

209 High frequency of allelic loss in lichenoid lesions with dysplasia. L. ZHANG*, Y.-H. LI, X. CHENG, R. PRIDDY, J. LOVAS, P. FREEMAN, T. DALEY and M.P. ROSIN (OMBS, Dentistry, University of British Columbia and School of Kinesiology, Simon Fraser University).
 Oral lichen planus (OLP) is a common mucosal condition that is considered premalignant by some, while others argue that only lichenoid lesions with epithelial dysplasia are premalignant. Loss of specific regions of chromosomes (loss of heterozygosity, LOH) that contain tumour suppressor genes is now believed to be a common event in oral premalignancy (epithelial dysplasia). A recent study from this lab has compared allelic loss in OLP with that in oral epithelial dysplasia and benign hyperplasia. The data showed that while dysplastic epithelium demonstrated a high frequency of LOH, a significantly lower frequency of LOH was noted in OLP (6%), which is even lower than that in hyperplasia (14%). Such results do not support OLP as a lesion at risk for malignant transformation (Am J Path 1997, 151: 323-327). As a second step in this study, we tested the hypothesis that a lichenoid lesion with dysplasia is premalignant. LOH was analyzed in 58 lichenoid lesions with dysplasia (mild 32, moderate 19; severe 7) using microsatellite probes for chromosome arms 3p, 9p and 17p, and the results were compared to data obtained from the first study and from 13 normal mucosal specimens. The results showed that lichenoid lesions with dysplasia contained a similar high frequency of LOH (mild 59%, moderate 52%, severe 86%), compared to dysplasia, while none of the normal mucosa demonstrated LOH. Conclusion: Epithelial dysplasia is a sign of malignant risk, independent of lichenoid changes. (Supported by Grants from British Columbia Health Research Foundation and the National Cancer Institute of Canada)

210 Modulation of Malignant Progression in a Tissue Model of Preneoplasia. M. VACCARIELLO, A. JAVAHERIAN, J. KAREN, Y. WANG, N.E. FUSENIG, and J. GARLICK* (Stony Brook and German Cancer Research Center, Heidelberg).
 We have recently determined that normal cell context and tissue architecture limit clonal expansion and control early neoplastic progression in stratified epithelium (Can. Res. 58 2200-2209, 1998). However, factors modulating such early tumor control have not been well characterized. Our current goal was to study if a known tumor promoter (TPA), smokeless tobacco extracts (STE) containing tumor initiators and alteration of cell-cell interactions can play a permissive role in enabling cells with neoplastic potential to selectively expand. We utilized a tissue model in which the early events in neoplastic progression were monitored by genetically marking malignantly transformed keratinocytes (II-4-gal) and mixing them with normal keratinocytes (NHK) or premalignant keratinocytes (HaCaT) in organotypic culture to follow the behavior of premalignant cells during early neoplasia. The fate and phenotype of II-4-gal cells was monitored by double stain immunofluorescence for β -gal and markers of proliferation (BrdU) and differentiation (keratin 1 and filaggrin) and the distribution of these cells was mapped. We found that TPA (0.001ug/ml) enabled II-4-gal cell expansion compared to DMSO controls, by altering the rate of growth and differentiation potential of surrounding normal cells, while STE did not induce such alterations. This suggested that TPA may enable clonal expansion through the epigenetic modification of proliferation and differentiation of normal cells in the II-4-gal microenvironment. II-4-gal cells demonstrated larger β -gal positive clusters at all mixing ratios when surrounded by HaCaT cells than when in the context of normal keratinocytes. This provides direct evidence that modulation of the microenvironment surrounding potentially malignant cells can be permissive for clonal growth of potentially neoplastic cells in stratified squamous epithelium. (Supported by grants from NIDR (DE-11250-02) and Smokeless Tobacco Research Council (0707-01))

211 Oral Health Perception of Need in the Keokuk County Rural Health Study R.L. ETTINGER*, J.S. HAND, S. M. LEVY, J. WARREN, J.A. MERCHANT and A. M. STROMQUIST (The University of Iowa, College of Dentistry and Medicine, Iowa City, IA 52242, USA).
 The Keokuk County Rural Health Study is a population-based prospective study of environmental exposures and health status of the county residents. The study tracks injury rates, respiratory and skin diseases and monitors health care delivery, geriatric, reproductive and mental health. Currently 1,005 households with 2,269 persons have been enrolled in the study, with the subjects planned to be followed for 20 years. This paper will report on the perceived need for oral health services obtained from interviews with 1,647 adults over the age of 18 years. This sample has been divided into 3 age groups: young (18-44 years), middle age (45-64 years) and old (65+ years). This sample is 46% male and 54% female. There are 35% living on farms, 20% in rural areas and 45% in small towns, 75% are married, 9% have less than a high school education, 47% have no greater than a high school education, and 87% own their own homes. The sample were asked about their dental status; 22.5% of the young reported that they were missing 1 or more teeth, and less than 1% were edentulous in both arches. Fifty percent of the middle age group had lost 1 tooth and 12% were edentulous, while 82% of the old had lost teeth and 23% were edentulous. The subjects were asked questions about their perceived need of dental treatment. Routine check-up was the most common need cited by 43.3% of all respondents, followed by needing teeth cleaned (40%) and needing teeth filled or replaced (22%). No significant differences were found among the three age groups with regard to having teeth extracted, periodontal/gum treatment or needing relief from oral pain. However, the young population reported a significantly greater need for routine check-ups, needing teeth filled or replaced, needing teeth cleaned and having concerns about improving appearance. The old group perceived a significantly greater need for denture work. Supported by NIOSH grant # U07/CCU706145

