Labour Dentistry: a new specialty in Dentistry

Dagmar de Paula Queluz[1]
[1]DDS, MSPH, PhD - Associate Professor - Department of Community Dentistry - Piracicaba Dental School – University of Campinas - SP - Brazil

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Abstract
Actions to promote, protect and recover the workers' health have been ensured by Law 8080/90. The aim of this study was to present Labour Dentistry as a new specialty and to reveal the context in which it should be applied. The Brazilian Federal Dentistry Council Resolution 25/2002 in 3rd article establishes the performance field for Labour Dentistry specialists are: a) Identification, evaluation and surveillance of the environmental factors that constitute risk to oral health at the work place, in any of the production phases; b) Technical advises and attention regarding health, safety, ergonomics and hygiene at work, as well as the protection towards individual equipments; and the professional must be inserted in the workers' multidisciplinary health team; c) Planning and implantation of permanent campaigns and programs for workers' education in relation to work accidents, occupational diseases and health information; d) Organization of disease and mortality statistics related to oral origins and investigation of their possible relationships with professional activities; e) Accomplishment of dental examinations for labour welfare. The conclusion is important to support the development research necessary to ratify the need for this new specialty.

Key Words:
labour, dentistry, specialty, worker's health

Correspondence to:
Dagmar de Paula Queluz
Piracicaba Dental School - UNICAMP
Av. Limeira, 901, Bairro Areião
13414 - 018 – Piracicaba – SP - Brazil
Phone: 55 - 019 – 3412 5277
Fax: 55 – 019 – 3412 5218
E-mail: dagmar@fop.unicamp.br

Introduction

Brazilian companies face new challenges that come of the reflex of the globalization in the economy. The competitiveness in the area of products and services challenges the companies to increase productivity and quality. In this scenery, the human resources are more and more valued, and the entrepreneurs use programs to improve the work conditions and the workers' health. The ergonomics, the total quality programs, quality of life in the work, actions of the worker's health team and the promotion of benefits attendances, as for instance the dental service to the employees, are some of the means used by those entrepreneurs to improve the conditions of competitiveness of the company in the globalized market. In most companies the dentist doesn't participate in the composition of worker's health team. The results of the quality of life programs in the work come from the interrelation of several factors physical, technological and social psychological that affect the company organization, being reflected in the workers' life quality and, consequently, in productivity and in quality of products and services.

It is opportune to describe a brief comment on regulation rules approved for the law 3214/78 of Labour Department Government and the subsequent norms edited by General Safety office and Medicine of the Work[1]. They are obligatory observance for the private and public companies and for the public organs of direct and indirect administration, as well as for Legislative's organs and Judiciary's organs that use employer ruled by the Consolidation of the Laws of Work. The dispositions are also applied, in what it fits, to the workers, to the entities or companies that take them the service and the representative unions of the respective professional categories. The General Safety office and Workers Health Department is the organ of Labour Department Government who is in charge of coordinating, guiding, controlling, supervising the activities related with the Safety and Medicine of the Work, and to supervise the execution of the legal precepts and regulations[2-3] .

There are 30 regulation rules (NR) and the NR4[4] is the one which: a) classify the economical activities according to the degree of occupational risk, and establishes the framing of the companies in categories. In agreement with the respective framing, the company is allowed to constitute or to negotiate, to their expenses, Engineering Specialized Safety Services and of Labour Medicine - SESMT (organized for the unions or associations of the professional categories), from private or public institutions, to give occupational attendance their employees;b) professionals involved in the specialized services, in safety and labour medicine.

The law number 11 was published in September 17, 1990. It legislates the composition of SESMT by the following labour specialists: engineer of safety, technician of safety, physician, nurse and auxiliary nurse. The SESMT has as one of their main objectives the decrease of work accidents. It doesn't count with the participation, in his team, of dentists. Nowadays, dentistry is just seen as a benefit, with the purpose of reducing the high absenteeism index due to dental problems[5-18]. However, today there are reports of work accidents whose basic cause were dental problems[19-21] .

There is a process in federal level, number 3.520/04 that will regulate the Labour Dentistry, if approved: the professional's presence will be legalized according to NR4 of Labour Department Government, that will force the companies to hire dentist according to the level of liability of the atmosphere and the number of employees.

The aim of this study was to present Labour Dentistry as a new specialty and to reveal the context in which it should be applied.

Health and Work

Work has accompanied man since his appearance on Earth. From the origin of humanity, there is the knowledge that besides social and physical intelligence, technical and physical qualifications are needed for the good practice of a job. Nogueira[22-23] points out that the study and the importance of health and the environmental diseases related to work have been underestimated for a long period.

