

Occupational Health Nursing in Brazil

Exploring the World Through International Occupational Health Programs

by Maria Helena Marziale, RN, PhD, and OiSaeng Hong, RN, PhD

The next International Commission on Occupational Health (ICOH) Congress will be a celebration of its 100th anniversary, held in Milan, Italy from June 11 to 16, 2006. With significant improvements in the understanding of occupational health at the international level, it is hoped that all occupational health professionals throughout the world can celebrate 100 years of progress and accomplishments at this Congress. With this goal, the AAOHN Journal has been running a special series of articles focusing on "Exploring the World Through International Occupational Health Programs" organized by OiSaeng Hong, PhD, RN, Assistant Professor and Director, Occupational Health Nursing Program, Division of Health Promotion and Risk Reduction, School of Nursing, University of Michigan, Ann Arbor, Michigan. This is the fourth article of the series.

Occupational health nurses in developing and newly developed countries, such as Brazil, share common professional goals of protecting employees from occupational injuries and diseases and promoting safety and health at the workplace (Hong, 2003). However, recent reports by international nurses have shown significant differences among countries in their working conditions, social and economic status, regulations and laws in occupational health and safety, and training and education programs for occupational health and safety professionals, including occupational health nurses (Hong, 2004).

Brazil is a recently industrialized country experiencing rapid social and economic development. Possessing vast natural resources and a large labor pool, Brazil's economy outweighs that of all other Latin American countries. In fact, Brazil is currently considered South America's leading economic power and a regional leader. Brazil faces a number of social, political, and economic issues, which have a negative effect on the population's health, work, and living conditions. With rapid industrial development and agricultural growth, Brazil has recognized the importance of occupational health and made some progress in the field. Hence, Brazil is expanding its presence in international occupational health.

In 2003, Brazil hosted the 27th International Commission of Occupational Health (ICOH) Congress in Iguassu Falls. This was only the second ICOH Congress

held in Latin America; the first was the 1972 ICOH Congress in Buenos Aires, Argentina. Through the successful organization of the 27th ICOH, Brazil demonstrated its commitment to occupational health (www.icoh.org.sg/reports/min_2ga_iguassu.html). Although Brazil has increased its visibility in international occupational health, occupational health nursing in Brazil is still considered a young field, as it is in other newly developed or developing countries.

To better understand the roles and functions of occupational health nurses in Brazil, this article contains a brief overview of demographic and socioeconomic characteristics, the structure of the Brazilian health system, occupational health regulations, and major occupational health problems. The authors also describe the delivery of occupational health nursing services; education for occupational health nurses; and research in occupational health nursing, along with a discussion of the future of occupational health nursing practice, education, and research in Brazil.

OVERVIEW OF BRAZIL

Brazil, located in eastern South America, is the largest and most populous country in South America, encompassing nearly half the continent. Spanning a vast area—more than 8.5 million square kilometers—between the Andes and the Atlantic Ocean, Brazil is divided into 26 states and a Federal District. Brazil shares common boundaries with all the other countries in South America except Chile and Ecuador. Brazil's size is slightly smaller than the United States with a population of more than 170 million, with 2 million living in the capital city of Brasília.

Brazil was under the jurisdiction of Portugal for three centuries before gaining independence in 1822. Although

ABOUT THE AUTHORS

Dr. Marziale is Assistant Professor, University of Sao Paulo, Ribeirao Preto School of Nursing, Ribeirao Preto, Sao Paulo, Brazil. Dr. Hong is Assistant Professor and Director, Occupational Health Nursing Program, University of Michigan, School of Nursing, Ann Arbor, MI.

The IRP concentrated on providing health care to workers in certain professional categories and their families, usually covered by welfare protection.

Portuguese is the official language, Spanish, English, and French are also widely spoken. The majority of the population (70%) is Roman Catholic, but a significant minority belongs to various cults or practices Indian animism (Médice, 2004). Brazil's climate is mostly tropical, but temperate in the country's southern region.

Until the early 1980s, demographic census showed the Brazilian population was predominantly young. The availability of contraceptives has resulted in decreased births, reflected in the reduced number of young individuals. With fewer births, the average age for Brazilians is higher (Instituto Brasileiro de Geografia e Estatística [IBGE], 2004). The current life expectancy is 66 years for men and 73 years for women (World Health Organization, 2005). Brazil is currently the fifth most populous country in the world after China, India, the United States, and Indonesia, surpassing the mark of 178 million with 62% younger than age 29 (IBGE, 2004).

Brazil's population growth, high throughout the first half of the 20th century, has decreased significantly since 1970 (Médice, 2004). This was largely because of economic modernization and a dramatic urbanization process. In 1980, for example, 67% of the population lived in cities; by 2000 that number had increased to more than 81% (Médice, 2004).

