

## Aspects of oral health evaluation in elderly

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### Summary

**Objective.** The increase of the average lifetime and expectancy has a major impact upon oral health. This research proposes a complex interdisciplinary evaluation of the oral status and needs of treatment of the elderly, correlated with influencing factors.

**Method.** This evaluation takes into consideration the 3<sup>rd</sup> age group (65-74 years old). This study was performed at the University Dental Service Iasi and the patients were selected from those who needed medical assistance in the year 2005. The patients needed medical assistance, for solving their functional disturbances (masticatory, physiognomycal, phonetical), 289 patients being over 65 years old. Of these, 146 were between 65-74 years old. The patients were thoroughly examined according to a standardized chart, which allowed the assessment of the oral health status and of the needs for treatment. The statistical analysis of data regarding the oral health was made according to the WHO criteria regarding examination, processing and interpretation by correlating the assessed parameters.

**Results.** The precarious oral health which affects the elders is marked out by the increased number of root caries, periodontal disease, total/subtotal edentation and also by the pre-malign and malign lesions that have a negative effect on life quality, and it is considered to be a major public health problem.

**Conclusions.** This survey stage of elder's oral health helps establishing treatment strategies and the risk factors. It is necessary to improve elder's quality of life, by minimizing the risk factors and ameliorating the protective factors.

**Keywords:** oral health, elderly, dental treatment needs.

### Introduction

In our days, older people represent an increased proportion in the general structure of the population, and continue to grow faster as compared to other age groups, particularly in developing countries [1,2].

The increase of the average lifetime and expectancy has a major impact upon the oral

health. A WHO population study made in a number of selected countries shows the existence of approximately 600 million persons, aged over 65 years, foreseeing a double number for 2025, 80% of them are going to live in developed countries [3,4].

This survey consists of an ample population study, including the evaluation of oral health and treatment needs.

This research proposes a complex inter-

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disciplinary evaluation of the oral status and needs of treatment of the elderly, correlated with influencing factors (e.g.: socio-economic conditions, environmental factors, nourishing hygiene, oral hygiene, general health status, etc.) This evaluation takes into consideration the 3<sup>rd</sup> age group (65-74 years of age), for which WHO has established, as main objective, the decrease in edentation level by 25% for 2000, anticipating a further decrease for 2010 and 2025 [5].

Few national reports were carried out for this population segment.

### Material and method

This study was performed at the University Dental Service Iasi and the patients were selected from those who needed medical assistance in the year 2005, a total of 2371 persons.

The patients needed medical assistance, for solving their functional disturbances (masticatory, physiognomycal, phonetical), 289 patients being over 65 years old. Of these, 146 (89 women and 57 men) were between 65-74 years old.

The patients were thoroughly examined according to a standardized chart, which allowed the assessment of the oral health status and of the needs for treatment [6,8].

The statistical analysis of the data

regarding oral health was made according to the WHO criteria regarding examination, processing and interpretation by correlating the assessed parameters.

### Results and Discussions

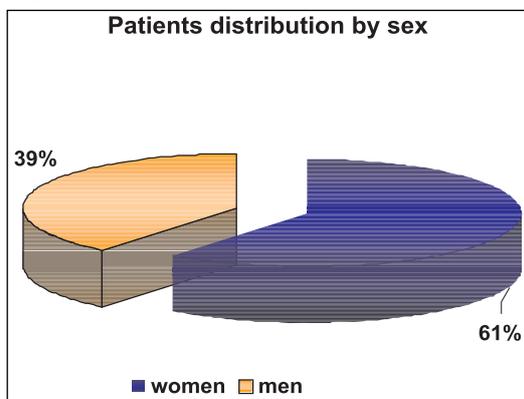
The distribution of the patients between 65-74 years old indicates a prevalence of women - 65% compared to 35% men (*Figure 1*). As to social environment, 63 cases (37 women and 26 men) lived in rural area, and 83 (52 women and 31 men) lived in urban area (*Figure 2*).

Thorough anamnesis, the presented documentation and the interdisciplinary collaboration indicated the existence of single or associated systemic disorders (*Figure 3*).

There is a high percentage of overweight women who also suffer from osteoporosis followed by respiratory and cardiovascular diseases, gastric-hepatic and endocrine disorders.

The general health status often indicates a poly-pathology, which entails high intake of medication (several medications), much more than in other age groups, that leads to secondary reactions and adverse reactions to the medication. These adverse reactions to the medication can also affect the oral cavity (e.g.: xerostomia, lichenoid reactions, gingival overgrowth, taste disturbance).

