concept used in this study was revised, changing from a training against disease to an education for life. It has three main principles: Health Education as a collective structure of knowledge, Health Education for living projects construction and Health Education joined to medical action. From this point of view we have developed a Health Education program (useful for every collectivity) and a series of general areas to make a program of the oral health component. The program is specifically dedicated to people with special requirements in the visual area (blind and visually handicapped). It has been found to be a great help for the health team, dentist and dental assistant particularly. This program is a result of a series of working sessions with everyone involved in this process.

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| Group           | Health Promotion / Prevention   |
| <b>55</b> Title | Evaluation of a scheme to promote oral health through general medical practices in West-Pennine, UK |
| Author(s)       | S Fuller, England, UK   |

The aim of the study was to evaluate a programme aiming to involve primary care team members in promoting oral health. Medical practices were recruited as 'oral health promoting'. In order to qualify, doctors and their teams undertook to prescribe sugar-free medicines and to promote dental registration, especially for the very old and the very young. The scheme was monitored using 'PACT' data (centrally collected information on prescription analysis and cost) and Dental Practice Board registration data. Results for West-Pennine were compared with those for Wigan and Bolton, an area with a similar socio-economic profile and ethnic mix, where no comparable programme had taken place. The scheme began in January 1995. By October 1996, sugar-free prescriptions of paracetamol had risen from 33% to 47%. Sugar-free amoxycillin prescriptions rose from 18% to 34%, and erythromycin from 8% to 11%. These represented a higher proportion, and a larger rise, than in Wigan and Bolton. Dental registrations of 0–2 year olds rose from 30% to 37% in the same time period. In Wigan and Bolton registrations remained stable at 28%. The oral health promoting practice scheme has increased sugar-free prescribing and dental registration of young children relative to a neighbouring district where the scheme did not take place.

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| Group               | Health Promotion / Prevention   |
| Title               | Oral health in pregnant women   |
| <b>56</b> Author(s) | M T Del Hierro Gurruchaga*, J D Mayor Cruells and T Macias.<br>Department of Stomatology, University of the Basque Country, Bilbao, Spain |

The aim of the study was to assess the dental health of pregnant women and to encourage preventive habits. This initiative was based on requests of these pregnant women. The study was carried out in Uribe-Costa (Vizcaya). During February and March, a questionnaire containing 180 questions was distributed to pregnant women attending the Basque Health Service clinics at Matronas. The questionnaire was divided into five sections: medical history, habits, diet, care received, and dental education. The objective was to determine the oral health needs of pregnant women and to plan oral health education programmes. The number of women participating was 49. The age of the women ranged from 27 to 30 years. Only one of the women had a history of cardio-vascular problems. Nobody had ever taken drugs. They had all used oral contraceptives. 67% were smokers and had started smoking between the ages of

15 and 18 years. All women brushed their teeth in the morning, with fewer at midday and at night. 80% used toothpaste of which 50% used fluoride toothpaste. The use of dental floss was low. Their average dental attendance was once in two years and ten months. In 50% of the cases, the reason for not seeking dental care was fear. In the other half, the reason were the costs of treatment. All the women wanted to have more dental education.

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## Epidemiology (2)

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| Group           | Epidemiology  |
| <b>57</b> Title | Oral health in 35-, 50- and 65-year-old inhabitants of Malmohus Country, Sweden         |
| Author(s)       | B Rosling, S Dolata, G Olavi*, R Smitt and B Wannfors. Public Dental Care, Lund, Sweden |

In 1997 an epidemiological survey was carried out to assess the oral health status of adults of Malmohus Country, Sweden. Invitation for an interview, combined with clinical and radiographic examination, was sent to a random sample of 5 per cent of the population born in 1962, 1947 and 1932. The number of examined persons was 600, which was 58 per cent of those invited. 89 per cent reported regular dental attendance at least once a year. The percentage of filled surfaces in the different age groups was 17, 33 and 26. Active caries was found on 0.6, 0.9 and 1.3 per cent of the surfaces. Endodontic treatment was indicated for 1.4 per cent of all roots. Signs of advanced periodontal disease were found in 13 per cent of the sample and signs of moderate disease in 52 per cent. Odds-ratio comparisons between individuals with advanced periodontal disease and those with none or only mild problems indicate that smoking, alcohol-related problems, heart disease and low education were more common among those with advanced disease. Indication for treatment of TMJ- related problems were found in 13 per cent of the sample. It seems that active caries is not a big problem in this population. A high percentage is in need of periodontal treatment. 93 per cent of those with advanced periodontal disease stated to visit a dentist regularly and 95 per cent of them perform daily tooth-brushing. Results from this study will be used in planning continuing education for dentists, dental hygienists and chairside assistants. Long-time planning of the number of dental staff needed in the region will also benefit from these results.

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| Group           | Epidemiology  |
| <b>58</b> Title | National oral health pathfinder survey in Turkey                          |
| Author(s)       | I Oktay*, G Saydam and F Dogan. Dental Public Health, Istanbul University |

A pathfinder survey was performed with WHO support and was published in 1990. The purpose of the study was to obtain a country profile concerning oral health and disease, delivery of manpower and oral health services, and organisational structure of oral health system in Turkey. 5 major cities with their periurban and rural areas were selected from different geographical regions. A stratified proportional random sampling strategy was used. The sample group comprised 6290 people aged 5–65+ years and their oral health was evaluated according to WHO criteria and recorded on WHO assessment forms (1986). The values of dmft for 6, 7 and 8-year-old children were 4.4, 5.16 and 5.17, respectively. At these ages, only 13% of children were caries free. The mean DMFT value was 2.0 for 12-year olds, 4.1 for 15–19-year olds and 11.59 for 35–44-year olds. Using CPITN, the percentage of 15–19- year-old children with a healthy periodontium was 25%, and was 3.7% in the 35–44-year olds. The mean proportion of sextants with bleeding was 51% in the age group 15–19 and 25% in the age group 35–44. The prevalence of edentulousness for those aged 55–64 was 43%. There is a need for a preventive approach both by the dentist and patient.

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| Group       | Epidemiology   |
| 59<br>Title | Serum and saliva IgB and IgA antibodies in Polish patients with helicobacter pylory (Hp) infection in oral cavity and gastroduodenal disorders   |
| Author(s)   | J Pytko-Polonczyk*, A Kaczmarczyk-Stachowska, E Karczewska. W Bielanski and P Pierzchalski. Department of Conservative Dentistry, Jagiellonian University, University Medical School, Cracow, Poland |

Recent studies in developed countries showed the oral cavity as an important reservoir for Hp, whereas studies in developing countries revealed a high prevalence of Hp in oral cavity. Hp was found in oral cavity and identified in dental samples, but relationship between the presence of this organism in oral cavity and in gastric mucosa of gastric and duodenal disorders has not been clearly established. This study was designed to show the correlation between the presence of Hp in oral cavity and gastro-duodenal disorders (the group consists of 13 healthy and 102 patients with gastric symptoms). 14 C-urea breath test (UBT), CLO-test, Hp-culture on special "Hp Agar" and serology were used to confirm the contamination of saliva and gingival pockets with Hp. 14C-gastric UBT, endoscopy, with biopsy for CLO-test, histology, serology, culture and PCR were used to identified the Hp infection in the stomach. The patients were tested prior and 4 weeks after the termination of a 2 weeks triple therapy (Omeprazole 20 mg bd, clarithromycin 500 mg td and metronidazole 500 mg bd) of eradication the Hp from the stomach and after local therapy (mouth wash and tooth paste with metronidazole) of bacterium eradication from the oral cavity. **Conclusions** 1. Serum Hp IgG titers were higher than those of the serum-specific IgA in all of the study group of patients: 2. In saliva samples Hp IgA titers were higher than specific IgG titers; 3. Hp IgA response at the salivary indicate that saliva can be one of the diagnostic materials in Hp infected patients. 4. Saliva-testing may have a role in epidemiological studies.

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| Group       | Epidemiology  |
| 60<br>Title | Oral diseases in children up to 15 years of age in Mahajanga, Madagascar                              |
| Author(s)   | J A Rasoamananjara*, M O Rasoanirina and S Randimbisoanantenaina. Universite de Mahajanga, Madagascar |

In view of the high number of oral diseases in children and young people in Madagascar, a study was carried out to investigate the causes and to determine preventive measures. The work was carried out on 210 children up to the age of fifteen, selected as per the WHO method for winter vaccine in the province of Mahajanga. The prevalence of caries in the case of deciduous teeth was 65.6%, while for permanent teeth the figure was 80.8%. In addition, melandontia (1.4%), hypoplasia of the enamel (6.6%), notches on the enamel (3.7%), and dyschromatodontia (1.4%) was observed. On analysing the results these diseases were observed in small children, most visibly in those poorly nourished. Using the WHO method (WAP: weight/age/percentile) 60.2% of the children were undernourished. From the foregoing it can be concluded that diet predisposed children and young people to oral diseases.

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| Group       | Epidemiology   |
| 61<br>Title | A cross-sectional survey on oral health of 7-year-old Flemish schoolchildren (Belgium)   |
| Author(s)   | J Vanobbergen(1-3)*, D Declerck(3), L Martens(3), P Bottenberg(4) and E Lesaffre(2)<br>Flemish Dental Association-Section Health Promotion and Prevention(1)<br>Catholic University Leuven(2)<br>University Ghent(3) |

The present study focuses on the first results of the Signal Tandmobiel project (a collaborative longitudinal survey on oral health condition of schoolchildren – 1996–2002). Application of the stratified cluster sampling technique resulted in a sample of 4351 children, i.e. 7% of all Flemish schoolchildren born in 1989. Parameters were registered using standardised criteria. The dentition status was evaluated according to the BASCD-guidelines (British Association for the study of Community Dentistry). The dentist-examiners were calibrated at baseline and at regular intervals during the project period. Besides clinical findings, data on dietary and oral hygiene habits, use of fluorides, dental attendance and medical and social history of the children were collected. This information was obtained using questionnaires, completed by parents and through school medical centres. All data were recorded using Dental Survey Plus Program version 4.50 B and transferred into SAS-files for further statistical processing. The mean age of children was 7.1 years (SD=0.4), 44 % of the children were caries free and 34,3 % had a dmfs>5. They were considered high caries risk children. The mean dmft-score was 2.2 and the mean dmfs-score was 5.2. Logistic regression analysis with dmfs-score as response variable showed significance at the 5% level for demographic distribution, degree of urbanisation, age at start of brushing, brushing frequency, amount of plaque, use of systematic and topical fluoride, amount of toothpaste used, number of in between meals and brushing habits of the parents. *The project was supported by Lever Elida.*

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| Group     | Epidemiology  |
| Title     | Prevalence and severity of dental fluorosis in native Indian schoolchildren of Mexico           |
| 62        | N Molina Frechero*, J C Hernandez Guerrero and R Bologna Molina.                                |
| Author(s) | Div. Est. Postgrado, Facultad de Odontología UNAM, Universidad Autonoma Metropolitana-X, Mexico |

The purpose of the present study was to determine the prevalence and severity of dental fluorosis in the permanent dentition of schoolchildren in native Indians in the state of Hidalgo, Mexico. The altitude of the communities studied were above 1700m. Fluorosis was assessed in 263 schoolchildren aged 6–11-years, that were born and reared in the community under study. The fluoride concentration in drinking water was 57 and 67 ppm. Severity of dental fluorosis was scored according to Dean Index (DI) alongside with the Thylstrup-Fejerskov (TF) Index. The results revealed a prevalence of dental fluorosis of 75.7%. Only 24.3% presented no signs of fluorosis. Using the DI Index, 20.9% exhibited mild scores, 23.6% very mild scores while moderate and severe scores were observed in less than 17.5% of the children examined. Using the TF Index the severity was 60.5% for TF1-TF4 and 17.3% for TF5-TF6. The dental fluorosis found was very high in relation to the F concentration in water. The high altitude and the diet pattern common in the areas may be factors that have contributed to the prevalence and severity of dental fluorosis. *Supported by Metropolitan Autonomous University and National Autonomous University of Mexico*

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| Group     | Epidemiology  |
| Title     | Oral health during pregnancy  |
| 63        | A Apellaniz*, M Lopez-Valverde, L Apellaniz, M Barranquero and J Goiriena de Gandarias, University of the Basque Country, Spain |
| Author(s) |   |

The aim of the study was to assess the prevalence of oral health in a group of pregnant women, and the oral care they received. The study was carried out in the Hospital de Basurto, in Bilbao. 111 women were interviewed forty-eight hours after having given birth. The questionnaire contained 148 items that comprised gynaecological history, hygiene during

pregnancy, control and assistance received. 44.3% of the women reported that they had received fillings, 24.5% of the women said that they had no teeth. 17.9% reported to have no caries. During pregnancy, 25.9% of the women suffered dental discomfort. 60.2% had bleeding gums. In 16.7% of the cases, new caries developed during this period and 5.6% lost a tooth. Only 28.7% of the women went to the dentist during pregnancy. In conclusion: a high percentage of mothers suffered oral sepsis during pregnancy. A quarter of them experienced dental discomfort and two thirds had bleeding of the gums. Only one in four visited a dentist during pregnancy.

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| Group     | Epidemiology  |
| Title     | Deprivation and dental caries among 12-year-old children in Scotland  |
| <b>64</b> | P Sweeney(1)*, D Allison(1), J Davies(2) and N Pitts(2)   |
| Author(s) | Argyll and Clyde Health Board, Scotland, UK(1)<br>The Dental Health Services Research Unit, University of Dundee, Scotland, UK(2) |

The aim of the study was to investigate the relationship between the dental caries status of 12 year old children in Scotland and their socio-economic status as assessed by the Carstairs Score and its Deprivation Categories (DEPCAT). Records from the 1996/97 Scottish Health Board's Dental Epidemiological Programme 12 Year Old Survey were linked, via postcode of residence, to their corresponding Carstairs Scores and Deprivation Categories. Of the 6165 records from the 1996/97 12 Year Old Survey, 95% (5858) were successfully linked to their respective Carstairs and DEPCAT scores. The mean number of Decayed, Missing and Filled teeth increased from 1.05 for children resident in the most affluent areas with a DEPCAT score of 1, to 3.1 for those resident in a DEPCAT 7 area. Only 21.4% of 12 year olds resident in the most disadvantaged areas (DEPCAT 7) were 'free' of caries experience compared with 51.4 % of their most affluent peers. DMFT and its components showed a strong positive association with increasing deprivation. The Care Index (FT/DMFT) was low overall and was lowest (31%) in the DEPCAT 7 group. Twelve year old children resident in the most disadvantaged postcode sectors have significantly more decayed, missing and filled teeth and a significantly higher proportion experience dental disease by this age. There was a positive association between deprivation, as determined by the Carstairs Score, and increasing caries experience. The Care Index was low overall and lowest among the most disadvantaged children.

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| Group     | Epidemiology  |
| Title     | Dental caries among mentally handicapped patients   |
| <b>65</b> | E Ramila Sanchez*, F J Goiriena de Gandarias, M Barranquero Arola, F De Mier and A Anta. Department of Stomatology, Faculty of Medicine and Odontology, University of the Basque Country, Bilbao, Spain |
| Author(s) |   |

Literature studies show higher levels of oral disease in mentally handicapped than in non-handicapped populations. The present study investigated caries levels (DMFT) in a sample of people with an mental handicap. The sample was comprised of 175 patients, 68% men and 32% women. Their age ranged between 18 to 55 years old. The people were categorized according to the aetiology of their handicap in environment (37.1%), genetics (12.0%) and unknown (5). The results showed a DMFT of 14.7 (SD=5.7), that varied from 13.9 for men to 16.4 for women. The highest score was for those with a genetically cause, followed by those with unknown etiological cause. The lowest DMFT scores found were observed in people which an etiological factor that was related to environment. Depending on the degree of handicap, the difference in DMFT score between moderate and slight was lower than 0.2. It is concluded that these handicapped people in general had a poor oral health and that they lack proper oral care.

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| Group           | Epidemiology   |
| <b>66</b> Title | Social inequalities and dental caries in Mexican schoolchildren  |
| Author(s)       | N Molina, R Blanco, G Sanchez, R Bologna* and G Luna. UAM-X, Instituto de Salud.E.de Mexico, Faculty of Dentistry, Uruguay |

The aim of the present study was to determine the social inequalities and dental caries in Mexican schoolchildren. A sample of 362 randomly chosen children of 11 years old was studied in four different socio-economic zones of Mexico City and the State of Mexico. The caries experience was recorded according to the WHO Basic Methods criteria in occlusal surfaces of the lower first permanent molars. The DFS was 0.7 (DS=0.3, FS=0.4) in group 1; 1.2 (0.8, 0.5) in group 2; 1.4 (1.0, 0.4) in group 3 and 1.2 (1.0, 0.2) in group 4. Caries experience was highest in the low socio-economic group (DS=1.0, FS=0.2) where only 35 (27.1%) children were found caries free. Results showed a lower number of teeth filled in relation to teeth decayed. In the high socio-economic group (DS=0.3 and FS=0.4) the percentage of teeth filled was highest in relation to teeth decayed. The results revealed a higher experience of dental caries (65.2%) and differences between low and high social class. The level of dental caries and treatment need is higher among schoolchildren of low than high socio-economic class. The differences in DMFS varied between zones and were significant ( $P<0.05$ ). The study emphasises the need for implementation of dental services in the areas of low socio-economic class.

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| Group           | Epidemiology  |
| <b>67</b> Title | The relationship between CPITN score 4 and the main reason for consulting the dental clinic |
| Author(s)       | J R Velilla, E Vidal*, S Alonso, K Abasolo and E Ramila. San Sebastian, Guipuzcoa, Spain    |

302 clinical files of patients attending the dental clinics of the Medical and Dental School in the Basque Country University (U.P.V./E.H.U.) were studied. Patients were aged between 18 to 74 years old. Purpose of the study was to find the main reason for patients with a score 4 according to CPITN to attend the dental clinic. Reasons for attending included: bleeding of the gingiva, mobility of teeth, gingival recessions, inflammation and teeth loss. A CPITN score of 4 was detected in 11% of the cases. 66% were women in the age group of 30 to 70 years. In the 30 to 40 year age group 90%, of those with a score of 4 were women. Only 28% of the cases consulted a dental professional for the above mentioned reasons. It seems that a large part of the general population with serious periodontal diseases are unaware of this condition, despite the presence of a deep tooth pocket. There is a need for more information about periodontal diseases directed towards the general population in order to improve oral health.