The Brazilian labor force is estimated at 55 million individuals, with women composing approximately one third of the total. Approximately 26% of working individuals are engaged in agriculture, 51% in services, and 23% in manufacturing and construction. Trade unions, of which many Brazilians are members, are divided into national confederations (Médice, 2004).

Named after brazil-wood (pau-brasil), a local tree, Brazil is home to both extensive agricultural lands and rain forests. Major industries include textiles, shoes, chemicals, lumber, iron ore, tin, steel, aircraft, motor vehicles and parts, arms, soybeans, orange juice, beef, chicken, coffee, and sugar.

Brazil has strong regional differences in terms of socioeconomic, educational, and health status. For example, the northeast region has illness patterns very similar to those observed in the poorest and most underdeveloped countries throughout Africa, Asia, and Latin America. On the other hand, states in the south, southeast, and Federal District have healthier living conditions comparable to those in many developed countries. Unequal income distribution remains a pressing problem.

HEALTH AND THE HEALTH CARE SYSTEM IN BRAZIL

Health indicators in Brazil have shown great progress in the nation's health status during the past 50 years. The average

life expectancy of Brazilians has increased considerably. Infant mortality rates, still higher than the rest of the world and the Latin America average, are almost four times lower than they were at the beginning of the 1940s (Médice, 2004). Substantial changes have occurred in morbidity and mortality. Previously, the primary causes of death were communicable diseases. Currently, with increased urbanization, the causes have shifted to chronic degenerative diseases (e.g., cardiovascular, cancer) and external factors (e.g., accidents, homicides).

The structure of the national health system in Brazil has also changed during the past 30 years. Until the mid-1960s, there was a division of labor between the Ministry of Health and former Institutes of Retirement and Pensions (IRP). The former offered community public health, such as vaccination for infectious disease's control, to provide basic health care for the low-income population in the regions where the government was unable to offer better quality service. The IRP concentrated on providing health care to workers in certain professional categories and their families, usually covered by welfare protection.

Near the end of the 1960s, there was a growing trend toward the expansion of health care coverage for the Brazilian population by the health system. In 1967, the former IRPs were brought together as the National Social Welfare Institute (Instituto Nacional de Previdência Social—INPS). For health care purposes, this included all workers with an approved work permit and the self-employed who wished to contribute to social welfare (Médice, 2004).

In 1976, the National Medical Care for Social Welfare Institute (Instituto Nacional de Assistência Médica da Previdência Social—INAMPS) was created as the body responsible for health care to the workers and their family members. During the 1970s and 1980s, strategies were designed and implemented creating decentralized links to programs, expanding coverage to non-contributing population segments (e.g., rural and poor individuals). The Constitution of 1988 instituted the Single Health System (Sistema Único de Saúde—SUS), a universal system providing access to health care services for the entire Brazilian population. This SUS is similar to traditional systems of social welfare existing in European countries (Almeida, Travassos, Porto, & Labra, 2000).

The Brazilian health system, however, still has some issues to resolve. The Brazilian government's funding of the health sector has been insufficient in achieving the goals of universality, completeness, and fairness. In general, the sector's financial effort has been badly mismanaged, and money and resources allocated for needy populations have not reached intended recipients. Consequently, serious deficits and coverage gaps in the Brazilian health system exist.

Beginning in the early 1990s, a serious institutional and financial crisis occurred in the Brazilian health sector, resulting in poor quality and insufficient coverage of citizens by the public health system. Additionally, the SUS became the primary health system for low-income individuals, whereas private supplementary health care systems became popular among the middle- and upper-income classes. These systems currently cover approximately 35 million individuals, notably workers employed in larger firms and middle- and upper-class families (Silva, 2003).

In spite of being a government financed health system, insurance payment (i.e., System of Authorization of Hospitalization) has allowed the structure of health services in Brazil to be predominantly private. A large portion of health care facilities in Brazil belong to the private sector and small-size clinics (e.g., health units, health centers) remain in the public sector, particularly in the poorer regions of the country (Médice, 2004).

In its early stage of operation, the SUS did not show satisfactory results because the system was undergoing reforms by the Ministry of Health. The purpose of these reforms was to decentralize the system, increasing the autonomy of states and municipalities for organizing health service structures appropriate to their circumstances (Silva, 2003).

The changes were also aimed at defining health priorities, balancing the major problems of the population alongside the provision of information systems, which would make outcomes and expenditures more transparent. Many of the public and private hospitals in Brazil do not have computer systems to obtain financial and accounting data on the costs of the most frequent health care procedures. The reforms must still be based on new administration and management processes. These reforms will allow greater autonomy for the hospitals and health service networks in personnel management and access to supplies.

The Ministry of Health and the federal government—in partnership with the states and municipalities—still seek new forms of decentralization to enable the Brazilian health system to achieve greater efficiency and the objectives of universal coverage and equality. The main challenge is to administer scant resources appropriately so needs are met, especially for the poorest families.

