DOI: 10.5327/Z1679443520181651P03

**P03 – CHAGAS DISEASE, WORK AND BRAZILIAN SOCIAL SECURITY AND SOCIAL ASSISTANCE (2004-2016): PRELIMINARY ANALYSIS**

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**Background:** Chagas disease (CD) is an infectious condition classified by the World Health Organization as a neglected tropical disease. Affected individuals become vulnerable and subjected to discrimination, which hinders their inclusion in the labor market. Several public health actions reduced the socioeconomic impact of CD in the Americas in the past decades, especially in Brazil.

**Objective:** To analyze the impact of CD in the granting of social security and social assistance benefits in the period from 2004 to 2016.

**Methods:** The study was based on secondary data obtained from the Unified System of Information on Benefits of the Social Security Administration. We analyzed sociodemographic and epidemiological characteristics of beneficiaries, and the economic impact of social security and social assistance benefits related to CD. Data analysis was performed with software Epi Info 7.1.5.

**Results:** A total of 36,023 benefits were granted along the analyzed period. Most beneficiaries were male (62.5%), with average age 50 years old (standard deviation—SD ±9.4), residing in urban areas (67.0%) and with chronic heart disease (56.7%). The states with the largest numbers of beneficiaries were Minas Gerais (30.3%), Bahia (20%) and São Paulo (15.5%). The main benefit granted was sick pay (65.2%), followed by disability retirement (28.1%) and social assistance benefit (6.6%). Recipients of disability retirement benefits were aged 52, on average. A large part of the beneficiaries worked in commerce (60.5%), followed by rural activities (33.0%). Beneficiaries had been ill for 4.7 years (SD±7.3), on average, before retirement.

The benefit amount was once to twice the equivalent of the minimum wage for most beneficiaries (79.4%), the average amount being 1.4 (SD±0.83) times the equivalent of the minimum wage. The largest number of benefits was granted in 2004 (14.5%); the rates decreased progressively until 2016 (3.9%).

**Discussion:** Social security and social assistance records point to reduction of CD cases in Brazil. While most of affected individuals live and work in urban areas, in most cases they acquired infection earlier in rural areas, at times of high incidence of disease.

**Conclusion:** Although the incidence of CD is decreasing in Brazil, individuals infected in the past still have impact on social security and social assistance. These data point to the need for a differential protective approach to affected individuals still able to work.

DOI: 10.5327/Z1679443520181651P04

**P04 – DISEASE BURDEN OF AIDS IN BRAZIL ACCORDING TO SOCIAL SECURITY AND SOCIAL ASSISTANCE DATA (2004-2016): PRELIMINARY ANALYSIS**

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**Background:** The acquired immunodeficiency syndrome (AIDS) is a serious health problem worldwide, more particularly in developing countries, ever since its identification in the 1980s. Although disability-adjusted life years (DALY) has been recommended for epidemiological analyses for being a more encompassing measure, it is seldom used in Brazil.

**Objective:** To calculate DALY for individuals who lived with AIDS and received social security and social assistance benefits in Brazil for the period from 2004 to 2016.

**Methods:** The analyzed data were obtained from the Unified System of Information on Benefits of the Social Security Administration (Sistema Único de Informações de Benefícios—SUIBE) which requires access permission. DALY was calculated as the
sum of years of life lost due to premature death (YLL) and years lived with disability (YLD). YLL was calculated based on the life expectancy at the age of death; only individuals who died before the deadline for reporting were included. YLD was calculated by multiplying the years lived with AIDS by the disability weight (under antiretroviral therapy) previously estimated as 0.078. **Results:** We analyzed data for 80,505 individuals, of which 16,493 (20.5%) died. Total DALY was 790,309; YLL accounted for the largest part (578,003; 73%). Each individual with AIDS lost the equivalent to 9.82 years of life. Relative to the Brazilian population, 384.49 days were lost due to AIDS per 100,000 inhabitants. While average DALY was similar between men and women (9.90 and 9.67, respectively) men accounted for the largest part of the total DALY (509,852; 64.5%). **Conclusions:** The present was the first study on the burden of AIDS based on data for individual social security and social assistance beneficiaries in Brazil. Although premature death — represented by YLL — occurred in only 20.5% of the cases, it was more relevant than AIDS-related disability — represented by YLD. The low weight of disability for individuals under antiretroviral therapy (0.078) exerted substantial influence on the DALY profile. The DALY values reported here are similar to the ones in other studies based on data obtained from public health information systems. In all studies the burden of AIDS is higher compared to other diseases.