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| Group           | Epidemiology  |
| <b>68</b> Title | Periodontal status in adolescents and adults in the Czech Republic                      |
| Author(s)       | O Krejsa*, Z Broukal and L Mrklas. Institute of Dental Research, Prague, Czech Republic |

To assess the periodontal treatment needs among adults aged 18, 35–44 and >65-year olds, a nation-wide survey was carried out. 84343 individuals in 1994 and 78654 in 1997 were involved in the study. Periodontal status was assessed by using the CPITN index. Of the 18 year olds 47.7 had a CPITN score 0, 19.4% had CPITN score 1, 19.4% CPITN score 2, 31.8% CPITN score 3 and 31.1% CPITN score 4. The percentage of 18 year olds with 3 sextants of CPITN score 0 was 76.0% in 1997 and 78.9% in 1994. 9.4% of the adults aged 35–44-year olds had a CPITN score 0, 10.8% had score 1. 58.3% had score 2, 17.6% had score 3 and 3.9% had score 4. The percentage 35–44 year olds with 3 sextants of CPITN score 0 was 35.8 and 32.5% in 1994 and 1997, respectively. The percentages of CPITN score 0, 1, 2, 3 and 4 in >65-year olds were 10.8%, 11.1%, 36.9%, 31.5% and 9.7%, respectively. A significant decrease in CPITN score was found between 1994 and 1997 while a significant increase in score 2 and 3 was found. The goals defined by the WHO for the level of periodontal status in the year 2000,

will not be achieved in the 18 and 35–44-year-old age groups while this goal in elderly is already achieved.

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|           | Group     | Epidemiology   |
| <b>69</b> | Title     | Periodontal disease in a group of patients attending the dental clinic of the university of the Basque Country           |
|           | Author(s) | J Garay*, N Agirre, C Larrinaga, A Anta and E Ramila. Department of Stomatology, University of the Basque Country, Spain |

The aim of the study was to assess the prevalence of periodontal diseases in patients attending the dental clinic of the University of the Basque Country, UPV/EHU, Spain. The sample consisted of 164 patients, of which 49.1% were men and 51.8% women. The age ranged from 23 to 71 years. All subjects were clinically examined according to the CPITN criteria. 44% of the sample showed periodontitis; 46.5% of the men and 53.5% of the women. The percentage of subjects with periodontitis according to age was 27.4% (40 years or below), 32.9% (41–50 years), 23.3% (51–60 years), 16.4% (61 years and over). 13.7% of those having periodontitis were smokers and 2.7% showed clinically bruxism. Oral hygiene was deficient in 51.3% of the patients with periodontitis. The highest prevalence of periodontitis was found in 41–50 years olds. In most of the subjects, periodontitis was related to the use of tobacco and poor oral hygiene.

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|           | Group     | Epidemiology  |
| <b>70</b> | Title     | Explanatory models for periodontitis indicators in an adult population  |
|           | Author(s) | L Unell*, B Soderfeldt, A Halling and D Birkhed. Dental Public Health Service Orebro, Odontology, Goteborg University, Sweden |

The aim was to relate five indicators of periodontitis, observed 1) bleeding, 2) calculus, 3) probing pocket depth, reported 4) change of front teeth position and 5) bleeding, as dependent variables to models with a) socio-economic attributes, b) general health and health-related lifestyle, c) dental attitudes and behaviours and – for the clinical dependent variables – d) dental status as expressed by number of teeth and number of decayed and filled teeth as independent variables. A cross-sectional study of all 50-year olds in two Swedish counties was carried out in 1992. A questionnaire (n=6343) and clinical investigation of a 20% sub-sample (n=1041) were performed. Multiple regression was used with logistic transformations for binary dependent variables. The patterns of explanatory variables were different for clinical and subjective indicators. Use of tobacco had strong associations in all the models, as had high care utilisation. There were few and weak associations with socio-economic attributes, while the subjective dependent variables showed associations with attitudes and behaviours, as well as with other indicators of subjective health. Dental status as indicated by number of teeth and by number of decayed and filled teeth showed strong associations with the clinical indicators, irrespective of clinical measure. The study supports known facts about periodontal disease. It shows the usefulness of questionnaire methodology and no relation between social attributes and the disease, giving arguments for the biological provenience of periodontitis.

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|           | Group     | Epidemiology  |
| <b>71</b> | Title     | Metabolic diseases and their possible link to risk indicators of periodontitis  |
|           | Author(s) | B Noack, T H Hoffmaan, M Hanefeld <sup>1</sup> and S Kopprasch <sup>1</sup> . Medical Faculty of TU Dresden, Department of Periodontology, <sup>1</sup> Medical Clinic, Germany |

The aim of the study was to answer the question whether a predisposition to diabetes mellitus or hyperlipidemia has an influence on periodontitis. 83 patients age ranging from 40–70 years were examined. The patients were classified as having impaired glucose tolerance (IGT) but no

manifest diabetes (56 patients), as having hyperlipidemia (HL, 17 patients), and as showing normal metabolic status (27 control patients). Probing pocket depth (PD), attachment level (AL), plaque index according to Silness/Loe (SLI) and gingival bleeding on probing (BOP) were recorded. Serum antibody titers (SAT) towards *A. actinomycetemcomitans* (A.a.), *P. intermedia* (P.i.) and *P. gingivalis* (P.g.) were determined by ELISA. Pooled subgingival plaque samples were analysed using the indirect immunofluorescence method. The phagocyte function of peripheral neutrophils (PMN) was evaluated by measuring the chemoluminescence reaction (CL) and the metabolic status by detecting the triglycerides and cholesterol serum and the plasma glucose level. Statistical analyses involved mean values, standard deviations and correlation significance. The results showed that the percentage of sites exhibiting BOP as well as the mean SLI, the mean PD, the mean AL and the amount of micro-organisms in patients with impaired metabolic status were not different from the control group. Compared to the control group the IGT probands exhibited a three fold increased SAT towards A.a., a significant higher mean triglycerides serum level which was correlated with the pocket depth and a higher mean FMLP stimulated chemoluminescence of PMN. The highest PD per patient and the mean CL in patients with hyperlipidemia was also significantly different from the control group. These findings suggest that among individuals with abnormal glucose tolerance and those with normal glucose tolerance no differences regarding periodontal diseases are evident. Impaired lipid metabolism seems to be a risk indicator for periodontitis.

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| 72 | <p>Group                      Epidemiology</p> <p>Title                        Social and epidemiological investigation in odontology. Tendencies in Venezuela</p> <p>Author(s)                 A Ortiz Rugeles*. Maestría Práctica Social y Salud, Cátedra de Odontología Sanitaria, Facultad de Odontología, Universidad Central de Venezuela, Caracas, Venezuela</p> |
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Previous social and oral epidemiological studies in Venezuela have found a high prevalence and incidence of stomatological disease. During the 1990s, studies conducted by the Odontology School of the Central University of Venezuela by means of the Maestría Práctica Social y Salud, have developed a methodology that allow us to examine oral indicators in relation to differential behaviour of social groups. Differences in health behaviour have occurred due to conditioning within the family group, social, historical, cultural and political events affecting a particular neighbourhood. The study reported here has as one of its objectives: To analyse the effect of social conditions on reported oral epidemiological indices. **Method** The studies comprised local and national studies in which random samples of children and adults were examined. The population was divided into six groups in terms of economic level. **Results** 1659 children of age 7 years were examined and 72% had caries with a mean dmft of 2.98 in the poorer group. Of those surveyed, the mean DMFT was 0.79, and 37% had caries in permanent teeth. 48% of those aged 6 to 17 exhibited malocclusion. In 2269 people aged 25–40, the mean DMFT was 17.4 and 32% of the teeth had been extracted. Conclusion: The poorest dental health was observed first in the working-class groups, then, subproletariat and middle class. The later studies show how inclusion of social parameters allows a better explanation of health and disease processes generating analysis required for developing and designing oral health policies.

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| 73 | <p>Group                      Epidemiology</p> <p>Title                        Evolution of oral conditions in 6- to 15-year-old schoolchildren of Strasbourg, France, 1974–1997</p> <p>Author(s)                 M Obry-Musset, V Fabien, H Girard, M Helms and P M Cahen. Laboratoire d'Epidemiologie et de Sante Publique, Universite Louis Pasteur, Faculte de Chirurgie-Dentaire, Strasbourg, France</p> |
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An epidemiological survey assessing the caries prevalence in 6–15-year-old children was

conducted in Strasbourg in 1997. A representative sample of 1987 children was randomly selected among the private and public schools and examined by calibrated examiners. The results obtained were compared with previous studies conducted in Strasbourg in 1974, 1985 and 1991 using the same epidemiologic methods. At the age of 6, the percentage of children that were caries-free in both dentitions increased from 42.8% in 1991 to 55.5% in 1997. Whereas no significant differences in caries prevalence of primary teeth were observed between 1974 and 1985, a significant decrease of 46.3% was observed between 1985 and 1997. At age 12, the DMFT score decreased with 31.9% between 1974 and 1985, a trend that continued between 1985 and 1997 (42.7%), reaching a mean DMFT score of 2.1. The decrease in mean DMFS counts (3.5 at age 12 in 1997) between 1974 and 1985 was 33.2% and 44.4% between 1985 and 1997. The reduction in mean DMFS scores remained most pronounced for approximal surfaces. The significant decrease in the mean calculus scores observed between 1974 and 1985 was not found between 1985 and 1997. The mean plaque scores were similar in the four study years. The decrease of 34.2% in gingival scores observed between 1974 and 1985 was followed by a 42.2% decrease between 1985 and 1991. Between 1991 and 1997, the gingival scores remained unchanged. Dental fluorosis was recorded for the first time in 1991, four years after the introduction of fluoridated salt (250 mg/kg KF) in France. The percentage of children free of any dental fluorosis lesion (Dean's Fluorosis Index=0) was 96.6% in 1991 and 97.1% in 1997.

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| <b>74</b> | <p>Group                      Epidemiology</p> <p>Title                        Caries prevalence and treatment needs of 12-year-old children in Hassia (FRG) in the years 1994 and 1997</p> <p>Author(s)                K Pieper* and L Lindner. Department of Paediatric and Community Dentistry, Dental School, University of Marburg, Germany</p> |
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The aim of the present study was to assess the prevalence of dental caries and treatment needs of 12-year-old children living in Hassia (Federal Republic of Germany). The study was carried out in 1994 and 1997. The sample was selected using a two-stage random sampling procedure. The sampling frame was the roster of schools and school districts maintained by the department of statistics. DMF-T-values were assessed according to WHO-criteria. During a pre-survey training period all examiners were calibrated by an experienced dental examiner (K.P.). This included theoretical information, preliminary diagnostic training with slides, and examination of patients. The findings were coded on special survey sheets and were later on transferred to a computer for processing using a special analysis program. 2250 children were examined in 1994 and 2068 children in 1997. In 1994 32% of the children had a sound permanent dentition, the corresponding figure for 1997 was 44% and 18% (1997). In 1994, 28.2 % and in 1997 20.4% of the children needed dental treatment. These results indicate a further caries decline in Hassia. In the year 1997 the revised criteria for oral health in Europe in the year 2000 (DMF-T<2) were attained in this federal state.

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| <b>75</b> | <p>Group                      Epidemiology</p> <p>Title                        Regional differences in caries prevalence and oral health status among children aged 5 and 12 years</p> <p>Author(s)                Z Broukal*, O Krejsa, L Mrklas and K Rokyto. Institute of Dental Research, Prague, Czech Republic</p> |
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In 1994 and 1998 a nation-wide survey on oral health and treatment needs amongst children aged 5 and 12 years was carried out in the Czech Republic. 6680 of 5-year olds and 17030 of 12-year olds participated. The dental examination was carried out according WHO criteria. The data were analysed separately for the 8 counties of the Czech Republic, Prague city, Middle-, Southern-, Western-, Northern- and Eastern Bohemia, Southern- and Northern Moravia. In 5-year olds, the mean dmft scores remained unchanged between 1994 and 1997 (2.7 dmft). Differences in trends of mean dmft scores existed between the counties. In two counties, a

significant increase of the mean dmft score was found between 1994 and 1998 while a significant decrease in mean dmft score was found in two counties. The overall percentage of caries free 5-year-old children did not changed significantly (23.9 % in 1994 and 24.7 % in 1997). In 12-year-olds, the mean DMFT score increased between 1994 and 1997 (from 3.1 to 3.2). Regional differences in caries prevalence was observed in 5- and 12-year-olds. The best counties with respect to the oral health status of children were industrialised and heavily polluted areas. *Grant No. 4086-2 IGA MH CR.*

## Gerodontology / Medically Compromised / Special Needs

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| Group           | Gerodontology / Medically Compromised / Special Needs                    |
| <b>76</b> Title | Periodontal health of diabetics in a rural South-African health district |
| Author(s)       | A A Adegboye*. Leandra Health Centre, Leandra, South Africa              |

The aim of this epidemiological study was to determine the periodontal health of adults with diabetes mellitus which is well-controlled (WCDM) compared to adults with poorly controlled diabetes (PCDM). 700 diabetics aged 28 to 73 years attending a Primary Health Care centre for a non-oral consultation were interviewed and clinically examined. Of the PCDM adults (n=638) only 9% had good gingival health which was significantly less than the WCDM adults at 63%. Of more concern was the significant difference in the prevalence of moderate to severe periodontitis with 72% of the PCDM adults affected compared to 19% of those whose diabetes was well-controlled. Although the majority of adults (72%) had experienced tooth extraction, 61% had at least 20 teeth. Nevertheless, only 11% were concerned about loss of teeth or edentulousness. From the examinations, it is clear that if diabetic adults control their metabolic changes well, they can experience good levels of dental health. In conclusion, poorly controlled diabetics in this population need to be targeted for periodontal care within a programme that also addresses metabolic control of their condition if optimum oral health is to be achieved.

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| Group           | Gerodontology / Medically Compromised / Special Needs                                |
| <b>77</b> Title | Microbiological study of elderly people's saliva in the Basque country nursing homes |
| Author(s)       | A Alvarez*, P Bilbao, E Ganzarain, A Calvo and C Larrinaga. Vitoria, Alava, Spain    |

It is known that there exist a clear relation between Streptococcus and Lactobacillus bacteria and dental caries. This study compared levels of Streptococcus mutans and Lactobacillus sp. in the saliva of elderly people living in nursing homes in the Basque Country (Spain). From a randomised sample of 65 elderly people (85% women and 15% men) with ages between 68 and 96 years old, saliva stimulated with paraffin (3 minutes) was obtained. Two microbiologic tests were done: Snyder Test to determinate Lactobacillus sp. in tube and Chapman Test to determine Streptococcus Mutans, using tellurite culture medium on patch. After a patch's incubation period, 24 hours under 37°C, the medium count of Streptococcus bacteria was 526 colonies in those individuals who had full dentures and 135 colonies in subjects with no full dentures. After 72 incubation hours under 37°C, Lactobacillus counts increased in 75% of the cases (77.8% in subjects with full dentures and 22.2% in subjects with no full dentures). 16.7% measured moderate and 8.3% did not change. In conclusion: those, who wear full dentures showed higher bacterial counts.

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| Group           | Gerodontology / Medically Compromised / Special Needs  |
| <b>78</b> Title | Dental and nutrition status in elderly patients  |
| Author(s)       | H Wickop*, B Wustmann, P Ferger and G Kolb. Zentrum fur Zahn-, Mund- und Kieferheilkunde, Universitat Giessen, Germany |

Up to now little information is available about the impact of the dental and oral status on the nutrition status. The aim of this investigation therefore was to evaluate possible interactions. An extensive assessment was carried out on all patients who were admitted to the geriatric department of the Bonifatius Hospital at Lingen, Germany during an interval of 8 weeks (n=80, age 60–90 years). The assessment comprised the analysis of : dental status, need for prosthodontic treatment and masticatory performance, Mini Nutritional Assessment (MNA) which includes the patient's self-estimation of his nutrition status, a basic geriatric assessment (activities of daily living ADL/IADL), mobility and balance (Tinetti 1,11), mental and cognitive status (minimental status). MNA, ADL/IADL and Tinetti 1, 11 are international validated tests. 57 of the examined patients were edentulous at least in one jaw and 37 individuals were completely edentulous. In 48 of these patients the masticatory performance was reduced or severely impaired corresponding to the inadequacies of the prosthetic restoration. All patients with MNA Values <17 (=deficient nutrition status, N=7) were found in this group. Though nearly all patients overestimated their own nutrition status (correlation coefficient, between self-estimation and overall MNA-categories <0.15, Spearman-Rho, ns,  $P>0.2$ ), the data provided strong evidence for a clinically meaningful association between the masticatory performance and the status of nutrition (Kruskal-Wallis-H,  $P<0.01$ , Spearman-Rho, 0.4,  $P<0.01$ ). Our findings indicate that nutritional deficiencies may be due to inadequacies of prosthetic restorations often found in elderly patients. The obvious correlation between nutritional and masticatory performance underlines the importance of an adequate prosthetic rehabilitation and a patient's lifetime commitment to a program of oral health.