OCCUPATIONAL HEALTH POLICIES AND REGULATIONS

Since the implementation of the Federal Constitution of 1988, and with the approval of Acts 8080 and 1990 (i.e., the Health Organic Law [Brazilian Ministry of Health, 1990]), health system reform has taken place in Brazil, and the SUS became responsible for the legal attribution over work-related, health-disease processes. Since then, the Ministry of Health has formulated a National Policy of Occupational Health.

In the organizational structure of the Ministry of Health, occupational health was incorporated at a central level to the Secretariat of Sanitary Surveillance, and the coordination of occupational health was linked to the Secretariat of Health Assistance. Occupational health is organized, in each of the 26 Brazilian states and the Federal District, in coordination with groups, divisions, or centers located at the municipal secretariats as Programs of Reference in Occupational Health in Public Service (Brazilian Ministry of Health, 1998).

The government has recently adopted the tripartite institutional model to discuss capital and work relations. In occupational health and safety, a tripartite commission was created, composed of government, syndicates, and business representatives. This commission revised regulations that were more than 20 years old, created during the military regime, and regulated by occupational health and

safety (Sato, de Castro Lacaz, & Bernardo, 2004). The commission also studies the ongoing integration process in South America. This process has brought forth new occupational health and safety issues such as an increase in the number of workers, how products are transported, and a trend of working simultaneously throughout countries within the economic bloc (i.e., Argentina, Brazil, Uruguay, Paraguay) through company branches. These issues result in the need to change occupational health and safety legislation, and to develop a comprehensive operations plan (Parro, 1999).

Newly adopted policies have added some favorable points and have attended to many unresolved problems. By extending public and occupational health programs in municipalities, the political and administrative decentralization process has been shown to be effective. Nonetheless, barriers remain because of the lack of efficiency in financial transfers and budget commitments by the union, states, and counties with health policies, especially occupational health. The service quality in the country is unequal and it is difficult to access services. Inefficient surveillance of work environments and the under-reporting of occupational accidents continue to be issues resulting from the current notification system.

MAJOR OCCUPATIONAL HEALTH PROBLEMS IN BRAZIL

For many years, Brazil has been ranked among the countries with the highest number of occupational accidents. From 1986 to 1996 there were more than 7 million occupational accidents, which lead to 124,000 occupation-related illnesses and approximately 49,000 deaths (Brazilian National Health Council, 2003). Currently, government reports show that these rates have dropped. However, the reasons for this decrease could be related to associated factors, such as accidents and workers not appropriately registered or given surveillance by the government.

Among the occupational health problems in the country, occupational accidents and illnesses are the most widely reported. The available information shows that the incorporation of new technologies and management methods in the work process positively modifies the profile of employee injury and illness. Currently, there is a high incidence of repetitive strain injuries (RSI) and cumulative trauma disorders (CTD); cancers; “under characterized” forms of illness such as stress, physical, and mental fatigue; and other expressions of work-related distress. These new forms of illness co-exist with occupational diseases, such as silicosis and intoxication by heavy metals and pesticides (agrototoxic) (Mendes, 2003).

Safe and Healthy Use of Technology

Following the process of globalization, there was an exchange of various kinds of technology:

- New industries.
- Technical services.
- Hardware and software.
- Specialists and consultants for local staff training.
- Financing of industrialization or infrastructure projects.

This technology exchange was not accompanied by a concern for worker safety and health. Importing coun-

tries often have few occupational health and safety laws, if any. Therefore, exporting countries must be the initial source of laws and other information relevant to the safe and healthy use of the technology being exported. If this integration among exporting and importing countries does not occur, the worker's safety and health is eventually negatively effected (Moura, 1993).

Regional Problems

Regional problems in the country's southeast area include technological adaptation. In the north and northeast regions, problems include slavery, child labor, and other degrading forms of human exploitation. Slavery was detected in the states of Pará, Maranhão, and Mato Grosso, although it is also present in other areas of the country. These areas are characterized by the destruction of native forests for agricultural activities, such as pasture for cattle and fields for growing crops. Workers from distant regions are hired to provide services and build workplaces. These workers receive proposals that offer proper work conditions, transportation, food, and lodging. Unfortunately, such promises are rarely kept, and after the workers begin their work activities, they already have debts related to the purchase of work equipment, in addition to paying for transportation, food, and lodging. This marks the beginning of a debt that the worker must repay. When workers attempt to escape, they are severely beaten or killed (ILO, 2004).