According to Mendes[24], Hipócrates (460-376 B.C.) had already described a case of saturnine intoxication without, however, explaining the patient's work activity. More recently, in 1556, Georg Bauer (1494-1555) published the book where he dedicated a chapter to the diseases that, at the time, most commonly attacked miners. In 1567, more than a decade after the publication of this book, a study written by Paracelso (1493 - 1541) revealed the relationship between disease and work, giving special attention to intoxications caused by mercury.

The first scientific study related to labour diseases was performed in 1700. The book named "Workers´ Diseases" (1633-1714) was based on health problems and diseases related to 54 different professions. It was considered to be the precursor of labour researches and its author, Dr. Bernardino Ramazzini, is seen by many as the father of Safety and Labour Medicine. Ramazzini[25] also approached Labour Dentistry in the book named *Morbis Artificum Diatriba*, in which the author tells oral signs of work diseases. According to Ramazzini, workers involved in silver melting revealed greater incidences of teeth loss. The author also pointed out the lamentable damage that the handling of mercury caused workers, describing symptoms such as excessive salivation and throat ulcerations.

Other authors such as Thomas[26] (1917), wrought about the causes of alveolar pyorrhea, describing among other diseases, common manifestations of intoxication with lead, arsenic, hydrogen sulfite, nitro benzene, copper salts, bismuth and mercury. In 1918[27], the same author emphasized

the brilliancy of the human machine, and pointed out that more attention should be given to the body's health. The knowledge that health at work is a development principal, conducting an increase of employee production and consequently company improvement, awakens a greater commitment towards good health.

Midorikawa[28] stated that historical references of dentistry practices in large companies date since 1887, when the great western railroad in England was constructed and when the companies such as the North American Company, Ford (1916), or the Italian Company, Olivetti (1936) were created. During the XIX and XX centuries, greater investments were offered towards the health of employees and to develop social interaction among workers[29].

In 1979, Guimarães and Rocha[30-32] suggest a dentistry system developed for large, medium and small companies, which aimed to offer total assistance to employees, regarding the knowledge of basic necessities and treatment planning. The authors believed that this system would reduce the number of absences, increasing productivity. Working accidents related to dental causes would be reduced or even eliminated and the company's internal prestige would rise as well as other factors that are important for the company's development.

Garrafa[33-34] (1986) stated the objectives of Labour Dentistry as: "the study, interpretation and solution of the different oral problems that reach all the workers visualized as participants of the production process and consumption of goods, including the own workers of the health section." Garrafa detached the relevance of professional diseases and work accidents that attack the bucomaxilofacial area, insisting that dentistry must assume responsibility in the search of ideas to improve the life quality of the population.

Zhiliang et al.[35] (1987) describe the hazard of airborne fluoride pollution in 63 plants in the metallurgical industry in China was studied. Fluoride injuries to plant workers were most severe in the electrolysis works in aluminum plants and iron smelters. The incidence of fluorosis among workers was 3.2%, and the symptoms were systemic. For diagnosis, both the effects of airborne fluoride pollution and fluoride content in water must be considered, because some workers come from areas where fluoride content in water is high and fluorosis is endemic. Anti-air-pollution devices are needed to reduce the hazard of industrial fluoride pollution.

Hollister and Weintraub[36] (1993), in a literature revision study tried to relate the conditions of oral and systemic health, with life quality and economical productivity. They observed that deficient oral health in patients with rheumatic fever and transplanted organs affected systemic health. An individual's life quality can be linked to the condition of his/her oral health, since it can act as a limiting factor towards feeding and can develop into oral-facial pain, which may provoke social alterations. In relation to economic production, there is a considerable waste of timework because of equivalent reasons such as acute ear infections and headaches.

In a report about life quality and dentistry, Ferreira[37] (1997), approached the presence of dental counseling in companies and reinforced the benefits related to absenteeism decrease, improvement of employees' life quality and tax reduction. In agreement with Esteves[37] (1882), a dentist's contribution to an occupational health team is not limited to the diagnosis of chemical agents upon oral manifestations, but is also associated to the identification of pathologies that reduce the worker's immune resistance.

A new hazard information issued by the Occupational Safety and Health Administration[38] alerts dental laboratories on how to prevent exposure to beryllium, which can cause chronic beryllium disease (CBD), a debilitating and often fatal lung disease, or lung cancer. Inhaling Beryllium dust at some concentrations is extremely hazardous-sometimes deadly and we are concerned that dental lab technicians are continuing to contract the disease associated with Beryllium exposure. It is important to inform dental labs and workers of the potential hazards and offers effective methods to prevent exposure to beryllium. Under OSHA's current beryllium standard employees cannot be exposed to more than 2 micrograms of beryllium per cubic meter of air for an 8-hour time-weighted average. Recent information suggests that compliance with this exposure limit is not adequate for preventing the occurrence of CBD. The Hazard Information Bulletin calls for, to the extent feasible, the use of improved engineering controls and work practices.