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| Group           | Gerodontology / Medically Compromised / Special Needs   |
| <b>79</b> Title | Does systemic postmenopausal osteoporosis affect periodontal health?  |
| Author(s)       | A R Mohammed. Department of Primary Care, Geriatric Dentistry, College of Dentistry, The Ohio State University, Columbus, Ohio, USA |

Osteoporosis and periodontal disease are similar in that both have multi-factorial risk factors. Ageing, extended use of certain medications e.g., steroids, antacid with aluminium, thiazide diuretics and Heparin, certain medical disorders e.g., diabetes, hyperparathyroidism, rheumatoid arthritis, gastrectomy, use of alcohol and smoking are established osteoporosis risk factors. Furthermore, other contributing risk factors include being female, being Caucasian or of Asian origin, lack of physical activity, lack of sunlight, having a slender body build, low calcium intake and having bilateral cophorectomy. Although dental plaque is generally accepted as the most important single etiologic factor in periodontitis, it has been suggested that osteoporosis might be also a contributing etiologic factor. This relationship has not been fairly established, however. Other studies that have measured periodontal status and mineral status of the skeleton have found no clear correlation between the two. However, there is agreement that generalised osteoporosis affects the speed of resorption and bone density of the maxillae and mandible. The objective of this cross-sectional study was to investigate the strength of association between spinal bone density and periodontal disease in postmenopausal non-Hispanic white females. Twenty subjects with low bone density and a spine bone density of  $0.753 \pm 0.039$  dual-energy x-ray absorptiometry units (g/cm<sup>2</sup>) and 22 subjects with high bone density and a spine bone density of  $1.032 \pm 0.028$  dual-energy x-ray absorptiometry units (g/cm<sup>2</sup>) were randomly selected from a cohort of 565 women. Periodontal assessment included Plaque Index, Gingival Index, pocket depth, gingival recession, and periodontal attachment level. There were no significant differences in Plaque Index, Gingival Index, and probing depth in both groups; however, there were significant differences in gingival recession components of periodontal attachment level in both groups. This study suggests that systemic osteoporosis may contribute to periodontal attachment loss in the form of gingival recession. If this observation is validated in the future quantitative studies could provide an intraoral marker for early detection of systemic postmenopausal osteoporosis.

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| Group     | Gerodontology / Medically Compromised / Special Needs  |
| 80 Title  | A study of the prosthesis-wearing habits of edentulous adults over 65 years of age                             |
| Author(s) | M Budiño Carbonero, J M Escalada Carro* and L C Rojo Díaz.<br>University of the Basque Country, UPV/EHU, Spain |

**Aim** to determine the denture wearing habits of older edentate adults in Cantabria. **Method** We studied a randomised group of 300 edentulous patients of 65 years of age or over who attend the public clinic C.S. COVADONGA at Torrelavega, Cantabria, recording whether a dental prosthesis was used, and, if there was one, whether it was fixed, partially removable, fully removable, or implant-supported, and the number of years with the same prosthesis. **Results** The subjects were aged: 65–69 (42%), 70–74 (37%), 75–79 (11%), and from 80 upward (9%); 57% men; 43% women. Of the patients so far examined, about 46% have never worn a denture. Of the remaining 54%, most are in the age group 65–69 with few differences between men and women.. 19% use an upper or lower complete prosthesis, 11% upper or lower fixed prosthesis, 39% upper or lower removable prosthesis. The time over which the same prosthesis was worn was from 0–5 years for 8%; from 5 to 10 years for 15%; more than ten years for 31% of women and 52%; of men. The main conclusions were that since 46% do not wear any kind of prosthesis, there is a major deficiency in odontological care where this group is concerned. Even for denture wearers, in almost half of the cases the prosthesis is more than ten years old.

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| Group        | Gerodontology / Medically Compromised / Special Needs   |
| Title        | Oral epidermoid carcinoma – relationship between age, tobacco habit, and lesion location  |
| 81 Author(s) | C Aranda Díez*, F J Goiriena de Gandarias, B Gorritxo Gil, M Barranquero Arola, J Santamaría Zuazua and P Cearra González.<br>Department of Stomatology, University of the Basque Country, UPV/EHU, Spain |

The aim of this study was to determine the relationship between tobacco habit, age, and the location of the lesion in Spanish patients with epidermoid carcinoma. **Method** Cases under study are those diagnosed in 1993 and 1994 in the maxillofacial department of the Hospital de Cruces and in the plastic surgery department of the Hospital de Basurto, numbering 130. The clinical history of the patient was recorded and, in addition he was interviewed, either at the hospital or at home. **Results** Currently, 92% of men smoked, but only 9% of women. Mean age was 62 years for men and 66 for women, while that of smoking men with cancer was 59. For women, the corresponding percentage was 39. Of the smoker-drinker patients, 39% took up this habit before the age of twenty. 77% of the patients with oral cancer smoked before the diagnosis was made, while 22 % continued after the illness. The most common form of tobacco use was cigarettes, which in 90% of the cases was of black tobacco (with or without filter). The most frequent oral location in the case of smoker-drinkers was the mouth (34%). In conclusion, oral epidermoid carcinoma associated with a tobacco habit was exhibited before the sixth decade of life. The form of tobacco most used in this study was the cigarette, while the most frequent location in smoking patients (drinkers or not) was the floor of the mouth.

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| Group        | Gerodontology / Medically Compromised / Special Needs  |
| Title        | Importance of the odontostomatologist in relation to oral cancer   |
| 82 Author(s) | A Pozuelo*, J López-Quiles, L Blanco and J M Sada. Department of Medicine and Buccofacial Surgery, Faculty of Odontology, Universidad Complutense, Madrid, Spain |

The aims of our study are to determine the level of oral cancer in the EEC and the post-op survival rate by neoplasia, to determine the importance of dentists in the diagnosis and prevention of oral cancer. **Method** the background work to this initial study comprised the need

to review with dentists the epidemiology recording predisposing factors (endogenous and exogenous); showing the cancerous lesions under consideration and establishing their differential diagnosis and that an early biopsy is crucial; stressing the advantages of the diagnosis of lesions that may become cancerous or may be in the initial stages of a tumour. The necessity of referring the patient to a multidisciplinary team for evaluation. The study aims to assess the importance of the tumour committees in the establishment of a multidisciplinary therapy and to look at the most recent advances in diagnosis, chemotherapy and surgery.

**Results** data from this Spanish centre was collected on 50 patients, 39 of them male. The decade in which oral cancer was most frequently exhibited was the sixth (i.e. from age 51 to 60). 77% of the cancer patients were smokers. However, there were differences between the sexes and only 42% of the women were smokers compared to 85% of the men. Similarly, 72% of the men were drinkers, while this was an insignificant factor for the female patients. Survival rate at three years was 63%, while at five it was 48%. In conclusion, we judge that the principal aim of this study is not to provide new epidemiological data regarding oral cancer, but to inform the odontostomatologists and to make them aware of their important role in the diagnosis and prevention of oral cancer.

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| 83 | Group     | Gerodontology / Medically Compromised / Special Needs  |
|    | Title     | Preventive dental health programme for hospitalised children   |
|    | Author(s) | L M Navarro Donferis*, P Ibáñez Cabanell, Q Macián Esteve and J M Roig García, García and P Sayas Alcayde, Spain |

Introduction: The Ministry of Education and Science have established classrooms in many hospitals along with a prescribed education philosophy and as part of this initiative a dental health programme is to be carried out on children admitted to the Paediatrics Dept. of the Dr. Peset Hospital. The co-ordination of the programme was carried out by the IPRF Vte. Blasco Ibáñez, Unit of Preventive O., and Paediatrics Dept. Once the responsibilities of each of these parties had been established, the dental care programme that the children have to follow was registered. **Aims** To determine the state of oral health of the children hospitalised. To establish the right preventive measures. To raise the educational level of parents and/or of companions, as well as of the children, in the area of oral health. **Material and methods** established WHO criteria and procedures were followed. The teachers of the pedagogic classroom submit the register of admissions and discharges of the children hospitalised. Then the dental hygienists gather the data relating to the pre-established variables. **Results** In this initial study, 171 children were examined (109 boys and 62 girls). The geographic distribution was mainly urban (82.0%). The prevalence of caries was 26%, with 24% of the girls affected and 28% of the boys. The mean DMFT index for both sexes was 0.57, while the dmft was 0.61. 60% of the boys and 58% of the girls exhibit no malocclusion. For both boys and girls, 73% exhibit acceptable oral hygiene. In conclusion, the children examined in this first study have good levels of dental health and further studies are needed from other centres to develop most appropriate interventions.

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| 84 | Group     | Gerodontology / Medically Compromised / Special Needs   |
|    | Title     | Odontologists and the HIV+ patient  |
|    | Author(s) | A Ortega Ciarreta*, M Pajares Carrasco, A Apellániz González and F J Goiriena de Gandarias. Faculty of Medicine and Odontology, University of the Basque Country, Bilbao, Spain |

The aim of this study was to investigate the attitude of the odontologist to HIV+ patients, the examination and treatment provided, and hygienic measures taken. **Method** A questionnaire survey was carried out with 44 items and a sample of 200 odontologists. **Results** 55% are men, average age 33 years, and 73% of them practise privately. 55% have had one of these patients in their office over the last six months. 91% of those surveyed carried out a clinical history during the first visit with 64% reporting spending more time on the history and

examination of the HIV+ patient and 54% more time on their treatment. However, 46% would not do root curettage on HIV+ patients, and 37% would not extract wisdom teeth. Instruments used and sterilisation procedures were similar for all, although 64% of the odontologists use two pairs of gloves on these patients. 91% of those surveyed have had an accident (prick or cut) with a patient, although in no case with HIV+. However, 73% at least once have carried out HIV markers, and 36% carry them out regularly. In conclusion: Most odontologists provide dental care for known HIV+ patients with some limitations and additional cross infection procedures.

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| Group     | Gerodontology / Medically Compromised / Special Needs  |
| Title     | Infectious endocarditis: prophylaxis and risk population   |
| <b>85</b> | F J Verdera <sup>1</sup> , I Fidalgo <sup>2</sup> , J A del Tío <sup>1</sup> and J A Obón <sup>1</sup> . |
| Author(s) | 1Odontostomatology and 2Internal Medicine Service, Central Hospital of Asturias, Spain                   |

**Introduction** In recent years there have been major changes in incidence, risk population, treatment, and prophylaxis where infective endocarditis is concerned. Even today, this is a serious condition, with an overall mortality of 20% of those affected, in spite of treatment. The aim of this study was to determine the relative proportions in different risk groups for whom antibacterial prophylactic cover was provided prior to dental treatment. **Material and methods** We examined 6000 of the clinical histories of patients at our surgeries in 1997. Data referring to sex, age, prophylaxis where infective endocarditis is concerned and treatment supplied, were collected. **Results** Of the 6000 patients, 126 (2%) were submitted to prophylaxis on the basis of the following pathologies: 38 (30%) rheumatic valvulopathies; 32 (25%) degenerative valvulopathies; 24 (19%) valvular prostheses; 6 (5%) cases of mitral valve prolapsed; 4 (3%) congenital cardiac malformations; 2 (2%) former endocarditis; 1 (1%) obstructive hypertrophic myocardiopathy, and 19 (15%) others. 74% (93) of those submitted to prophylaxis were over 55. Dental treatments: extractions: 39 (31%); Professional Dental Hygiene: 48 (38%); Fillings: 23 (18%); Endodontics: 12 (10%); Other: 4 (3%). **Conclusions** There is an increase in age observed in patients requiring prophylaxis and a high percentage of patients with VD and PV, with a reduced proportion with rheumatic cardiopathy.

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| Group     | Gerodontology / Medically Compromised / Special Needs  |
| Title     | Periodontal status of a sample of mental handicapped patients in Vizcaya (Spain)   |
| <b>86</b> | C Larrinaga*, F J Goiriena de Gandarias, M Barranquero, A Anta and E Rámila. Dpto. Estomatología, Universidad del País Vasco |
| Author(s) | UPV/EHU, Bº Sarriena s/n, Leioa, Vizcaya, Spain  |

The aim of this study was to analyse the periodontal status of a sample of people with intellectual handicap, belonging to a workschool in Vizcaya (Spain). **Method** a randomised sample of 106 people (60% men), from 18 to 52 years old were examined using the World Health Organisation (HMO) C.P.I.T.N. index for periodontal need. **Results** The different degrees of handicap varied from slight to moderate (63% slight, 37% moderate). The most common CPITN code recorded for all sextants was Code 2 with 44 to 50% of sextants affected, and the highest 50% for the lower incisors. The secondmost frequent score was Code 1 with 32 to 37% affected with the upper centrals most commonly affected. Code 3 incidence was low in all sextants with between 3 and 6% of sextants affected. No Code 4s were found. **Conclusion** The study confirms the presence and consequences of poor oral hygiene for this group of patients with mental handicap. However, the periodontal pathology was not at very serious levels and could be significantly improved by instituting correct oral hygiene procedures and professional toothcleaning.

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| Group | Gerodontology / Medically Compromised / Special Needs |
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| 87 | <p>Title                    Implementation and evaluation of a health education programme for institutionalised children.</p> <p>Author(s)                A Podariu, D Jumanca and A Galuscan. Department for Preventive Dentistry, Faculty of Dentistry, University of Medicine and Pharmacy Timisoara, Romania</p> |
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The aim of the present study was to implement and evaluate a health education programme for a group of institutionalised children from orphanages and special schools. **Method** A detailed examination of 736 children (542 girls, 194 boys) aged between 6–12 years. The examination included plaque, bleeding and periodontal indices. We established health education programmes appropriate to the social environment, including dental aspects. These were conducted for groups of 12, structured according to behavioural types, based upon free speeches, tales, songs, poems, cartoons, slides, short movies and brightly coloured brochures and drawings. 4 to 6 sessions were performed for each group of children. On monthly check-ups we observed the efficiency of health education sessions. Children were re-examined following the same protocol, every 6 months, for 42 months. **Results** In developing the programmes the psychological training acquired during our university studies and subsequent years helped us very much. After "uncoding" our patients we tried to establish a co-operational relationship with the children which helped in the construction of harmonious interactions based upon a psychological approach. We created an intimate climate by performing these classes of health education in their play-rooms, by using the "face to face" position with clear language, a simple and precise vocabulary, adapted to their age. The children understood that they must have adequate hygiene. During the first month we found that they were cleaner, more preoccupied with their clothes and with their body hygiene, and there was real competition between them to show who was the cleanest and the most active in the group. After 2 years, there was a decrease in dental cavities from 88% to 69%. DMFT decreased for 12 year olds from 4.9 to 4.1 and for 6 year olds from 4.7 to 4.1. The results were closely related to psycho-social factors and to their original social environment.

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| 88 | <p>Group                    Gerodontology / Medically Compromised / Special Needs</p> <p>Title                      The benefits of denture adhesives for institutionalised old patients</p> <p>Author(s)                C Bortun and P A Codruta. University of Medicine and Pharmacy, Medical University College – Dental Technique, Timisoara, Romania</p> |
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Stomatologists concede that in some circumstances the use of adjuvants such as adhesives can promote denture stability. The aim of this study was to evaluate benefit in their use in institutionalised patients over a four year period. **Method** 120 old institutionalised patients who were edentulous and full denture wearers were the subjects of the study. 40 of them used adhesives. Two types of adhesive were evaluated: the modern synthetic adhesive (one day action like Blend a Dent Super Haftcremeó) and short period ones (4–5 hours) like Kukidentó or Corcegaó. We recommended our patients perform appropriate cleaning and disinfection of their dentures in order to prevent denture stomatopathy. **Results** Good functional performances after tests performed with variable consistence food were obtained and lack of "new denture" lesions were observed. After 5 years follow-up, the one day action adhesives were preferred. Adhesives were used mostly by the patients with deficient prosthetic fields, where retention and stability of the denture was really a problem. We observed an improvement of the adaptation of new and old dentures as well in 90% of the cases. Traumatic lesions caused by new dentures were reduced by 80%. Some of the oral lesions (5%), *Lichen planus* and some kinds of lingual leukoplakia, did not disappear even following disinfecting procedures, but there was no progression. **Conclusions** The use of denture adhesives can be an excellent adjunct for adaptation to a denture, in order to obtain good chewing performances with few contra-indications. They improve the retention and stability of dentures, enhancing function and feelings of well-being. Consequently, patients often, become "dependent" on their use. It is essential that denture adhesives are not used incorrectly to cover any inability of the dentist or dental technician to make good dentures.

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| Group | Gerodontology / Medically Compromised / Special Needs   |
| Title | Oral cancer: a clinical and epidemiological study of a population of surgically treated patients  |
| 89    | J L López-Cedrún*, J Alonso Fernández-Pacheco, I Sánchez-Ruiz, L Romo, J Alvarez and J Santamaría. Cruces Hospital, Bizkaia, Euzkadi, Spain |

Introduction: Oral cancer occurs predominantly in older persons with a history of smoking or drinking. Five-year survival rates generally do not exceed 50%. The aim of this study was to examine the clinical and epidemiological aspects of a group of patients diagnosed and treated at a public hospital in the Basque Autonomous Community. **Method** 208 patients consecutively diagnosed and treated at the Hospital de Cruces, in Vizcaya, since 1990, with monitoring in each case over a period of at least 20 months comprised the study group. An assessment was made of etiological habits, clinical variables relating to treatment, stages of their cancer, and survival. A multivariate and bivariate statistical analysis was carried out, along with a study of survival rate. **Results** The sample comprised 178 men and 30 women, aged 38 to 97 years, mean 63. 77% were smokers (4 women), and 73% were drinkers with 70% indulging in both habits. 14% were in stage I, 34% in stage II, 18% in stage III, and 35% stage IV. 42% of the group died as a result of their tumour. **Conclusions** The major factor in prognosis of oral cancer is tumour size, therefore, stress should be on early diagnosis.

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| Group | Gerodontology / Medically Compromised / Special Needs  |
| Title | A national survey of the oral health of Spain's elderly institutionalised adults – caries conditions   |
| 90    | M A Martínez-García*, G Rodríguez-Baciero, L Mallo-Pérez, P Lafuente and J Goriena de Gandarias. Department of Preventive and Community Dentistry, University of the Basque Country, Spain |

A national epidemiological survey of the oral health of Spain's elderly institutionalised adults was conducted in 1995–97 and a representative random sample of 3274 individuals aged 65 years and over participated from all the Autonomic Counties in Spain. The aim of this examination was to assess their caries status and oral hygiene. **Method** the examination used WHO criteria for Oral Health Surveys. **Results** 53% of the Spanish elderly were edentulous and 90% had less than 16 teeth; 7% had between 9–15 missing teeth, 3% between 1–8 missing and only 0.8% had all their teeth present. 44% of the total sample had decayed teeth and at least one carious lesion was found for 92% of all the elderly with teeth. Mean DMFT was 29.1. Of this figure, 25.8 comprised the "M" component (missing), 3.33 the "D" (decayed) and only 0.06 fillings ("F" component). Of the 44% with caries, 26% had less than 8 carious lesions, 15% between 9 and 15, and 2% of the aged had more than 15 lesions. Few teeth had been restored with 97% having no fillings at all, 2% had between 1 and 3, and only 0.5% had more than 3 fillings. Oral hygiene was considered poor in 64% of those with teeth, fair in 24% and good in only 12%. The analysis found no statistically significant difference between the sexes or age groups in the sample. In conclusion, there are very high levels of untreated caries in the dentate institutionalised elderly of Spain and for many with teeth, the prime dental need is extraction.