Slavery

Despite the abolition of slavery in Brazil more than 100 years ago, the country continues to struggle with what remains of the exploitation of laborers. Contemporary slavery is considered clandestine and is marked by authoritarianism, corruption, social segregation, clientage, and disrespect for human rights. According to the calculations made by the Pastoral Commission for the Reallocation of Land, there are 25,000 individuals in Brazil who are subjugated to analogous conditions and slave labor (ILO, 2004). Data show severe violation of human rights, embarrassing not only to Brazilians, but to the international community as well. As a result, the Brazilian government implemented the National Plan for the Eradication of Slave Work in 2003, which presents measures for the executive, legislative, and judiciary branches of government, entities of civil society, to undertake (ILO, 2004).

Child Labor

For many years, child labor in Brazil was treated as a consequence of poverty in some instances, and as a solution to ease its effects in others. Brazilian society agreed to accept the idea that children and adolescents of the less-favored classes could learn a profession to assist with the family income and avoid delinquency. The educational policy, which until recently has focused mainly on the maintenance of privileges, contributed to the cycle of social dissimilarity. However, much has been done since the 1980s to change this situation. In 1992, child labor was included in the national agenda of social and economic policies.

According to national legislation, child labor is defined as work conducted by any person younger than age

16. However, 14-year-olds are allowed to work, provided they are "apprentices." Teenagers ages 16 to 18 are prohibited from performing work activities that are insalubrious, dangerous, or arduous; that occur during nocturnal shifts; that involve heavy loads or long shifts; and that are performed at places that may harm the child's psychic, moral, and social development (Schwartzman, 2001).

Because child labor is rooted in rigid cultural values, education is guaranteed to many children. Thus, only the defense of child and adolescent rights, by means of an integrated national action, is capable of mobilizing the whole society to combat child labor and protect the child and adolescent population against any type of negligence, exploitation, violence, cruelty, and oppression (Schwartzman, 2001).

Other Problems

There are other problematic issues relevant to the Brazilian socioeconomic and political arenas as well. These include the growing rate of unemployment, limited access to formal work markets which have become more and more selective, leading to work force outsourcing and temporary employment.

OCCUPATIONAL HEALTH PROGRAMS IN BRAZIL

Although occupational health programs linked to the Brazilian SUS are being implemented, the goal for 2004 was to have 130 Centers of Reference on Occupational Health working in the country. These programs compose the National Network of Occupational Health—RENAST (Rede Nacional de Saúde do Trabalhador), which provides full assistance to workers, of both formal and informal markets, with problems related to rural and urban work. In some states, programs have been widely acknowledged as important to communities since the late 1970s, either because of surveillance or the assistance given to problems in work processes and work environment (Brazilian Ministry of Health, 2002).

According to the Brazilian Ministry of Health (1998), full assistance for workers' health includes assistance with recovery from injuries, prevention, and health promotion. Emphasis is directed to individual actions and collective actions, surveillance, and acknowledging that injuries are preventable.

According to the Brazilian National Health Council (2003), full assistance has been organized at RENAST, and includes:

- Surveillance in workers' health.
- Workers' health promotion and education.
- Regulation and control of occupational health services in companies.
- National, macro-regional, state, regional, and municipal levels of public intervention.
- Inter-sector network for health assistance (i.e., basic assistance and family health programs through the network of centers of reference in workers' health, and the network of medium and high complexity assistance).

The State and Regional Centers of Reference in Occupational Health (CROH) has a role in the implementation, organization, and structuring of medium- and high-com-

plexity assistance related to health problems such as those presented by the Centers of some Brazilian States. However, it must be clear that this relationship does not involve occupational health problems. Following is a list of some health problems; a more complete list can be found in the Brazilian Ministry of Health (1999) Law No. 1.339.

- Asbestosis.
- Pneumoconiosis.
- Occupational cancer.
- Occupational dermatosis.
- Auto-immunity disorders.
- Mutagenicity and teratogenicity.
- Health problems related to shiftwork.
- Chronic exposure to organic solvents.
- Chronic intoxication by heavy metals.
- Injuries caused by electromagnetic fields.
- Injuries caused by pesticides (agrotoxicity).
- Injuries caused by exposure to excessive heat.
- Health problems caused by ionizing radiation.
- Mental disorders effected by work organization.
- Auditory and non-auditory effects caused by noise.
- Repetitive motion injuries/cumulative trauma disorder.
- Injuries caused by exposure to biological agents including viruses, bacteria, and fungi.
- Work-related neuro-physiological disorders (e.g., stress, depression, burnout, other diseases related to work-related mental and behavioral disorders).

The São Paulo State Centers of Reference on Occupational Health, along with the Occupational Health Division of the State's Center for Sanitary Surveillance, supports occupational health programs in 25 cities with significant surveillance resolutions in cooperation with the Ministry of Labor and universities. The Rio de Janeiro State Occupational Health Program has advanced social control and developed strong relationships with the Osvaldo Cruz Institute (one of Brazil's most important centers for epidemiological research) for research studies. The Bahia State Occupational Health Center focuses on the consolidation of an information system about occupational accidents and illnesses. In Minas Gerais State, the occupational health program is being used by municipalities and integrated into universities. In Pará State, the program is marked by the deficiency of surveillance. Despite the high amount of occupational accidents, there is not an effective surveillance program, and the service to workers is limited only to health assistance (Frias, 1999).