**Objective:** To analyze the impact of AIDS within the social security and social assistance context for the period from 2004 to 2016. **Methods:** The study was performed with secondary data obtained from Unified System of Information on Benefits of the Social Security Administration (Sistema Único de Informações de Benefícios–SUIBE) which requires access permission. We analyzed sociodemographic and epidemiological characteristics of beneficiaries, and the economic impact of social security and social assistance benefits related to AIDS. Data analysis was performed with software Epi Info 7.1.5. **Results:** A total of 99,369 benefits were granted along the analyzed period. Most beneficiaries were male (65%), predominantly within age range 30–44 years old (53%) and residing in urban areas (97%). The main benefit granted was sick pay (64%), followed by continuous cash benefit (26.5%). Considering the interval from onset of disease to onset of disability, 50% of the analyzed population became disabled in up to 9 months, the largest proportion at the time of onset of disease (23.7%). The average age at onset of disease was 36 years old (standard deviation = 10), and the average age at onset of disability 39 years old (SD±9.0). Most individuals had paid contributions for up to 15 years (91%), mean 5.0 years (SD±6.0). About 51% of the analyzed individuals were unemployed at the time benefits were granted. Among the ones employed, 75% worked in commerce. A large part of the individuals (75%) received once to twice the equivalent of the minimum wage, mean 1.5 times (SD±1.0). The Southeastern and Southern areas exhibited the largest incidence, 43% and 23%, respectively. **Discussion:** The present study is an absolute pioneer in the subject of interest, and brings substantial information on AIDS within the social security and social assistance context in Brazil. Some authors discuss social security aspects, but do not describe epidemiological data in detail. **Conclusion:** Records show that most benefits were granted to individuals within the age range of the economically active population, therefore, with significant impact on the labor market and the Brazilian economy. The results point to the need to implement effective actions for promotion, protection, treatment and recovery of the health of workers.
**Background:** Work is considered a part of the lifestyle, as it is one of the main activities performed by people. Work and work overload might cause physical and emotional exhaustion, with consequent harm to health and quality of life impairment. **Objective:** To analyze the lifestyle profile of employees at a higher education in the Federal District, Brazil.  

**Methods:** Cross-sectional study with 305 employees of a university in the Federal District, Brazil. Questionnaires were administered to collect data on sociodemographic variables, lifestyle, nutritional status, physical activity, preventive behaviors, relationships and stress control. Statistical analysis was performed by means of the chi-square and Fisher exact tests using software STATA 12.0.  

**Results:** Most participants were female (58.0%), aged 20 to 29 years old (58.7%), without a partner (65.6%), low socioeconomic class (66.2%), nonsmoker (59.3%), consumed alcohol regularly (63.1%) and had not completed higher education studies (60.3%). About 47.2% of the sample exhibited excess weight, and 37.7% rated their health good. A study conducted with employees at a metallurgy company in the interior of the state of São Paulo reported similar findings: 17.5% of the sample reported to smoke and 59.9% were regular drinkers. Out of the 305 analyzed employees, 45.2% were administrative technicians, 51.9% had 1 to 5 years in the job, 70.9% worked less than 40 hours per week, the largest part (68.5%) spent most of their time sitting, 51.8% reported to feel very tired at the end of the day, and 41.1% exhibited high cholesterol levels. The lifestyle profile tended to be unfavorable. The frequency of unfavorable lifestyle was higher among the women for almost all the analyzed variables. We believe this difference was due to the fact that the number of female participants was higher. **Conclusion:** We expect that the results of the present study will serve for orientation and to raise awareness on preventive habits likely to promote health among the analyzed population.
the lower back, neck, shoulders and knees. An integrative review on this subject found that the main reason to miss work days was musculoskeletal pain, mainly low back pain. **Conclusion:** Most participants reported to feel pain in some body region, which caused physical and mental discomfort. Left untreated, pain might become chronic and negatively interfere with the quality of life of workers.