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| Group | Gerodontology / Medically Compromised / Special Needs  |
| Title | A national survey of the oral health of Spain's elderly institutionalised adults – periodontal conditions  |
| 91    | L Mallo-Pérez*, G Rodríguez Baciero, M A Martínez-García, P Lafuente and J Goiriena de Gandarias. Department of Preventive and Community Dentistry, Faculty of Medicine and Odontology, UPV, Spain |

A national epidemiological survey of the oral health of Spain's elderly institutionalised adults was conducted in 1995–97 and a representative random sample of 3274 individuals aged 65 years and over participated from all the Autonomic Counties in Spain. The aim of this examination was to assess their periodontal status and treatment needs. **Method** the examination used WHO criteria for Oral Health Surveys and the CPITN index was determined. **Results** the most prevalent finding was excluded sextant with 53% having no teeth. Of the dentate, 1% exhibited bleeding after probing, 9% had calculus without periodontal pocketing, 36% had moderate pockets with 1% having deep pockets. Excluded sextant were the most prevalent finding in all sextants, especially in 03,05,06 and 08 (84 to 87%). Periodontal pockets were more frequent in the medial sextants, especially in the lower one (24%). Severity for CPITN3 condition was 0.75, and the figures for CPITN2, CPITN1 and CPITN4 were 0.41, 0.04 and 0.03 sextants per person, respectively. Periodontal treatment needs (TN) were 45% for TN2 which was 95% of those who had some teeth, 1% for TN1 (3% of the dentate) and 1% for TN3. There was no TN0 at all. The analysis found no statistically significant difference between the sexes or age groups in the sample. In conclusion, for the dentate elderly in institutions in Spain over a third have periodontal pocketing and nearly all of the unmet treatment could be met by dental hygienists.

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| Group     | Gerodontology / Medically Compromised / Special Needs   |
| Title     | A national survey of the oral health of Spain's elderly institutionalised adults – prosthodontic condition  |
| <b>92</b> | G Rodríguez-Baciero*, L Mallo-Pérez, M A Martínez-García, P Lafuente and J Goirienea de Gandarias. Department of Preventive and Community Dentistry, Faculty of Medicine and Odontology, UPV, Spain |
| Author(s) |   |

A national epidemiological survey of the oral health of Spain's elderly institutionalised adults was conducted in 1995–97 and a representative random sample of 3274 individuals aged 65 years and over participated from all the Autonomic Counties in Spain. The aim of this examination was to assess the presence, quality and needs for stomatological prostheses. **Method** examinations were conducted according to WHO criteria and the prosthesis survey model of Newcastle upon Tyne University. **Results** over half (59%) of the older people were edentulous in the maxilla and 46% did not use any kind of prosthesis. A partial denture was worn by 7% and 48% had a full upper denture. In the mandible, 49% had no teeth and 62% did not use any prosthesis. A partial denture was worn by 9% and only 29% had a full lower denture. The examination revealed that more than one person in five needed new dentures with 22% requiring replacement of their upper dentures and 21% their lowers. Quality of life measures revealed significant oral morbidity with 11% of the elderly wearing dentures reporting feeling pain when eating or chewing everyday, with 59% sometimes in pain. Similarly, over 60% had experienced an episode of denture stomatitis with 8% for whom denture stomatitis was continuously present and 52% occasionally. Speech was significantly affected with 9% of the elderly people with a prosthesis judged incapable of speaking properly. Despite these findings, 63% considered their dentures as good or very good in contrast to only 20% being given these gradings by the prosthetic quality assessment undertaken in the survey examination. In conclusion, over 50% of older adults in institutions in Spain are edentulous and daily oral discomfort is experienced by a significant minority. Most prostheses require replacement and the costs of doing so need to be estimated.

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| Group     | Gerodontology / Medically Compromised / Special Needs  |
| Title     | A socio-dental approach to facilitate setting priorities for treatment needs in older people |
| <b>93</b> | P Srisilapanan(1)* and A Sheiham(2)  |
| Author(s) | Chiang Mai University, Chiang Mai, Thailand(1)   |

The objective of the study was to use a socio-dental approach (OIDP) system to facilitate priority setting in treatment planning in older people. 707 subjects aged 60–74 years living, in an urban community in Chiang Mai, Thailand were assessed using a socio-dental indicator, Oral Impact on Daily Performance Index (OIDP). Dental treatment needs were also assessed normatively. The study found that, when integrating an OIDP index into dental treatment need estimation, the ranking of different treatment need changes when compared with normative treatment need. When treatment need was assessed using normative need, the ranking of needs were full dentures first, followed by scaling, root planing, partial dentures, full and partial dentures and crown and bridge. But when adding the perceived oral impacts assessed using a socio-dental indicator (OIDP) system into treatment need estimation, the ranking of treatment need changes. Different cut-off points of the scores using the OIDP system could be used to illustrate the changes in needs for different types of treatment. For example, at CS-OIDP cut-off point >0, the rank of treatment changed to full dentures followed by crown and bridge, partial dentures, full and partial dentures, root planing and then scaling. In a socio-dental approach, scaling was the least important dental treatment. Therefore, priority for dental treatment plan could be more relevant to the need of lay people when integrating the socio-dental indicator with normative treatment need estimation.

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| Group     | Gerodontology / Medically Compromised / Special Needs   |
| 94 Title  | The need for dental prevention programmes for Diabetes Mellitus patients                      |
| Author(s) | J Gil*, A González, J Rosado, L Alos and R Rioboo. Department of Stomatology IV. U.C.M, Spain |

**Introduction** DM is a public health problem and oral complications can be reduced significantly with meticulous self care. Medical care is often instituted without co-ordination with dental care and there is a need for planning to ensure appropriate measures of prevention and control in an integrated community approach. **Aims** The aim of this study was to determine the oral and general health profile for DM patients presenting with periodontal disease in order to assess which aspects need to be incorporated into preventive programmes for this high risk group.

**Material and method** 144 DM type 2 patients with pocket code 3–4 on the CPITN (IPC) were assessed for a wide range of clinical, socio-demographic and behavioural variables. **Results** Mean age 65 years (range 36–89), 44% male. Treatment was predominantly dietary (2%) with oral antidiabetics (51%); and, with insulin for 25%. In general, basal glycaemia control was inadequate. 15% wore a fixed prosthesis and 36% a removable. 57% of prosthesis wearers exhibited related oral pathology. Mean DMFT was 18.7, mean DFT 5.7. There were 268 teeth with root caries. 50% had carious lesions in atypical locations. Sialorrhea was exhibited in 8%, xerostomy in 35%, dry mouth syndrome in 49%. Mean plaque index was 93.8. 35% of patients did not brush their teeth with 58% not brushing their removable prostheses. Only 4% attend the dentist regularly, with 84% not attending for >1 year. The most common reason for visiting was extraction (76%). **Conclusions** Medical monitoring was poor as was the level of dental health and oral self care. It is essential to introduce a dental component into the medical diabetes subprogrammes.

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## Health Promotion / Prevention / Fluorides

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| Group     | Health Promotion / Prevention / Fluorides  |
| 95 Title  | Oral hygiene of patients attending a city dental surgery   |
| Author(s) | J A Gonzalez Perez*. Postgraduate student in Public Oral Health, University of the Basque Country, Bilbao, Spain |

The aim of the study was to assess oral hygiene of patients attending a city dental surgery. A questionnaire was presented to patients with more than 10 teeth, attending a dental clinic. The questionnaire contained the following aspects: number of brushings per day, use of dental floss or interdental brushes, use of mouthwash with antiseptic rinses and mean time for a tooth-brushing session. The results reveal that 36% brushed their teeth three times per day and that 32% brushed twice per day. Almost two thirds (65.9%) brushed their teeth daily in the evening. The period after which the brush was renewed, was used as evidence of reliability, with highly variable results. Most people's (38.2%) brushing lasted between 1 and 2 minutes. In conclusion, 68.2% of the patients brushed at least twice a day. Brushing time was insufficient.

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| Group     | Health Promotion / Prevention / Fluorides  |
| Title     | Assessment of anxiety in relation to dental work and subjective reactions to clinical treatment  |
| <b>96</b> |  |
| Author(s) | G Del Campo Lagrange, M A Martinez Garcia and L San Jourse Lombera. Department of Stomatology, Faculty of Medicine and Odontology, University of the Basque Country, UPV/EH, Spain |

The objective of the study was to examine subjective reactions to dental treatment, learned from past experience or from accounts given by third parties. Consideration of anxiety and fear make it possible to de-condition such responses by means of the appropriate psychotherapeutic practices. The study population consisted of 405 patients ranging in age from 15 to 55 years (average age of 36.5 years), of different socio-economic status from the Autonomous Communities of Asturias and the Basque Country. The card used was the Kleinknecht self-assessment scale, with scoring from 1 (no reaction) to 5 (maximum reaction). The maximum scores obtained related to anaesthesia and the drill: feeling the needle (2.89), seeing the needle (2.75), feeling the drill (2.70) and hearing the drill (2.69). The assessment of the somato-physiological reactions as a whole was low. A direct relation was found in the group of highest anxiety scores on the one hand with the same state transmitted by the mother in the youngest population group. The main conclusions of the study were 1) the highest scores were 15, 17, 19, and 18 on the scale used, 2) in young subjects there was an influence on the behaviour of the mother and 3) it is necessary to educate the most anxious patients in established relaxation techniques in order to diminish their state of anxiety.

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| Group     | Health Promotion / Prevention / Fluorides   |
| Title     | Evaluation of the efficacy of an oral health programme, eight years after its implementation, on a population of children in 5th year of primary school   |
| <b>97</b> |   |
| Author(s) | M Gómez Láinz*, C Andrés de Llano, M Pellón Ortega and A Ruiz de Temiño Malo. Children's Oral Health Centre of the Government of Cantabria, Hospital de la Santa Cruz de Liencres, 39120 Cantabria, Spain |

**Aims** To determine the caries preventive effect of an oral health programme conducted by a team of specialists on children in the Cantabrian region. **Methods** Travelling with two mobile units to all schools in the region, examinations were conducted on children in 5th year of primary school. Data was recorded using the simplified and computerised WHO card. A report (dental card) was prepared, which was delivered to each child to take home to his family, advising of the need to receive preventive or maintenance treatment. At each school centre the stomatologist conducts an informal discussion to encourage effective brushing methods, the use of dental floss depending on age and advice regarding nutrition and dietary habits. **Results**

|               |              |
|---------------|--------------|
| 1989–1990     | 1997–98 year |
| academic year |              |

|   |              |            |
|---|--------------|------------|
| Population studied:                         | 8,171 pupils | 581 pupils |
| Mean level of permanent teeth with caries   | 1.81         | 0.65       |
| Mean level of permanent teeth absent        | 0.08         | 0.03       |
| Mean level of permanent teeth with fillings | 0.55         | 0.66       |
| DMFT  | 2.44         | 1.34       |
| % children with any permanent caries        | 62           | 30         |

**Conclusions** As a consequence of the information and education offered over these eight years to the children of the Autonomous Community of Cantabria, oral health has improved significantly.

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| Group     | Health Promotion / Prevention / Fluorides  |
| Title     | Evaluation of oral hygiene habits and mouth and teeth health knowledge in the first cycle of obligatory secondary education (e.s.o.) children  |
| 98        |  |
| Author(s) | M A Iglesia Puig*, A Arellano Carbonero, B López-Areal García, P Cearra González, and B Gorritxo Gil. Department of Stomatology, Faculty of Medicine and Odontology, University of the Basque Country, 48080 Bilbao, Spain |

**Aim** To evaluate oral hygiene habits and oral health knowledge of children in the first and second year of Obligatory Secondary Education (E.S.O.) in order to determine appropriate programmes for that population. **Material and methods** A random sample of 65 children aged 11–13 years completed a questionnaire about their oral hygiene habits and oral health knowledge. **Results** 40 were boys and 25 girls with an average age of 13 years. A third believed that they should go to the dentist every 3 months. 84% thought they should brush their teeth three times a day, but only 17% of them did so with 70% reporting twice a day brushing. Almost half of the children said they used mouthrinses, while one out of four used dental floss. Only 50% of the children had a new toothbrush in the last 3 months, with a third only changing their old brush when their parents told them to. Many children did not know the number of fillings or extractions they had. There were no differences between the two year groups. **Conclusions** the observed discrepancy between knowledge and behaviour, supports the need to encourage children to carry out proper hygiene habits. Dentists have a responsibility to communicate better with their child patients informing them of their dental problems in order to promote knowledge and motivation.

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| Group     | Health Promotion / Prevention / Fluorides  |
| Title     | Differences in the labelling of fluoride content in toothpastes sold in pharmacies compared to supermarkets in Spain |
| 99        |  |
| Author(s) | N Cortés Virtus* and P Zabala Artano. Faculty of Medicine and Stomatology, University of the Basque Country, Spain   |

**Objectives** to make a comparative study of the labelling of chemical composition of toothpastes marketed in pharmacies and in supermarkets; any oral hygiene advice given; any impact of either on consumer preference; to determine whether it is worthwhile spending more on a given make, i.e. the quality/price ratio. **Method** Data were drawn from the labels on sixty containers across a range of pharmacies and supermarkets. 100 people were interviewed to seek the reasons for selection of the toothpaste they purchase. **Results** 50% of the toothpastes studied had around 1 mg/g of fluoride. The quantitative composition appeared on

only 40% of toothpastes sold in the supermarkets but on 100% of those sold in the pharmacies. In the latter case there is also advice offered regarding oral health. From the survey carried out on 100 people, 90% purchased their toothpaste from a supermarket, and the reason for choosing a particular one was on the grounds of flavour or economy. The containers were read only by 5% of those surveyed, with importance attributed only to the amount of fluoride, calcium, or whitening agents. Conclusion: The use of toothpaste depends more on advertising or fashion than on the information provided or on what the consumer already knows. In most cases the composition is not indicated. Where it is, data are likely to be few and defective.

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| Group            | Health Promotion / Prevention / Fluorides  |
| <b>100</b> Title | Dental condition of schoolchildren in two Tenerife zones with different fluoride concentrations in the drinking water supply |
| Author(s)        | H Fernandez-Lopez*, D Gomez-Santos and G Gomez Santos.<br>Servicio Canario de Salud, Spain                                   |

The aim of the study was to compare the caries prevalence of 8–9- and 10–11-year-old children living in two basic health zones, Cuesta and Icod. In Icod the concentration of fluoride in the drinking water is 1 ppm, in Cuesta the percentage exceeds 4 ppm. Dental examinations were carried out among 172 and 160 8–9-year-old and 161 and 140 10–11-year-old schoolchildren in La Cuesta and Icod, respectively. Caries diagnostic criteria described by WHO were used. The mean DMFT score among 8–9-year olds in La Cuesta and Icod was 0.3 and 0.6, respectively. Among 10–11-year olds the DMFT score was 0.6 and 0.9 for La Cuesta and Icod, respectively. The results suggest that, in places where the concentration of fluoride in drinking water exceeds four times the recommended level, the caries preventive effect of fluoride is low.

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| Group            | Health Promotion / Prevention / Fluorides   |
| <b>101</b> Title | Fluoride in bottled mineral waters drunk by children below the age of 4 years   |
| Author(s)        | M R Preciado Ruiz de Gauna*, F Gomez Perez de Mendiola, E Elorza Honrado, M Martinez Azkuenaga and J Fernandez Basterra. Municipal Department of Health and Consumption, Vitoria-Gasteiz, Spain |

The aim of this study was to determine the fluoride concentration in bottled mineral water drunk by children below the age of 4 years. The fluoride concentration of 41 different commercial brands of mineral water was analysed using selective methods. The results were compared with those shown on the different labels. A sample of 283 fathers/mothers of children below the age of 4 years were randomly selected. A questionnaire consisting of questions related to the amount of water consumed and the brand of the mineral water used by the children, was sent to the parents. 30 brands of water had fluoride concentration levels between 0–0.03 mg/l; 7 brands had between 0.03–0.7; 3 brands between 0.7–1.1 mg/l and 1 brand presented a fluoride concentration higher than 7 mg/l. From the 41 brands studied, 35 didn't show fluoride as a water component. 7 brands had a higher than 0.3 mg/l fluoride concentration and had not listed this on the label. 50.1% of fathers/mothers prepared the baby's bottle with mineral water. 20.8% of children in the study usually consumed mineral water. In conclusion: most of the bottled mineral waters used by the children below the age of 4 years had low levels of fluoride concentration.

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| Group            | Health Promotion / Prevention / Fluorides   |
| <b>102</b> Title | Fluoride content of mineral water in Spain  |
| Author(s)        | M Budioo Carbonero*, J M Escalada Carroand, L C Rojo Diaz.<br>Department of Stomatology, University of the Basque Country, UPV/EHU, Spain |

The aim of the study was to assess the fluoride content of mineral water in Spain. The number of trademarks in the sample was 76. Fluoride levels were obtained from labels on mineral water bottles for sale. The majority of the labels did not show the fluoride level (71%). Among those that show, only a few indicated a high fluoride content. The fluoride levels (mg/litre) ranged from 0 to 0.1 (18.2%), 0.1 to 0.5 (31.8%), 0.5 to 1 (13.6%), 1 to 4 (13.6%), 4 to 7 (0%) and >7 (22.7%). More than 70% of the mineral water marketed in Spain is sold without any indication of its fluoride content. Where the content is indicated, fluoride levels are low. There is a group of products with high fluoride levels (7 mg/litter), but it is restricted almost entirely to a single spring in Gerona. Within some trademarks, there is an appreciable variation in fluoride content from one label to another. In conclusion: deficiencies in labelling should be rectified, and there should be information included regarding the effect of fluoride on teeth.