**Figure 1.** Patients distribution by sex



**Figure 2.** Patients distribution by sex and living area

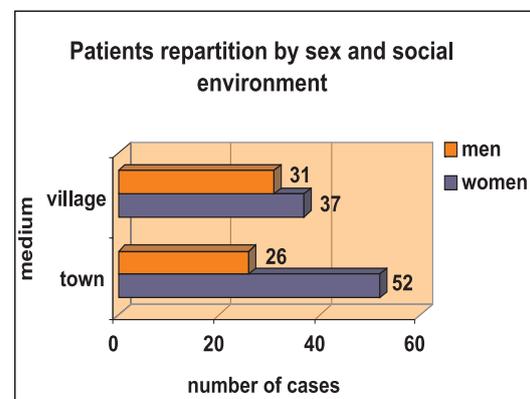
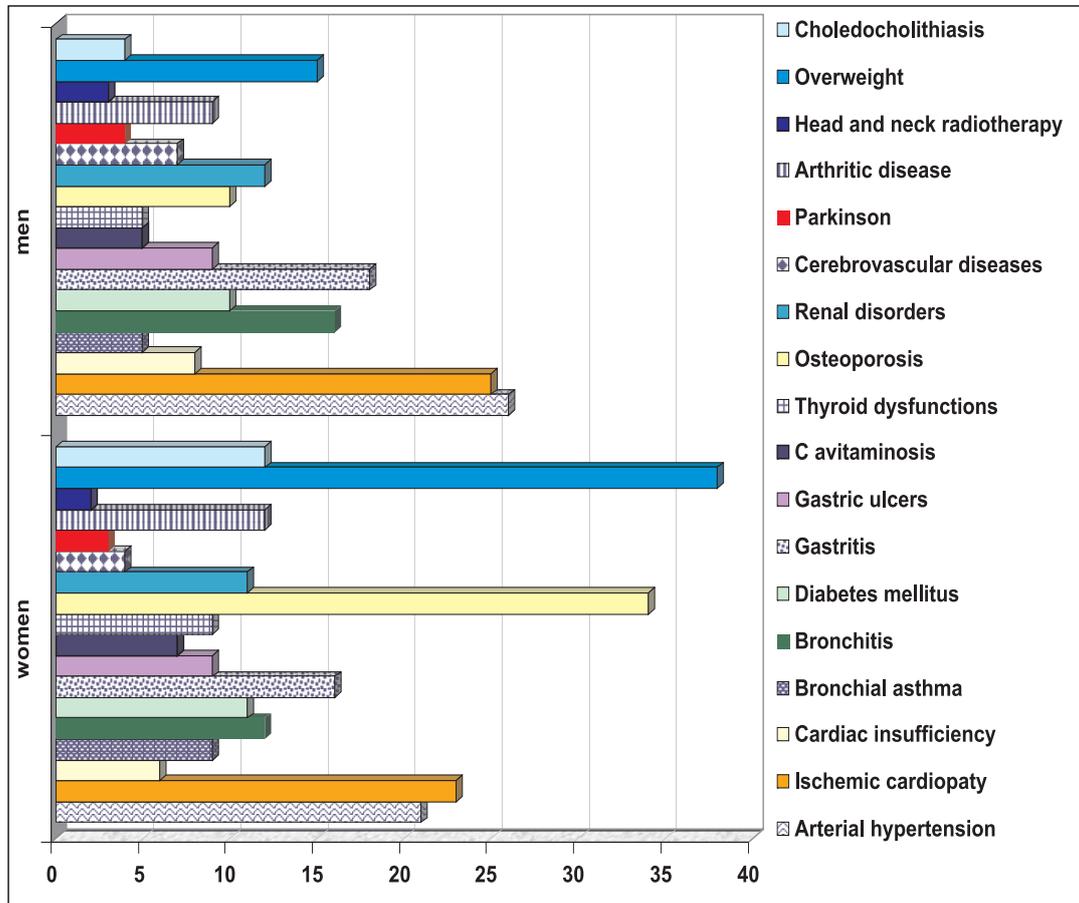


Figure 3. Systemic disorders



The poly-pathology may influence the quality of the host response by making it more susceptible to oral diseases.

The carious disease represents a major oral health problem in elders; it is highly linked with the social environment, which in many cases indicates: poverty or lack of adequate income, infrequent appointments with the dentist and precarious hygiene.

