

## **The Study of *Dental Hygiene* at Institutions of Higher Education in Europe**

*by Dr. Claudia Luciak-Donsberger, RDH*

A comparative report commissioned by Dr. Sigurd Höllinger, Director General Higher Education, under the auspices of the Federal Ministry of Education, Science and Culture, Vienna, Austria

### **1. Facts and objectives**

As a result of the high prevalence of dental diseases in Austria, compared with the rest of Europe (see WHO Oral Health Country/ Area Profiles 1997) and the costs associated with them, the importance of effective prevention has achieved greater priority. It has been proven that problems with dental health can be almost completely prevented by taking proper prophylactic measures (see Axelsson and Lindhe, 1978; 1993). A significant decline in these diseases in "prophylaxis-active" countries, where prevention has already become institutionalised, has long been documented. In these countries, licensed dental hygienists (DHs) perform public dental health initiatives, professional prophylaxis and the non-surgical treatment of periodontitis.

Studies into dental and periodontitis prophylaxis in Austria have revealed that the population is at risk of losing teeth prematurely (see Luciak-Donsberger, 1999) or of suffering serious disorders as a result of proven connections between periodontal inflammations and systemic factors (see Kocher, 1997). This is due to inadequate information and a lack of instruction concerning acknowledged hygiene measures and also on account of a shortfall in professional services, which are inadequate according to today's scientific knowledge. Although they have been successfully employed in Europe in dentistry for decades, in Austria dental hygienists are not legally recognised or educated, as is revealed in the following report.

Furthermore, this report contains a summary of the origins of this profession and a comparison of its implementation in Europe. The report describes the professional areas of application throughout Europe in private practice, as part of a dental team, at universities, in science and research and in public health initiatives. In addition, institutions of education, costs and finance, academic exchanges and curricula contents will be described. Health policy effects (e.g. the harmonisation of primary preventive care and diagnostic values for dental health within the EU) as well as effects on vocational policy (harmonisation of job and training availability, access to

the private job and training market, creation of licensed vocations, equal opportunities for women and their access to licensed training and academic exchange), which are to be expected because of the lack of the professional image in Austria, are likewise described. Finally, there are suggestions for an international academic exchange and the application for EU sponsorship, which could contribute towards implementing the profession in Austria.

The training and professional qualifications are compared in the following countries:

- **Denmark**
- **England**
- **Finland**
- **Italy**
- **The Netherlands**
- **Norway**
- **Portugal,**
- **Sweden**
- **Switzerland**
- **Spain**

Training facilities have also been recently set up in Latvia and Greece. However, because contacts had not yet been established, no up-to-date description could be given.

The situation in **Germany** is addressed, because a programme of continuous / further training is planned and, in some provinces, internationally licensed dental hygienists are legally allowed to practice their profession. A description of the current state of development of the profession in **Austria** is also given with a view to the care requirements of the population and the current job-political situation.

## **2. Methods and locations of research**

The establishment of the "*European Union of Dental Hygienists*" (EUDH) in November 1999, in Rome, in which the Association of Licensed Dental Hygienists in Austria (VDHÖ) was involved, and the resulting Europe-wide co-operation between all DH Associations, provided the opportunity to collect information for this report. The professional areas of employment and training objectives of dental hygiene in all member states are discussed at EUDH conferences. The aim, on the one hand, is the qualitative harmonisation of an optimum standard at international level in order to

provide EU citizens with comparable health care and, on the other, to promote free vocational practice and educational exchange programmes within the EU.

Information concerning the nations in question was obtained by questionnaires, presentations, interviews with experts, from the Internet, from telephone and e-mail conferences and also through correspondence and accompanying reference literature. As a first step, a "survey questionnaire", which was designed for this purpose, was handed out to the meeting delegates in Rome in November 1999. The delegates consisted exclusively of chairmen or administrators of national DH associations, who are involved in the vocational-political organisation and in teaching, research and practice, and are best informed about the situation of the vocational status in the countries concerned. At a further EUDH conference in Geneva in June 2000, the current state of information was extended by a series of interviews and by subsequent e-mail and telephone conferences. The following report is a comparative analysis of this information.

### **3. History of the origins of the dental hygiene profession**

From a scientific point of view, the origins of dental hygiene, as a specialist area of dentistry, first started to emerge in 1844. Regular papers under the title "Dental Hygiene" were published from this date in the *American Journal of Dental Science*, which had been published as a periodical since 1839. Professional teeth cleaning is described for the first time scientifically in 1870 in the article entitled "Prophylaxis or Prevention of Dental Decay" by Andrew MacLain. In the field of patient education and motivation, Meyer Rhein wrote in 1884 that patients should be shown how to clean their teeth (see Motley, 1976).

Professional teeth cleaning has been offered by prevention-orientated dental practices in the USA since 1880. As early as 1900 the dentist, Thaddeus Hyatt, spoke out in favour of dividing professional tasks and accepting dental hygienists, and in 1902 produced a written recommendation that dental hygiene should be taught as a separate subject in dentistry (see Motley, 1976).

In 1906 the first dental hygienist was trained at the practice of Dr. Alfred Fones, who is regarded as the "father of the dental hygiene profession". In 1907 DHs were legally licensed in Connecticut. After some delays caused by an opposing lobby of dentists, who feared financial disadvantages for their profession, a training centre was created

in Bridgeport, Connecticut and the first students graduated from here in 1914 (see Motley, 1976).

Over the years, the job in the USA developed into specialist professional training, which was only given at colleges or universities. Two-year courses end with an Associate of Arts Degree and four-year courses with a Bachelor of Arts or Science. Some universities offer Masters' programmes in dental hygiene, which then count towards doctorate studies in health-related subjects. Because of the high entry requirements, which often call for two years' study for admission, the discussion is now about facilitating entry into the profession simply by Bachelor's degree (see Paarman, 1990).

Today, this profession has an undisputed place within dentistry. In the U.S.A. close to 125,000 dental hygienists practise at the overwhelming majority of dental practices, in teaching posts at all university hospitals where dentists and dental hygienists are trained, in research and industry, as project managers and educators in dental health projects and as clinical and scientific authors or associates of numerous studies.

#### **4. The professional image of dental hygienists**

Internationally, the profession of graduate dental hygienist has a 95-year tradition, but in Austria is largely unknown. When the need for regular prophylactic treatment for the maintenance of dental health was recognised more than one hundred years ago by a few pioneers of dental care in the USA and put into practice, it soon became clear that education in dental hygiene, professional teeth cleaning and non-surgical periodontitis treatment demand much time and practice. In most cases, the dentists themselves could not undertake this work because of the other demands made of them. Since 1913 in the U.S.A. (and since then in the majority of industrialised countries) the job of patient care has been divided between two graduate professions: dentists and dental hygienists. In the meantime, the vocation has been practised and taught in more than 25 countries. Generally speaking, it is a paramedical profession, which at lowest level, is studied at a technical college. In recent years a trend towards university-type training and academic degrees has emerged.

By international definition, dental hygienists are educators in oral health and specialists in applied, individual preventive dentistry. It is their job to detect and prevent oral diseases such as caries, gingivitis and periodontitis. Their professional

areas of employment extend from clinical practice, research and teaching, to the implementation and administration of institutionalised prevention programmes and of educating the population in order to promote "oral health".

The American Dental Hygienist Association (ADHA) defined the six roles of dental hygienists as follows (see Paarman et al., 1990):

1. Administrator/Manager
2. Change agent/health promoter
3. Educator
4. Clinician
5. Consumer advocate
6. Researcher

In the Dutch curriculum for the year 2000, which (according to the consensus of the EUDH) leads the way for Europe, dental hygienists are described as follows:

*"The dental hygienist is an independent preventative professional within the dental healthcare sector, with his/her own responsibility and specific expertise. The functional independence and expertise are, just as the legally protected title, laid down in the BIG law (Law on Professions in Individual Health Care). The dental hygienist is a paramedic, educated at a University of professional education, who has a broad range of functions in the field of dental care".*  
(Curriculum 2000, e.breur.OMH@acta.nl)

#### **4.1. Task in clinical practice**

In the "prophylaxis-active" countries, teeth are professionally cleaned twice a year from early childhood onwards (see Schneider, 1993). A series of educational and motivation-theory concepts and methods are adopted in conjunction with clinical activity, in order to educate and motivate patients at an early age, concerning the best possible health care. Where periodontal diseases already exist, non-surgical treatments, coupled with oral hygiene education and regular follow-up care, will, in most cases, prevent the periodontal disease from progressing and will significantly reduce the need for surgical interventions. The Austrian university professor, Slavicek, in a pilot study in the late 70s, entitled, "The efficiency of a trained dental hygienist in a predominantly prosthetically-orientated practice" proved that the rate of surgical treatment could be reduced by 80% in his practice, as a result of the non-surgical treatment of a dental hygienist (see Slavicek, 1997).

In clinical practice, a visit to dental hygienists generally involves the following:

- Gathering of information on dental and general health
- Increasing the level of knowledge about dental diseases
- Individually tailored aetiological and diagnostic consultancy

- Establishing findings (sulcus measurements, plaque and bleeding index, X-ray status etc.)
- Diagnosis and evaluation of the given state
- Individually tailored advice and motivation concerning oral hygiene, nutrition, smoking and other personal risks
- Professional teeth cleaning (removal of inflammatory plaque, foreign bodies and devitalised tissue)
- Deep cleaning of gingival sulcus (where indicated)
- Polishing teeth
- Fluoridisation of teeth
- Motivation towards regular maintenance treatment

(This internationally recognised procedure is described in the present report as "professional dental hygiene treatment").

In most countries, dental hygienists are also qualified to administer preventive pit and fissure sealants or local anaesthetic.

#### Clinical effects of dental hygiene practice:

The clinical success of this practice was demonstrated by the pioneering, long-term study by Axelsson and Lindhe (1978; 1993). Over a period of three years, 375 volunteers were instructed every two months during the first two years and then every three months in individual oral hygiene and professional teeth cleaning was performed by DHs. The control group, consisting of 180 volunteers, underwent an annual dental check-up, during which necessary restorative measures were performed, but no hygiene instructions or teeth cleaning were given. The results showed that it was possible not only to motivate the trial group to undergo regular hygiene measures, but that inflamed gums, increased pocket depths and even caries were completely prevented. The control group, on the other hand, continued to suffer from inflammations, progressive gingival sulcus and new incidents of decay. A follow-up examination after 12 years confirmed the permanence of these results. It was clearly demonstrated that professional prophylaxis rather than access to restorative dentistry, contributes towards preventing tooth decay and periodontal disorders.

#### **4.2. Tasks in health promotion, research and teaching**

Dental hygienists engage in teaching activities in the training of dentists or dental hygienists in almost all of the countries investigated. They also act as scientific initiators or assistants in research, e.g. DHs are currently involved in a joint research project between Portugal and the U.S.A., to research the effects of amalgam on the

health of children. They also manage and assist in famous institutionalised prevention projects, such as Tattletooth II or Head Start in the U.S.A. (see Harris and Christen, 1995) or tooth sealant projects, such as those in New Mexico or Portugal. In industry they contribute towards developing products to promote oral health.

## 5. On implementing dental hygiene as a subject in Europe

The implementation of the dental specialisation, dental hygiene, in Europe, ranges from the initial training in Norway in 1923 up to the present day, when in some countries, pioneering work still has to be undertaken. Differences in prevention initiatives often reflect differences in socio-cultural standards concerning the handling of public health concerns. In periodontology, it is of cultural significance whether a disease, which is often only detectable during the second half of life and results in tooth loss, is regarded as such or whether tooth loss is interpreted as a normal process of aging. These differences in disease interpretation, in turn effect, whether behavioural strategies are undertaken to intervene with the disease process and what value a society or the individual places on maintaining healthy teeth.

The role behaviour of the dental care provider is "aimed just as much at the socio-cultural aspect as it is at a practical understanding of health and sickness" (Schneller and Kühner, 1989 S.14; Harris and Christen, 1995). This may provide an explanation as to why professional dental prevention in Europe is implemented without problem in some countries, whilst in others this would only be implemented as part of a controversial debate, or not at all.

### 5.1. National comparisons of the origins of the profession

The following table compares the initial years of dental hygiene training in Europe and their original duration.

Start and duration of initial training in Europe

Country	First training	Duration at the time
Denmark	1974	2.5 years
England	1954	1 year

Finland	1976	1 year
Italy	1978	2 years
The Netherlands	1968	2 years
Norway	1923	1 year
Portugal	1983	3 years
Sweden	1968	1 year
Switzerland	1973	2 years
Spain	1989	2 years

Tab.1: Start of dental hygiene training in Europe

#### 5.1.1. Denmark:

The first training took place in 1974, when the efficiency and established need for dental prevention was recognised at a broad level. What was more, there was a lack of dentists, which meant that the new profession did not represent any financial threat, possibly leading to controversy in the creation of the new profession (as was the case in several other countries).

The first curriculum was guided by the Norwegian example and lasted for 2.5 years. The training was government financed, was affiliated to university dental hospitals and was therefore given immediate statutory recognition. The condition of entry into study was, and still is, A-levels (a highschool diploma). Nowadays, as a result of a change in the law, dental hygienists are authorised to give treatment in their own practices without the supervision of a dentist. However, their patients do not receive any government grant towards treatment, as is given for DH treatment at a dental practice (see Gregersen, 2000).

#### 5.1.2. England:

The profession was given legal status in 1954 and initial training lasted for one year. As early as 1943, 6-week courses were held in the Royal Air Force, but these were soon suspended because of a lack of professional preparation. However, even the one year of training did not satisfy the requirements of the profession and the training period was eventually increased to two and three years, and counts towards higher

academic studies. From autumn 2000 a Bachelor's degree can be obtained at the University of Manchester in DH studies (see Lloyd, Pleasance, 2000).