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| Group      | Health Promotion / Prevention / Fluorides  |
| Title      | A case control study of the prevalence of caries in fluorosis-affected Saharan children and fluorosis-free children in Santander   |
| <b>103</b> | C Andres De Llano*, M Gomez-Sainz Perez, M A Pellon Ortega and A Ruiz De Temiño Malo. Centro De Salud Bucodental Infantil Del Gobierno De Cantabria, Hospital De La Santa Cruz De Liencres, 39120-Cantabria, Spain |
| Author(s)  |  |

**Introduction** Saharan children have drinking water with fluoride at the level of 1,90 ppm and children in Santander have drinking water with fluoride at 0,01 ppm For this study, cases were defined as Saharan children with Dean's fluorosis index (1935) of values from 3 to 5. The index classifies enamel mottled by fluorosis with a range from 1 to 5. **Aims** To compare the prevalence of dental caries in Saharan children with fluorosis (cases) with Santander children (controls) from a marginalised community. **Methods:** 70 Saharan children aged between 12–16 years were defined as cases and 67 Santander children with similar characteristics to the studied group were defined as the controls. **Results** The number of carious lesions in permanent tooth was 168 in the cases (mean 2.4) and 318 in the control group (mean 4.8). **Conclusions** As in Dean's classical study, higher fluoride levels gave additional protection against dental caries despite the occurrence of dental fluorosis.

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| Group      | Health Promotion / Prevention / Fluorides                                   |
| Title      | The fluoride content of children's formula milk marketed in Spain           |
| <b>104</b> | M Budiño Carbonero, J M Escalada Carro and L C Rojo Díaz*.                  |
| Author(s)  | University of the Basque Country, UPV/EHU, Department of Stomatology, Spain |

Following case control studies in Canada and the United States, fluoride in baby formulas was shown to be an important risk factor in the development of dental fluorosis. Consequently, regulations were introduced to reduce the fluoride content. However, less is known of the fluoride content of infant formulas in Spain. The aim of this study was to examine the fluoride content of children's formula milk as stated on the manufacturers' contents labels. **Material and method** About 70 baby formulas were studied, including adapted milk and continuation milk on sale in pharmacies and other commercial outlets. **Results** Of the formulas examined, all but one failed to indicate fluoride content. BLEMIL 1 Liquidó (50 micrograms) was the only one sold with an indication of fluoride content. On analysis, in nearly all cases the content was found to be very low. In a non-fluoridated water community, high caries risk children would need a fluoride supplement. **Conclusions** Commercially available baby milk may be deficient in fluoride, in some cases a supplement will be required. The authors believe that the fluoride content should be indicated on the label and that the competent authorities should legislate accordingly.

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| Group | Health Promotion / Prevention / Fluorides |
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**105** Title Oral health prevention with fluoridated water in children  
 Author(s) F J Goiriena\*, M Barranquero and A Apellaniz. Basque Country University, Spain

This study was conducted to compare the oral health of children living in two Spanish communities, those living in a community with fluoridated water (F) and those in a non fluoridated water (NF) community. **Method** 894 children in two age groups 7 and 12, were randomly selected and within each group balanced for age, sex, economic level, family cultural level. Variance analysis of these parameters showed no significant differences between the groups. **Results** for 7 years old in (F): mean DMFT: 0.4, DS 0.4, and (NF): mean DMFT: 0.6 DS 0.7. For deciduous teeth in (F): mean dft 0.5, ds 0.7 and (NF): mean dft 0.8, ds 1.1. Children reported similar sweet consumption patterns with an average of eating sweets on 2.5 occasions in the F area compared to 2.6 in the NF area. Need for simple periodontal care was high in both communities with 70% bleeding sextants and 10% with calculus in F and 74% bleeding and 11% calculus in NF. Similar results were obtained for 12 years old: in (F) mean DMFT: 2.0, DS 1.7 and in (NF): mean DMFT: 2.5, DS 1.8. Again bleeding sextants were high with 57% in (F) and 60% in (NF) and 34% of children in (F) with calculus and 36% in (NF). Children ate sweets on average 3.4 in (F) and 3.5 in (NF). Conclusion: Children had less dental caries in the fluoridated water community but the majority of children in both communities needed to improve their oral hygiene.

Group Health Promotion / Prevention / Fluorides  
 Title Perceptions on how oral health affects the quality of life – findings from a national survey  
**106** Author(s) C McGrath(1), R Bedi(1) and A Bowling(2)  
 (1)Transcultural Oral Health, Eastman Dental Institute, University of London, England, UK  
 (2)CHIME, UCL Medical School, University College London, England, UK

There is growing interest on how oral health affects the quality of life. The aim of this study was to determine sociodemographic variations in the UK's public perception on how oral health affects quality of life. The vehicle for this study was the Office for National Statistics Omnibus in Great Britain. A random probability sample of 2,668 addresses were selected from the British Postcode Address File (PAF). Interviews were undertaken with 1,865 (70%) adults (aged 16 or older). Data were analysed using Logistic Regression analysis to determine variations in impact by socio demographic factors (age, gender and social class). 72% (1,340) reported that oral health affected their quality of life, 57% (1,065) reported that it had a positive affect, 48% (902) reported that it had a negative affect, 5% (87) declined to answer. Social class, gender and age variations were significant; higher socio-economic groups reported that oral health had a greater impact (OR 1.32, 95% CI 1.06, 1.65) and specifically greater positive impact (OR 1.46, 95% CI 1.20, 1.77). Women reported that oral health has a greater negative impact (OR 1.36, 95% CI 1.12, 1.64). Younger people (<65-year-olds) reported greater negative (OR 1.28, 95% CI 1.03, 1.61) and greater positive impact (OR 1.27, 95% CI 1.01, 1.59) than older adults. In conclusion, the UK's public perceive oral health as impacting on their quality of life in both positive and negative ways. Higher socio economic groups perceive that oral health has a greater impact on quality of life, specifically greater positive impact. Women perceive that oral health has a greater negative impact on quality of life. Younger adults perceive oral health as having a greater positive and a greater negative impact on quality of life.

Group Health Promotion / Prevention / Fluorides  
**107** Title Effect of an individualised follow-up programme on dental anxiety in pre-school children  
 Author(s) G Gizani, D Declerck\* and F Vinckier. Catholic University Leuven,

The aim of the present study was to measure the level of dental anxiety in children referred to the paediatric dental clinic of the university hospital of Leuven for total dental rehabilitation under general anaesthesia (GA group), to compare this with findings in an age-matched control group (CL group) and to evaluate the effect of an individualised follow-up programme (IFUP) on dental anxiety levels. A total of 98 children (mean age: 4.8 years) were included in the study. The CL group consisted of 77 children (mean age: 5.5 years) attending the school health centre for a medical check-up. All children received an oral examination under standardised circumstances. The behaviour of the child during this examination was evaluated by one single dentist (SG) using a six-point scale based on the index described by Venham *et al.* (1977). The children from the GA group were included in a study where the outcome of an IFUP was measured 1 year after total dental rehabilitation. This programme consisted of regular recall visits (2, 4, 6, 9 and 12 months) where the children received individualised preventive instructions and professional tooth cleaning. At baseline, children from the GA group were in most cases uneasy or tense (65.3%). This was not the case for children from the CL group where 76.6% was relaxed ( $P < 0.001$ ). At the 1-year control, children from the GA group that received the IFUP showed much lower levels of dental anxiety compared with children from the same group that did not receive this IFUP ( $P < 0.001$ ). It is concluded that the proposed IFUP resulted in a significant reduction of the level of dental anxiety.

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| 108 | Group     | Health Promotion / Prevention / Fluorides  |
|     | Title     | The increasing importance of plaque control programmes during orthodontic therapy                                    |
|     | Author(s) | E Bratos*, L Espantoso, C Rodriguez and R Garcillán. Faculty of Odontology, University of Complutense, Madrid, Spain |

Background and objective: In recent years, fixed appliances have become the orthodontic therapy of choice for many patients. The move from removable appliances has been shown to have the potential to enhance outcome. However, the implications on the maintenance of oral cleanliness has received less research. There is little reported that evaluates microbiological changes in bacterial plaque subsequent to the placement of fixed orthodontic appliances compared to removable and this was the objective of our study. **Method** 30 patients were included in the study; 15 who had fixed appliance therapy and 15 removable. A wide range of presenting malocclusions were included. Microbiology study was performed via culture of plaque taken from the sulcus at 4 different sites in the mouth. These studies were performed 3 times in each patient prior to appliance placement and thereafter at 30 and 90 days. Levels of oral hygiene and gingival health were recorded (Löe Silness). **Results** There was a strong relationship between levels of oral hygiene and the variety of micro-organisms. After 3 months with fixed appliances, there was a significant increase in aerobic micro-organisms especially in *Stp. salivarius* with irregular changes in *Stp. mitis* and *Stp. sanguis*. There were insignificant changes in *Stp. mutans* and *lactobacilli*. However, the level of anaerobic micro-organisms doubled. *Fusobacterium nucleatum* was the most common and increased from an average of 4% to 8%. These changes were accompanied by significant increases in the oral hygiene and gingival indices. In contrast, with removable appliances microbiological values did not vary significantly, although some *lactobacilli* did appear. **Conclusions** With increasing use of fixed appliances, it is even more important to enrol orthodontic patients into plaque control programmes in order to minimise periodontal pathology.

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| 109 | Group     | Health Promotion / Prevention / Fluorides  |
|     | Title     | Epidemiological study of children from the region of Murcia (Spain) 7 years after the commencement of preventive programmes. II Mouth and Teeth Health Enquiry |
|     | Author(s) | P A Fernández León*, L Pérez Lajarín and C García Ballesta. C/   |

Introduction: During 1989 the First Mouth and Teeth Health Enquiry in the Region of Murcia was made. This provided data on the prevalence of the more frequent mouth and teeth diseases in our community's children. The aims of this second study were 1. to measure the oral health of 6, 12 and 14 year old in the Murcia region. 2. to evaluate the efficiency of the preventive actions started in 1990, comparing the results of the present enquiry with the ones of 1989. 3. to determine the need for new programmes or the modification of the present ones.

**Method** We examined 1524, 6 year old children, 1322, 12 year olds and 1234, 14 year olds. A total of 4080 scholars from private and public schools, who were living in the Autonomic Community of Murcia during the scholar year 1996/97. We followed W.H.O.(H.M.O.) methods estimating the oral health status and the need for treatment. We selected four teams, each one formed by an examiner (Dentist) and a registrar (Dental Hygienist). The results showed there was an improvement in dental health for both age groups.

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| 110 | <p>Group Health Promotion / Prevention / Fluorides</p> <p>Title Caries frequency in deciduous teeth before and after discontinuation of water fluoridation in children having received comprehensive preventively oriented dental care</p> <p>Author(s) L Seppä*, S Karkkainen and H Hausen. Institute of Dentistry, University of Oulu, Oulu, Finland</p> |
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As the only town in the Nordic countries, the drinking-water of Kuopio, Finland, has been fluoridated since 1959. Due to strong opposition by different civic groups, water fluoridation was terminated at the end of 1992. The aim of this study was to examine the consequences of the discontinuation of water fluoridation on caries level in deciduous teeth. In 1992 and 1995, independent randomly selected samples of all children aged 3, 6 and 9 years were drawn in Kuopio and Jyväskylä, a nearby low-fluoride town having a fairly similar distribution of socio-economic characteristics as Kuopio. The total number of subjects examined was 421 in 1992 and 894 in 1995. Caries was registered clinically and radiographically by the same two calibrated dentists in both towns. The mean dmfs values were markedly lower in the non-fluoridated town ranging from 4.2 to 7.0. The results were in accordance with the administrative statistics based on the public dental health records of Kuopio and Jyväskylä. Between 1992 and 1995, a decline in dmfs was seen in both towns. The decline was even more marked in the previously fluoridated town. It may be concluded that in a country with comprehensive preventively oriented dental care system, water fluoridation does not provide additional benefits in terms of caries reduction in the deciduous dentition.

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| 111 | <p>Group Health Promotion / Prevention / Fluorides</p> <p>Title Salivary fluoride availability from baked products with fluoride salt</p> <p>Author(s) L Macpherson*, K W Stephen and D A Weetman. Dental Public Health Unit, University of Glasgow Dental School, Scotland, UK</p> |
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In 1995, "The Oral Health Strategy for Scotland" stated fluoridated salt could have a role as a community-based caries preventive measure. This study aimed to investigate the effect on salivary fluoride levels of non-fluoridated and KF- fluoridated (250 & 350 mg F/kg) salt to three commonly available baked Scottish dietary staples. Eleven subjects consumed 30g portions of white bread, brown bread and potato scones, with and without fluoridated salt. Unstimulated saliva was collected at baseline and at 1, 2, 5, 10, 15, 20 and 30 min after eating each food. Salivary fluoride was measured using an ion-specific electrode. Significant differences in salivary fluoride concentrations were found between the non-fluoridated and fluoridated products for up to 5 min following food consumption. Mean (SD) 5 min fluoride concentrations with 0,250 and 350 mg F/mg salt were 0.064 (0.04), 0.141 (0.10) and 0.101 (0.04) ppm for white bread; 0.090 (0.05), 0.149 (0.04) and 0.153 (0.12) ppm (brown bread); and 0.059 (0.04), 0,124 (0.06) and 0.194 (0.11) ppm for potato scones. No significant differences were found in

salivary fluoride levels between the 250 and 350 F/kg salt-containing products at any of the time points. Thus the addition to dietary staples of fluoridated salt at concentrations used previously in Hungarian community-based caries preventive programmes resulted in significant short-term increases in salivary fluoride levels following food consumption.

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| Group     | Health Promotion / Prevention / Fluorides  |
| 112 Title | Caries prevention programme for high caries risk children – is there an advantage to using fluoridated sealants?           |
| Author(s) | E Alarcon*, J Rosado, A González, E Maroto and J Gil. Area 3, INSALUD, Madrid, Department of Stomatology, IV. U.C.M, Spain |

Introduction: Prevention for high caries risk populations is a priority and the most effective combination of interventions is still to be determined. Fissure sealants are an established method of prevention. Further benefit may be gained from the incorporation of fluoride into sealants. Therefore, there has been interest in determining the effect on retention and any subsequent loss of adding fluoride to sealants. Objective: To compare the adhesion of a BIS-GMA resin sealant (3 M concise) with that of a fluoridated (helioseal F) sealant 3, 6 and 12 months following application to permanent molars of high caries risk children. **Method** 128 sealants (64 with fluoride and 64 without) were applied to healthy, fully erupted permanent molars in 38 children aged 6–12 (average 9 years) taking part in the USBD of Torrejón de Ardoz (SPCI). The sealants are applied as per the preventive programme carried out by INSALUD in Madrid. High caries risk children are given priority in selection for the study. **Results** After 3 months, there was no difference in loss between the two sealant types. At 6 months, the sealants that were not lost at three months were still fully adhered. At one year, 93% of those assessed were still totally adhered (90% of sealants without fluoride and 95% of fluoridated sealants). However, this assessment did not include sealants that had been reapplied owing to previous total or partial loss. **Conclusions** Initial results indicate that addition and release of sealant fluoride had no adverse affect on its adhesion one year after application. Further analysis is needed to determine any differences in intermediate reapplications. The anti-caries effect will be evaluated over a longer term in populations with high caries risk included in community preventive programmes in primary health care.

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## Epidemiology/Health Services

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| Group     | Epidemiology / Health Services   |
| 113 Title | Dentists' experiences on different restorative materials in Finland, 1992–1996   |
| Author(s) | E Widstrom* and H Forss. National Research and Development Centre for Welfare and Health, Helsinki and University of Kuopio, Finland |

The aim of this study was to collect information on dentists' experiences and views concerning choice of materials for different situations, and the properties and usefulness of different materials. A questionnaire was sent to 700 private dentists who treated adults (response rate 82%). The study showed that the use of amalgam had markedly decreased and that of composites had increased. Some respondents had increased their use of glass ionomers and a slightly smaller proportion had reduced this. A higher proportion of male dentists (44.5%) than female dentists (32.8%;  $P < 0.01$ ) reported that they had discontinued the use of amalgam. Of the respondents, 77.2% stated that they used composite on extensive restorations in molars. During 1996 almost all respondents (92.0%) had seen patients who wanted to have their restorations replaced due to suspected side effects. Most respondents (93.2%) claimed that their patients were more satisfied with the aesthetic results of their work than in the early 1990s. On the other hand, 77.6% found that technical challenges in restorative therapy had increased and half of the respondents (51.7%) thought that re-restorations had become more

common. To conclude: private practitioners in Finland were not dissatisfied with the changes that had occurred in dental restorative therapy, although they felt that dental care had become more expensive and dentists' ability to guarantee their patients good dental health had become more difficult.

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| Group     | Epidemiology / Health Services  |
| 114 Title | Informed consent in dentistry   |
| Author(s) | M F Prieto*, B Zubiaur, F Gomez, A Anta and A Calvo. Gijon, Asturias, Spain |

The aim of the study was to analyse the informed consent usually practised in dentistry. A randomised sample of 148 university students aged 20 to 24 years from the Schools of Biology, Medicine and Dentistry of the Basque Country University were interviewed. Five different thematic groups constituting informed consent were distinguished: need of treatment, treatment complications, alternative treatments, preventive measures and economic aspects. And for each of these sections, four informative vehicles: oral, written, oral and written, and no information were used. From the 148 people interviewed, 8.1% said that they never went to a dentist. 69.8% considered themselves well informed, 28.6% little informed and 12.8% not informed at all. With respect to their treatments needed, 75.7% received oral information (1.8% written, 9.6% oral and written and 1.3% no information). About complications 61.8% got oral information, 1.7% written, 6.4% oral and written and 30.1% got no information. Information of preventive treatments needed and costs of treatments was most often verbally given (76.5% and 29.4%, respectively). In conclusion: of the various ways of giving information to patients, dentists preferred verbal communication.

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| Group     | Epidemiology / Health Services   |
| 115 Title | Reducing the need for orthodontic intervention by detection of missing and supernumerary teeth   |
| Author(s) | P Cearra, I Soler, M L De Orte, J Ellakuria* and A Arellano.<br>Department of Stomatology, University of the Basque Country, U.P.V./E.H.U. Bilbao, Spain |

**Objectives** The purpose of the study was to consider whether the need for orthodontic intervention can be significantly reduced by detection of the presence of missing and supernumerary teeth. **Material and Method** The PADI surgery of the Basauri-Ariz Public Clinic, belonging to the Internal Region of Osakidetza is a typical public service clinic. Over the period 1990–1998, 2302 orthopantomographs were taken in the clinical care of 2497 children ranging in age from 7 to 15 years ( $7.84 \pm 1.39$  years). The frequency and type of dental irregularities in terms of missing and supernumerary teeth were determined. **Results** 7% of the patients exhibited an irregularity in number of some type. The most frequent was absence of a tooth and this affected 80% of the patients assessed. The most frequent single tooth congenitally absent was the 3.5, missing in 21 cases with both 3.5 and 4.5 missing in a further 25 patients. 15% of the patients had supernumerary teeth and in 2% congenital absence was associated with supernumerary teeth. 88% of the supernumerary teeth were *mesiodens*, most commonly, *mesiodens* (22 patients). **Conclusions** Supernumeraries can lead to problems in eruption sequence and failure to detect congenital absence can lead to inappropriate extraction of deciduous molars. Early diagnosis and treatment of both conditions may reduce the need for orthodontic intervention. However, on a population basis, even if detected early, the number of cases encountered will not have a significant impact on reducing the overall levels of orthodontic treatment need and demand.