212 Caries Findings in Norwegian Elderly People - a preliminary report B.M. HENRIKSEN* and T.E. AXÉLL (Department of Oral Surgery and Oral Medicine, Faculty of Dentistry, University of Oslo, Oslo, Norway).
 The aim of this study was to survey caries in elderly people in Norway. Selected for the study were 10% of all individuals aged 67 years and over in 10 counties representative for Norway, including so far only communities with less than 13,000 inhabitants. Out of 908 subjects, 493 (54%) could be examined, 231 men and 262 women. Their mean age was 75.8 ± 5.9 years. 315 (63.9%) had any natural teeth, median=18 teeth. In 90 people (28.6%) one or more caries lesions were found. The total number of teeth with recorded caries lesions were 200 corresponding to a DT of 0.63 among the dentate population and 0.40 in the total population examined. DT in old people at institutions or nursed at home (n=25) was 0.56. Teeth with caries lesions were distributed as shown below.

| | n | % | | n | % |
|-----------------------|-----|------|------------------------------|----|------|
| Root caries | 72 | 36 | Prim & second root caries | 2 | 1 |
| Crown caries | 140 | 70 | Primary crown caries | 55 | 27.5 |
| Primary caries | 92 | 46 | Prim root & crown caries | 4 | 2 |
| Secondary caries | 111 | 55.5 | Secondary crown caries | 73 | 36.5 |
| Primary root caries | 30 | 15 | Prim root & sec crown caries | 1 | 0.5 |
| Secondary root caries | 28 | 14 | Second root & crown caries | 7 | 3.5 |

There was no difference in caries findings between densely or thinly populated areas (P>0.05). There were large differences concerning denture wearers and dentate people in different parts of Norway but the fraction of teeth with caries did not differ significantly (P<0.05). This study indicates that the caries situation in the elderly in Norway is fairly good. The study was supported by grants from The Norwegian Board of Health and Welfare and The Norwegian Geriatric Programme

213 Smoking and 5-Year Rates of Tooth Loss in Older Adults H. ÁGÚSTSDÓTTIR*, G. D. SLADE AND J. D. BECK (University of North Carolina, Chapel Hill, NC, USA).
 Smoking has been identified as a risk factor for periodontal attachment loss, but subsequent effects on functional endpoints such as tooth loss have not been confirmed in longitudinal studies. This study aimed to evaluate the role of smoking as a potential risk factor for tooth loss among older adults. Data were obtained from a five-year longitudinal study of community-dwelling adults aged 65+ selected at random from five counties in the Piedmont region of North Carolina. Oral examinations performed by calibrated examiners, four times over a period of five years in subjects' homes, were used to enumerate the number of teeth lost for any reason and the number of months of observation for individual teeth. The incidence density rate of tooth loss, expressed as number of teeth lost per 100 tooth-months of observation, formed the outcome variable, while use of cigarettes at baseline, as reported during in-home interviews, was the dichotomous exposure variable. Multivariate poisson regression was used to compute incidence density ratios (IDRs) comparing smokers and non-smokers and standard errors were adjusted for clustering of teeth within persons. At baseline 810 dentate subjects were examined but this analysis included only the 358 black and 301 white people who were seen at least once after the baseline examination. Non-smokers had an average rate of 0.16 teeth lost per 100 tooth-months (s.e. = 0.01), while smokers had an average rate of 0.26 (s.e. = 0.05, P=0.04). In a multivariate poisson regression model controlling for age, race, sex and oral hygiene, smoking persisted as a significant risk factor (IDR=1.8, 95% CI: 1.3-2.4). In this population of elderly NC residents, smoking was a risk factor for tooth loss. Supported by NIDR Grant No. DE-08060