### **5.1.3. Finland:**

Professional dental prevention was initiated by a change in the law. The Public Health Act (1972) provided for both restorative and preventive care. The first training, which lasted for one year, took place in 1976 at the University of Helsinki Dental School and was designed on the early Swedish model. 16 dental assistants were trained. The origin of the professional image is not associated with any controversy. Since 1987, training has lasted for three and a half years and is given at technical colleges and universities. The condition of entry is now A-levels (see Laihanen, 2000).

### **5.1.4. Italy:**

From 1970 onwards, some US-trained DHs have been in practice and a movement has been established to implement the profession. Italians, who studied at their own expense in the USA, and some American DHs left a lasting mark on the development of the profession (see Pincelli-Boglione, 2000). The first training course took place in 1978 at the University in Bari. 14 students were trained in a 2-year course. The programme was initiated by Prof. Domenico La Forgia, with support from the Ministry of Education, but without support from the Ministry of Health, which entailed several years' delay in statutory recognition. In 1988 the professional profile and qualifications of the dental hygiene profession were first acknowledged by a decree of the Ministry of Health and the first regional training centres were initiated in hospitals. Only since 1994 have all regional and university training courses concluded with a university diploma, in order to meet the statutory requirements of the EU concerning free movement within the professions.

The controversy surrounding recognition reflects the resistance of dentists, who do not support any further specialisation within dentistry out of financial consideration for their profession ( "It has not been an easy ride to get to where we are today. It has taken effort and 22 years!! Some Dentists still do not like dental hygienists here, they still think that we are going to take away their job!!!", (Pincelli-Boglione, 2000). In 1994 when the statutory order was granted for private practice (by decree of the Health and Higher Education Ministry), the permanent dental representative even reacted with a court action and managed to obtain a ruling that a referral by a dentist is required for any DH treatment in private practice (see Riccitelli-Guarrella, 2000).

The course currently lasts three years. It is given at universities and concludes with a university diploma, which counts towards higher studies. An academic degree is planned through extended studies in management or education.

#### **5.1.5. The Netherlands:**

Since dental diseases had reached alarming proportions, a few committed dentists decided to follow international prevention initiatives and started the DH movement. From the start, the state made scholarships available for several years' study in the USA (see Hovius, 2000). Prof. Pincelli-Boglione from the University of Bologna reports that during their studies at Forsyth University in Boston some Dutch dental hygienists were trained at the expense of the state. They had been instructed to return to Holland after their studies and to provide organisational and teaching assistance on the first courses (see Pincelli Boglioni, 2000).

The high costs of the scholarships sped up the establishment of the first training courses in Holland. The first lasted two years and took place in 1968 in Utrecht. This was followed by others at the University of Amsterdam (1971), Nijmegen (1972), the Free University of Amsterdam (1974) and in Groningen (1995). In 1992 the training period was extended to three years. All training courses are part of the "University of Professional Education" and most take place on the premises of the dental faculties (see Hovius, 2000).

The statutory framework for the profession has been administered since 1963 by the "paramedical professions" act (1974: "Dental Hygienists Resolution"). Up to 1996 the training courses were administered by the Ministry for Welfare, Health and Sports, and, since September 1996, by the Ministry for Education, Culture and Science. Since December 1997 diplomas have been awarded under a law governing professions in individual health care. The professional title has since been protected by law (Law on Professions in Individual Health Care - BIG).

In the Netherlands, dental hygiene as a profession is regarded as controversial by some dentists, although the number in favour is steadily rising (see Hovius, 2000).

#### **5.1.6. Norway:**

Norway was the first country in Europe to implement the profession. The first dental hygienists were trained in Oslo in 1924 - a period when scientific literature was increasingly drawing attention to the importance of oral hygiene. Following the American example, a dentist launched the first training scheme, because he wanted

a dental hygienist for his own practice (see Eversen Øvrum, 2000). At that time licensed people were also needed for university dental schools. The dental faculty of the University of Oslo and Oslo Public Dental Care collaborated on the first programme. From 1924 to 1947 only 4 training years were conducted, with a total of 24 dental hygienists being trained. From 1948 to 1971 the training lasted for one year and a total of 130 DHs graduated. Since 1971 the course has lasted two years. The second study centre opened in 1976 at the University of Bergen, and the third in 1994 in Tromsø. In Norway, 57 dental hygienists are trained each year (see Sekkelsten, 2000).

#### **5.1.7. Portugal:**

The first, three-year academic study course in dental hygiene was launched in 1983 at the University of Lisbon. The dental faculty (in particular, two dentists, who had learned about the profession at an EU conference) was concerned to improve the dubious dental health of the population. It also wanted to administer funds from the European Union to create jobs by way of this new training course. The Ministry for Labour and Industry supported the project because the funds to develop the profession were made available on the premise that jobs would be created for young people – a development which has proved correct up to the present time.

Furthermore, consultants from the European Division of the WHO (Copenhagen) and the Ministry of Health were involved in implementing the profession. Additional finance came through a US organisation (Project HOPE: The People to People Health Foundation, Millwood, Virginia).

In 1982 a professor of dental hygiene at the University of Washington, Norma Wells, was commissioned to develop the curriculum for the first study course in Lisbon. Two licensed nurses went to the University in Geneva for DH training, so that they could subsequently help to organise the implementation of training in Lisbon. International co-operation with the University of Washington enabled Portuguese students to receive scholarships to the Department of Dental Hygiene. Co-operation between the two universities still continues and Portuguese DHs have the opportunity to study for a further year in the state of Washington after their three year course, by means of a state scholarship (to cover tuition fees and subsistence).

Internationally, Portugal now has the highest proportion of men in the profession, running at 20%, possibly because entry to the profession was academic and not through the channel of dental assistant, which is the route that most women take

(see Soares Luis, 2000; Wells, 2000). Also at the outset, it was not the clinical side in the dental practice that took precedence, because there were hardly any jobs available in the private sector at that time, but rather the planning, organisation and administration of institutionalised prevention programmes, which are even now still understaffed with a total of 150 DHs.

#### **5.1.8. Sweden:**

Amongst the initiators of the profession is a US-trained periodontologist. At the outset, dental assistants were given the opportunity to undergo state-aided DH training in England, so that after their return, they could work with dentists on designing the first training courses. The first course took place in 1968, lasted one year and was less academically orientated. A condition of entry was training to the level of dental assistant.

The profession was licensed by the *National Board of Health and Welfare*. Since 1977 all paramedical training has been integrated into the academic system. In 1992, the basic training was extended to two years. The qualification of medical assistant is no longer a condition of entry, but rather A-levels.

Today, the study of dental hygiene is increasingly academically orientated. It is possible to obtain a Bachelor's degree in Caring Sciences – Dental Hygiene after 3 years and a Master's degree after 4. This counts towards studies for a doctorate in the health sciences (see Öhrn, 2000).

Originally, there was controversy surrounding the introduction of the profession. Many dentists felt financially threatened, although periodontologists supported and appreciated the profession. At the beginning of the 80s, several new training centres opened and many DHs entered the job market. At the same time there was also an increase in the number of dentists. This trend increased financial worries amongst dentists and, consequently, their opposition to the dental hygiene profession. In the meantime, the situation has become calmer because the demand for dentists and dental hygienists has increased.

#### **5.1.9. Switzerland**

The first two-year training course took place in 1973 following years of vocational-political controversy. As a result of the untiring commitment of a few pioneering, prevention-orientated dentists, the profession was legalised in some Cantons in 1975 (but only in 1991 throughout Switzerland), following many set-backs caused by the

permanent dental representatives. The process which led to this is described in a dissertation entitled the "History and development of the dental hygiene profession in Switzerland, with particular emphasis on the situation in Zürich" by Beat Haldemann (1988).

Because of the sustained lack of dental care amongst the population, the Zürich dentists, Mühlemann and Boitel, employed the dental hygienist, Barbara Benson, from the U.S.A., as early as the early 60s. As this took place under statutorily unclear circumstances, they suggested to the permanent representatives that the employment of a DH be examined within a time-limited pilot project. This request was turned down and resulted in a heated exchange of letters in which the supporters of the profession described its clear scientific basis and its efficiency in preventing tooth diseases and drew the attention of opponents to the possible financial disadvantages for their profession. It was only a short time previously that the dentists had been successful in preventing dental technicians from working on patients (see Haldemann, 1988). During this debate, a growing number of foreign (mainly American and Swedish) DHs were employed in Switzerland. Some of them helped to draw up the first training courses and to teach at the first schools.

According to Verena Steinegger, a pioneer of the first Swiss training course, the students fulfilled the following conditions: A-levels (50%), final secondary school diploma (20%), dental assistants or an apprenticeship completed in another profession (30%). Even now these qualifications count as conditions of entry, with the trend moving towards A-levels (highschool diplomas).

Even when some programmes were being implemented, recourse to US know-how was sought. Hence, the first director of the Geneva training course, Monique Duprac, studied at the University of Washington, in order to learn how to administer training programmes (see Wells, 2000).

Since 1991 the Swiss Red Cross (SRK) has regulated and monitored the training of DHs. The training period is now three years. Since the 1<sup>st</sup> July 1999, the title of "Dipl.Dentalhygienikerin/Dentalhygieniker" [Graduate dental hygienists] has been protected by the state (see Kittner-Flemming, 2000). For the future, training at Higher Education Colleges and post-graduate education for an academic qualification is being discussed.

#### **5.1.10. Spain:**

Because of a shortage of dentists, Spanish dentists have, for many years, delegated prophylactic work to their staff. Following entry to the EU, it was decided that this activity should be regulated by law and that a curriculum for dental hygiene training that complies with EU recommendations be produced. In 1986 the professional profile was regulated by statute. In 1987 work was carried out on a syllabus. The first training course took place in 1989. The first private training centre was established in Valencia and the first public centre in Cuenca.

Here too, some dentists impeded the development of the profession, because they feared that dental hygienists could set up their own treatment centres without the supervision of a dentist. However, general acceptance is increasing, because more and more dentists have had positive experience of working with dental hygienists (see Velarde Sais, 2000).

## **5.2. Development in Germany and Austria**

Whilst there is no basis of training for the dental hygiene profession in Germany and Austria, as a result of the organised pioneering work of the resident DHs, who have international diploma qualifications, both countries are members of the *International Federation of Dental Hygienists* (IFDH) and founder members of the *European Union of Dental Hygienists* (EUDH). This is why the history, which led to this development, and the current state of the DH profession, are described here.

### **5.2.1. Germany:**

Dental hygienists with international diplomas have worked in clinical practice there for decades. Since 1991, there has been a statutory regulation granting dentists the facility to delegate work to prophylaxis staff under dental supervision. However, no law exists yet regarding internationally recognised training for this profession.

In 1990 a group of internationally trained DHs (following some difficulties with the district court in Munich) came together to form the *Association of German Dental Hygienists* (DDHV). Its aim is the implementation of a recognised final qualification at international level.

Representatives of the Medical Council were able to give preference to an educational channel, which is intended to qualify dental assistants as DHs through advanced / further training courses and not through any academically orientated basic training. The DDHV and the IFDH (International Federation of Dental Hygienists) rejected the advanced training courses, which had taken place up until

that time (none can profess to be training) in Germany, on the grounds that they do not reach the current international level, which would provide qualifications for the duties of DHs (see Gatermann, 2000).

Therefore, in Germany, many dental assistants work as dental hygienists without basic training in clinical practice.

*"Anyone who practises dental hygiene is by no means a licensed or graduate (state registered) dental hygienist. Nevertheless, many are riding the lucrative wave of prophylaxis without committing any "labelling" offence. This overlooks the fact that the professional designation of dental hygienist represents a technical college training, which has, de facto, been in existence since 1913. This means that it cannot be obtained world-wide through any further or advanced education" (see Gatermann, w.w.w.dentalhygienepraxis.de)*

Here too, dentists see an economic threat in well-trained, independent DHs. For example, the Federal Ministry of Health in Bonn, was willing to accept the freelance profession of dental hygienist even almost 10 years ago, but this was stopped by a committee of dentists, which worked with the Ministry to bring about the necessary change in the law on 21.12.1992 (see Gatermann, 2000).

In 1997 a petition was handed in to the Lower House of the Federal Parliament by the lawyer, Thomas Reisinger, founding lawyer of the DDHV and a German dental hygienist, who had been trained in the US and Switzerland *"to amend the law on acknowledging the professional image and on exercising the profession in a freelance capacity"*. The petition was accepted and positively approved on 3.12.1998 by the petitions committee and on the 4.12.1998 by the members of the German Lower House, representing all parties. Recently Frau Beate Gatermann opened Germany's first dental hygiene practice in Munich.

Current thoughts concerning DH advanced / further training provide for extended advanced training for dental assistants, which is then to be evaluated by an international committee and possibly augmented by training courses (see Gatermann, 2000). A transition solution is sought for prophylaxis assistants, who have advanced training in Germany lasting a total of approximately 1 year and who have been doing clinical work for a number of years. However, if we consider the clear mandate of the EU concerning professional harmonisation and the freedom to exercise a profession, such vocational advanced training would have to be classified as non-EU compliant in the foreseeable future. Other member states do not currently accept the German training, which inhibits the free exercise of the profession within

the EU and any academic exchange for Germans. As a further development, it is anticipated, however, that in no more than 5 years, an internationally accepted, 3-year dental hygiene course will be possible in Germany.