Success has been noted, especially in surveillance of work environments, development of research studies, training of workers through graduate courses, and mediation of collective negotiations between workers' unions. However, there have been no incentives or recognition, thus the programs have been marked by a lack of human and financial resources and a lack of prioritized occupational health issues among other serious public health problems that have affected the country (e.g., AIDS, dengue fever, hospital infections).

OCCUPATIONAL HEALTH NURSING

The development of modern nursing in Brazil began with the technical cooperation mission sponsored by the Rockefeller

Intense social processes, such as workers' strikes and a greater insertion in politics, in addition to the evolution of the health concept, brought changes in the work-health relationship in occupational health.

Foundation and directed by Ethel Parson in 1921. Nursing in Brazil has advanced during the past several decades and is currently a profession composed of various levels of practitioners. Registered nurses with university degrees represent 12.6% of nursing professionals in Brazil; nursing technicians with high school diplomas and technical training compose 15.2% of nursing staff; nursing auxiliaries with fundamental school education and professional qualifications represent 64% of nursing staff; and nursing aids are approximately 8.1% of the nursing staff. Currently, nurses represent 56% of all health care workers in Brazil (Piepier & Caliri, 2002).

Before 1959, nursing in Brazil had no legal involvement in the protection of workers, although many nurses had worked within the context of occupational health since the 1940s. At that time, the International Labor Organization (ILO), by means of Resolution 112, stipulated that occupational services be obligatory within companies. According to this resolution, the term occupational health service is the service organized in workplaces to:

- Ensure workers' protection against all work-related risks that may affect health.
- Contribute to the establishment and maintenance of the highest possible level of workers' physical and mental welfare.
- Contribute to workers' physical and mental adaptation, especially in adapting work to workers by placing them in work positions that correspond to their aptitudes.

Because Brazil did not sign this ILO resolution, it was not until 1972 that Nursing Aid Professionals were allowed to work in occupational health and safety.

In 1975, the nursing professional was legally included in the professional team (i.e., from this date Brazilian legislation states that enterprises/companies must hire nurse professionals to form the occupational health and safety team). From 1972 to 1975 only the nursing aid professionals worked in such teams, with no supervision by a nurse professional (Robazzi & Marziale, 1999b). Since then, nursing professionals have been prepared through specialized courses in occupational health nursing to work in this area. Occupational health nurse professionals perform activities related to hygiene, occupational safety and health, industrial hygiene, ergonomics, and incorporated multi-causality theory in which multiple risk factors are considered in the etiology of disease (Robazzi & Marziale, 1999b).

Intense social processes, such as workers' strikes and a greater insertion in politics, in addition to the evolution of the health concept, brought changes in the work-health relationship in occupational health. Occupational health

practice aims to break the causal link between disease and a specific agent, or group of risk factors in the work environment. The occupational health model focuses on professional assistance, within the context of the workplace at a specific, historical moment to improve health, work, and life conditions of the workers, and consequently the company (Robazzi & Marziale, 1999a). Occupational health nurses must maintain the efficacy of professional practice and related activities and seek to assist workers within the health, work, and life context at a specific historical moment with the aim to promote, maintain, or recover health. As a result, occupational health nurse professionals have the knowledge and skills to provide preventive and educational measures to workers as well as plan, organize, direct, and control actions in occupational health and participate in practice, education, and research activities in the area.

Unfortunately, the actual activities performed by many occupational nurses in Brazil are still not compatible with the health promotion model or the prevention of disease and accidents with a focus on the individual, family, and community. There are obstacles to initiating preventive measures because the employers' philosophy focuses mainly on curative measures, impeding the occupational health nurse from effectively assisting workers (Douglas, Monteiro, & Nogueira, 1998).

Assistance measures are far more prevalent than preventive measures. Because of legislation that established the mandatory employment of an occupational health nurse only in institutions with more than 3,501 employees and according to the company's risk level, nurses have been restricted to specific aspects of care (Douglas et al., 1998).

The Norm NR4 (Legislation Manuals, 2004), established the formation of the Specialized Service in Safety Engineering and Occupational Health in companies and determined these services' dimensions based on the number of employees and the risks from the main work activities. Risk classification ranges from Level 4 (major risk) to Level 1 (minor risk). The following are some examples of activities classified by risk levels:

- Risk Level 4: Mineral/vegetal extractions; iron and steel industry work.
- Risk Level 3: Medical, hospital, and laboratorial services; mechanical, textile, and chemical industry work.
- Risk Level 2: Laundromat operation, teaching, physical therapy, and rehabilitation services.
- Risk Level 1: Marketing and propaganda work, business administration, financial holding companies.