**REFERENCE**


**P10 – PROFILE OF DIETARY HABITS AND PHYSICAL ACTIVITY AMONG ADMINISTRATIVE EMPLOYEES IN BRASILIA, FEDERAL DISTRICT, BRAZIL**

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**Background:** Excess weight and its associated comorbidities have direct impact on health, and therefore also on work ability. Physical inactivity is one of the main determinants of noncommunicable diseases (NCDs) and contributes to 1 every 10 deaths worldwide. **Objective:** To investigate dietary habits and physical activity among the employees of a private organization in the Federal District, Brazil. **Methods:** Cross-sectional study conducted from November 2017 through April 2018 with 270 administrative employees. The instruments used were a sociodemographic questionnaire and International Physical Activity Questionnaire (IPAQ)–short form. The nutritional variable considered was body mass index (BMI), which was calculated based on self-reported body weight and height. Dietary habits were analyzed based on the weekly consumption of fruit, vegetables, beans, soft drinks, whole milk, fatty meat (read meat and chicken) according to Vigitel. Statistical analysis was performed by means of the chi-square and Fisher exact tests using software STATA 12.0. **Results:** Most participants were female (60.0%), aged 40 to 49 years old (48.5%), with a partner (61.2%), low socioeconomic class (65.9%), had 5 to 10 years in the job (37.5%), worked less than 40 hours per week (60.8%), exhibited excess weight (67.4%) and did not practice sufficient physical activity according to the current recommendations (69.7%). The prevalence of physical inactivity was higher among the women (58%) compared to the men (40%) (p=0.004). Relative to protective factors, most participants did not consume fruit, salad, vegetables or beans 5 or more times per week. Only 30.8% of the sample consumed fruit, 26.7% salad, 29.8% vegetables and 35.8% beans. In regard to risk factors for NCDs, 65.6% of the participants consumed soft drinks more than 3 times per week, 54.7% whole milk, 62.1% fatty meat, and 43.9% alcohol. **Conclusion:** Physical activity and healthy diet programs should be included in occupational health programs to reduce the risk factors for NCDs, given that these conditions have negative impact on the health of workers.

**DOI:** 10.5327/Z16794435201816S1P10

**P11 – EPIDEMIOLOGICAL PROFILE OF NONCOMMUNICABLE DISEASES AMONG WORKERS AT A RISK GRADE 3 COMPANY IN MINAS GERAIAS, BRAZIL**

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**Background:** The global and Brazilian scenario of noncommunicable diseases (NCDs) poses a challenge to public and occupational health. Within the occupational context, NCDs contribute to absenteeism, high employee turnover, and early retirement. The aims of the Occupational Health Medical Control Program is to promote and preserve the health of workers, for which purpose it might include a plan of management of risk factors for NCDs. It might also include workers’ health promotion actions centered on diet and nutrition as a function of the singularity of each worker and their sociocultural environment. **Objective:** To establish the epidemiological profile of NCDs among workers at a risk grade 3 company in Minas Gerais, Brazil. **Results:** We analyzed 1,026 medical consultations. The sample comprised 388 (33%) female and 688 (67%) male employees with average age 34.9 years old. About 2% of the participants exhibited diabetes mellitus, 9% systemic arterial hypertension, 35% dyslipidemia, and 54% overweight/obesity. About 66% of the sample exhibited one single condition, and 34%
2 or more. **Conclusion**: Data analysis allows systematizing information and identifying the health profile of each individual worker to serve as point of departure for more assertive management of risk factors for NCDs. However, more studies on this subject are needed to improve the quality of life and reduce the morbidity and mortality of workers.