### **5.2.2. Austria:**

In Austria, preventive dental treatment and the associated subject of dental hygiene is at a similar level to that in Germany, except that development is even slower. And yet Austrian reference literature from the 20s, was considered pioneering in dental prophylaxis. The lecturer at the University of Vienna, Bernhard Gottlieb, drew attention to the connections between hygiene and periodontal disorders in 1925:

*"By gingivitis, I understand a chronic inflammation, which is caused by unhygienic conditions. Unhygienic conditions can come about either as a result of poor dental treatment or by the persistence of soft or hard dental plaque", (Gottlieb, 1925; p. 6)*  
*"These are cases of gingivitis where suppuration disappears in a remarkably short time, once hygienic conditions are restored."*

In the middle of 1970 a few US-trained dental hygienists worked for the first time in well-known dental practices in Vienna (such as with the University directors, Prof. Slavicek and Prof. Watzek) and found that their professional clinical skills were highly acknowledged. As already indicated, Prof. Slavicek accompanied this "experiment" with a study and proved that the employment of a dental hygienist could bring about an 80% reduction in the need for surgical interventions in people suffering from gum disease (see Slavicek, 1997). The Ludwig Boltzmann Institute for Periodontology in Baden (head: Prof. Erich Schuh), a research institute, also employed the US-licensed dental hygienist, Hyacinth Logan, in clinical and research work, for example, for a study of gum inflammations in soldiers of the Federal Army (see Zinn-Zinnenburg et al, 1992) and for epidemiological surveys of school children. At this time, Prof. Schuh and Prof. Slavicek were actively in support of implementing the DH profession in Austria, but failed because of resistance by the ministries responsible at the time (see Logan, 2000).

Following the German example, the author of this report, C. Luciak- Donsberger, founded the Association of *licensed dental hygienists in Austria* (VDHÖ) in 1996 for the purpose of promoting professional dental hygiene practice and current advanced training. Almost all dental hygienists with an international diploma, practising in Austria, joined the association. In July 1998 the VDHÖ was received as the 23<sup>rd</sup> country into the *International Federation of Dental Hygienists* (IFDH) in Florence and

in November 1999 Austria, represented by the President of the VDHÖ, C. Luciak-Donsberger, was involved in founding the *European Union of Dental Hygienists* (EUDH) in Rome. The aims of the EUDH are professional harmonisation and recognition, academic and professional exchange and a comparable system of patient care within the EU.

Because there was a high degree of acceptance by the population in Austria for the service of professional oral hygiene, which currently has to be paid for privately, a similar trend soon developed as in Germany, of delegating to dental assistants, who either had no structured continuing education in the subject or a two-week course (now up to 80 hours dental hygiene contents), the tasks of a DH, and charging patients a lot of money. Because of the health-political concerns about this practice and in order to achieve statutory recognition and internationally recognised training facilities for carrying out the profession of dental hygienist, the VDHÖ submitted a question to the Federal Ministry of Employment, Health and Social Affairs in 1996, concerning the drawing up of a description of the professional activity. One year later (on 10<sup>th</sup> March 1997) the VDHÖ (following the question by the television station, ORF, which screened a report about the profession) received a reply from which it was concluded that the licensed training of DHs was rejected "by pertinent experts", (the majority being members of the Medical Council). The argument was put forward that the priority was to create statutory regulations governing the training of dental assistants, "since the training of prophylaxis assistants, compared with the highly qualified training provided for dental hygienists lasting for several years, is cheaper by comparison" (opinion of the Federal Ministry for Labour, Health and Social Affairs, GZ 21.111/7-VIII/D/1 /96; 10<sup>th</sup> March 1997, see Annex). The effects of this decision on health and vocational policy will be discussed in greater detail in the relevant sections of this report.

Enquiries made of the VDHÖ show that more and more prophylaxis-orientated dentists and patients recognise the professional competence of dental hygienists and there is a demand, which can no longer be met. Dentists, as supporting members, are also increasingly promoting the VDHÖ, which in the last three years, has exercised an important function in enlightening the public, in consumer protection, in arranging employment, in international networking and as an information centre for parties abroad, who are interested in this training. The professional acknowledgement of this profession is also apparent from the fact that in the last few

years, dental hygienists have been working in a clinical and teaching capacity in the surgical department of the University Dental Hospital (with the support of the Hospital Board or Univ. Prof. Dr. Georg Watzek) and that for the winter semester 2000 the managing board of the newly opened department of periodontology, under Univ. Prof. Dr. Michael Matejka, has made an application for the first time for a dental hygienist for the scientific post of "Lektor".

### **5.3. Summary**

The history of the implementation of the dental hygiene profession in Europe shows that the overwhelming majority of countries has decided to introduce this profession, usually as a result of the initiatives of individuals, and that the work of dental hygienists has "long been accepted and appreciated as a natural part of optimum dental care for the population" (see Haldemann, p.5).

Early impetus came from the U.S.A., which in dental prophylaxis, takes the undisputed lead. In many cases, people in Europe, who had themselves been trained in the USA, assisted in developing the profession and training. The period of training is becoming generally longer and increasingly academic and a clear trend towards private practice without the supervision of a dentist is emerging. The professional training has long been seen as an independent professional channel of education and not as advanced training for dental assistants. Some examples highlight the "problems of introducing a new profession, which was clearly based on scientific principles, in the areas of tension in the existing distribution of duties and work, professional doubts and possibly also the fear of job losses" (see Haldemann, see 6)

## **6. Institutionalised training for dental hygiene in a Europe-wide comparison**

As is shown by the history of the subject of dental hygiene in Europe, curricula were developed in order to fulfil different vocational requirements. It was realised that it is appropriate, first of all, to define the areas of application, so that training content can be geared to the requirements of the subject. For example, the Dutch curriculum for the year 2000 states: "The professional qualifications as formulated in the professional profile, are transposed into training qualifications." First of all the qualifications to be obtained in the countries in question and accordingly the training structures are compared along these lines.

### **6.1. Professional qualifications**

In order to work out and evaluate training criteria, which provide qualifications for the professional application, it has to be established what qualifications European dental hygienists should receive. Below is a comparison of the areas of application in Europe.

### 6.1.1. General areas of application

The following table gives a summary of the areas of application of the DHs in the various European countries.

Country	Clinical practice	Teaching	Free practice	Research	Business	Mngmt. Admin.*
Denmark	v	v	v	v	v	v
England	v	v	v	v	v	v
Finland	v	v	v	v**	v	v
Italy	v	v	v	v	v	v
Netherlands	v	v	v	v***	v	v
Norway	v	v	v	-	v	v
Portugal	v	v	-	v	v	v
Sweden	v	v	v	v	v	v
Switzerland	v	v	v	v	v	v
Spain	v	v	Planned	-	v	v

Tab. 2: Professional qualifications for dental hygienists  
Private practice = own practice without dentist supervision

Business: product development and distribution

\*Planning and administration of health initiatives

\*\* on completion of Master's degree

\*\*\* only as assistant: own research planned after 4 years' study

Prophylaxis and non-surgical, periodontal treatments, X-rays, diagnosis and caries screening may be carried out in all countries. Preventive pit and fissure sealing is carried out by dental hygienists in all countries except Norway. Local anaesthesia may be administered in all countries apart from Italy, Norway, Portugal and Spain. In Denmark, DHs are allowed to fit and remove fixed braces and in Finland, they fill carious lesions, which have been prepared by the dentist. Work in private practice means that dental hygienists in their own practice are allowed to practise without

direct supervision of a dentist. It is approved by law in all countries apart from Portugal and Spain (currently planned).

### 6.1.2. Positions at institutions of higher education

Areas of application in teaching and research are compared below.

Country	Clinical practice	Teaching DH	Teaching Dentists	Research
Denmark	v	v	-	v
England	v	v	v	v
Finland	v	v	v	v*
Italy	v	v	v	v
Netherlands	v	v	v	v**
Norway	v	v	v	-
Portugal	v	v	v	v
Sweden	v	v	v	v
Switzerland	v	v	v	v
Spain	v	v	-	-

Tab. 3: Positions at institutions of higher education

Clinical practice / treatment of hospital patients

Teaching DH = teaching dental hygiene students

Teaching ZA = teaching dental students

\* following completion of Master's degree

\*\* only as assistant: own research planned after 4 years' study

This shows that dental hygienists occupy posts at higher education institutions in all the countries examined. However, there are differences in areas of application, in professional grades and in the source of fees and these are therefore described in detail.

#### Denmark:

Dental hygienists assist in clinical training. Payment is made through the universities under an agreement with the DH associations (see Gregersen, 2000).

#### England:

DHs teach the theory and practice to dental hygiene and dental students, but are not as yet in academic posts, because DHs are paid through the National Health Service (state insurance system). In the near future, the Department of Education, which finances all academic professions, will also take on the payment of DH posts (see Lloyd, Pleasance, 2000).

Finland:

Teaching the theory and practice takes place after completion of a Master's degree in health-related studies such as Health Administration or Public Health in academic posts (see Laihanen, 2000).

Italy:

DHs teach dental hygiene and dental students in clinical seminars and are financed by the Ministry of Education. They are generally employed as "contract teachers" (professore di contratto) (see Pincelli Boglione, 2000).

The Netherlands:

DHs teach theory and practice to dental hygiene students and only practical dentistry in academic posts, financed by the Ministry of Education. However, different branches finance the work at the universities or colleges. DHs do not currently occupy chairs and are therefore graded as slightly lower, as dental tutors (like many teaching dentists) (see Hovius, 2000). Since 1985, a teaching certificate has been required for teaching. Since 1986, this can be obtained in a 2-year Health Care Teaching Training Course at the Free University of Amsterdam (see Curriculum 2000). At present, DHs only work as research assistants. Following implementation of the 4-year academic study, own research work is planned (see Hovius, 2000).

Norway:

DHs teach theory and practice to students of dental hygiene and dentistry at universities. They do not occupy any higher scientific posts, but are paid for their teaching, like all other university posts, by the Ministry of Education, Research and Church Affairs (see Eversen Øvrum, 2000).

Portugal:

DHs teach theory and practice to dental hygiene and dental students and are employed in teaching and research in academic posts. They are paid by the Ministry of Education. They independently plan and administer scientific research (see Nobre, Soares Luis).

Sweden:

DHs teach theory and practice to dental hygiene and dental students and occupy all academic posts apart from their own chairs. However, there are no structural barriers against this and it is expected that these posts will soon also be filled. Academic posts are paid by the Department of Education. DHs work independently or as assistants in scientific research (see Öhrn, 2000).

Switzerland:

DHs teach theory and practice to dental hygiene and dental students and occupy academic posts (such as university assistants) and work in research and in supervising dissertations. Four dental hygienists with academic degrees (at least two of which are Americans) work as researchers and teachers at the dental faculty in Bern (Department of Periodontology). They are financed from the same source as other university academic posts. This financing system is not uniform throughout Switzerland, but is regulated at Canton level (see Bush Gissler, 2000).

Spain:

Dental hygienists are allowed to teach practical but not theoretical subjects. The latter are taught by doctors and dentists. As teachers in a public institution, they have to pass a state selection examination. DHs carry out clinical work at the universities, in conjunction with dentists. Very little is done in the area of research (see Velarde Sais, 2000).

**6.2. Content and objectives of the dental hygiene study curricula**

Curriculum development generally follows the qualifications, which dental hygienists need for their professional life. As explained, these range from clinical practice, research and teaching to the administration of institutionalised prevention programmes and the education and enlightenment of the population on matters of health promotion.

**6.2.1. General training content**

Any dental hygiene training recognised according to the general guidelines of the International Federation of Dental Hygienists (IFDH) should include a minimum of 2000 teaching hours, including 600 hours of practical patient treatment. It lasts on average three years and is generally completed at universities, colleges, university hospitals, dental hospitals and at private institutions. In all the countries investigated

for this report, 12 years of schooling are a condition of entry (in Switzerland by way of vocational A-levels, which an apprenticeship can also count towards), as for university entry.

Dental hygiene studies include a theoretical and practical part. The theoretical part of the course specifies the basic knowledge on which the clinical, advisory, teaching and scientific work is built.

#### 6.2.1.1. Theoretical subjects:

- Motivation and development psychology
- Sociology
- Education
- Rhetoric (conducting discussions and lecturing technique)
- Public Health matters (community dental health)
- Ethics and professional statutory principles
- Health promotion
- Physiology
- Biology
- Anatomy (general and head and throat)
- Microbiology and histology
- Chemistry
- Nutrition sciences
- Pharmacology
- Oral pathology
- Methods of oral preventive medicine
- Periodontology
- Cariology
- Pain control
- Materials used in dentistry
- Principles of restorative dentistry
- Principles of endodontia, orthodontia, crowns/bridges and prosthodontia

Additional subjects which are included in new curricula:

- Holistic approach to dental hygiene
- Theories of health
- Methodology of scientific research
- Statistics and data analysis
- Project management
- Computer sciences
- Management in promoting oral health
- Practice management
- Multi-cultural health promotion
- Health promotion in populations with special needs
- Cultural and linguistic proficiency for international academic exchange

### 6.2.1.2. Practical (clinical) subjects:

The practical (clinical) part includes extensive, practical training under clinical supervision, where all aspects of clinical patient care are taught. The actual instruments are generally taught during the first term using toothed models, then on fellow students and subsequently on patients with increased treatment needs. The main foci of clinical training include:

- X-ray safety and technique
- Practical hygiene
- Dealing with infectious diseases
- Knowledge of instruments
- Comprehensive care (general methods of diagnosis, treatment and the evaluation of treatment of oral diseases)
- Establishing the cause of caries and periodontal disorders
- Determining individual problems concerning nutrition, oral hygiene and other aetiologically significant factors
- Terms of reference relating to education and the theory of motivation
- Pit and fissure sealing
- Fluoridisation measures
- Local anaesthesia

(This summary of courses combines suggestions from the curricula from Finland, the Netherlands, Sweden, Switzerland and the U.S.A.)

### **6.2.2. Training objectives**

The choice of these seminars provides dental hygienists with

- The medical-technical skill required in clinical practice
- Social and communication skills required to motivate, enlighten and teach
- Preventive and care skills to advise patients and to plan and administer health initiatives
- Practice management for the administration of an independent practice
- Qualification for research and innovation for planning, executing and evaluating scientific work (see curriculum of the Netherlands, 2000)

The content of these training courses reflects the high professional requirements, which qualified dental hygienists need. Professional clinical care and motivation for individual prophylaxis, as well as popular health initiatives, teaching and research,

demand soundly based knowledge, communication skills and professional competence.