Observing the importance of oral health in the working environment, it is possible to recognize the role of the dentist in workers´ health. Therefore, the Brazilian Federal Dentistry Council, since 1999 became engaged in the solid purpose of including dentistry in the Medical Control Program of Occupational Health, controlled by the General Safety office and the Workers' Health Department.

Service Provision and National Network of Integral Attention to Worker's Health

The employee when providing a service has a positive expectation towards his health, however, due to production requirements and capital generation the employer may demands more of this worker and this may lead to health problems. The relationship between "Work and Health" is a field of theoretical and practical activities, subordinated in a broad and complex manner to the relationships between Capital and Work in capitalist societies.

The National Network of Integral Attention to Worker's Health (RENAST) gathers managers, technicians, and representatives of the state and municipal health councils of the whole country to discuss ideas that allow the structuring of a national network of attendance to the worker in the

Brazilian Unique Health System (SUS). With a multi-disciplinary team, composed by physicians, nurses, psychologists and occupational therapists, the reference centers for workers' health serve as patient triage centers guaranteeing a more appropriate service. When cases were accidents or diseases are provoked by work, these will be sent to a center team, after a preliminary diagnosis, where the patient is directed to units of average or high complexity, according to the type of service required. To guarantee a closer attendance of the population, the workers' health reference centers will act in partnership with the teams of the Family Health Program[39].

The RENAST will offer total attendance to workers with formal and informal professions presenting health problems related to rural and urban work, including: surveillance actions, promotion, protection, recovery and rehabilitation of workers with diseases related to their profession; registration of all of the cases of accidents and diseases assisted at the units of the SUS; warranty on social and labour welfare; and the dissemination of the belief that work is a predominant factor related to health.

Labour Dentistry

The Labour Dentistry specialist possesses a wide performance field, which demands the capacity of a correct performance and a constant information update. Dentists' performance field in Labour Dentistry is defined by the Brazilian Federal Dentistry Council CFO-22/2001 and CFO-25/2002[40] resolutions.

RESOLUTION CFO-22/2001: TITLE I: Announcement and performance of Dentistry Specialties – CHAPTER I, - SECTION X: Labour Dentistry

Art. 30th. Labour Dentistry is the specialty that objectifies the permanent research of the compatibility between the work activity and the preservation of workers' oral health.

RESOLUTION CFO-25/2002: 3rd Article: The performance field for Labour Dentistry specialists are:

a) Identification, evaluation and surveillance of the environmental factors that constitute risk to oral health at the work place, in any of the production phases;

b) Technical advises and attention regarding health, safety, ergonomics and hygiene at work, as well as the protection towards individual equipments. The professional must be inserted in the workers' multidisciplinary health team;

c) Planning and implantation of permanent campaigns and programs for workers' education in relation to work accidents, occupational diseases and health information;

d) Organization of disease and mortality statistics related to oral origins and investigation of their possible relationships with professional activities;

e) Accomplishment of dental examinations for labour welfare.

The performance field of the specialty ranges from the accomplishment of dental examinations for labour welfare, planning of educational programs addressed to work accidents and occupational diseases, identification and surveillance of the environmental factors that constitute risks to oral health and technical advice towards safety, ergonomics and hygiene at work.

According to the Brazilian Federal Dentistry Council[40], only 114 professionals perform Labour Dentistry in Brazil. Nineteen are located in the São Paulo state, 6 in the Federal District, 21 in the Minas Gerais state, 5 in the Paraná state and 34 in the Rio de Janeiro state. Unfortunately, few people know that oral health can be seen as a factor of differentiation for some professionals at work. A saliva droplet, for instance, can be enough to electrocute an employee that works with threads of high tension

For this reason, many companies value occupational dentists, promoting the new specialty, although the Brazilian legislation does not obligate the presence of such professionals in working environment. Some entrepreneurs seek occupational dentists to highlight a social commitment with the employee. Also, for companies to obtain quality certification as OHSAS 18001 (occupational health and safety certification system, ISO 9000 (quality management system), ISO 14000 (environmental management standard) and SA 8000 (social accountability system), it is interesting to employ dentists specialized in Labour Dentistry . In Brazil, companies such as Petrobrás (a petroleum company) and CTEEP (the São Paulo Power company) have employed dentists as a preoccupation towards workers oral health. For example, if employees who work on marine platforms of Petrobrás disembark because of health problems, the result would be the creation of high expenses. Therefore to minimize the risk of such occurrence, a specialized dentist develops programs to supervise workers before they embark. In the second case, CTEEP possesses a Labour Dentistry program which has been functioning during 15 years minimizing workers´ discomfort in risky occupations.