Of the total of 146 old persons included in this study, 119 persons (82%) suffered from caries, fillings and missing teeth compared with 18% non-affected (Figure 4).

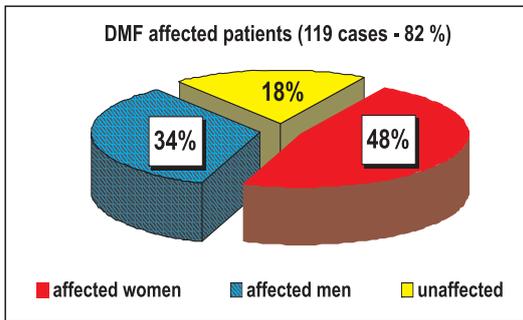
The repartition according to the DMF index (Figure 5) shows increased values for missing teeth both in men (10.9 %) and women (11.18 %), the caries index being slightly higher in women compared to men.

This situation can be assigned to precarious hygiene habits observed in 92% of the patients, which can be explained by the disabilities existing in some systemic conditions (Figure 6).

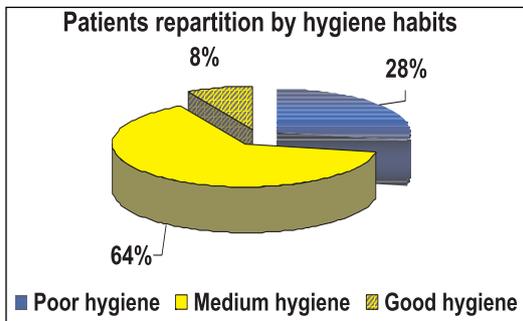
As for the carious lesions, root caries predominated (Figure 7), their frequency increased according to the age and it was favoured by the risk factors: gingival recession, changes in salivary flow (quantitative and qualitative), cariogenic diet, rich in carbohydrates, soft food, poor hygiene, smoking, systemic conditions with decreased defence mechanisms (systemic diseases), xerostomic effect of medication.

The prevalence of non-cariogenic lesions (abrasion, erosion, associated lesions) is justified by internal causes

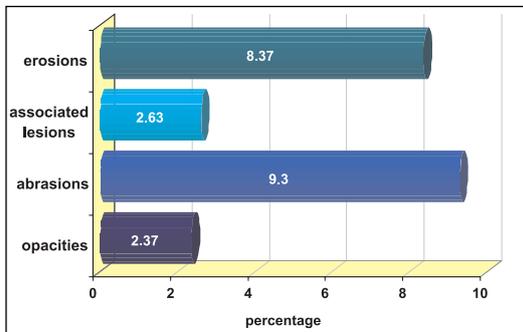
**Figure 4.** DMF affected patients



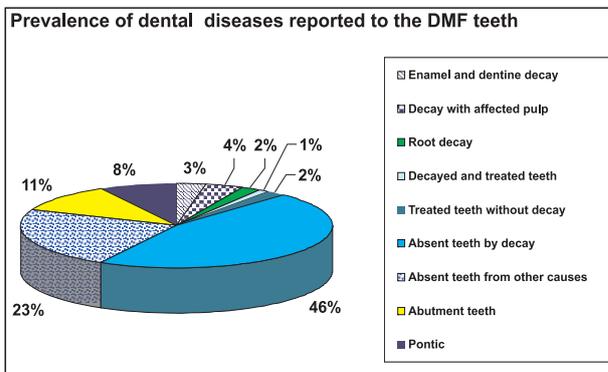
**Figure 6.** Patients repartition by hygiene habits



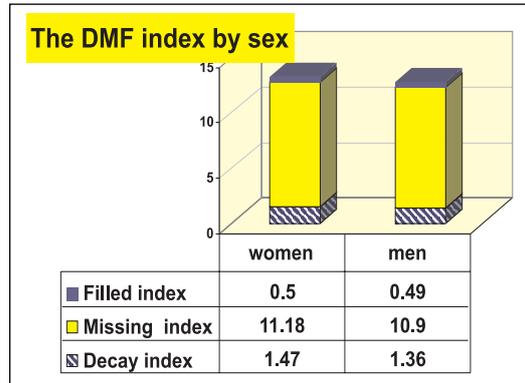
**Figure 8.** Percentage distribution of non-cariogenic lesions