### 6.3. Training structures in a European-wide comparison

As a result of the differences in implementing dental hygiene as a subject in Europe, individual countries used different ways by which entry into the profession can be achieved. Conditions of admission, institutions at which dental hygiene is taught, finance and the costs of training, as well as international training facilities and objectives are compared below.

#### 6.3.1. Admission conditions and training institutions

The different ways in which the subject has developed over decades in Europe, resulted in the fact that there were originally different admission conditions for studying the subject and that the profession became integrated into a national training system by different routes. This is now reflected in the different types of institutions, at which dental hygiene is taught.

Country	Admission Condition*	University	Prof. college.	Clinic	Private Institutes	Number
Denmark	12-years' schooling	v		v**		2
England	12-years' schooling	v		v**		19
Finland	12-years' schooling	v	v**	v**		3
Italy	12-years' schooling	v		v		17
Netherlands	12-years' schooling	v	v**			4
Norway	12-years' schooling	v				3
Portugal	12-years' schooling	v				1
Sweden	12-years' schooling	v				9

Switzerland	12-years' schooling	v		v	v	4
Spain	12-years' schooling	v		v	v	25

Tab. 4: Admission conditions and training institutions

\* Some programmes also demand additional entrance tests, scientific courses or a high average mark;

\*\*Hospitals where dentists are also trained

(in 90% of countries outside Germany, A-levels [Abitur] are taken during the 12<sup>th</sup> school year)

Almost all the countries investigated demand A-levels and in Switzerland admission is also by way of a higher secondary school leaving certificate or a vocational leaving certificate (an apprenticeship, such as dental assistant also counts towards this). The majority of training courses are at universities or affiliated to universities. For example, in Switzerland (Geneva) and in Spain (Valencia) DH training is given at the university hospital, although it does not end up with an academic degree. In Finland and Holland the subject is also taught at colleges for paramedical professions. In England the subject is taught at dental teaching hospitals, where dentists are also trained. Other training courses, (as in Italy, Switzerland and Spain) are given at public or private dental hygiene clinics (or schools).

### 6.3.2. Duration of training and final qualifications

It is shown here that the duration of training and the academic direction of dental hygiene in Europe are constantly changing.

Country	Start	Currently	Planned
Denmark	2.5 years	2.5 years	3 years
England	1 year	Academic qualification. 2,3 years*	Academic qualification from Sept. 2000.
Finland	1 year	3,5 years*	k.V.
Italy	2 years	Academic qualification. 3 years*	Masters' degree
The Netherlands	2 years	3 years*	4 Years, academic qualification..

Norway	1 year	2 years*	3 years
Portugal	3 years	Academic qualification 3 years*	k.V.
Sweden	1 year	Academic qualification. 2,3,4 years**	3 years' basic training
Switzerland	2 years	3 years	4 years, post. Grad. for academic recognition
Spain	2 years	2 years*	3 years, academic qualification.

Tab. 5: Changes in duration of training and content of DH studies

\*Counts towards academic qualifications

\*\* 2 years basic training, Bachelors and Masters' in Caring Science-Dental Hygiene  
k.V. = currently no change planned

It can be seen from Table 5 that in most countries, they are currently working on extending the training period and (or) are working on making the content of the dental hygiene course more academic. These national differences are described more precisely below.

#### Denmark:

Training is paramedical and carries no academic degree, but is given under the sponsorship of the university. An extension to three years is planned (see Gregersen, 2000).

#### England:

The DH course is currently slanted towards the paramedical, ends with a university diploma and is recognised for higher academic qualifications. From the autumn of 2000 the University of Manchester is offering Bachelor of Science degree in oral health. The main teaching emphasis in this course is on dental hygiene and treatment as well as the promotion of oral health (see Lloyd, 2000).

#### Finland:

The DH course is currently classified as paramedical but counts towards university qualifications (Master of Arts), as for example, in health administration or public health (see Laihanen, 2000).

#### Italy:

In Italy the training has an academic slant and ends with a university diploma. However, it is planned to upgrade the DH basic training to a Bachelor's degree and

allow the training to count towards a Master's degree in administration, marketing or education (see Pincelli Boglione; Riccitelli-Guarrella, 2000).

#### The Netherlands:

Training currently has a paramedical or academic slant. Whilst it is given at colleges, it does not yet end with an academic qualification. For the programme, which is currently undergoing planning, four study years are planned, leading to a Bachelor's qualification. Course contents are to be extended towards management and research (see Hovius, 2000).

#### Norway:

Dental hygiene studies are taught at universities and they end with a diploma. They can count towards further studies (see Sekkelsten, 2000).

#### Portugal:

The only training at the University of Lisbon ends with a Bachelor's degree and counts towards higher studies in health-related areas (see Soares Luis, 2000).

#### Sweden:

The DH training qualification is an academic one and counts towards higher studies. Following the two-year basic training (which will shortly be extended to three years) it is possible, after a further year, to obtain a Bachelor's degree in caring science-dental hygiene and after yet another year, a Master's degree in caring science-dental hygiene. Doctorate studies are then continued in medical science. There are currently some dental hygienists with doctorates and 9 PhD students (see Öhrn, 2000).

#### Switzerland:

In Switzerland, dental hygiene is a paramedical profession and is classified as higher professional training. The aim is to make the training more academic. Training institutions are to be restructured from secondary colleges to technical colleges and academic qualifications obtained through postgraduate training (see Steinegger; Hüsler, 2000).

#### Spain:

The DH course has a paramedical slant, but is acknowledged for Bachelor's degrees in other health specialisations. A three-year academic course leading to a Bachelor's qualification in dental hygiene is planned (see Velarde Sais, 2000).

### 6.3.3. Finance and costs of training

What is of interest here is whether an institutionalised profession with a professional title protected by law, as is the case in the countries described, is also regarded as the responsibility of the state and consequently financed as such. For some countries it was also possible to learn about training costs per student and per training year. In countries where tuition fees are charged, we were also able to learn the possible level of these fees.

Country	State	Private	Tuition fees Nationals	Tuition fees Foreigners
Denmark	Yes	No	No	No
England	Yes	No	No	Yes
Finland	Yes	No	No	Yes***
Italy	Yes	No	Yes	Yes
Netherlands	Yes	No	No	No
Norway	Yes	No	No	-
Portugal	Yes	No	No	No
Sweden	Yes	No	No	No
Switzerland	Yes*	Yes	Yes*	Yes
Spain	75%	25%	Yes, No**	Yes, No**

Tab.6: Source of finance of training institutions

\* Support from Cantons

\*\* State training courses free of charge

\*\*\*English language training possible as part of the international programme at the University of Helsinki

Table 6 shows that dental hygiene studies in all the countries described are supported by the state, either from central government or the Cantons. The institutions responsible are described below.

#### **State institutions responsible for finance:**

Denmark:

DH studies are part of the university system and are, consequently, financed by the Ministry of Education in the same way as dental studies.

England:

Up to now the National Health Service (NHS, Ministry of Health) has financed DH studies for British nationals. Nationals of other countries have to pay tuition fees. In the coming months, training at universities will be paid for by the Department of Education and no longer by the NHS. The Department of Education finances all university training in England (see Lloyd, 2000; Pleasance, 2000). Tuition fees for foreigners vary from institute to institute, e.g. from 26000.- to 50.000.- .

Finland:

DH training institutions are financed by the Ministry of Education. Nationals of other countries have to pay tuition fees. At the University of Helsinki it is possible to receive international training in English. A number of foreign students avail themselves of this facility (see Laihanen, 2000).

Italy:

Whilst all DH training institutions in Italy are state administered, tuition fees of approx. 1100.- to 1300.- are charged. The level of these fees is fixed by the regions. At university dental hospitals, patients pay a contribution towards clinical treatment by students, and this money goes to the institution. Foreign students pay the same level of tuition fees as Italians (see Pincelli Boglione, 2000).

The Netherlands:

Since 1996, by virtue of a change in the law governing DH training institutions (law for higher education, WHW), dental hygiene studies (like those of medicine and dentistry) are financed by the Ministry of Education, Culture and Science. Up to 1996 this was the responsibility of the Ministry of Health Care, Welfare and Sports. Patient contributions for clinical treatment by students go to the training hospitals. (see Hovius, 2000; Dutch Curriculum 2000).

Norway:

DH training (like all other academic training courses) is financed by the Ministry of Education, Research and Church Affairs (see Eversen Øvrum, 2000). According to the University of Oslo, foreign students are not currently admitted.

Portugal:

DH studies are jointly financed by the Ministry of Education and the Ministry of Health. On the other hand, medical and dental studies are only financed by the Ministry of Education. DH training receives financial support from sponsorship projects in the EU and the U.S.A. From the EU, for example, funds are made available from the Professional Formation and Employment Institute (see Soares Luis, 2000). Health initiatives which the teaching hospitals offer (such as a sealing project) are financed by the Ministry of Health (see Nobre, 2000; Soares Luis, 2000).

#### Sweden:

In Sweden all training is financed by the *State Department of Education*. Students pay for books and subsistence (see Öhrn, 2000).

#### Switzerland:

Health professions in Switzerland are regulated by the Swiss Red Cross at Canton level and not at central government level. DH training, which is classified as higher professional training, is therefore financed by the health departments of the Cantons. The universities are financed by central government. The training courses in Bern and in Geneva are paid for by the Cantons. Student contributions range from 365.- to 440.- Training in Zürich and Zürich-North is private. Tuition fees are approximately 25.000.- for three years' training, excluding subsistence. Individual cantons support their students to different extents (see Hüsler, 2000). In Austria, there are at present some dental hygienists practising, who had to finance their training in Switzerland themselves. As Switzerland offers the only German language DH training, the VDHÖ recommends that interested Austrians should also follow this educational path. In 2002 training will be taken over by the Federal Office for Vocational Training, which is in the planning stage (see Steinegger, 2000).

#### Spain:

Training is completed at state and private institutions. Studies at state-run institutions are free of charge (even for foreigners), but places are limited and the demand is high. There are therefore highly selective conditions of admission, (average secondary school mark etc.). It is easier to obtain places at private institutions (see Velarde Sais, 2000)

#### Training costs

In the U.S.A. the average institutional costs at all community colleges (two-year courses) per student for the year 1997, worked out at the dollar rate at the time as

being 10.100.- (see ADHA, 1997). These costs naturally vary in different regions, because there are differences in cost in respect of locations and fees in the various federal states and in urban or country areas. At community colleges the students pay low student fees, but do have to pay extra for their own instruments and text books.

In Denmark training costs the state approx. 8300,- per year per student. No tuition fees are levied (see Gregersen, 2000). In the Netherlands it costs 1.724.365.- per year to run a training institute for 200 students and 55 units (see Hovius, 2000).

#### **6.3.4. International training facilities**

Dental hygiene as a subject has been put forward and implemented in the majority of countries described, as a result of an international transfer of information and academic exchange. Even today, many dental hygiene students learn their technical knowledge in countries where state recognised training is given. Amongst the member states of the EU lively academic exchange has already developed, which is often promoted by European programmes in order to encourage study and professional mobility. The current community law of the European Union (Document 399D0051) of 21. 12. 1998 even provides "EUROPASS vocational training" for this. "A document is to be introduced, which certifies at Community level that its holder has completed one or more training segments in another member state" ([www.europa.eu.int/eur-lex/de/lif/dat/1999](http://www.europa.eu.int/eur-lex/de/lif/dat/1999)). Funds for such an exchange can be applied for through various European educational promotion institutions.

##### 6.3.4.1. International academic exchange:

Vocational and academic exchange is promoted in Europe by way of such programmes as "The Leonardo da Vinci Community vocational training action programme" or the Socrates promotion programmes (Erasmus for exchange and projects in higher studies). There have already been exchanges for several years via this channel in the Nordic countries (between Denmark, England, Finland, Holland, Norway and Sweden) and now also with Portugal and Italy. Students usually stay for up to 3 months at the exchange institute without having to pay (see Öhrn, 2000). Training stages or postgraduate studies following completion of training are possible at many U.S. universities (such as the University of Washington or the Old Dominion University in Virginia).

##### 6.3.4.2. Study possibilities in other countries:

Obtaining an international final study qualification enables interested persons from countries that do not themselves offer training to learn this subject. Some Austrian members of the VDHÖ have studied at the only state-recognised, German-speaking training centres in Switzerland, one member in Geneva (in French), and a further one in the U.S.A. (in English). All other members of the VDHÖ come from Denmark, Holland and the U.S.A., where they also completed their studies. Unfortunately, tuition fees have to be paid for German training courses in Switzerland or English training courses in England, Finland and the U.S.A. In Denmark, Sweden, Spain and Portugal it is possible to study without having to pay tuition fees but a proficiency test has to be passed in the relevant national language. Additional conditions are generally A-levels and often tough entrance examinations (as in Switzerland) and the average marks obtained at previous training courses. In Portugal examinations have to be passed in chemistry and biology – what is then important for selection are the marks obtained for these examinations and the average mark obtained at grammar school. At the University of Bologna, for example, there is *"one position in each new class for a foreign student. The requirements are the same as for Italians, high school diploma and special entrance exam and knowledge of the Italian language. Foreign students pay the same tuition as Italian students"* (see Pincelli Boglione, 2000).

At the moment DH students from a large number of countries are studying at institutions in Europe and the U.S.A., e.g. students from Colombia and Estonia at the International University in Helsinki and students from Hungary, and also from China, the Philippines, Russia, Vietnam, India, Pakistan, Dakar, Iran and Turkey at the Old Dominion University in Virginia (see Darby, 2000). There is also a partnership between the dental hygiene programme in Kuwait and the Forsyth School for Dental Hygienists in Boston Massachusetts, where some Italian pioneers obtained their training. From this we can draw the conclusion that DHs, who will soon qualify in a number of countries, will be helping to shape the development of preventive dentistry and the subject of dental hygiene.