A commission of government, syndicate, and business representatives who intend to reform the law are analyzing the current legislation regulating the composition of the multi-professional occupational health and safety team. In this respect, there is an effort by the National Association of Occupational Nursing (ANENT) of the Federal Nursing Council (COFEN), and Regional Nursing Councils (COREN) to determine if nurse professionals specializing in occupational health nursing should work in more institutions. (The ANENT was established in 1988 and has more than 1,000 members from different regions of Brazil. It is part of the Inter-

national Committee of Occupational Health [ICOH]). This change could correct the current situation in which nursing aids work without the supervision of a nursing professional; and which is in discordance with the Federal Law 7.498/86 that regulates the work of the nursing professional in Brazil (COFEN, 1995).

EDUCATION FOR OCCUPATIONAL HEALTH NURSES

Some nursing schools in Brazil offer content in occupational health as part of the undergraduate curriculum. The content focuses on the prevention of occupational health and safety risks for nursing professionals and factors associated with work-health disease. However, most programs do not have specific occupational health content in their curricula.

The education of occupational health nurses is usually through specialized courses in occupational health nursing and related sciences. This curriculum follows the recommendations of ANENT, which requires a minimum of 600 class hours for specialization. Such programs are offered by public and private universities, responsible for the education of specialist nurses in occupational health and safety services.

Nurses with master's or doctoral degrees in occupational health nursing, or other areas of occupational health, receive their title through graduate courses in which they are prepared for research and education. The occupational health nursing field is emerging in Brazil.

In many nursing schools, occupational risks for health professionals, especially nurses, are discussed, along with courses in public health, nursing instruments, and nursing fundamentals. The content is focused mainly on biological risks. Few nursing graduate curricula offer specific concentrations in occupational health nursing. These programs present issues related to national policies of workers' health, preventive measures, the occurrence of occupational accidents and injuries, and occupational health nursing, including its legal aspects. The specific actions of an occupational health nurse professional are offered only in specialized graduate courses.

The Ribeirão Preto School of Nursing at the University of São Paulo is a World Health Organization Collaborating Center for Nursing Research Development. Its mission is to provide education for Brazilian and foreign researchers. Hence, the graduate program at the Ribeirão Preto School of Nursing has produced an impressive number of professionals with master's and doctoral degrees in occupational health nursing from many Brazilian states, and countries such as Argentina, Chile, and Angola. According to recent data, 30 master's theses and 15 doctoral dissertations in occupational health nursing have been completed (Almeida, Robazzi, & Scochi, 2004).

This research field is of interest to other programs such as the Interunit Doctoral Programme in Nursing, established between the Ribeirão Preto School of Nursing and the São Paulo School of Nursing, both of the University of São Paulo; The São Paulo Nursing School Graduate Programme; The Nursing Department Graduate Programme of the University of Campinas; The Rio de Janeiro State University Graduation Programme; and

The Santa Catarina Federal University Programme. Research production has had an effect within nursing and occupational health communities and has helped improve working conditions for nursing teams, physicians, dentists, laboratory staff, bankers, civil construction workers, rural workers, urban cleaning workers, telephone operators, teachers, and ironsmiths.

OCCUPATIONAL HEALTH NURSING RESEARCH

Nursing research has played a significant role in occupational health practice, for example, by contributing to the modification of working conditions for many workers. However, there is still much to be changed.

Through bibliographic databases related to occupational health publications, such as Medline (Mundelein, IL), Lilacs (Latin American and Caribbean Health Science Literature) (São Paulo, Brasil), Scielo collection (São Paulo, Brasil), and Journal Citation Reports (Thomson Scientific, Philadelphia, PA) from 1990 to 2003, the author found that most researchers investigated factors related to health professionals' work activities. The searches also showed an impressive number of investigations related to occupational illnesses and injuries among nursing professionals, especially those caused by exposure to biologic substances for the transmission of diseases such as hepatitis, HIV, and tuberculosis. Ergonomic risks in hospitals and health units including shiftwork, body postures, work rhythm, and communication have also been investigated.

Other studies have analyzed how occupational accidents are reported, including the factors associated with under-reporting, prevention strategies, and psychosocial risk factors associated with nursing professionals' stress and mental fatigue (Camelo & Angerami, 2004; de Barros, de Humerez, Fakh, & Michel, 2003; Maia, 1999; Marziale & Rozestraten, 1995; Meirelles, Zeitoune, & Gollner, 2003).

In 1990, Moreno and Monteiro (2003), reported that 332 research articles about occupational safety and health among nurses had been published in scientific journals; indexed in databases such as Medline and Lilacs; and focused on transmittable diseases, ergonomic factors, psychosocial and chemical risks, occupational accidents, and prevention programs. The author found that occupational health nurses have timidly investigated important and frequent problems that affect the Brazilian worker such as child labor, slave labor, worksite violence, non-occupational incidents affecting workers, and how workers adapt to changes in the workplace.