This way it is important to promote, protect, and enhance industrial hygienists and other occupational health, safety and environmental professionals in their efforts to improve the health and well being of workers. Typical issues of concern include: emergency response planning, ergonomics/ cumulative trauma disorders, exposure and risk assessment strategies, indoor environmental quality, workplace environmental exposure levels.

Inside of the performance area of the specialty we can detach some: education[41-58], ergonomics[59], certification (ISO[60] and OSHA[38]).

Education

Considerable differences in vocational training exist among companies of varying occupational activity and company

size[55], the labour program is offered to labour training as a tool to educate trainees about occupational health and safety and the importance of a safe and healthy working environment. In general the programs offers: authoritative and reliable information; training opportunities for workers with occupational health and safety responsibilities; powerful cross-database search capabilities; access to up to date references to literature[56-58] and chemical information; easy and efficient downloading, printing, and record marking. Ideal resources are: labour training centers; labour training center libraries; labour union members with health and safety responsibilities. It is important the information on a broad range of environmental and occupational health and safety topics such as: occupational hygiene; hazardous chemicals; human health effects of substances; hazard communication; toxicology[56-58] .

Ergonomics

The specialty furthers serious consideration of knowledge about the assignment of appropriate functions for humans and machines, whether people serve as operators, maintainers, or users in the system. And, it advocates systematic use of such knowledge to achieve compatibility in the design of interactive systems of people, machines, and environments to ensure their effectiveness, safety, and ease of performance. Ergonomics (or human factors) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and other methods to design in order to optimize human well being and overall system performance.

Ergonomics in dentistry comprises all aspects of organization, management and methods of working necessary to provide effective and efficient care for patients and in such a way that a dentist experiences work satisfaction and is able to avoid health risks as a result of practicing dentistry. Dental ergonomics can be defined as: The adaptation of the working environment and methods to the dentist and his team, with respect to their physical and psychological capacity, for a healthy, safe and comfortable functioning in their professional activity. Training of dental students for practicing dentistry has become increasingly important. Not only for applying ergonomic methods of working but also because more management and social-communicative skills are required. Programs for education in dental ergonomics from different countries for practice administration were used as references by the Working group[59].

Certification

ISO 11226 in Dentistry[60] - Ergonomics - Evaluation of static working postures

For dentists and health & safety professionals the use International Standard Organization - ISO 11226 for getting rid of awkward, fatiguing postures, it is recommended to: work on fitness, create variation of postures, introduce breaks. For manufacturers of dental practice equipment: it should be noted that product liability issues may come up, raised by dentists who cannot work anymore due to musculoskeletal injuries (or raised by their insurance companies). I is recommended to: have your engineers listen to dentists, let them observe dentists and patients, hire ergonomists, etc.; focus on functionality in your designs (allow natural movements, allow free approach to the patient), besides styling; be creative/innovative as far as ergonomics in order to increase your market share (you can even earn money for dentists by improving efficiency of dental operations)

Occupational Safety & Health Administration – OSHA[38]

OSHA's mission is to assure the safety and health of America's workers by setting and enforcing standards; providing training, outreach, and education; establishing partnerships; and encouraging continual improvement in workplace safety and health. Nearly every workingman and woman in the nation comes under OSHA's jurisdiction (with some exceptions such as miners, transportation workers, many public employees, and the self-employed). Other users and recipients of OSHA services include: occupational safety and health professionals, the academic community, lawyers, journalists, and personnel of other government entities.

Dental professionals are at risk for exposure to numerous biological, chemical, environmental, physical, and psychological workplace hazards. These hazards include but are not limited to the spectrum of blood borne pathogens, pharmaceuticals and other chemical agents, human factors, ergonomic hazards, noise, vibration, and workplace violence. The following questions link to resources that provide safety and health information relevant to dentistry.

We concluded that the Labour Dentistry can be considered a new specialty. The attention given to oral health by enterprises is limited to the clinical practice, which is offered as a benefit to the worker. Unfortunately, it is still not possible to observe an integration of dentistry with occupational health. The promotion and law regulation of Labour Dentistry as an integral part of Engineering Specialized Safety Services and of Labour Medicine will value a broader vision of workers' health. This conclusion is important to support the development research necessary to ratify the need for this new specialty.

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