#### **6.4. Summary**

The vocational qualifications of dental hygienists include clinical practice, on the one hand in the area of professional prevention and on the other in the area of non-surgical treatment of periodontitis. In all countries, apart from Portugal and Spain,

dental hygienists will, in future, be able to carry out their profession in private practice, without the presence or supervision of a dentist.

Research and teaching, as well as the administration of health projects are also part of the areas of application of dental hygienists. In all the countries described, they are employed at higher education institutions. They occupy academic posts in Finland, Italy, Holland, Norway, Portugal, Sweden and Switzerland and soon also in England. They teach theory and practice in England, Finland, Norway, Portugal, Sweden and Switzerland and clinical practice in Denmark, Italy and Spain. Research is carried out in all countries except for Norway and Spain. What is noticeable is the fact that DHs in Europe are increasingly occupying posts in teaching and research. There are, however, differences in the areas of application and in academic classifications. Up to now there have been no university professors in dental hygiene in Europe, although there would be no institutional barriers to such posts in Sweden. If we compare this with the U.S.A., there is a large number of university professors and there are already emeritus professors. Efforts to put men and women on the same footing in academic professions as well as a long academic tradition of the subject, probably explain this development.

The average period of training for the dental hygiene profession is three years. Curricula in most of the countries described are at present being augmented and extended, in order to satisfy the academic requirements of the profession. Course content is intended to prepare students for clinical, administrative, communication and scientific tasks.

In almost all countries, entrance to a training course is conditional on A-levels. In some early years, dental assistants were recruited for the profession. This previous experience is now only recognised in Switzerland in place of 12 years of schooling. As a result of professional requirements, the training courses have increasingly taken on an academic character. Training institutions are mostly found at universities, university dental hospitals (as for example, the dental teaching hospitals in England) at professional colleges or, in rarer cases, at private training hospitals. Training for dentists and dental hygienists often take place at the same institutions. This saves costs, as resources are shared and this creates co-operation between subjects, which will promote the quality care of patients.

At present, four of the training courses described finish up with academic qualifications (in England, Finland, Portugal and Sweden). In Italy and Holland

academic qualifications are planned. In seven countries, DH studies count towards higher academic qualifications (England, Italy, Finland, Portugal, Sweden, Spain). In Sweden, for example, the number of dental hygienists pursuing doctorate studies is steadily increasing.

In all the countries reviewed, training courses are financed by the state (or canton). Only in Switzerland and Spain are there also private institutions. Tuition fees have to be paid here. In Italy the students have to pay tuition fees to help with state finance. In the overwhelming majority of countries, the Ministry or Department of Education is responsible for financing training and also the universities.

Average training costs for a study course are in the order of 8720.- per student, per training year.

International education transfers and academic exchanges still represent the basis for implementing the profession in those countries where there is still no international training (and for free professional mobility within the EU). There are a number of sponsorship programmes, which most of the EU countries reviewed, already call upon.

## **7. Considerations on the implementation of the dental hygiene profession in Austria**

As Austria is one of the few EU member states which has not yet implemented the profession of dental hygiene, it would be useful to examine what effects on health and vocational policy the lack of this professional image might entail, both nationally and throughout Europe. It should also be examined in what form this profession might be implemented and whether this is currently politically feasible.

### **7.1. Health policy considerations**

WHO statistics, studies into public dental education and into the treatment of periodontal diseases, as well as the clinical experience of all full members of the VHDÖ, who have an internationally recognised DH diploma and practical work experience in countries involved in prophylactic schemes, point to the fact that Austrians still suffer from high rates of dental disease. There is consensus within the VDHÖ that Austrians are badly informed, motivated and advised – and that they receive hardly any care, particularly in the case of existing periodontal diseases. Furthermore, there is uncertainty and a lack of information about scientifically-based prevention measures, such as fluoride prophylaxis and pit and fissure sealing.

Clinical practice, scientific studies, reaction to media reports and an opinion poll all indicate that many Austrians are interested in maintaining their teeth and are motivated to carry out the necessary dental care, on professional advice. In other words, now would be the time to put in place health-policy measures, which will enable Austrians to have similar access to institutionalised and professional prevention, as nationals of other EU countries have long enjoyed.

### 7.1.1. Austrian dental health compared internationally

As a result of comparable surveys, it is possible to recognise the prevalence of dental disorders in an EU comparison

*"In an international comparison (Denmark, Finland, Great Britain, Ireland, Norway, Sweden), carried out by the ÖBIG in the wake of the present study, Austria has the smallest proportion of caries-free children. The average number of decayed, missing and filled teeth is clearly above that of the children (from other countries) surveyed."*

(see tooth status survey of the Federal Austrian Institute of Health 1996, p.33).

### An international comparison of the number of decayed, missing or filled teeth (DMFT) amongst 12-year olds

Country	Year of investigation	DMFT	First DH Training
Denmark	1994	1,3	1974
German	1992/93	3,9	None
England	1993	1,4	1954
Finland	1991	1,2	1976
Italy	1995	2,2	1989
The Netherlands	1991	1,7	1967
Norway	1993	2,1	1924

Austrian	1993	3,0	None
Portugal*	1989	3,2	1983
Sweden	1994	1,6	1968
Switzerland	1991	1,1	1973
Spain	1993	2,3	1989

Tab.7: DMFT= Decayed, missing and filled teeth

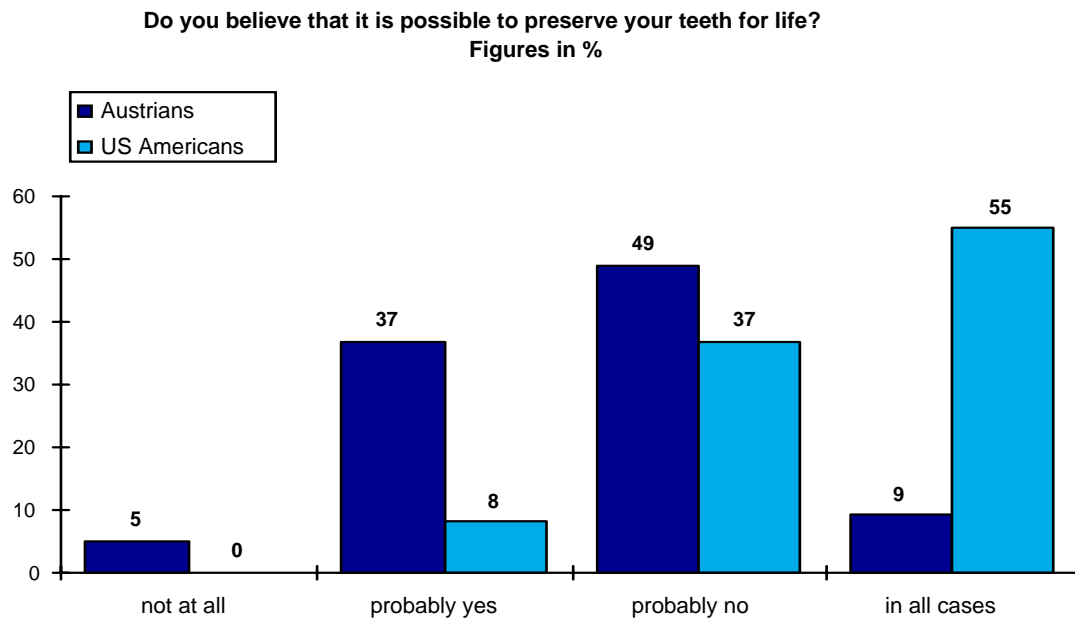
\*Because of the high rate, popular health initiatives were set up in Portugal, which are now starting to demonstrate their effects. At the time of this survey, there was also a shortage of dental hygienists

(Source: WHO Oral Health Statistics: [www.who.int/WHO\\_ORH\\_DMFT12\\_96.1.pdf](http://www.who.int/WHO_ORH_DMFT12_96.1.pdf))

Statistics from the WHO surveys confirm the comparatively high rate of tooth decay in Austria. The low figures in the so-called prophylactic-active countries can be attributed to a series of health policy initiatives, such as institutionalised fluoridisation measures, tooth sealing projects and, not least, the implementation of professional prevention by the dental hygiene profession.

Whilst no national comparisons of periodontal diseases can be found in WHO databases, a study of periodontitis prevention in Austria revealed a significantly high rate for these diseases (see Luciak-Donsberger, 1998), which can only be countered by scientifically based treatment methods.

In a study, for which the current social norms of dental prevention of 300 Austrian and U.S. students were investigated, Austrian volunteers obtained significantly lower values with respect to the areas of knowledge of dental health, in effective tooth-care skills and in their experience with professional prophylaxis. However, no differences between the groups were established in respect of their appreciation of dental health. Austrian volunteers express a significantly greater interest in better information (see Luciak-Donsberger, 1999). Individual results confirm the serious lack of information and care amongst Austrians. The graph below shows the replies to some of the questions of the survey.

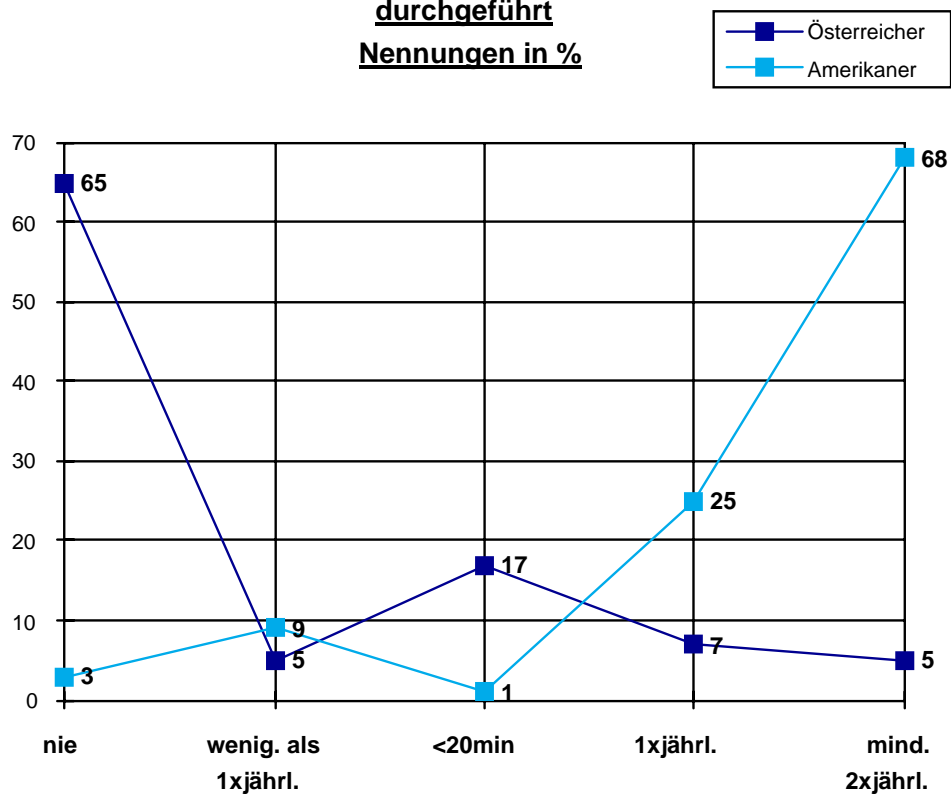


(see Laciak-Donsberger, 1999)

The feasibility of permanent tooth preservation has long been scientifically proved. More than half of the American volunteers, but only 9% of the Austrian volunteers are aware of this.

**Wie oft wurde eine professionelle Prophylaxe**

**durchgeführt**  
**Nennungen in %**



(see Luciak-Donsberger, 1999)

This shows that the scientifically based recommendation (see Rateitschak et al., 1989), to undergo professional teeth cleaning twice a year, is followed by 68% of the American volunteers, but only by 5% of the Austrian volunteers. 65% of Austrians, as opposed to 3% of Americans never underwent any form of prophylactic treatment.

Oral Hygiene Instruktion in Front of Mirror:

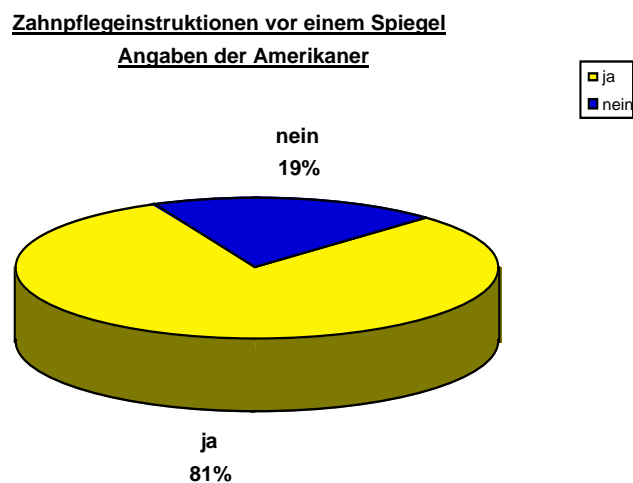


Tooth care instructions in front of a mirror

Information provided by Austrians

Nein = no / ja = yes

What was also of interest, was whether volunteers had ever been instructed in front of a mirror, as to how to clean teeth correctly. Precise instructions were to be given on the use of dental floss in order to motivate people to use it correctly.