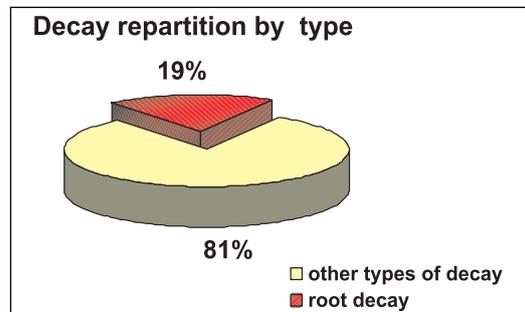
**Figure 9.** Prevalence of dental diseases reported to the DMF teeth



**Figure 5.** The DMF index by sex



**Figure 7.** Percentage repartition of root surface caries



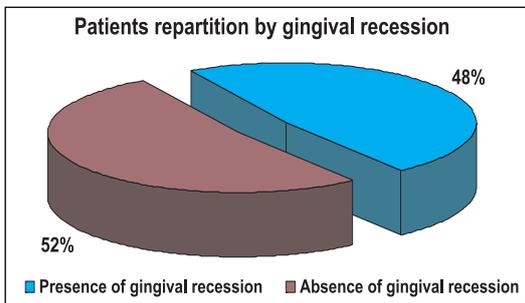
(salivary pH decreasing diseases, alcohol) or external causes: over-zealous tooth brushing on teeth with recession, occlusal over-loading on a reduced number of teeth, unbalanced occlusions (*Figure 8*).

Endodontic pathology could enhance the necessity of extractions.

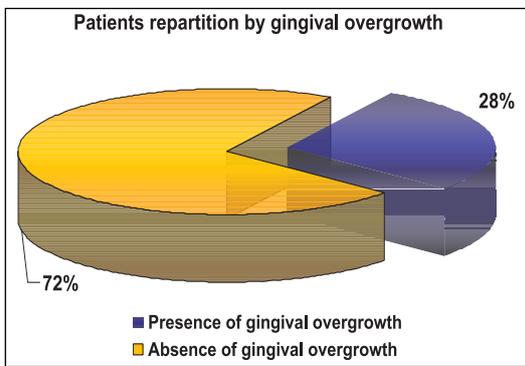
The prevalence of odontal pathology (*Figure 9*) reported to the number of DMF teeth indicates high values for the missing teeth as a consequence of caries (46%) or other causes (23%).

The evaluation of the periodontal status (*Figures 10, 11 and 12*) indicates an important affectionation with high percentages for recession (48%), tooth mobility (46%), gingival overgrowth (28%). Epidemiological assessments indicate precarious hygiene, bacterial plaque and calculus associated with the severity of the disease [7].

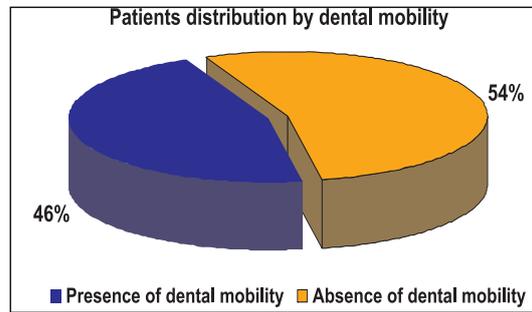
**Figure 10.** The distribution of the patients with gingival recession



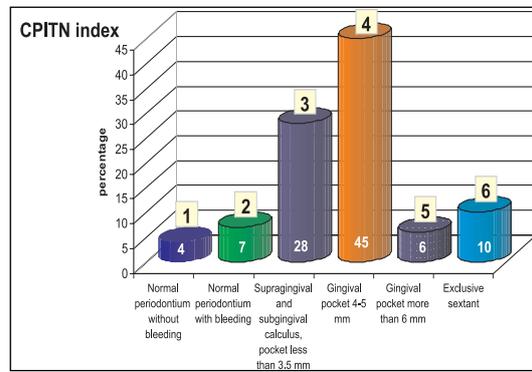
**Figure 12.** The repartition of the patients by gingival overgrowth



**Figure 11.** Patients distribution by dental mobility



**Figure 13.** CPITN index in the assessed elders



CPITN score 2 and 3, with bleeding and calculus or with 4-5 mm periodontal pockets demonstrate the existence of gingivitis and mild/moderate forms of chronic periodontitis, that correlate with the treatment necessities through motivation, plaque control, scaling and root planing, and control of the local factors (Figure 13).