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| Group     | Epidemiology / Health Services                                   |
| 116 Title | Prevalence of juvenile periodontitis: a pilot study              |
| Author(s) | A Llorente Sánchez*1, L A Aguirre Zorzano and J Villate Aguirre. |

Author(s) 1Postgraduate Student, University of the Basque Country, UPV/EHU, Spain

Background: There are no population data on the prevalence of juvenile periodontitis (LJP) in Spanish children. In studies carried out within the European Union, prevalence ranges from 0.1 to 0.2% (Saxen 1980, Hansen 1984, Kronaver 1986, Saxby 1987). In the US the corresponding figures are 0.53 and 0.76 (Loe and Braw 1991, Melvin 1991). According to the children's dental attendance programme PADI, the number of children in the Autonomous Community between 12 and 15 years is 82,456. Hence if we assume that the prevalence of this disease in our Community is similar to that in other European countries, the number of children affected at these ages is somewhere between 82 and 160. The objectives of this study were first, to determine the percentage of patients attending a periodontist's surgery affected by LJP and to compare that with the prevalence of the illness in studies described for a similar population; and secondly, to determine the number of teeth lost through LJP. **Method** To make the estimation, an examination was made of the periodontograms (n=1000) and X-rays of those patients who visited the surgery and exhibited the signs and symptoms described by Baer. Results indicate the low prevalence of LJP at the periodontal surgery (3/1000), the typical effect on the incisors, canines, and first molars, the loss of first molars in these patients (in two of the three cases), and the late diagnosis of the illness (22, 26, and 26 years old.). Our study revealed a high number of rapidly progressive periodontitis (n=171), some of these cases may be untreated extensions of LJP. Conclusion: (a) the prevalence of LJP at the periodontal surgery was lower than might be expected and some cases may remain undiagnosed.; (b) the distribution of teeth affected falls into the classic pattern; (c) loss of first molars was observed, but owing to the lateness of the age of diagnosis it is difficult to determine cause; (d) the general dentist should include, as routine, periodontal exploration in children from 12 to 16 in case LJP is present.

Group Epidemiology / Health Services

117 Title Oral care habits of the Spanish in the period 1993–1995

Author(s) T Izquierdo Bello\* and J Pinilla Dominguez. Department of Quantitative Methods, University of Canary Islands

The aim of the paper is to look at the oral care habits of Spanish people, over the period 1993–1995. **Method** The sample comprised 21,061 adults aged 16 and over for 1993, and 6,396 for 1995. The data used are from the National Health Survey (ENSE), drawn up by the CIS at the request of the Department of Health and Consumer Affairs in its 1993 and 1995 estimates, as a source of information regarding changes in oral health care, as well as their interaction in the health services. These data enable us to determine present-day concern for oral health and hygiene, extracting the individual heterogeneities in relation to socio-economic characteristics (social status, academic level, work situation, size of dwelling, Autonomous Community lived in, etc.), as well as the health coverage used. The usual procedures for discrete analysis are employed, with probit and logit forms, in order to assess the probability that the individual may attend the dentist. The results indicate, for the period 1993–1995, an overall drop of 16% in the number of individuals who have never gone to a dentist. The greatest proportion of never attenders are in the age groups 16–24 and 75–99, which in 1995 were 11% and 8% respectively, with 13% and 8% for men, 11% and 6% for women. Social status and academic level affected the probability that an individual will be in the habit of taking measures to prevent and to conserve their teeth. Social status also has a bearing on the type of dentist chosen for consultation. Where the family is well-to-do, visits to a private dentist are 6%–12% more frequent than in the case of less well-off families, which more often take recourse to Social Security. Hence although there are differences in intensity when we group individuals according to socio-economic level, in general terms it may be said that the Spanish are becoming more aware of oral health as time passes.

Group Epidemiology / Health Services

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| Title      | Long-term results of a comprehensive fissure sealant program for permanent teeth: a community approach      |
| <b>118</b> | I Pietilä*(1), E Lavonius(2), N Toropainen(2), T Vilkkuna(2) and E Kerosuo(2)                               |
| Author(s)  | (1) Varkaus Health Centre, Varkaus<br>(2) Institute of Dentistry, University of Helsinki, Helsinki, Finland |

Caries in permanent teeth has greatly decreased during the last decades. The wide use of fissure sealants has supposed to be one factor for caries decline in Finland. The aim of this study was to evaluate the common practice of application of fissure sealants in a municipal health centre; how widely they are used in 1st and 2nd molars and premolars, how often resealing is necessary, and what is the impact of sealants on caries status. The subjects were children born in 1977, living in Varkaus, in Eastern Finland. All children, whose dental status was recorded at least every second year between 1983–96 were included. Diagnosis, sealing, resealing, and fillings, of 1st and 2nd molars and premolars were gathered from children's dental files. The teeth were predominantly sealed with resin based material. At 12 years, DMF was 0.8, lower than nation-wide mean 2.0 in 1988. After 11 years, 89% of the 1st molars (n=688) had been sealed, and 12% of these were later decayed occlusally. Every fourth sealed 1st molar was resealed, and 10% of these were later decayed occlusally. During the follow-up period of 2nd molars, 5 years, 83% (n=723) of 2nd molars were sealed, and 5% of these were later decayed occlusally. 18% of 2nd molars were resealed, and 17% of these were decayed during the follow-up period. Only 9% (n=1448) of premolars were sealed during the follow-up period of 5 years. Caries was seen only in 4.6% of, with no resealing of premolars. Altogether, 95% of 1st and 2nd molars were sealed during the total follow-up period. Therefore, in the study group the number of non-sealed teeth remained small (n=39). However, the prediction of caries risk seemed successful, for only one of the non-sealed teeth had caries approximately, while the percentage of approximal caries was in the sealed and occlusally filled teeth 10.0% and 28.6%, respectively. At the age of 18 years, 20.5% of the sealed teeth were decayed and/or filled occlusally and/or approximally. To conclude, it appears that at the Health Centre of Varkaus, the level of caries on 1st and 2nd molars was as low as that reported in clinical trials of fissure sealants. On the community level the applied sealant program including resealings was successful. The low percentage of decayed premolars shows that the routine sealing of premolars is unnecessary. In further studies, the practice of routine sealing of molars needs to be re-evaluated.

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| Group      | Epidemiology / Health Services  |
| <b>119</b> | Title   |
| Author(s)  | The oral health of children aged 6 to 8 years in Cantabria, Spain<br>M Pellón Ortega*, C Andrés de Llano, M Gómez-Lainz and A Ruiz de Temiño. Centro de Salud Bucodental Infantil de Cantabria, Spain |

Objective: To study the prevalence of caries, and to determine the presence of any trend over time in schoolchildren aged 6–8 in Cantabria, Spain after the commencement of a preventive programme. **Method** A cross-sectional study of the most recent school year (1996–1997) was conducted and compared with the results of the same age group in former investigations. The sample comprised 12,388 schoolchildren of aged 6, 7 and 8 years (approximately four thousand per year group). Examinations were carried out at the schools by dental staff in mobile units using the WHO 96 criteria and card. The units are at the disposal of the Programme and each vehicle is equipped with two complete odontological surgeries and computer network. **Results** Caries prevalence at these ages is low in comparison with other Autonomous Spanish Communities. The 1994–95 study found that 20 % of the 8 year olds had some carious permanent teeth and this figure had fallen to 15% in the 1996–97 study. In addition, the dft indices reveal a clear downward trend in caries in the Cantabrian Community. For 8 year olds, the following indices were found:

|         | mean dt | mean ft | mean dft |
|---------|---------|---------|----------|
| 1994–95 | 1.22    | 0.30    | 1.55     |
| 1996–97 | 0.68    | 0.45    | 1.13     |

**Conclusions** Following two years of the preventive programme, it is clear that dft indices have improved. The number of children with dental caries has approximately halved and less of the caries experienced is untreated as shown by the increase in the number of fillings, despite the appreciable fall in the dft index.

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| Group      | Epidemiology / Health Services  |
| Title      | Case-mix of a public dental service for adults  |
| <b>120</b> | L López Ubiria*(1), J López del Moral(2) and A Choperena(3)   |
| Author(s)  | (1)Centro de Salud Hermanos Iturrino Irún, SVS-Osakidetza<br>(2)University of the Basque Country, UPV/EHU, 3Centro de Salud Hermanos Iturrino (Irún), SVS-Osakidetza, Spain |

Epidemiological oral health studies on children form part of the oral health programme of the Department of Health and Consumer Affairs of the Basque Government. The PADI, which has been in force since 1991, includes a system for gathering data in order to determine the epidemiological state of those who use the Programme. However, for adults there is no established plan, nor is there a data-gathering system that would make it possible to determine the current demand that the adult population of Euskadi places on the dental services or their case-mix. In view of this situation, the present team began to collect data in an odontology surgery forming part of a health centre in Guipuzkoa. In the present abstract we look at the data for February and March of 1998. There were 329 people who accessed the service (150 men and 179 women), of aged 3 to 95 years, the average being 42, the mode 59. 96% of the visits were pre-booked, with only 4% urgent. The pathology most often treated was caries (30%), followed by chronic periostitis (13%) and advanced periodontal disease (10%). The most frequent treatment provided was extraction (41%), followed by medical/pharmacological treatment (18%). Of the 183 teeth extracted, 87% were permanent and 49% of those molars, and 26% premolars. In conclusion, the majority of the interceptive dental work provided in this Spanish public dental clinic was extraction.

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| Group      | Epidemiology / Health Services   |
| Title      | Evaluation of preventive and therapeutic requirements in the first permanent molars of patients accessing a dental service |
| <b>121</b> | A Arellano Cabornero, M A Iglesia Puig and B López-Areal García*.  |
| Author(s)  | Department of Stomatology, Faculty of Medicine and Odontology, University of the Basque Country, 48080 Bilbao, Spain       |

**Objective** To evaluate the present and future preventive and therapeutic requirements of the first permanent molars (FPM) in a sample of the population of children using our dental service, in order to know what care should be planned. **Method** A random sample of 219 children aged 5 to 14 (94% girls) were examined by the same dentist during the programmed ordinary visit. For each FPM, the following was recorded: 1, no treatment need; 2, sealants; 3, filling; 4, preventive resin restoration; 5, endodontia; 6, extraction. **Results** The age mode was between seven and nine years old, and the median was eight. 20% had no treatment need. 50% needed to be fissure sealed, according to our program criteria. 25% needed fillings and 15 of the FPMs that needed fillings had previously been sealed. 7 teeth needed pulpal treatment, 3 needed extraction. **Conclusions** Since 25% needed fillings, we must increase the preventive care provided to this population. The need to fill some teeth that were previously fissure sealed demonstrates that we need a consistent approach to checking fissure sealants regularly and resealing as necessary.

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| Group      | Epidemiology / Health Services  |
| Title      | An epidemiological study of mandibular fractures.   |
| <b>122</b> | J A Guerrero*, J M Mencía, F García Bernal, J Alvarez, L Barbier, J Santamaría and P Armendariz. Cruces Hospital, Bizkaia, Euzkadi, Spain |

The objective of this investigation is to describe the epidemiological factors important in mandibular fractures. **Method** A retrospective and descriptive study of mandibular fractures from 1988 to 1997 was performed using data from a third level University Hospital, with a population coverage of 362,000. **Results** The mean age of the patients was 29.6±6.3. 350 cases were reviewed, 60% of those cases, 210, were patients aged between 20 and 40. Road traffic accidents were the most frequent causative agent, comprising 43% of the total. The mandibular angle was the most common location of the fractures (29%), followed by the parasymphiscal area (21%) and the mandibular symphysis (19%). 40% had associated multiple trauma. The management of teeth associated with the fracture line is controversial and this situation occurred in 21% of the cases. 89% underwent surgical treatment, 7% requiring further surgery. Early complications developed in 40 patients, with infection being the main cause for 31. Late complications appeared in 61 patients, with ankylosis in 40% of the cases followed by non union in 28%. **Conclusions** Mandibular fractures are one of the most common in the maxillofacial area. Road traffic accidents are still the main cause of developing these fractures. The surgical management has changed, in the 80s and early 90s, intermaxillary fixation was been the most common method of treatment, from 1994, rigid fixation has become most.

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| Group      | Epidemiology / Health Services  |
| Title      | Oral hygiene practised by schoolchildren in Galicia   |
| <b>123</b> | E Smyth Chamosa, S Rey Martínez* and T Díaz Vázquez. Preventive Odontology, University of Santiago, Spain |

A cross-sectional epidemiological study was conducted with a sample of Galician schoolchildren, aged 10–14 years, the aim being to assess the level of oral hygiene and dental health. **Method** A representative randomly selected sample of schoolchildren 10–14 was taken, stratified by province, population, and number of children at each school. A questionnaire was distributed regarding oral hygiene habits, consumption of sweets, use of dental services. The oral examination assessed the condition of the teeth and the presence of dental plaque on six index teeth. **Results** 961 schoolchildren were studied. 39% knew what dental caries was; 96% said they brushed their teeth. Of these, 45% brushed every day at night. 35% said they learned how to clean their teeth by themselves; 37% were taught by their mothers and only 4% said they were shown by the dentist. 18% had never visited a dentist. For 25%, the last visit was >1 year ago. 90% claimed not to eat sweets. 8.9% say they use a fluoride supplement, while 33% do mouth washes at school. Caries prevalence was 57%, with a mean of 2.3 carious teeth. 48% have between 1 and 4 carious permanent teeth. 47% have plaque in 1/3 gingival, and 80% of the teeth examined revealed plaque in more than 1/3 gingival. The cleanest teeth were the upper and lower front sectors (47% and 41%) and in the back between 21% and 26%. **Conclusions** Galician schoolchildren know about appropriate oral hygiene practices but do not implement them. Future preventive programmes should concentrate on promoting behaviour change rather than simply providing information. *This study was conducted with the co-operation of the Xunta de Galicia, Dirección Xeral de Saúde Pública.*

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| Group      | Epidemiology / Health Services   |
| Title      | The Panopticon of Swedish Public Dental Health Service                                       |
| <b>124</b> | E Bejerot* and B Soderfeldt. Centre for Oral Health Sciences, Lund University, Malmo, Sweden |

The objective of the study was to find indicators of differences between ideal and reality for

dentists' work in the Swedish Public Dental Health Service (PDHS). A questionnaire was sent to 757 dentists in Sweden. The response rate was 68 per cent. Of the responding dentist 312 worked in the PDHS. An open-ended question was, "If you recall the impression you had of dentistry as a profession during your time as a dental student; what turned out different from what you had expected?" The text analysis was conducted through categorisation line by line, searching for sensitising concepts as well as words signalling direction of change and causal attribution – answering the implicit question "why". The sensitising concepts which opened the material were "management style", "effort-reward balance", "enclosure", and "meaning of work". Many dentists indicated a management focused on economy, poor balance between effort and reward and feelings of being enclosed in the profession – but also meaningfulness of the work. The result was interpreted in Foucauldian terms, i.e. the knowledge/power dyad and the metaphor of Panopticon, the perfect prison of the 18th century. The management control system in PDHS is regarded as a technology which enables an extensive visibility of the employees.

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|     | Group     | Epidemiology / Health Services  |
| 125 | Title     | The public health burden of replacing amalgam restorations – the influence of finishing and polishing on the decision |
|     | Author(s) | J Oleinisky*, L Baratieri, J Gil, A González and R Rioboo. Department of Stomatology IV. UCM, Spain                   |

**Introduction** The odontostomatologist uses up 50–60% of his time in the surgery replacing restorations theoretically deficient. The main reasons given for replacement of restorations are secondary caries (20–58%) and deterioration or alteration in their borders (9–40%). The average life of amalgam restorations is 6–11 years and the cost of replacement is a public health burden for the majority of European countries. It is possible that effective finishing and polishing could reduce the number of decisions to replace on the grounds of defective margins. However, little information is published. Therefore, the aims of this study were: 1) To assess the influence of finishing and polishing on the decision with: A) factors that measure the quality of the restorations; B) secondary caries; C) variation among professionals; D) diagnosis and agreement criteria. **Material and Method** the sample of teeth comprised 40 teeth extracted in two stages: before polishing and after polishing, and the teeth were examined by 60 examiners (20 odontology students and 40 professionals with various levels of seniority). **Results** in terms of the decision to replace and reasons for doing so finishing and polishing do influence the decision to replace, but this varies with professional experience. However, the criteria used by the examiners were subjective. **Conclusions** further work is needed to identify the subjective factors that combine to make the diagnostic decision to replace a restoration. Early results indicate that finishing and polishing should be a routine part of diagnostic and therapeutic care.

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|     | Group     | Epidemiology / Health Services   |
| 126 | Title     | Attitudes, knowledge, and habits of parents of children enrolled in a programme of oral health                             |
|     | Author(s) | C Rodríguez Vázquez*, E Bracos, R Garcillan and R y Rioboo. Faculty of Dentistry, Universidad Complutense de Madrid, Spain |

The aim of this study was to evaluate the attitudes, knowledge, and habits of parents of children enrolled in a programme of oral health. **Method** 150 questionnaires were completed by parents of children aged 6–12 years attending a Health Centre in Madrid. 36 items divides in to 3 blocks were chosen for the questionnaire. The statistical analysis was by SPSS. **Results** 66% of people rated their experience with the dentist acceptable but 45% were not aware of the use of fissure sealants. In contrast, 77% replied correctly to questions about fluoride. Only 9% knew about the the term plaque-control and 37% bought tooth-paste according to adverts or product price. 14% believed that caries in deciduous teeth need not be treated.