(see Luciak-Donsberger, 1999)

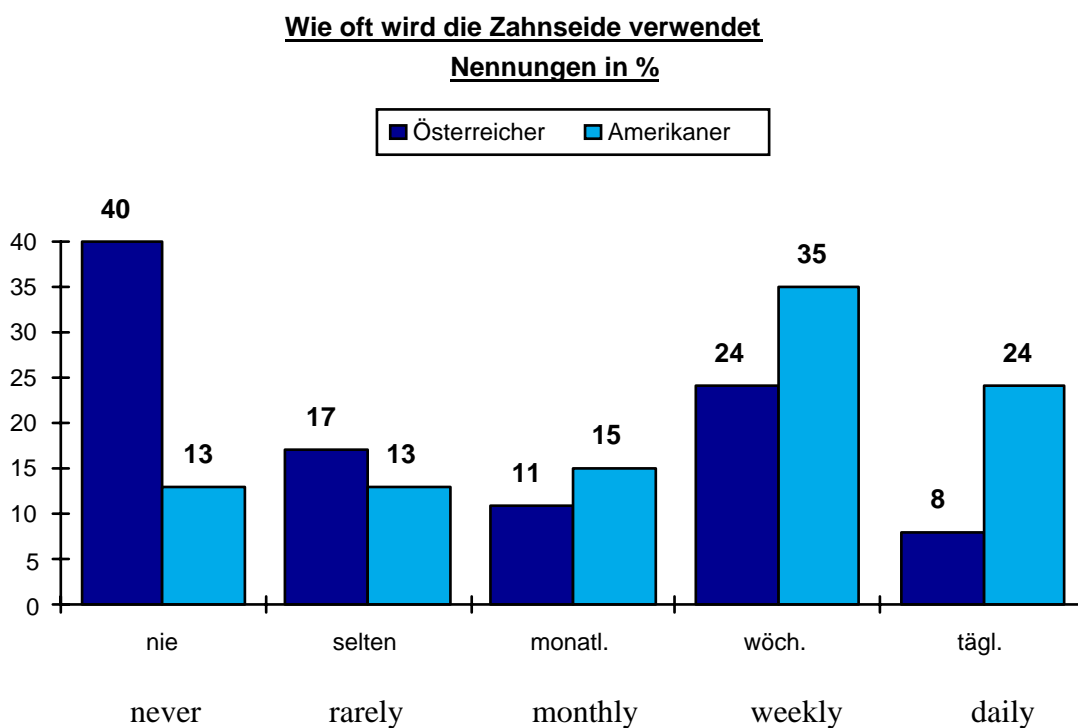
Tooth care instructions in front of a mirror

Information provided by Americans

Nein = no / ja = yes

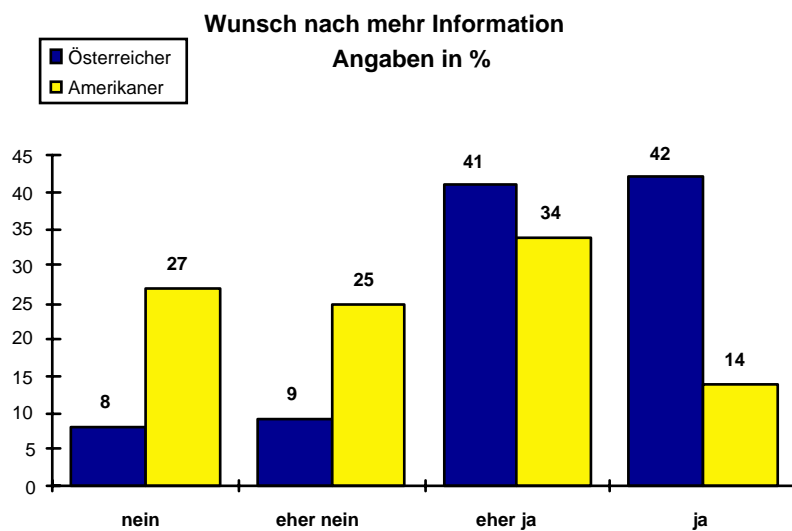
These results also confirm the comparatively significant lack of information of the Austrian volunteers. From this it can be concluded that Austrian dentists do not take sufficient time to inform patients and instruct them on tooth care. The following results, indeed, show the effects of this practice.

How often do you use dental floss:



(see Luciak-Donsberger, 1999)

The following question was intended to provide information as to whether the lack of willingness to provide patient information may be attributable to a lack of interest on the part of the population.



(see Luciak-Donsberger, 1999)

Request for more information

Figures in %

Austrians

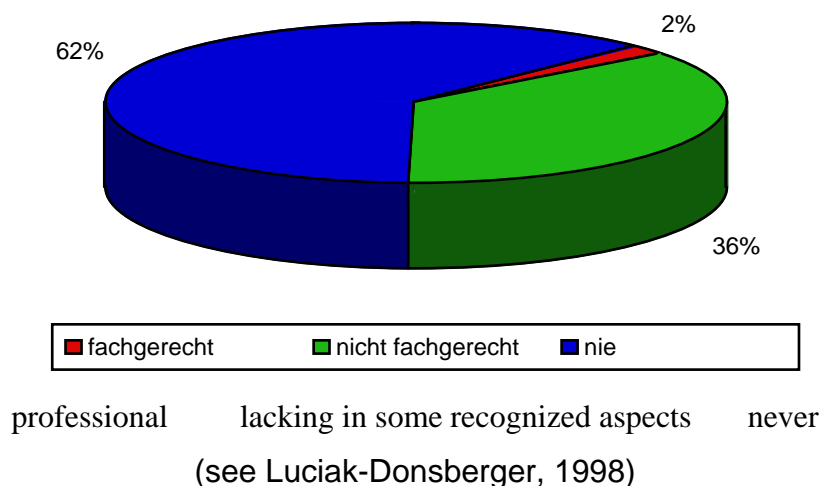
Americans    no    probably no    probably yes    yes

These results allow us to conclude that Austrians do in fact lack adequate access to information and professional prevention, but they do wish to be better informed.

A further study, involving 50 Austrian prophylaxis patients, also showed that these volunteers, of which 48% were academics with an above-average level of education for Austria, are badly informed, had no experience of prophylaxis, but did wish to be informed. Clinical surveys showed a great need for treatment of periodontal diseases, as well as inadequate dental care. 82% of the volunteers said that they had never been instructed in hygiene measures in front of a mirror. 68% of the volunteers were already suffering from periodontal disease. Despite regular dental checks, none of the volunteers had received treatment for the condition. Interviews and clinical examinations revealed that only one volunteer had previously received professional prophylaxis treatment.

Experience with professional prophylactic treatments:

**Vorerfahrung mit professioneller  
Prophylaxe in %**



Following explanation, instruction and hygiene-facilitating treatment measures, there were, as expected, highly significant improvements in the clinical values of the volunteers (see Luciak-Donsberger, 1999).

If we assume that the specialist profession, dental hygiene, the purpose of which is first of all to pursue primary, preventive aims and at the same time "to occupy the

central position in the treatment of all periodontitis patients” (Müller, 1997, p. 9), then various conclusions can be drawn from the WHO DMFT values and the results of the above-mentioned studies, by comparing the percentage of the population treated by dental hygienists:

**Preventive care of the population by dental hygienists**

Country	Survey year	No. of DHs	DH/ZA	DH/Person
Denmark	97	1,700	1:6	1: 5,300
Germany*	97	200	1:1100	1:1,081,080
England	97	4,000	1:8	1: 15,768
Finland	96	1,300	1:4	1: 4,146
Italy	97	980	1:28	1: 56,122
Netherlands	97	2,000	1:6	1: 10,000
Norway	96	1,100	1:7	1: 4,941
Austria*	00	8	1:450	1: 1,000,000
Sweden	97	2,800	1:5	1: 3,143
Switzerland	97	1,790	1:4	1: 4,403
Spain	98	6,500	-	1: 6,308
Canada***	97	14,000	1:2	1: 2,294
U.S.A.***	96	125,000	1:1	1: 2080

Tab. 8 Distribution of DHs and dentists (ZA) in a population

\* no DH training, a few internationally trained DHs working

\*\*in these countries the demand by the population for qualified, professional prevention and treatment is practically covered

Portugal is missing from this survey, because to date there are only approx. 150 DHs working there

It is the scientific consensus that from the age of two years, every person should undergo professional prophylactic or maintenance dental hygiene treatment at least twice a year (see Rateitschak et al., 1989). As far as this goes, there is a shortfall in professional care in all the European countries described here. From the point of

view of health and vocational policy, there is clearly an urgent requirement for people with qualified DH training. We learn from all the countries described in this report, that there is a surplus of jobs for DHs.

### **State funding of prophylactic DH treatment**

Country	Children Young people	Adults
Denmark	100% -18 years	Sometimes
England	100% -17 years	Private
Finland	100% -17 years	Sometimes
Italy	Private	Private
Netherlands	100%-18 years	Private
Norway	100%-18 years	Private
Portugal	100% in Health Centres	100% in Health Centres
Sweden	100%-19 years	Sometimes
Switzerland	100% during school time	Private
Spain	Sometimes	Sometimes

Tab. 9: A European comparison of the funding of prophylactic treatment

It can be seen from Table 9 that most countries fund professional prophylaxis, particularly for children and young people. It is during this time that susceptibility to caries is at its greatest and early education often encourages healthy habits, which last a lifetime.

#### **7.1.2. The present state of professional prophylaxis and periodontitis treatment in Austria**

Since the middle of 1970 prophylaxis and periodontitis treatments have been performed in some dental practices in Austria by dental hygienists with international diplomas. In recent years, however, a trend has emerged where Austrian patients are recommended to receive treatment from assistants, who have either only been trained at the practice or have attended one of the two-week courses (which are now

becoming more frequently available because of great demand) leading to the qualification of prophylactic assistant. Surveys by the ORF and research carried out by the VDHÖ reveal that for treatments carried out by assistants, the average charge is 110.-, which the patient has to find himself.

Because of shortages of information and treatment and a lack of preventive measures during childhood, many patients already have advanced gum disease (pockets). Treatment of these patients is generally entrusted to the prophylaxis assistants, who are not trained for this, even though such patients represent a professional challenge even to licensed and experienced dental hygienists. Added to this is the fact that periodontal surgery, which is then often performed by doctors and which would usually not have been necessary if professional dental hygiene treatment had been administered, (see Slavicek, 1997) cannot be successful without previous professional treatment (see Nyman et al., 1977).

Because of this practice, the Association of Licensed Dental Hygienists in Austria (VDHÖ) submitted a question to the Federal Ministry for Labour, Health and Social Affairs in March 1996 concerning recognition and implementation of the professional image. This application was rejected one year later (on 10<sup>th</sup> March 1997) "in the opinion of the pertinent experts", mainly members of the Medical Council. The argument was put forward that the priority was to create statutory regulations governing the training of dental assistants, "since the training of prophylaxis assistants compared with the highly qualified training provided for dental hygienists lasting for several years, is comparatively cheaper" (opinion of the Federal Ministry for Labour, Health and Social Affairs, GZ 21.111/7-VIII/D/13/96; 10<sup>th</sup> March 1997, see Annex). One reason for this decision was that the "treatment of the tooth diseases which have already set in, come, without exception, within the scope of the trained specialist dentists" (Österreicher, P. 1997, p. 14), in other words, these conditions are not actually allowed to be treated by prophylaxis assistants based on the recommendations of the professional dental association.

### **7.1.3. Use of prophylaxis assistants and its effects on health and vocational policy**

In its opinion of the 10<sup>th</sup> March 1997, the Federal Ministry for Labour, Health and Social Affairs, provides that prophylactic work be carried out in Austria by prophylactic assistants, as their training is cheaper. Should this planned legislation, in fact, come into force and be complied with, then dentists would only delegate

prophylactic treatment to prophylaxis assistants and would have to take over completely the treatment of patients already suffering from periodontal disease.

This practice is not only impractical for reasons of time, and is not employed in 25 prophylaxis-active countries, but it is not and never has been applied in Austria. In their (only since recently) three year practical training, during which they have to learn all about dentistry, dentists are never taught the skills of dental hygienists, whose average practical training period also lasts for 3 years (see Slavicek, 1997; Taggart, 1995). This explains why the "old" system has remained in place – either there is no treatment at all for periodontal damage or non-qualified personnel are employed for treatment, which is constantly charged as an expensive private service. In a discussion forum at the Periodontology Workshop of the Austrian Society for Periodontology on 12. 4. 1997 on the subject of "Problems of the prophylaxis assistant ", it became apparent that virtually all the prophylaxis assistants present had to treat patients with periodontal disease and that they felt completely out of their depth doing this task. The author of this paper was asked by several course participants at this workshop to conduct supervision and further training courses.

The argument put forward by the Federal Ministry for Labour, Health and Social Affairs, that the "several years' highly qualified training" for dental hygienists is much more expensive, can be countered by the fact that two-week courses for prophylaxis assistants, e.g. at the University Dental Hospital in Vienna currently cost more than 2906.- per person. If we compare the fact that in Switzerland a 3-year DH training course costs approx. 29.070.-, then this produces a "weekly rate " many times greater for the training for the qualification of prophylaxis assistant.

The planned 80-hour advanced training for dental assistants should, for qualification purposes, be regarded as leading to "a licensed dental assistant skilled in prophylaxis and periodontology", treating patients under dental supervision (further training programme for dental assistants of the Zafi, 1997. p.24). Awarding a diploma through further vocational training should, however, be questioned on purely professional grounds, since a distinction should be made between the concepts of "basic training " and "advanced training", when talking of training courses. "Any basic training must provide elementary knowledge enabling a profession to be practised" (Croisier, 1997, p. 181). The requirements of a profession must be clearly defined and basic training, once completed, must guarantee the competent treatment of patients. Advanced training on the other hand, imparts new knowledge, which gives

greater depth to the professional area of activity and expands it by new scientific knowledge.