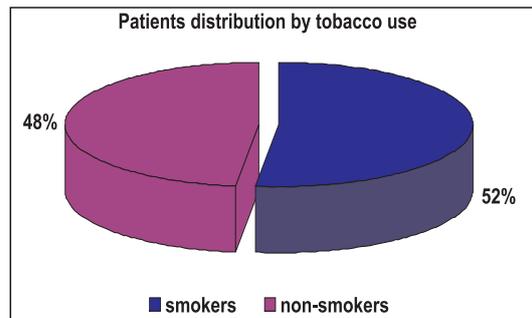
CPITN score 4 is encountered in 45% of the patients, with precarious hygiene and needs thorough periodontal therapy by scaling, root planing, gingival curettage and professional plaque control. The lack of medical education and plaque control, the reduced number of residual teeth and constant smoking (Figure 14) exerts independent effects over the progression of the periodontal disease.

The severe forms of chronic periodontitis with pockets  $\geq 6$  mm (6%) can justify the presence of edentations with an increased frequency.

In this case the treatment consists of complex periodontal therapy, if the general health status allows it, in association with instructions for individual prophylaxis and/or to improve the personal oro-dental hygiene.

The deterioration of odonto-periodontal health is influenced by the socio-economic status, the level of medical knowledge, hygiene status, diet, the frequency of

**Figure 14.** Patients distribution by tobacco use



smoking, alcohol and the general state with modified reactivity. The oral health program was recently re-orientated to prevent such diseases, emphasizing the risk factors [2,7].

The edentation had a high percentage in the studied aged persons; it seems to be connected with their social-economic status (reduced number of medical appointments, more frequent extractions than tooth conservatory therapy).

Epidemiological studies show that those persons who belong to an underprivileged social class possess poor medical education and suffer from more frequent edentations.

Of the total of studied patients, 24% indicated a reduced rate of prosthetic treatment (*Figure 15*) with similar values with those met in the case of patients treated with partial dentures (29%), complete dentures (26%) or in mixed prosthetic treatments (22%).

As a consequence of edentations and untreated teeth or incomplete/incorrect restorative procedures, occlusal modifications may frequently appear, with severe consequences on the mandibulo-cranial relations, leading to clinical manifestations of dysfunctions in oromaxillofacial area (*Figures 16, 17 and 18*).

The treatment need is in concordance with the edentation status and the quality of

the prosthesis in 7% of the cases, being destined to improve the removable prosthesis in patients with poor general health status (*Figure 19*).

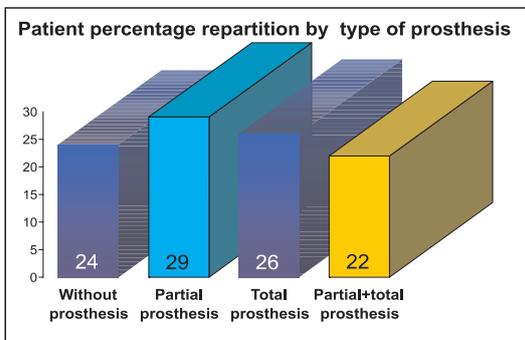
Denture stomatitis is frequently met in the elders. The prevalence of stomatitis is 19% in complete edentulous patients and it is favoured by the adherence of bacterial flora, the restorative materials used and by the existence of systemic diseases, which decrease the local reactivity of mucous membrane to prosthetic trauma.

Other risk factors are: permanent denture wear, smoking and alcohol. The poor level of education and the long period between appointments are also connected with this condition and influence the ulcerative and hyper-plastic lesions in patients wearing removable dentures.

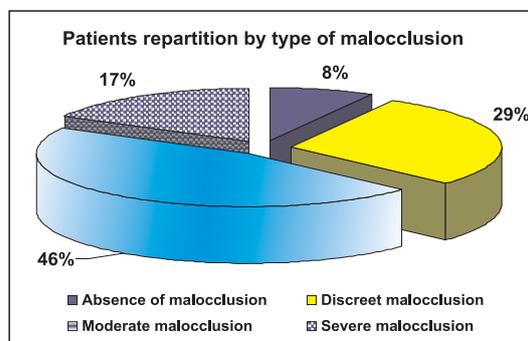
Oral cancer is supposed to be a frequent disease, met in the elders; seniority is a risk factor. The ratio of inception lesions met in the assessed age group (3.5%) indicates an rapprochement with the WHO values (3-5%) and the values provided by the clinic of Oral and Maxillofacial Surgery – 3.3% (*Figure 20*).

The prevalence of leucoplakia is higher in men (1.2%) and of the lichen planus in women (2.3%) due to smoking, alcohol, socio-economic status, poor educational level.