**Conclusions** The results confirm that the importance of health education for parents as well as

children who are enrolled in a health education programme.

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| Group     | Epidemiology / Health Services  |
| 127 Title | Oral health, habits and attitudes toward oral health in a population of pregnant women in Madrid  |
| Author(s) | J Rosado*, A González, E Maroto, J Gil and E Alarcón. Area 3-Insalud Madrid; Department of. Stomatology IV, University Complutense, Madrid, Spain |

The aim of our study was to determine the level of oral health in a population of pregnant women in a public health area, as well as their oral health habits and attitudes. **Method** The target population comprised pregnant women visiting the Juncal Health Centre at Torrejón de Ardoz, Madrid (n=33). These women were examined by an odontologist, following WHO methodology for periodontal and dental state. A questionnaire with ten questions regarding dental hygiene, dietary habits, and visits to an odontologist was completed. **Results** Prevalence of caries experience: 73%. Mean DMFT 8.03. Prevalence of periodontal disease: 91%. Mean number of healthy sextants: 2.12; with bleeding: 1.09; with calculus: 1.8; excluded sextants: 0.06. The sextant most affected by bleeding was the lower left. The sextant most affected by calculus was the lower front. 70% of those surveyed report brushing their teeth > once a day, while 27% brush once a day, and 3% never brush. 79% fail to use dental floss. 58% eat refined sugars between meals. 67% go regularly to the dentist, i.e. at least once per year. Only 6% go to a dentist within the public system. All of those surveyed affirm that Social Security should provide gum care for pregnant women. **Conclusions** The prevalence of caries and of periodontal disease in the group studied is high. Oral hygiene is deficient. From the public service, with the right techniques in promotion of oral health, the diseases in question could be palliated.

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| Group     | Epidemiology / Health Services   |
| 128 Title | Epidemiological study of dental caries in rural schoolchildren in Guitiriz (Lugo)  |
| Author(s) | X Carlos López Rábade and E Smyth Chamosa. Centro de Saúde de Guitiriz., S. Juan de Lagostelle s/n, Guitiriz (Lugo), Spain |

**Aim** To determine the prevalence and distribution of caries in a population of schoolchildren of rural background in Galicia. **Method** We examined a random sample of 78 children (36 aged 6 and 42 aged 12). Each child was examined in school, lying on an examination table with the dentist seated behind their head and their mouth illuminated by a 100-watt lamp. Sickle probes and flat mirrors (no.5) were used. WHO criteria for type III studies were followed for caries diagnosis. Statistical analysis by SPSS. **Results** The sample comprised 84% of all schoolchildren aged 6 to 14. Overall 55% had caries (56% at age 6). The mean DMFT at 12 was 1.73. Restoration index was 43% for the sample as a whole, while for those age 12, it was 31%. The mean dft at 6 years was 2.3 and mean DMFT was 0.03. Caries prevalence was unrelated to sex, while dental attention was better in the case of girls. There are a great many single, carious occlusal surfaces. There is a relationship between caries and the occupation of the parents. **Conclusions** The objectives of the WHO for the year 2000 are accomplished. Further reductions could occur if the prevalence of occlusal fissure caries could be reduced.

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| Group     | Epidemiology / Health Services  |
| 129 Title | Prevalence of dental caries, gingivitis and periodontal disease in pregnant women in the health area of Vigo-Pontevedra |
| Author(s) | A M <sup>a</sup> Iglesias Corchero* and E Smyth Chamosa. Preventive Medicine, Santiago de Compostela University, Spain  |

The objective of this study was to determine the presence of caries, gingivitis, and periodontal

disease in pregnant women who attend the Outpatient Gynaecology Department of SERGAS in Vigo (Pontevedra). **Method** A cross sectional survey was carried out using WHO procedures, No. 5 mirror, dental probe and Williams' periodontal probe. Silness and L oe's method to evaluate gingivitis and CPITN to determine periodontal treatment need. **Results** 32 pregnant women were examined: 84% had experienced dental caries, the mean DMFT was 10.25, and 25% had more than 5 carious teeth. Gingivitis was observed in 68% with 42% suffering mild inflammation; 24% moderate, and 2% severe inflammation. CPITN showed that the worst state was bleeding with 45% affected; 20% covered with tartar, and 13% with periodontal pockets of 4–5 mm. **Conclusions** There was a high prevalence of dental caries experience with the main component being decayed teeth. There was a considerable need for basic periodontal care.

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| 130 | Group     | Epidemiology / Health Services  |
|     | Title     | Orthodontic treatment need in Galician children of 12 years old                     |
|     | Author(s) | T D az V azquez*, E Smyth Chamosa and S Rey Mart nez. University of Santiago, Spain |

**Aim** to assess the state of dental occlusion in Galician children aged 12 years and their need for orthodontic treatment. **Material and methods** A randomised stratified sample was constructed (according to province and number of inhabitants) of Galician schoolchildren age 12. The sample comprised children at 42 schools selected at random, taking into account the number of children in each school. An examination was conducted following WHO criteria for caries and assessment of the state of dental occlusion. An analysis was made of the molar and canine Angle class, the presence of projection, overbite, and deviation from the mid-line.

**Results** A sample of 645 was obtained, of whom slightly more than half (51%) were male. 64. % exhibited at least one carious tooth. Average was 1.87 teeth affected. 47% revealed no irregularities in occlusion, while 29% exhibited slight irregularities, and 24% severe irregularities. Sex-related differences were not encountered. About 72% had class I molar or canine, 20% class II, and 3% class III. Differences between left and right sides were not observed. 7% exhibited projection exceeding 8 mm. 42% had an overbite >3 mm, 2% on the border, and overbite 2%. The mid-line was centred in 94% of the children with deviation to the left in 5%, and to the right in 2%. **Conclusions** One out of four Galician children of age 12 has serious occlusion problems. The most common being class II and overbite. *This study was financially supported by the Xunta de Galicia*

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| 131 | Group     | Epidemiology / Health Services   |
|     | Title     | Reduction of dental workload in Spain from 1987 to 1995. Analysis from the Spanish national health interview surveys |
|     | Author(s) | M Bravo*. Department of Preventive and Community Dentistry, School of Dentistry, University of Granada, Spain        |

Dentistry in Spain has observed a rapid increase in the number of dentists. During 1987–1995 the Spanish population grew by 4.1% (from 38.6 to 40.2 million) but there was a 106% increase in the number of dentists (from 6,513 to 13,424). The aim of this study was to analyse the change in the workload of dentists during 1987–1995. Data were taken from the dentists census, the population census and the available Spanish National Health Interview Surveys (ENSs), corresponding to 1987 (n=39,751), 1993 (n=26,314) and 1995 (n=8,372). For each year, the percentage of people visiting the dentist and the mean number of dental visits per person were estimated. The mean workload per dentist (including both private and public activity) was calculated dividing the total number of visits by the number of dentists. SUDDAN software was used to adjust for complex sample design. The percent of people ( $\pm$  s.e.) visiting the dentist during the last 3 months, was  $13.7 \pm 0.2$  (1987),  $15.3 \pm 0.3$  (1993) and  $16.9 \pm 0.4$  (1995), a 23% increase. The total number ( $\pm$  s.e.) of dental visits in Spain (during 3 months) were  $9.5 \pm 0.3$  mill. (1987),  $12.2 \pm 0.3$  mill. (1993) and  $13.3 \pm 0.4$  mill. (1995), a 51% increase. The mean ( $\pm$  s.e.) dental visits/dentist were  $1,497 \pm 41$  (1987),  $1,028 \pm 28$  (1993) and  $991 \pm 34$  (1995),

a 34% reduction. It is concluded that a significant reduction in dental workload is taking place in Spain.

## Behavioural Sciences / Oral Cancer / Education / Other

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| Group            | Behavioural Sciences / Oral Cancer / Education / Other                            |
| <b>132</b> Title | Drawing as a way to know the children's point of view about the dental profession |
| Author(s)        | L Cermeno, Y Cantero, L Requejo, C Larrinaga and A Anta. Bilbao, Vizcaya, Spain   |

The aim of the study was to assess childrens' perception of dentists and their surgery among children that had and never had visited the dentist. The study was done on a sample of 52 children from a school in Llodio, Alava (Spain). Children were asked to make a drawing about the image that they had of a dentist. Results obtained for children that had been to the dentist were: 87% drew the dentist (male); 75% a lamp, nurse and devices; 62% a syringe, gloves, mask, mirrors and windows; 50% radiographs; 37% teeth brushes, lollipops, toys and paintings. 100% of them drew a dental chair, and in 62% of the cases the child was seated in it, 12% sat a top of a person and 25% did not draw themselves. It is remarkable that 75% of the children drew their mothers. Results for those who never went to the dentist were: 100% of them drew windows; 57% syringe, lamp, dentist (male), devices and nurse; 14% gloves, mask, mirror and toys; 14% paintings; 28% radiographs. The dental chair was drawn by all of these children (42% sat in it themselves, 14% on top of somebody else and 28% did not draw themselves). 71% had draw their mother and 42% their father. It is concluded that the knowledge about the dental practice is quite good, even in those who had never been to a dentist. It's remarkable to notice the frequency in which incentives (toys, candy, etc.) were drawn. Children saw the dentist as being a man and the assistant as a women. Most mothers had accompanied the children to the dentist.

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| Group            | Behavioural Sciences / Oral Cancer / Education / Other                                |
| <b>133</b> Title | Phobia and anxiety in dental practice   |
| Author(s)        | A Ciudad*, E Elorriaga, B Inclan, M Muooz and A Calvo. Bilbao, Lejona, Vizcaya, Spain |

The aim of the study was to determine phobic and anxiety in dental health services. Using the Corah Test, a questionnaire was presented to 307 people randomly sampled as followed: group I (78 students from the School of Dentistry: 26.9% men, 73.1% women); group II (73 students from the School of Medicine: 38.4% men, 61.6% women); group III (78 students from non medical Schools: 50% men, 50% women); group IV (78 patients from dental clinics in the Schools of Medicine and Dentistry of the Basque Country University (U.P.V./E.H.U.) waiting rooms: 60.3% men, 39.7% women). Fear to the dentist was observed almost in every occasion: group I (men 9%, women 21%); group II (men 25%, women 27%); group III (men 23%, women 41%); group IV (men 15%, women 35%). Fear to anaesthesia: group I (42%); group II (46%); group III (30%); group IV (48%). Fear for rotary instruments: group I (when they hear the sound 15%, when they feel the contact 42%); group II (when they hear the sound 29%, when they feel the contact 42%); group III (when they hear the sound 38%, when they feel the contact 55%); group IV (when they hear the sound 33%, when they feel the contact 45%). There is a considerable fear in the dental practice nowadays, mainly centred in providing anaesthesia and the use of rotary instruments. The difference between gender is noticed by the fact that more women showed fear. The cause may be related to a cultural background.

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| Group | Behavioural Sciences / Oral Cancer / Education / Other |
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- 134 Title Psychological factors influencing young people's acceptance of orthodontic care  
 Author(s) M Gray\*, G Bradnock and H Gray. Walsall Health Authority, Walsall, England, UK

Adolescents failing to take-up or complete orthodontic treatment has been highlighted as a public health problem. In order to gain an understanding of this issue a study, was designed to identify the psychological factors influencing young people's behaviour in relation to orthodontic care. 4812 individuals aged 14–15 from schools in Walsall and Dudley volunteered qualitative information onto a self-completing attitude schedule. The data demonstrated the influence of the following factors on the acceptance and perception of orthodontic need: self-image and personal constructs, peer group and media pressures, parental influences, symptom perception, teasing and conflicting messages. The importance of the influencing factors and their impact on the perceptions of young people was determined as including the following construct: orthodontic treatment does not cease when the individual has left the surgery. The badge of orthodontic care, in the form of the appliance, is worn in schools, clubs, the home and many other places routinely visited by young people. As such it is only the orthodontic patient who has a full understanding of the environment in which the majority of therapy is to be undertaken and is therefore the only person in a position to give informed consent to treatment. In conclusion, it is considered essential that clinicians involve potential patients fully and honestly in discussions concerning their orthodontic therapy in order to enable them to make a considered consent.

- Group Behavioural Sciences / Oral Cancer / Education / Other  
 Title Dental anxiety and the need for skills in enhancing coping strategies  
 135 Author(s) M González Ceinos\*, I Ezpeleta Sáez, M Heredia Zorrilla, Z Malpartida Larrínaga, L Núñez Moreno and R Trepiana Gordejuela. Universidad del País Vasco, Lejona, Vizcaya, Spain

The aim of this study was to determine the level of dental anxiety before the provision of dental treatment in relation to patients' age, sex, and occupation. **Method** A random sample of 253 persons of the Basque Country with ages between 10 and 79 years were assessed for dental anxiety using the Kleinknecht scale. **Results** Similar values were found between men (mean score 2.16) and women (mean 2.19) and across the age groups. However, with respect to occupation, retired women presented with a higher reported anxiety level (3.0) compared to retired men (1.6). There were no differences in anxiety between those cancelling a pre-arranged dental appointment from fear (men: 1.9; women: 2.0). In clinic, both men and women present higher levels of anxiety upon feeling the needle (men: 2.81; women: 2.83). It is notable that the highest index was obtained in the question of anxiety is the one referring to the fear of their friends from childhood (men: 3.1; women: 3.0). Discussion: With relation to the literature, Baciero G. *et al* also found that seeing the needle and the handpiece were the situations which caused greater anxiety both in men and women with no significant difference between the sexes. In contrast to our results, Stouthard *et al* reported that women between 26–35 years were the most anxious when faced with dental treatment. In conclusion, all patients show some anxiety before dental treatment and appropriate training for dentists should be included in both undergraduate and postgraduate teaching.

- Group Behavioural Sciences / Oral Cancer / Education / Other  
 Title Use of a children's game as a way of improving oral hygiene habits  
 136 Author(s) M Barranquero\*, F J Goiriena and P Lafuente. University of the Basque Country, Spain

Health does not depend just on good laws, information or programmes; in order to achieve health, people need to take their part not only for themselves, but for their community. This study aims to take advantage, with no economic charge, of a popular and well known children's

game, called The Goose Game, in order to improve children's oral health habits in a school setting. In our adaptation of the game, positive squares show healthy habits figures and inscriptions (i.e. dental brushing, visit to the dentist, etc), and negative squares represent risk factors (i.e. sweets consumption between meals, tobacco, alcohol, and so on). This game is designed to help the pupil to assimilate hygiene habits, incorporating them into his life. The design and acceptability of this game has been evaluated by schoolchildren. In addition, effects on dental hygiene have been measured before and after use of the game. The level of acceptance was 80% among the schoolchildren. Where habits of oral hygiene are concerned, a 15% improvement was observed in relation to the former survey. It remains to be seen whether these results hold steady or improve. The game has been proved and accepted by some pupil groups, who found it amusing, while parents and teachers consider it a very positive way to bring pupils to healthy habits.

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| Group      | Behavioural Sciences / Oral Cancer / Education / Other   |
| Title      | Epidermoideal carcinoma in oral cavity and its survival  |
| <b>137</b> | J A De Cecilia(1)* and F J Goiriena De Gandarias(2)  |
| Author(s)  | (1)Hospital Aranzaza, San Sebastian<br>(2)Faculty of Medicine and Dentistry, University of the Basque Country, Spain |

The epidermoideal carcinoma is the commonest malignant tumour in the oral cavity. Its appearance is normally unnoticed. Diagnosis during the first weeks are difficult and that aggravates the prognosis. A random sample of 79 cancer patients was monitored. The ages of the patients ranged from 30 to 80 years, with a medium between ages 50 and 59 years. 88% were male and 12% female. Cancer at the base of the tongue was present in 20.3% of the cases whilst 23.2% had cancer elsewhere on the tongue. Other results concern: floor of the mouth (20.3%), trigone (8.4%) and other areas (23.2%). 87% of the cancer cases were epidermoidal. Of these, 53.2% were localised, 39.2% exhibited regional impact, and 7.6% were already widespread. The major risk factors were alcohol and tobacco. The yearly survival rate was 74.2%. Even in cases where the carcinoma was visible and easily diagnosed, an extension was seen in more than 46%. In conclusion: priority should be given to early diagnosis. The way to proceed is through education of the population, and, more especially, of those professionals that carry out dental examinations.

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| Group      | Behavioural Sciences / Oral Cancer / Education / Other                      |
| Title      | Oral cancer and HLA as prognostic factor                                    |
| <b>138</b> | A Calvo*, M Barranquero, F J Goiriena de Gandarias and J Acha.              |
| Author(s)  | Department of Stomatology, University of the Basque Country, UPV/EHU, Spain |

According to data in the Euskadi cancer register, 5% of the malignant tumours in the Autonomous Community of the Basque Country are located in the oral cavity. This is one of the highest figures reported, not only for Spain but for also Europe. It can be stated that every illness is the result of an interaction between the genetic constitution of the individual and his environment. Up to now the genetic loci that most notably coincide with the predisposition to specific illnesses are those that make up the HLA (main histocompatibility complex), especially the subregion HLA-DR. Using this fact, the aim of this study was to determine the frequencies of the HLA-DR allelomorphs in an oral cancer population. Complete blood samples were taken from 119 patients (88.2% men and 11.8% women, ages ranging from 33 to 89 years) being treated in the Oncological Institute of San Sebastian, on their informed consent. Following a process of DNA extraction, amplification by PCR and hybridisation with specific probe, the results for the HLA-DR allelomorphs were as follows: DR1 (11.8); DR3 (13.4%); DR4 (16.0%); DR7 (14.7%); DR8 (2.1%); DR9 (0.8%); DR10 (1.3%) DR11 (10.5%); DR12 (0.4%); DR13 (11.3%); DR14 (2.1%); DR15 (13.4%); DR16 (2.1%). Further studies are necessary using larger

samples in order to demonstrate that the allographs obtained in this study may be indeed signs of oral cancer risk.