The difference between a graduate dental hygienist (DH) and a dental assistant with course, can be illustrated by the example of Switzerland: Here there is a three-year para-academic training course to become a dental hygienist (previous experience as a dental assistant is not a condition for this profession). In addition, there are courses for dental assistants, which lead to the professional title of "prophylaxis assistant" (PA). This person is employed exclusively for giving instruction in oral hygiene and for prevention work on healthy or only slightly inflamed gums, i.e. for the removal of plaque above the gingival line and for polishing teeth with rubber cap and polishing pastes. Their employment in the treatment of patients with periodontal disorders is forbidden by law because of their lack of technical training. Also missing from the short period of training is the scientific basis and the basic psychological knowledge to advise and motivate patients.

The training aims of the Zürich dental hygiene school, which conducts a course for prophylaxis assistants in Austria, are as follows: "to look after a patient totally and responsibly with regard to oral hygiene, professional teeth cleaning and nutritional advice, from the initial to recall phase" (learning objectives of the advanced training course for dental prophylaxis assistants at the Zürich dental hygiene school, 18.12.96/AL/rs/4). This objective exceeds not only the theoretical learning possibilities of an 80-hour advanced training course, but also exceeds the statutory framework laid down by the Ministry and the Medical Council in respect of professional qualifications. Even the author of this report has been requested, on several occasions, to assist in advanced training courses of this type. However, this was refused when it turned out that she was expected to teach the treatment of advanced cases of periodontopathy.

The doubts with respect to health policy, which arise out of this practice, consist in the fact that patients are not informed about these current, professional excess interventions and that these treatments, which are generally not professional and therefore not usually effective, are paid for as expensive private work – in other words, no significant improvement in dental health can be expected, despite the high expenditure. There is international consensus that if prophylaxis assistants are to be used at all in dentistry, then this should only be following considerably more extensive training and that they should be used exclusively for prophylactic work.

The vocational-political effects are borne particularly by those people (mainly women), who are refused professionally based training and a reasonable fee for a task, which is delegated to them. This is described in greater detail below.

## **7.2. Considerations of vocational policy**

As a member of the EU, Austria has a mandate to provide equal opportunities in professions and training, for academic and professional mobility, for the development of job opportunities and for putting women's professions on an equal opportunities footing. The effects on vocational policy, which will involve dispensing with qualified training for dental hygienists in Austria, are described below.

### **7.2.1. Equal opportunities in professions and training**

The absence of the professional specialisation of dental hygiene deprives many interested Austrians (the VDHÖ has already received more than one hundred enquiries) of access to qualified professional training, which exists in the majority of EU member states. As a result of this practice, independent exercise of the profession within the EU is also prevented. A case has been reported to the VDHÖ, in which a graduate dental hygienist, who wanted to accompany her husband, who moved to Austria for professional reasons, and made an enquiry to the national dentistry and oral health group (ZMK) of the Medical Council, with regard to job opportunities. It was pointed out to her in writing that she was not allowed to exercise her profession in Austria, but that she could work as a dental assistant (in which she had neither training nor experience).

The current community law of the European Union (Document 371Y0812) provides general guidelines on working out a community programme of work in the area of professional training. Amongst the aims are the "harmonisation of the level and structures of training" and the "mutual recognition of diplomas". This document also draws attention to a "lack of qualified personnel, and a severe lack of highly qualified personnel" ([www.europa.eu.int/eur-lex/de/lif/dat/1971/de\\_371Y0812.html](http://www.europa.eu.int/eur-lex/de/lif/dat/1971/de_371Y0812.html)).

Because of the lack of institutionalised training in Austria, academic exchange also has discriminatory effects. Promoting exchanges, such as the Socrates programme, is based on mutuality and enables many EU students of dental hygiene to gain international experience, from which Austrians are excluded.

### **7.2.2. Development of job opportunities**

As before, there is a significant shortfall in dental hygienists within the EU. As can be seen from Table 8 of this report, the number of DHs would have to be increased

many times over, in order to guarantee the percentage of care, as is already common in the USA or Canada. For example, Portugal currently has 150 trained DHs, and at health centres alone, there are 140 job vacancies. From Holland we hear:

*“The demand for dental hygienists is greater than the supply, so enforced unemployment is rare. The alumni-questionnaires held amongst dental hygiene graduates from the Hogeschool Holland in 1995, 1996 and 1997, showed that 90% found one or more jobs within a week. The increasing emphasis on prevention and the advancement of the functionality of the care through substitution and delegation of tasks may increase the demand for dental hygienists. Changes in the insurance system will also have an effect on the demand.”(Curriculum of the DH College, Amsterdam, 2000).*

In its national action plan for employment (NAP), the Federal Ministry for Economics and Labour of the Republic of Austria provides for the “*Creation of new jobs in the social, health and cultural sectors*”. The introduction of dental hygiene as a professional subject, would improve access to the job market through a new qualified profession, not only in Austria, but also throughout Europe.

### **7.2.3. Equal opportunities in women’s professions**

In order to be able to assess the vocational political effects, which arise for women as a result of the lack of the profession of dental hygiene in Austria, the following demographic data should be considered:

#### **Distribution of dental hygienists by sex**

Country	Women(%)	Men (%)
Denmark	95	5
England	98,5	1,5
Finland	99	1
Netherlands	99	1
Italy	90	10
Norway	99	1
Portugal	80	20
Sweden	98	2

Switzerland	98	2
Spain	99	1

Tab. 10: Distribution of dental hygienists by sex

It can be seen from table 10 that the percentage of women engaged in the profession of dental hygienists in Europe is 95,5%. From this it can be concluded that it is mainly women affected by this. The creation of this profession would, most probably, represent an initiative, which would enable women in particular, to gain access to a qualified profession for which there is great need throughout Austria and Europe, as has been demonstrated.

The national action plan for employment (NAP) also includes initiatives towards equal opportunities in the labour market. The implementation report 2000 emphasises the need to *"Increase the employment of women, reduce unemployment among women, abolish sex-specific differences in the labour market"*, since *"an analysis of the trend in sex-specific differences in the labour market shows that whilst the differences between men and women in respect of the employment and unemployment rates in 1999 have become slightly less, they do still exist"*. For this reason, the Council of Europe issued a recommendation to reduce sex-specific differences. In the *"Joint employment report 1999"*, which was adopted by the Council of Europe and the Commission, it is pointed out that in Austria, there are wide sex-related differences in some areas; particular emphasis is given to the considerable difference in the area of employment. Hence, the second recommendation to Austria of the Council of Europe states: *Austria should "pursue a comprehensive strategy to reduce sex-related differences in the employment sector, by making efforts to reconcile the different demands of job and family, amongst other things"*.

By creating the profession of dental hygiene, it might be possible to comply with this recommendation for the following reasons: A high employment rate is expected in this profession. A freelance occupation would also improve the necessary working hours flexibility necessary to combine the interests of job and family (from experience, this profession is best suited to job-sharing and part time employment) and the serious and discriminatory discrepancies in pay in dental professions could be reduced by regulating the areas of qualification and application by law.

For example, according to telephone information from the national dentistry and oral health group of the Austrian Medical Council, there has been no harmonisation of the

collective wage agreement in respect of this expanded and lucrative work since prophylaxis assistants have been employed (initial advanced training courses have been in existence for approximately 10 years). In the first and second years in the profession, income is fixed at 782.- a month and 1190,- a month in the 17<sup>th</sup> and 18<sup>th</sup> years (§ 18 of the document entitled "Collective wage agreement" of 1<sup>st</sup> March 1998, agreed by the Austrian Medical Council, the national dentistry and oral health group [ZMK] and the Austrian TUC). If we consider that 110.- is charged for prophylactic treatment and a prophylaxis assistant is capable of treating up to 30 patients a week, then the total amount for treatment is more than 13.082.- per month. The VDHÖ is aware of cases where prophylaxis assistants have had to pay for their training (costing more than 2907.-) themselves and where no salary increase was given following the increased workload. This could explain why the dentistry and oral health group [ZMK] of the Medical Council has been concerned up to now to promote the employment of prophylaxis assistants and to block that of dental hygienists.

It also says in the national action plan for employment (NAP), regarding improving the situation of women, that this should be brought about by "increasing the job opportunities of women through qualification". *"More initiatives are being set in place to improve the labour market position of women. Specific promotional measures are being taken in all areas of education for women and girls, in order to prevent the risk of unemployment through better qualification"*. It is also the aim to *"increase the employment of women, which is to be achieved by a large number of measures in a wide variety of areas"*.

It is assumed that the creation of the dental hygiene profession is one step nearer to a further objective of the NAP, that of *"reducing segregation in the labour market and improving the educational qualifications of women"*. *"Specific measures to promote women and girls in all areas of education, the exploitation of all joint finance schemes with central government, Länder and the EU"* are even planned.

Since its foundation in 1996 the VDHÖ regularly receives enquiries (written, by telephone or by the Internet), about how training to become a dental hygienist can be obtained. Many of the interested parties are A-level students looking for an interesting job, whilst others are practising prophylaxis assistants, who need better training because of the work they have to do. Training costs and the years spent

abroad, which Austrian women have to take on board because of the lack of training available, result in the desired profession not being pursued in most cases.

## **8. Summary and proposals for implementing the subject of dental hygiene in Austria**

An analysis of the development of the subject of dental hygiene in Europe shows that this is a profession, which has been successfully embodied in dentistry in many European countries, often for several decades. There is proof that in these countries, dental disorders have been reduced through a series of institutionalised health initiatives and, in accordance with the laws and rights of the EU, there is free mobility of labour and active academic exchange. So as not to be excluded from these developments, and in order to counter a series of negative effects on health and employment policy, which have been highlighted by the lack of the profession in Austria, measures should also be taken in Austria towards state recognised training for the dental hygiene profession. This training should take into account the mutual recognition of diplomas envisaged by European community law. Curriculum changes should, therefore, take account of the recognisable trends in Europe, which are currently determining the development of this profession. Only in this way can full acknowledgement and international accreditation be obtained, which is the condition under which Austrian women will also be able, in future, to participate in the movement of labour and in academic exchanges within the EU. Current community law provides instructions towards this goal (Document 363D0266 on the harmonisation of levels of training [www.europa.eu.int/eur-lex/de/lif/dat/1963/de\\_363D0266.html](http://www.europa.eu.int/eur-lex/de/lif/dat/1963/de_363D0266.html)).

For the reasons mentioned above, conditions of training for the profession of dental hygienist are A-levels; training will last at least three years, be given at universities or technical colleges and will result in the awarding of an academic diploma, which can count towards further academic studies. In all the European countries described, there is consensus that the qualifications needed for clinical work in private practice and as part of a dental team, as well as for work in research, teaching and public health, can only be obtained through a scientifically based form of education.

Suggestions for implementing the profession include some strategies, which have already proved themselves in other countries. In the first place, the professional title should be protected and foreign, state-acknowledged diplomas (as in Germany)

should be recognised. This could enable a larger number of qualified dental hygienists to be recruited for urgently needed patient care and consequently be involved in setting up the first training centres. It would also be desirable to enable some Austrian women to undergo internationally recognised training abroad through state-funded scholarships (as in the Netherlands and Portugal). These people could then also assist in designing and implementing the first training courses. It might be possible to obtain financial support through EU sponsorship programmes (Leonardo da Vinci, Erasmus) for curriculum development. Other sources could also be tapped to develop jobs and to put women on an equal employment footing. In document 363D0266 of the current community law, it specifically states, "professional training may be jointly financed" ([www.europa.eu.int/eur-lex/de/lif/dat/1963/de\\_363D0266.html](http://www.europa.eu.int/eur-lex/de/lif/dat/1963/de_363D0266.html)). It would, in any case, be difficult to understand if Austria fails to implement the dental hygiene profession for financial reasons, particularly if we consider that some countries, such as Portugal, which are poorer by EU standards, succeeded in initiating a 3-year academic training course, as long as 17 years ago.

The introduction of the dental hygiene profession is now increasingly supported in Austria by prevention-orientated dentists. The number of dental sponsorship members of the VDHÖ is rising constantly, and the demand by dentists for qualified staff can no longer be met. A petition by the VDHÖ showed that many dentists (some of whom are in high academic posts) would welcome the profession.

It would be regrettable if the permanent dental representation were to speak out a second time against acknowledging the dental hygiene profession. As has already been shown in other countries, resistance is never based on professional or scientifically-based doubts (even in the reaction of the Austrian Federal Ministry for Labour, Health and Social Affairs when questioned by the VDHÖ, dental hygienists were acknowledged as being "highly qualified"), but on unfounded financial fears for the professional status of dentists. (see Haldemann, 1988). It is to be hoped that the negative effects on health and vocational policy on the population, which – as has already been shown – came about as a result of the lack of well-founded dental hygiene training, can be removed in Austria as well.

Targeted co-operation between all the institutions, which are responsible for social health and fair working conditions, could soon lead to the creation of a quality standard in Austria, which will result in the successful prevention of caries, which will

bear international comparison. A high standard of periodontitis prevention and treatment would also make a decisive contribution towards improved general health (see De Stefano et al, 1993; Farquhar et al. 1990). Even the resulting trend towards increased social awareness of dental prevention would lead to sustained health improvements for the Austrian population.