CONCLUSION

Although occupational health nurses have validated their roles within the multidisciplinary team working to protect workers' health and safety, more direct action is needed to establish an ideal model of occupational health practice. To realize this, it is necessary to review Brazilian legislation.

The number of occupational health nurses working in companies has increased. Therefore, a commensurate increase in the exchange of information

IN SUMMARY

Occupational Health Nursing in Brazil

Exploring the World

Through International Occupational Health Programs

Marziale, M.H., & Hong, O.

AAOHN Journal 2005; 53(8), 345-352.

- 1 Brazil's recent industrialization has led to the recognition of occupational health nursing as an important, emerging field.
- 2 Major occupational health concerns in Brazil include occupational illness and accidents, slavery, and child labor.
- 3 Legislation must be reformed to allow for the expansion of occupational health practice to include preventive measures as well as the assistance measures currently seen in Brazilian occupational health.

among national and international health professionals must occur. In addition, more active participation by nurses in the decision-making process, more support for advanced degree programs, and an increase in occupational health nursing research will support an equal role for nurses in the occupational setting. New work profiles, caused by the process of globalization, demand new strategies for preventive actions to maintain the quality of life within work environments in the third millennium.

New technologies bring unknown risks to workers. Occupational health nurses must implement new educational strategies to prepare workers for and promote workers' adaptation to this new workplace.

Occupation health nursing in Brazil must be strengthened. Arduous work conditions could be improved through collaborations and partnerships with international organizations, agencies, universities, and national and international professional associations.

For the advancement of education, practice, and research in the area of occupational health nursing in Brazil, the author initiated international collaboration between University of Sao Paulo—Ribeirão Preto School of Nursing and University of Michigan School of Nursing. Initial collaboration efforts include:

- Establishing research partnerships for research projects.
- Student and faculty exchange programs for education and practice.
- Sharing information on graduate curricula, research findings, and scientific conferences.
- Brazilian occupational health nursing faculty and graduate students' research education at the University of Michigan campus.

In addition to occupational health nursing faculty and students, the author believes the multidisciplinary faculty and student body at the University of Michigan Center for Occupational Health and Safety Engineering funded by the National Institute for Occupational Safety and Health will greatly contribute to this initiative.