214 Health Locus of Control in Dentate and Edentulous Older Adults. H.P. LAWRENCE*, D. LOCKER, A. JOKOVIC and M. CLARKE (Faculty of Dentistry, University of Toronto, Canada).
 Health locus of control differentiates people into two groups: those who maintain that their health is largely determined by external factors such as luck, chance or fate (LOC_e), and those who believe that internal factors, such as their behavior, play a significant role in determining their health (LOC_i). The purpose of this study was to investigate the association between health locus of control, general/oral health behaviors and self-perceived oral health among dentate/partially dentate (n=441) and edentulous (n=95) community-dwelling adults aged 50 years and over. Data were obtained from the Ontario Study of the Oral Health of Older Adults. Questionnaire items on subjects' opinions about health and illness were used to assess perceived cognitive control. The 10 items were scored on a scale of 1 to 5, and the item scores were added together to give an overall health locus of control (LOC) score ranging from 10=autonomy over their health to 50=no control over their health. The internal consistency (Cronbach's alpha) of this scale was 0.77. LOC scores for dentate and edentulous subjects were evaluated with analysis of variance models. This analysis showed that for dentate subjects there were significant (P<0.05) differences in LOC for the variables: snacking between meals [3x/day adjusted mean LOC=29.2±0.8 (SE), <3x/day LOC=27.5±0.4]; avoidance of sugary foods to prevent dental decay (no LOC=29.0±0.5; yes LOC=27.7±0.7) and living alone (yes LOC=28.9±0.6, no LOC=27.8±0.5). For edentulous subjects, LOC was significantly different for self-perceived oral health (fair/poor LOC=30.0±1.3, good/excellent LOC=27.6±0.8) after adjusting for smoking status. The results of this study indicate that external health locus of control is associated with poor oral health behaviors in dentate older adults. Moreover, edentulous older adults who described their oral health as poor or fair had significantly higher scores for external locus of control. Supported by the Ontario Ministry of Health Grant #04170.

215 A comparison of long and short versions of the Oral Health Impact Profile in an edentulous population. P.F. ALLEN*, A.S. McMILLAN (Universities of Newcastle, U.K. and Hong Kong).
 The measurement of the impact of oral conditions on health related quality of life has been greatly facilitated by the development of appropriate health status indicators. The 49 item Oral Health Impact Profile (OHIP-49) is one of the most sophisticated available, but its usefulness in a clinical setting is limited by the number of statements. The aims of this study were to assess the discriminant validity of the short version of OHIP (OHIP-14) in an edentulous population and to compare validity of OHIP-14 with OHIP-49. The study involved two groups of subjects: edentulous subjects requesting dental implants to retain at least one complete intra-oral prosthesis ("implant group", n=35), and; a randomly selected, age and gender matched control group requesting conventional, complete dentures ("control group", n=35). All subjects completed a subjective assessment of satisfaction with existing dentures and OHIP-49 prior to treatment. Satisfaction with existing dentures was similar between both groups, with subjects in the implant group less satisfied with comfort and stability of their mandibular dentures (p<0.001). The percentage of subjects reporting negative impacts for OHIP statements was higher than controls for all 49 statements. OHIP subscale scores were calculated using the weights derived for both long and short versions of the instrument. The functional and psycho-social impact of tooth loss was captured by both versions, with subjects in the implant group having significantly higher scores than controls across all 7 OHIP domains. The results indicate that the ability of OHIP-14 to discriminate between clinically distinct groups is as good as OHIP-49. It is concluded that OHIP-14 has similar discriminant validity properties to OHIP-49. This suggests that OHIP-14 could be a useful adjunct to clinical examination in a clinical setting.

216 Personality Affects Ratings of Oral Health-Related Quality of Life NR KRESSIN*^{1,2}, S REISINE³, A SPIRO III^{2,3}, JA JONES^{1,2} (¹Center for Health Quality, Outcomes & Economic Research, VAMC Bedford, ²Boston Univ., ³Univ Conn Health Center, ⁴VAMC Boston, MA USA).
 Personality has significant effects on individuals' self-reported health and ratings of health-related quality of life. However, it is not known whether personality also influences patients' reports of their oral health-related quality of life. We examined the associations between a measure of one specific aspect of personality, negative affectivity (NA, a general disposition to experience subjective distress, including aversive mood states such as anger, disgust, scorn, guilt, fearfulness, and depression) and three measures of oral health-related quality of life, the OHQOL, GOHAI, and OHIP, in two samples of older adults, the VA Dental Longitudinal Study (DLS) and the Veterans Health Study (VHS). NA was moderately to strongly correlated with scores on all three instruments (r's with OHQOL: -.27 and -.31 for the DLS and VHS respectively, r's with GOHAI: -.23 and -.33, and r's with OHIP: .46 and .58). We conducted regression analyses examining the effect of NA on oral quality of life measures, controlling for age and number of teeth, a proxy for oral health. Results indicated that NA contributed an additional 3-8% variance. These findings demonstrate that psychosocial factors exert a significant influence on patients' ratings of their oral health and quality of life, and suggest that researchers and others using such instruments take such associations into account when interpreting results. This study was supported by the Department of Veterans Affairs HSR&D Service and NIDR grant # DE11455.