**"The growth of the number of dental hygienists and in the number of practices that employ hygienists has redirected the public from an emergency to a preventive orientation" (Kyiak 1993, S.14)**

## BIBLIOGRAPHY

- Arge Market research Patient Survey (1995): Arge Spornitz, Wien, Stephansplatz 4
- Axelsson, P., Paulander, J., Svärdröm, G., Tollskog, G., Nordenstern, S. (1994): Comprehensive caries prevention results after 12 years. Phillip Journal 11: 94: 533-542.
- Axelsson, P., Lindhe, J. (1978): Effects of controlled oral hygiene procedures on caries and periodontal disease in adults. Journal of Clinical Periodontology 5: 133-151
- Croisier, Pierre-François (1997): Professional training: Basic training and further training. Editorial. Switzerland. Monatsschr. Zahnmed, Vol.107: 3: 181
- DeStefano F., Anda, R. F., Kahn, H. S., Williamson, D. F., Russell, C. M. (1993): Dental disease and risk of coronary heart disease and mortality. Brit. Med. Journal 306: 688-691
- Farquhar, J. W., Fortmann, S. P., Flora, J. A., Taylor, C. B., Hakell, W. L., Williams, P. T., Maccoby, N., Wood, P. D. (1990): Effects of community-wide education on cardiovascular risk factors: The Stanford Five-City Project. J. American Medical Association, 264, 359-365
- "Healthy Austria " fund (1993): Austrian dental survey of 12 year olds. Association for prophylactic health work, OÖ.
- Gluck, G. M., Morganstein, W. M. (1998): Jong´s community dental health. Mosby. St. Louis, New York, London
- Gottlieb, Bernhard (1925): Gingivitis, paradental pyorrhoea and alveolar atrophy: Clinic, aetiology, prophylaxis and therapy. Urban and Schwarzenberg. Wien, Berlin.
- Haldemann, Beat (1988): History and development of the dental hygiene profession in Switzerland with particular attention to the situation in Zurich. Juris Druck und Verlag. Zürich

Harris, N. O. und Christen, A. G. (1995): Primary Preventive Dentistry. Appleton und Lange, Norwalk, Connecticut

John, R. (1972): Developing a plaque control program. Praxis Publishing Company, Berkeley, CA

Kittner-Flemming, A.K. (2000): Licensed dental hygienist - a title protected by the state. Journal Deutscher DentalhygienikerInnen Verband e.V., 1/2000, 22

Kiyak, H. Asuman (1993): Age and culture: Influences on oral health behaviour. International Dental Journal 43; 9-1

Kocher, Thomas (1997): Periodontal diseases and systemic disorders. Department of periodontology at the dental outpatients department, Rotgerberstr. 8, 17489 Greifswald, Deutschland

Löe, H. E., Theilade, J., Jensen, S. B. (1965): Experimental gingivitis in man. Journal of Periodontology 36, 177- 187

Luciak-Donsberger, C. (1998): Skill expectations and social norms in periodontal prophylaxis. Dissertation. Basic and integration-scientific faculty of the University of Vienna

Mattila, K. J., Nieminen, M. S., Valtonen, V. V., Rasi, V. P., Kesäniemi, Y. A., Syrjälä, S. L., Jungell, P. S., Isoluoma, M., Hietaniemi, K., Jokinen, M. J., Huttunen, J. K. (1989): Association between dental health and acute myocardial infarction. Brit. Med. Journal 298: 779-781

Motley, Wilma E. (1976): Ethics, jurisprudence and history for the dental hygienist. Lea & Febiger, Philadelphia 1976

Müller, T. (1997): Technology and Pharmacy – where does this leave dental hygiene? DDHV Journal, 2/97: 8-9

Müller-Bruckschwaiger, K., Pink, E. (1994): Report 1993/94 Promoting dental health in upper Austria. Association for prophylactic health work.

Nyman, S., Lindhe, J., Rosling, B. (1977): Periodontal surgery in plaque infected dentitions. Journal of Clinical Periodontology, 4:240-249

Oral Health Country/Area Profiles (1997): WHO Division of Non-communicable Diseases/Oral health, WHO Collaborating Centre, Lund University, Sweden

ÖBIG (1996): Austrian institute for health: Dental status survey 1996

Österreicher, P. (1997). Professional image of the dental hygienist. ÖZZ. 5/97: 14-17

Paarmann, C.S., Herzog, A., Christie, C. (1990): Dental Hygiene Curriculum Model for Transition to Future Roles. Journal of Dental Education, Vol.54, No.3. 199-204

Ramfjord, S. P., Knowles, J. W., Nissle, R. R., Burgett, F. G., Shick, R. A. (1975): Results following three modalities of periodontal therapy. Journal of Periodontology 46: 522-526

Rateitschak, K. H. and E. M., Wolf, H. F. (1989): Colour atlas of dentistry: periodontology. Thieme, Stuttgart

Saxer, U. P., Mühlemann, H. R. (197): Motivation and patient information. Swiss monthly journal of dentistry 8, 905-919

Schneider, H. S. (1993): Prevention: Parental Education Leads to Preventive Dental Treatment for Patients Under the Age of Four. Journ. of Dentistry for Children. 1:33-37

Schneller, T. und Kühner, M. (1989): Patient co-operation in dentistry. Deutscher Ärzteverlag, Cologne

Schulte Stratha, R. (1998): Health and wellbeing – a privilege of the educated class? Psychologie Heute. February 1998, 10

WHO Health Programme (2000): DMFT Levels at 12 years 1996.

Woodward, M. und Walter, A. R. P. (1994): Sugar consumption and dental caries: evidence from 90 countries. British Dental Journal; 176: 297-302

World Health Statistics Annual 1995 (1996): ISBN 92 4 067950

Zinn-Zinnenburg, C., Deyssig, R., Löschnak, A., Holler, W., Piehslinger, E., Slavicek, R. (1991): The periodontal status in 18 year olds requiring positional rectification: Delimiting the high-risk group. Study by the University Hospital for Dentistry and Oral Health, Vienna and by the Ludwig Boltzmann Institute for Gerostomatology, Vienna.

### **Interviews with experts and contact addresses:**

#### Denmark:

Lone Andersen, RDH, Delegate IFDH, President Dansk Tandplejerforening, Kobenhaven, DK

Elisabeth Gregersen, RDH, Delegate IFDH, info@dansktp.dk

#### Germany:

Beate Gatermann-Strobel, RDH, SDH (U.S. and Swiss diploma), state recognition (Switzerland)

First DH to work in Germany in 1974; first dental hygiene practice in Germany 1999, Initiator of the DDHV

www.dentalhygienepraxis.de, gatermann@dentalhygienepraxis.de

Trudy Roulet-Mehrens, RDH, Delegate EUDH, President DDHV, TKRMBG@aol.com

England:

Sue Lloyd, Administrator, IFDH, suelloyd@exdentibus.demon.co.uk

Christine Pleasance, Former Delegate IFDH, Christine.Pleasance@tesco.net

Finland:

Anne Laihanen, RDH, IFDH Delegate, President Finnish Federation of Dental Hygienists, annelai@saunalahti.fi

Italy:

Irene Riccitelli-Guarrella, RDH, Treasurer EUDH, President AIDI (Italian Dental Hygienists' Association), University of Ancona  
iricguar@tin.it

Mary Rose Pincelli-Boglione, RDH, Contact IFDH, EUDH, University of Bologna, pincelliboglione@hotmail.com

The Netherlands

Marjolijn Hovius, RDH, IFDH Delegate, President Dutch Dental hygienist Association (NVM)

Head of the Hoogschool Amsterdam, M.Hovius@acta.nl

Marianne Corbey-Verheggen, RDH, President EUDH, IFDH Delegate, nvm@compuserve.com

**Curriculum Information:**

Holland

Dental Hygiene School Amsterdam, Els Breur, Secretary, e.breur.OMH@acta.nl

Norway:

Grete Eversen Øvrum, RDH, IFDH Delegate, geoevrum@online.no

Egil Sekkelsten, Dr., RDH., University of Oslo, egilsekkelsten@hotmail.com

University of Oslo, E-mail: bentheh@odont.uio.no,  
www.odont.uio.no/tannpleie/eindex.html

Portugal:

Henrique Pedro Soares Luis, RDH, Delegate IFDH, Former president of the Associacao Portuguesa de Higienistas Orais (APHO) Portuguese Association of Oral Hygienists, Current President of the Fiscal and Ethics Board, henrique.luis@netc.pt

Miguel Nobre, RDH, Secretary EUDH, Delegate IFDH, President of the Associacao Portuguesa de Higienistas Orais (APHO)  
nobre10@hotmail.com

Norma J. Wells, RDH, MPH  
Associate Professor and Director, Dental Hygiene Degree Completion Program and  
Adjunct Associate Professor of Oral Biology  
University of Washington Box 357475 , [nwells@u.washington.edu](mailto:nwells@u.washington.edu)

Sweden:

Gorel Müller, RDH, Delegate IFDH, President Sveriges Tandhygienistforening  
(SRAT), [Gorel.Muller@hig.se](mailto:Gorel.Muller@hig.se)

Kerstin Öhrn, RDH, President-Elect IFDH, Lecturer Högskolan Dalarna, Health and  
Caring Sciences, [koh@du.se](mailto:koh@du.se)

Switzerland:

Bernita Bush Gissler RDH,BS, assistant teacher, University of Bern, Department of  
Periodontology, [bbush@solnet.ch](mailto:bbush@solnet.ch)

Doris Hüsler, DDH, Delegate IFDH, EUDH, President SDHV (Swiss Dental Hygiene  
Association), [sdhv.ashd@bluewin.ch](mailto:sdhv.ashd@bluewin.ch)

Verena Steinegger, SDHV Former IFDH Delegate, completed the 1<sup>st</sup> Swiss DH  
training course  
[jvam.steinegger@bluewin.ch](mailto:jvam.steinegger@bluewin.ch)

Jean Suvan, RDH, Clinical Research Coordinator, University of Bern, School of  
Dental Medicine, [suvan@compuserve.com](mailto:suvan@compuserve.com)

Spain:

Maria del Rosario Velarde Sais, RDH, Delegate IFDH; EUDH, President HIDES  
(Spanish Dental Hygienists Association)  
Clinical Instructor, University of Valencia, [Rosario.Velarde@uv.es](mailto:Rosario.Velarde@uv.es)

**Translations from**

Spanish

Institut Eurolanguage, [eurolanguage@aon.at](mailto:eurolanguage@aon.at)

U.S.A.:

Univ. Prof. Dr. Edward J. Taggart, Department for Periodontics, University of  
California, San Francisco (UCSF)

Michele Darby, BSDH, MS, Eminent Scholar, University Professor, and Graduate  
Program Director, School of Dental Hygiene  
Old Dominion University, Norfolk, Virginia, [mdarby@odu.edu](mailto:mdarby@odu.edu), internet:  
[web.odu.edu/dental](http://web.odu.edu/dental), homepage: [web.odu.edu/mdarby](http://web.odu.edu/mdarby)

Austria:

Hyacinth Logan, RDH, Vienna, Former Vice President VDHÖ, University Dental  
Hospital, Vienna,

o. Univ. Prof. Dr. Rudolf Slavicek , University Dental Hospital, Vienna (Interview June

1997)

Brigitte Zaussinger, SDH (Swiss DH diploma), Treasurer of VDHÖ,  
[www.traunsee.com/vdhoe.htm](http://www.traunsee.com/vdhoe.htm)

**Sponsorship information:**

Leonardo da Vinci sponsoring: National agency for Austria, Alexander Köhler,  
 Schottengasse 4, A - 1010 Wien  
[info@leonardodavinci.at](mailto:info@leonardodavinci.at)

Socrates sponsoring: Martina Abi El Mona-Wallner, Office for European Educational  
 Cooperation, SOCRATES-Office, Schreyvogelgasse 2, A-1010 Vienna,  
[Wallner.soc@beb.ac.at](mailto:Wallner.soc@beb.ac.at)

**Information on collective wage agreements:**

Austria :Medical Council, national dentistry and oral health group,- ZMK, Fr.  
 Fuhrmann

Republic of Austria

Federal Ministry for Economics and Labour, implementation report 2000 on the  
 national action plan for employment (NAP)  
 AUSTRIA 1<sup>st</sup> May 2000

**Quoted EU Documents:**

Current community law

Document 371Y0812/ 21.12.98

Section containing the directory in which this document can be found:

[ 16.30 – Education and training ]

[ 05.20.30.30 – Employment promotion ]

General guidelines on working out a community programme of work in the area of  
 vocational training

Official journal No. C 081 dated 12/08/1971 p. 0005 - 0011

[www.europa.eu.int/eur-lex/de/lif/dat/1971/de\\_371Y0812.html](http://www.europa.eu.int/eur-lex/de/lif/dat/1971/de_371Y0812.html)

Current community law

Document 363D0266

Section containing the directory in which this document can be found:

[ 16.30 – Education and training ]

[ 05.20.30.30 – Employment promotion ]

63/266/EEC: Resolution of the council of 2<sup>nd</sup> April 1963 concerning the establishment  
 of general principles for the implementation of a common vocational training policy

Document issued on: 11/03/1999

[www.europa.eu.int/eur-lex/de/lif/dat/1963/de\\_363D0266.html](http://www.europa.eu.int/eur-lex/de/lif/dat/1963/de_363D0266.html)

Current community law

Document 399D0051/ 21. 12. 1998

"EUROPASS-vocational training"

"A document is to be introduced, which certifies at community level, that the holder  
 has completed one or more training courses in another member state."

Official journal No. L 017 of 22/01/1999 p. 0045 - 0050  
[www.europa.eu.int/eur-lex/de/lif/dat/1999/de\\_399D0051.html](http://www.europa.eu.int/eur-lex/de/lif/dat/1999/de_399D0051.html)).

**Relevant websites:**

ADHA (American Dental Hygienists Association): [www.adha.org/](http://www.adha.org/)

International Federation of Dental Hygienists (IFDH): [www.ifdh.org](http://www.ifdh.org)

International comparisons of independent *Dental hygiene practice* in Europe:  
[www.dentalhygienepraxis.de](http://www.dentalhygienepraxis.de)

Old Dominion University, Norfolk, Virginia: [web.odu.edu/mdarby](http://web.odu.edu/mdarby)

WHO Oral Health Statistics: [www.who.int/](http://www.who.int/)

WHO International data on the prevalence of caries:  
[www.whocollab.odont.lu.se/index.html](http://www.whocollab.odont.lu.se/index.html) WHO\_ORH\_DMFT12\_96.1.pdf

University of Oslo: Fehler! Verweisquelle konnte nicht gefunden werden.

Association of graduate dental hygienists in Austria (VDHÖ):  
[www.dentalhygienists.at](http://www.dentalhygienists.at)