REFERENCES

- Almeida, C., Travassos, C., Porto, S., & Labra, M.E. (2000). Health sector reform in Brazil: A case study of inequity. *International Journal of Health Services*, 30(1), 129-162.
- Almeida, M.C., Robazzi, M.L., & Scochi, C.G. (2004). Perfil da demanda dos alunos da pós-graduação stricto sensu da Escola de Enfermagem de Ribeirão Preto, da Universidade de São Paulo [Profile of the demand for stricto sensu graduate programs offered by the University of São Paulo at Ribeirão Preto College of Nursing]. *Revista Latino Americano Enfermagem*, 12(2), 153-161.
- Borsset, T., Larranaga, O., & Meir, F.R. (2000). Descentralization of health systems in Latin America. *Pan American Journal of Public Health*, 8(1/2), 84-92.
- Brazilian Ministry of Health. (1990). *Organic health law 8080*. Act, No. 2 of 1990. Pretoria: Government Printers.
- Brazilian Ministry of Health. (1998). *Approval of the normative instruction for workers' health surveillance in the Single Health System*. Act, No. 3.120 of 1998. Pretoria: Government Printers.
- Brazilian Ministry of Health. (1999). *About the structuring of the national network for integral attention to worker's health in the Single Health System*. Portaria, nº 1.339, de 18 de Novembro 1999. Retrieved July 7, 2005, from <http://dtr2001.saude.gov.br/sas/POR-TARIAS/Port2002/Gm/GM-1679.htm>
- Brazilian Ministry of Health. (2002). *National network of workers' full health assistance in the Single Health System*. Act, No. 1679 of 2002. Pretoria: Government Printers.
- Brazilian National Health Council. (2003). *Conselho Nacional da Saúde: Acidentes de trabalho no Brasil: Números alarmantes* [Occupational accidents in Brazil: Alarming numbers]. Retrieved June 2, 2005, from www.opas.org.br/sausedotrabalhador/arquivos/Sala178.pdf
- Camelo, S.H., & Angerami, E.L. (2004). Saporiti Sintomas de estresse nos trabalhadores atuantes em cinco núcleos de saúde da família [Stress symptoms in workers of five family health centers]. *Revista Latino Americano Enfermagem*, 12(1), 14-21.
- Conselho Federal de Enfermagem (COFEN) [Federal Nursing Council]. (1995). *Nursing profession legislation*. Act 185 of 1995. Retrieved July 7, 2005, from www.corensp.org.br/resolucoes/resolucoes.html
- de Barros, A.L., de Humerez, D.C., Fakh, F.T., & Michel, J.R. (2003). Situações geradoras de ansiedade e estratégias para seu controle entre enfermeiras: estudo preliminar [Anxiety generating situations among nurses and strategies to control it: Preliminary study]. *Revista Latino Americano Enfermagem*, 11(5), 585-592.
- Douglas, J.L., Monteiro, M.S., & Nogueira, M. (1998). Considerations about occupational nursing in Brazil. *Revista Brasileira de Saúde Ocupacional*, 68(17), 43-48.
- Frias, C.A., Jr. (1999). *Workers' health in Maranhão: A current view and an acting proposal*. Unpublished master's thesis, Fundação Oswaldo Cruz, Escola Nacional de Saúde Pública, São Paulo, Brazil.
- Hong, O. (2003). Guest editorial: The globalization of occupational health nursing: Advancing education, practice, and research. *AAOHN Journal*, 51(2), 54.
- Hong, O. (2004). Guest editorial: International perspectives: Exploring the world through international occupational health programs. *AAOHN Journal*, 51(5), 191-192.
- International Labour Organization (ILO). (2004). *Escritório Brasil: National plan for the eradication of slave work*. Retrieved July 7, 2005, from www.ilo.org/public/portugue/region/ampro/brasil/ibesc_english/index.htm
- Instituto Brasileiro de Geografia e Estatística (IBGE) [Brazilian Institute of Geography and Statistics]. (2004). *Demographic census—2000: General characteristics of the population, Results of the sample*. Retrieved July 7, 2005, from www.ibge.gov.br/
- Legislation Manuals. (2004). *Occupational safety and health*. São Paulo, Brazil: Editora Atlas.
- Maia, S.C. (1999). *Análise ergonômica do trabalho de enfermagem na unidade de terapia intensiva: Proposta para minimização do estresse melhoria da qualidade de vida do trabalhador* [An ergonomic analysis of nursing work in an intensive care unit: A proposal for diminishing stress and improving workers' quality of life]. Dissertação de Mestrado, Universidade Federal de Santa Catarina, Florianópolis, Brazil.
- Marziale, M.H., & Rozestraten, R.J. (1995). Turnos alternantes: Fadiga mental de enfermeiras [Alternating shifts: Mental fatigue in nursing professionals]. *Revista Latino Americano Enfermagem*, 3(1), 59-78.
- Médice, A.C. (2004). *Brazil in brief*. Retrieved June 2, 2005, from www.brazil.org.uk/category.php?catid=6
- Meirelles, N.F., Zeitoune, R., & Gollner, C. (2003). Satisfaction in work and stress factors on the nursing team in an oncologic surgical center. *Escola Anna Nery Revista Enfermagem*, 7(1), 78-88.
- Mendes, R. (2003). *Patologias do trabalho* [Work pathologies]. Rio de Janeiro, Brazil: Editora Atheneu.
- Moreno, L.C., & Monteiro, M.S. (2003). Resgate da Produção Científica sobre riscos à saúde no trabalho em enfermagem na década de 90 [Publications about health risks in nursing profession in the 90s]. *Acta Paulista de Enfermagem*, 16(3), 81-87.
- Moura, M.A. (1993). Novas tecnologias. [New technologies]. *Revista Brasileira de Saúde Ocupacional*, 21(79), 63-75.
- Parro, H.C. (1999, April). *Occupational safety and health*. Keynote address at XVth World Congress on Occupational Safety and Health, São Paulo, Brazil.
- Piepier, B., & Caliri, M.H. (2002). An international partnership: Impacting wound care in Brazil. *Journal of Wound Ostomy and Continence Nursing*, 29(6), 287-294.
- Robazzi, M.L., & Marziale, M.H. (1999a). Occupational problems secondary to nursing work in Brazil. *Revista Brasileira de Enfermagem*, 52(3), 331-338.
- Robazzi, M.L., & Marziale, M.H. (1999b). Considerations about Occupational Health Nursing. *Revista CIPA*, 25(95-96), 101-107.
- Sato, L., de Castro Lacaz, F.A., & Bernardo, M.H. (2004). Psychology and the workers' health movement in the state of São Paulo (Brazil). *Journal of Health Psychology*, 9(1), 121-130.
- Schwartzman, S. (2001). *Child work in Brazil*. Brasília: International Labour Organization.
- Silva, P.L. (2003). Health services: The single health system (SUS) dilemma in the new decade. *São Paulo em Perspectiva: Saúde e Trabalhador I*, 17(1), 29-85.
- World Health Organization. (2005). *Brazil*. Retrieved July 11, 2005, from www.who.int/countries/bra/en/

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.