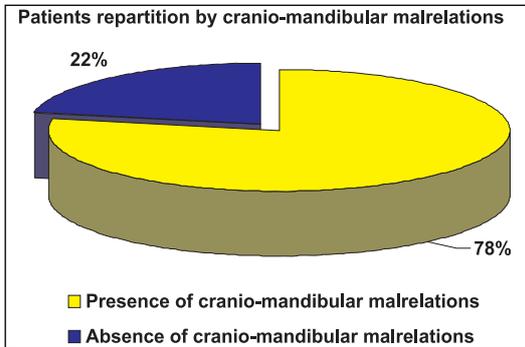
**Figure 15.** Patients percentage repartition by type of prosthesis



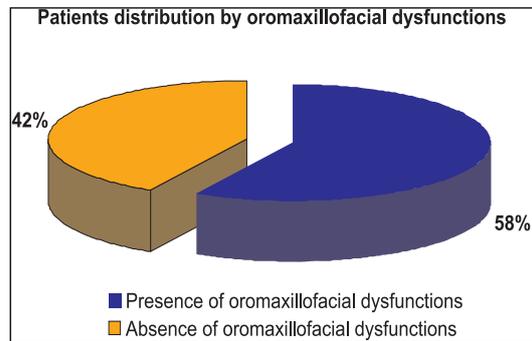
**Figure 16.** Patients repartition by type of malocclusion



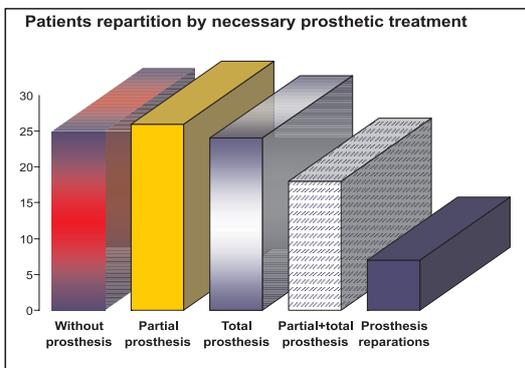
**Figure 17.** Patients repartition by crano-mandibular malrelations



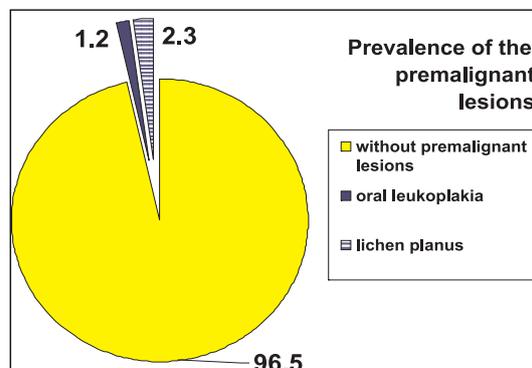
**Figure 18.** Patients distribution by oromaxillofacial dysfunctions



**Figure 19.** Patients repartition by necessary prosthetic treatment



**Figure 20.** Prevalence of the premalignant lesions



## Conclusions

The precarious oral health which affects the elders is marked out by the increased number of root caries, periodontal disease, total/subtotal edentation and also by the pre-malign and malign lesions that have a negative effect on life quality, and this is considered to be a major public health problem.

This survey stage of elders' oral health helps establishing treatment strategies and the risk factors. The prevalence of some affections as root caries or edentation raise particular problems.

The global objective for dental health established by WHO for 2000 with prognostic for a decreasing number of edentations for the years 2010-2025 is far from being achievable [5].

It is necessary to introduce new prophylactic

programs particularized for aged people and to train specialists who can prevent and maintain good oral health for this age group (elders).

A major challenge represents the transition from the evaluation of the oral health status to action by adopting strategies recommended by WHO and efficient programs, easy to put into practice and to integrate them into general health programs.

When we evaluate elders' health we have to take into account the oral health program proposed by WHO, which refers to the promotion of health and prevention of diseases, highlighting the involved risk factors (diet, nutrition, tobacco, alcohol and hygiene).

The authorities charged with health problems should include health promotion and disease prevention on the basis of exist-

ing risk factors.

It is necessary to improve elders' quality of life, by minimizing the risk factors and ameliorating the protective factors.

The supervision of oral diseases should be emphasized by structuring accessible oral health departments to all treatment needs and the reorientation of others towards prophylactic aspects.

Education and the continuous training of doctors and assistants towards elders' nursing should provide them particular skills and detailed knowledge of bio-medical and psychosocial aspects for this age group.

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