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| Group            | Behavioural Sciences / Oral Cancer / Education / Other   |
| <b>139</b> Title | Concentrations of chosen elements in supragingival dental calculus of cigarette smoking and non smoking group selected in Cracow |
| Author(s)        | J Zarzecka. Department of Conservative Dentistry, Collegium Medicum, Jagiellonian University, Cracow, Poland                     |

The influence of cigarette smoking on chemical composition of human dental calculus was investigated. Two groups (cigarette and no smokers) from a population of the Cracow agglomeration were selected. Supragingival dental calculus of 102 patients was collected, dissolved with HNO<sub>3</sub>, and diluted with double-distilled de-ionised water. Contents of Ca, Mg, Sr, Zn, Pb, Cd, and Cu were measured using AAS and GTA techniques. The first group (cigarette smokers) demonstrated significantly higher concentrations of lead, cadmium, and copper than the control (no smoking) group. Concentration of Cd was averaged at 22.3 ppm in the first group and 12.5 ppm in the second group. Average concentrations of Pb, and Cu were 18.7 ppm, and 112.2 ppm in the smokers group, and 11.3 ppm, and 59.9 ppm in the control group, respectively. The concentrations of Ca, and Mg, in dental calculus averaged Ca-62.9 mg g<sup>-1</sup>, SD=28.1, Mg- 2.33 mg g<sup>-1</sup> SD=0.91, in the smokers group. The results were similar in the control group except for a higher, but not statistically significant difference in magnesium concentration -3.75 mg g<sup>-1</sup> SD=1.70 in the control. The amount of Sr was averaged 197.6 ppm, SD=291.9 in the smokers group and 109.4 ppm. Contents of Zn in calculus were similar in both groups and averaged at 231.9 ppm in the smokers, and 187.7 ppm in the control group. These results may suggest similar degree of dental calculus mineralisation in the two investigated populations. However, concentrations of heavy metals were significantly higher in the smokers group. A decreasing trend in magnesium concentration in the smokers group was also observed.

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| Group            | Behavioural Sciences / Oral Cancer / Education / Other   |
| <b>140</b> Title | Comparative study of oral health in smokers and in non-smokers   |
| Author(s)        | B Gorritxo Gil*, J Palacios Fernández and F J Goiriena de Gandarias. University of the Basque Country, Spain |

A great many of the substances found in tobacco have been associated with neoplastic pathologies, vascular problems, etc. Our aim is to determine whether in the oral cavity there is a greater number of teeth lost or more periodontal pathology excluding neoplasia. The population studied comprised 200 smokers and 200 non-smokers matched for age 21–43 among smokers, and 21–39 among non-smokers. Mean age was 28.6. 90% of the smokers and 95% of the non-smokers stated that they brushed their teeth. Reported consumption of sweets was distributed as follows: Smokers: 8% between meals, 13% after meals, 65% at any time. Non-smokers: 10% between meals, 23% after meals, 52% at any time. DMFT was 10.1 among smokers and 10.3 among non-smokers. The average number of teeth lost was 2.7 among smokers and 2.4 among non-smokers. CPITN for smokers was 0 (62%), 1 (15%), 2 (21%), 3 (0.8%), 4 (0.4%), X (1.3%). For non-smokers: 0 (59%), 1 (20%), 2 (18%), 3 (1.8%), 4 (0.6%), X (0.4%). Conclusion: The results show that although there are no significant differences between the two groups, the percentage of teeth absent was greater for smokers, these differences may well be greater in an older aged study group.

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| Group            | Behavioural Sciences / Oral Cancer / Education / Other   |
| <b>141</b> Title | AIDS and ethical conflicts. The opinion of dental students   |
| Author(s)        | R Manzanaro(1)*, A Apellaniz(2) and M Barranquero(2) Department of Stomatology, University of the Basque Country, UPV/EHU, Spain |

The study aimed to determine the opinion of dental students on ethical issues with respect to employment and health care of AIDS patients. The study population consisted of 5th-year students in the Dental Faculty of the University of the Basque Country, UPV/EHU. The sample was obtained by surveying 100% of these students in a classroom on an arbitrary date. Questionnaire: six questions related to a certain disputed issue. There were five answers possible, ranging from "Fully in agreement" to "Not in agreement at all". Also possible were "I do not wish to express an opinion" and "I have no opinion on the issue". Forty-six students (63%) responded. 59.6% of the sample rejected the administration of AIDS tests to persons seeking work, while 21.9% approved it. 94.6% were against allowing the dismissal of HIV+ workers. 12.2% were in agreement with limiting the mobility of terminal HIV+ cases, while this was rejected by 76.9%. 22.9% were in favour of segregating HIV+ patients in hospitals. 60.5% were in agreement to test doctors and nurses regularly for HIV+, while 70.5% were against barring HIV+ doctors from practising. In conclusion: the students were opposed to discriminating against HIV+ patients, as well as to restricting practice in the case of HIV+ doctors. But they were in favour of its control.

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| Group            | Behavioural Sciences / Oral Cancer / Education / Other  |
| <b>142</b> Title | Knowledge, attitudes and prophylactic behaviour of dental professionals in relation to the transmission of hepatitis and HIV in dental practice |
| Author(s)        | J A Obon*, F Verdera and J A del Tío, Postgraduate Students at the University of the Basque Country, UPV/EHU, Spain                             |

The aim of this study was to determine the knowledge, attitude and prophylactic behaviour of dental professionals in relation to the transmission of hepatitis and HIV in dental practice.

**Method** a random sample of 130 professionals in odontology, ranging in age from 25 to 57 years took part in the study. 74% were vaccinated against hepatitis B. Of these, 72% had been vaccinated more than five years ago. 2% believed that the prophylactic effect of this vaccine lasted for one year, 82% that it lasted for five years, and 16% that it lasted lifelong. As regards AIDS, 5% believed that to have this syndrome is the same thing as to be HIV+, while 95% believed this not to be the case. When considering who is contagious, 8% say that the HIV+ individual is, 5% that the AIDS sufferer is, and 88% say that both are. Where protective procedures are concerned, 85% wear gloves all the time, all wear a white coat, 99% wear a mask, and 71% wear protective eye-wear. However, only 27% know the procedure that should be followed in the case of an occupational accident. Only, 39% say they know the chemoprophylaxis procedure with anti-retrovirals to be instituted after exposure to HIV.

**Conclusions** although the number of those vaccinated against hepatitis B has increased, and a greater number wear gloves and protective eye-wear, most of those surveyed were ignorant of the procedure to be followed in case of an accident in the surgery and are not familiar with the recommended post-exposure chemoprophylaxis.

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| Group            | Behavioural Sciences / Oral Cancer / Education / Other                               |
| <b>143</b> Title | Position of impacted third molars  |
| Author(s)        | J Clavero, F Rodero, L Perez del Olmo, N Matavera and A Anta. Bilbao, Vizcaya, Spain |

The aim of the study was to assess the frequency and distribution of impacted third molars. The sample consisted of 200 patients, attending the dental clinics in the Medical and Dental School in the Basque Country University (U.P.V./E.H.U.). The age ranged between 22 and 65 years; 51% were men and 49% women. 31.4% of the men had impacted third molars with 57.5% in the maxillary and 42.5% in the mandible. 71.2% of the third molars were positioned vertically, 20% mesyoangularly, 6.3% dystoangularly and 2.5% horizontally. 26.5% of the women had impacted third molars with 51.7% in the maxilla and 48.3% in the mandible. The position of the impacted third molars in women was in 72.4% vertically, 22.4% mesyoangularly,

3.4% horizontally and 1.7% dystoangularly. There seems to be no difference in prevalence of impacted third molars between men and women. There is a slight predominance of impacted third molars in the upper arch. Most of the impacted third molars were positioned vertically, followed by those in mesoangular position and a few were positioned dystoangularly and horizontally.

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| Group      | Behavioural Sciences / Oral Cancer / Education / Other   |
| Title      | Atraumatic restorative treatment in children with baby bottle tooth decay  |
| <b>144</b> | A Malerba, E Brambilla, R Mischiatti and E Sardi*, Dioguardi F.S.  |
| Author(s)  | Institute of Biomedical Sciences San Paolo. University of Milan, Department of Pedodontics. WHO Collaborating Centre for Epidemiology and Community Dentistry, Italy |

The Atraumatic Restorative Treatment (ART), using only manual instruments for removing carious tissue, and a glass-ionomer material for filling teeth, finds a good application in the treatment of caries in Baby Bottle Tooth Decay (BBTD) affected children, as it doesn't require neither anaesthesia nor drill, and it's fast and painless. In addition, the glass-ionomer material adheres chemically to dental tissues, releases fluoride, is not very sensitive to water, and has good biocompatibility, short working time, and compression resistance. The aim of the study was to evaluate the efficacy of ART in deciduous teeth of children with BBTD. 50 ART fillings were placed in one surface carious lesions of children aged 2–5 years. Evaluation took place after 3, 6 and 12 months. Evaluation criteria included: code 0 (filling present and no secondary caries), code 1 (filling present and secondary caries), code 2 (filling totally or partially lost) and code 3 (tooth extracted, or pulpally exposed). There was no difference in results after 3, 6 and 12 months evaluation. 94% of the ART fillings were assessed as good (score 0) and 6% had the filling lost (code 2). The latter was observed already at 3 month evaluation and may be due to a technical error in applying the ART technique. It is concluded that correctly placed ART fillings provide effective and stable treatment for BBTD in very young and not collaborating children.

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| Group            | Behavioural Sciences / Oral Cancer / Education / Other  |
| <b>145</b> Title | Influence of sucking on the maxillary development of Venezuelan children  |
| Author(s)        | M E Guerra* and C Mujica C. Department of Sanitary and Paediatric Odontology, Central University of Venezuela, Caracas, Venezuela |

The positive effect of sucking on the development of the jaws, in the maturation of the digestive and buccal apparatus, and on the preventive role in dental malocclusion has been mentioned by various authors in the dental literature. The aim of the study was to establish the relation between the duration of the sucking period and jaw development. This investigation was carried out in 1997, with an assessment of 250 children of ages 3–6, belonging to six communities in Etnia Pemon, in the south of Venezuela. Each child was examined to determine the facial profile, swallowing pattern, molar relation and exterior bite. To measure the proportions of the palate, impressions were taken of the teeth, engraved on models, and then the Alkan technique was applied to obtain the averages. The mothers were interviewed to obtain information regarding the type and duration of nursing, as well as whatever bad habits, dentally speaking, their children might have. The Chi-squared test was selected to determine any associations between the nursing period with the variables facial profile ( $\text{Chi}(x)=84.50$ ;  $P<0.001$ ); swallowing pattern ( $\text{Chi}(x)=83.44$ ;  $P<0.001$ ) and bad dental habits ( $\text{Chi}(x)=120.65$ ;  $P<0.001$ ). The contingency coefficients were calculated in order to measure the strength of these associations. The results were 0.50, 0.30, 0.50, and 0.57. Also studied was the correlation of the nursing period and the palate proportions, applying Pearson's  $r$  coefficient ( $r=0.333$ ;  $P<0.001$ ). It was found that a period of nursing of more than six months has a positive

effect on the prevention of sucking and swallowing habits, as well as on dental malocclusion, while in addition it propitiates good jaw development.

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| Group     | Behavioural Sciences / Oral Cancer / Education / Other  |
| 146 Title | The public health implications of inadequate intraoral radiographs                                |
| Author(s) | P Cearra, M L De Orte, A Arellano, A Blanco* and C Prado. University of the Basque Country, Spain |

**Objectives** The aim of this study was to assess the radiographic quality of intraoral radiographs taken by senior dental undergraduates and determine the type of errors shown and any implications for patients' health. **Material and method** Three stomatologists evaluated 800 periodicals and 200 bite-wings, according to the following criteria: density and contrast, position of the film, ray angulation, shortened cone, and doubled film. **Results** 87% of the radiographs revealed at least one defect. The defects encountered most often were: in the periapicals, alterations in density and contrast (6%) and shortened cone (5%); in the case of the bite-wings, films badly positioned (8%) and irregular ray angulation (7%). The defects observed were produced by incorrect exposure time, film development time, or inadequate depth perception. Conclusion: The results show that in some cases the defects on the films would considerably reduce their diagnostic yield. This has the potential of leading to incorrect diagnostic (false +/-) decisions. Although some of these errors may be reduced as practice increases, many films taken in dental practice are likely to be faulty.

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| Group     | Behavioural Sciences / Oral Cancer / Education / Other  |
| 147 Title | Different antibacterial treatment procedures and their influence on salivary bacterial counts |
| Author(s) | H Jentsch* and E Beetke. Dental School, University of Rostock, Germany                        |

Different means and procedures for chemical plaque control are generally accepted. Several studies analysed their influence on salivary bacterial counts mostly separately. The aim of this study was to compare the influence of chlorhexidine digluconat 0.12%, Meridol-rinse and Elmex gelee on the salivary bacterial counts with the help of the salivary screening tests (Orion Diagnostica, Finland). 77 male and female volunteers (mean age 23.4 years) participated in a 4 week-long study. Group 1 (n=26) used Aronal toothpaste twice a day and rinsed 1 min in the evening with 10 ml chlorhexidine for 14 days. The next 14 days they rinsed with Meridol in the evening. Group 2 (n=25) brushed with Aronal toothpaste twice a day and rinsed with 10 ml Meridol 1 min in the evening. Group 3 (n=26) brushed twice a day with Elmex toothpaste and applied twice a week Elmex-gel. The salivary screening tests Dentocult SM and LB were applied under standardised conditions at the beginning of the study, and after 2 and 4 weeks. The X2-test was used for the statistical analysis. Finally, the salivary mutans-streptococci counts differed significantly in all groups ( $P<0.0001$  and  $=0.0003$ ), group 1: reduction-17, increase- 2; group 2: reduction- 12, constancy- 13; group 3: reduction- 8, constancy- 18. Only in group 1 18% of the cases showed decreases of 2–3 categories. Finally, the results for the lactobacilli also differed in all groups ( $P=0.0013$ ,  $0.0069$ ,  $<0.0001$ ). Group 1: reduction- 4, increase- 11; group 2: reduction- 14, increase- 5; group 3: reduction- 5, increase-2. The categories varied in group 1 between -3 and +2, in group 2 -2- +1 and in group 3 -1- +1. The influence of the studied antibacterial procedures on the bacterial load of the saliva can be demonstrated with the help of the commercial salivary tests. The strongest reduction of mutans streptococci by chlorhexidine may lead to an increase of lactobacilli in that group.

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| Group     | Behavioural Sciences / Oral Cancer / Education / Other  |
| 148 Title | A comparative study of oral health in obese adults  |
| Author(s) | L Vidal, J Palacios*, M Barranquero and F J Gorieta de Gandarias. University of the Basque Country, Spain |

The aim of this study was to determine whether obesity affects oral health. The dental health of 80 people, 40 of whom are obese, was compared. The age of the obese subjects ranged from 22 to 44, with a mean of 32. That of the comparison group ranged from 22 to 43, with a mean of 31.3. **Results** Reported consumption of sweets was very similar for the two groups. 10% of obese subjects ate sweets between meals, 23% after meals, and 60% at any time. For the control group, the figures were 5% between meals, 23% after meals, and 68% at any time. Mean DMFT for the obese subjects was 12.0, and for the others was 12.8. There was a significant difference in the average number of teeth missing for the obese at 3.5 compared to 2.4 for the comparison group. The CPITN index among obese subjects was 0 (57%), 1 (17%), 2 (17%), 3 (6%), 4 (0.9%) X(2%). Among the others: 0 (62%), 1 (21%), 2 (14%), 3 (2%), 4 (0.4%), X(1%). Conclusion: The obese adults had significantly fewer teeth than their peers and poorer periodontal health.

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| Group      | Behavioural Sciences / Oral Cancer / Education / Other  |
| Title      | A survey of undergraduate orthodontic teaching in Europe  |
| <b>149</b> | K A Eaton*, J Adamidis, J P McDonald, H Seeholzer and B Sieminska-Piekarczk. Eastman Dental Institute for Oral Health Care Sciences, London, UK |
| Author(s)  |   |

This survey investigated the current provision of undergraduate orthodontic education in European Dental Schools, prior to drafting quality guidelines as part of the BIOMED EUROQUAL II project. A postal questionnaire was distributed to orthodontic teachers from 24 European countries. Questions included the total number of hours in the curriculum devoted to orthodontic education, the number of hours devoted to: theory, clinical practice, laboratory work, diagnosis and treatment planning, whether or not removable, fixed and functional appliance therapy was taught and whether or not there was an undergraduate examination in orthodontics. All 24 countries responded to the questionnaire but 5 did not answer all questions. Total curriculum hours were reported as varying from 135 in the Czech Republic to 550 in Rumania with a mean of 258 hours. Hours devoted to theory varied from 15 in the Czech Republic to 300 in the Netherlands with a mean of 79 hours and to clinical practice from 30 in Italy to 288 in Rumania, mean was 88 hours. 23 countries taught the use of removable appliances, 22 the use of functional appliances and 18 the use of fixed appliances. 22 of the 24 responses indicated that there was an undergraduate examination in orthodontics. It was concluded that, although the responses from countries with more than one dental school did not necessarily reflect the situation in all schools within the country, there was considerable variation in the teaching of orthodontics within European Dental Schools.

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| Group      | Behavioural Sciences / Oral Cancer / Education / Other  |
| Title      | Psychomotor and affective learning in the teaching of restorative dentistry. Analysis of a methodological study   |
| <b>150</b> | D Correa*, E Jiménez-Castellanós, D Cñadas and A Domínguez. Faculty of Odontology, University of Seville, Avda. Dr. Fedriani s.n., 41009 Sevilla, Spain |
| Author(s)  |   |

**Aims** Learning methods in the cognitive field are well known and are appropriate for the education of future graduates in odontology. However, in view of the high practical component of undergraduate dental teaching in particular in regard to restorative dentistry, it is essential not to omit training future professionals in the psychomotor field and even more so in the affective field, the latter being grounded in the behavioural sciences. **Method** In the present paper we present our experiment with a feedback learning method, consisting of video recording and then having a randomised sample of 38 students view a simulated clinical initiative. (Data obtained from impressions of the patient's alveolar arcade) **Results** Our results revealed significant variations in responses to the self-assessment questionnaires, whether questions were at psychomotor level or affective level, with  $P < 0.1$  (Wilcoxon test). Following

examination, 98% of the questionnaires were marked lower by the student. Conclusions The improvements noted are, in our view, changes in attitude in the students' teaching-learning process at the levels above-mentioned. Accordingly the present technique proves useful, easy to apply, and compatible with the degree programme. The teaching resources required are within reach of any educational institution.

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