**P12 – LEGIONELLA AND OCCUPATIONAL RISK**

Livia Schwab

**Background**: *Legionella* is a bacterial genus identified in 1976, following an outbreak at a convention of the American Legion in Philadelphia, Pennsylvania, USA, whence the name Legionnaires’ disease. Thirty-four participants died, and 221 developed pneumonia. This disease is the pneumatic form of an infection usually caused by *Legionella pneumophila* serogroup 1. Not all the exposed develop disease, while 5% to 10% of the infected individuals die. In Europe, there is specific legislation and control measures for contamination with *Legionella*, under the responsibility of ELDSNet–European Legionnaires’ Disease Surveillance Network. **Objective**: To perform a literature review on the risk of infection with *Legionella* in the workplace, and on recommended prevention and risk management measures to be implemented by organizations. **Methods**: Review of European manuals, consultation of specialized websites (ewgli.org; escmid.org; dgs.pt) and publications on the subject of interest. **Results**: *Legionella* is found in natural aquatic environments, and also in artificial water systems, such as water supply/distribution networks, hot and cold water networks, air conditioners, and cooling systems (cooling towers, evaporative condensers and humidifiers) in buildings such as hotels, thermal baths, commercial centers and hospitals. It is also found in ornamental fountains and recreational bathtubs, such as the jacuzzi. Some of the factors which contribute to the development of the bacteria are: water temperature 20–45°C, pH 5 to 8, relative humidity over 60%, reduced circulation of water (reservoirs, cooling towers, plumbing pipes, ends of seldom used networks, etc.), presence of other organisms (algae, amebae, protozoa) in non- or poorly treated water, presence of biofilm on surfaces in contact with water, corrosion or incrustation. Minimizing the proliferation of *L. pneumophila* demands prevention and physical-chemical and microbiological control measures aiming at keeping the surface of water and air systems clean. A positive test for *Legionella* in water samples does not imply immediate disease. **Conclusions**: There is a need to improve Brazilian workplace health and safety teams’ knowledge of the occupational risk associated with *Legionella*. Risk management protocols should be established based on methods developed in Europe.

**P13 – TELEWORK IN THE JUDICIARY: DOCUMENTARY ANALYSIS OF ERGONOMIC RECOMMENDATIONS**

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**Background**: The world of work underwent profound transformations, especially as a function of globalization, neoliberalism, and new information and communication technologies. Changes in geographical and temporal boundaries lead to the need to update the configurations of market relationships, and doubtlessly, also of labor relationships through more flexible and creative approaches. Telework, or home work, emerged as a currently available option. The International Labor Organization (1996)¹ defines telework as work carried out at premises other than the workplace of the employer, and involving the use of new technologies to facilitate communication. Justice courts adopted this work arrangement as a function of its advantages for employees and the public administration. The National Council of Justice (NCJ) regulated telework in the Judiciary by means of Resolution no. 227/2012.² Among the challenges to implement telework as established in this resolution, one concerns performance measurement and workplace adequacy. It is assumed that telework is basically performed in an office environment, which involves exposure to ergonomic and psychosocial hazards with possible significant impact on the health of workers. **Objective**: To analyze how superior courts systematized measurements of teleworkers’ productivity and the supply of ergonomic and preventive orientation. **Methods**: Qualitative study in which we performed documentary analysis to understand the recommendations made for telework. We consulted the websites of the Superior Labor Court, Superior Justice Court, Superior Military Court, Superior Electoral Court, and Supreme Federal Court. This search allowed retrieving all the norms in force until 30 June 2018, and analyzing and crosschecking their content. **Results**: Resolution no. 22/2016² by NCJ — which is hierarchically above all the...
included courts — establishes that the productivity of teleworkers should be greater compared to in-office employees, but does not define any objective parameter. In regard to health and ergonomics, this resolution establishes that courts should promote courses, lectures, workshops or any other means of divulgation. Each individual teleworker is responsible for adjusting furniture and tools, and for adhering to recommendations. The analyzed courts follow NCJ indications, except for the ones who were still in the stage of pilot project. We found variation in the required productivity and working hours. Ergonomic and preventive orientation is unspecific and/or non-standardized. Conclusions: The subject of the present study is recent and still being developed. As a result, there is a lack of clear and objective rules, as well as of resolutions which effectively encompass the full complexity of telework, especially as concerns ergonomic and preventive orientation. All resolutions make teleworkers responsible for having adequate workstations, including computers and furniture, without no supervision or monitoring whatsoever.

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DOI: 10.5327/Z16794435201816S1P14

P14 – REPORT OF AN EXPERIENCE WITH AN ASSISTANCE PROGRAM FOR ROBBERY AND KIDNAPPING VICTIMS AT A FINANCIAL INSTITUTION IN RIO GRANDE DO SUL, BRAZIL

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Background: Violence might cause mental suffering to robbery and/or kidnapping victims. A Brazilian financial institution established an assistance program named Assistance Program for Robbery and Kidnapping Victims as an attempt to reduce the negative impact of robbery and/or kidnapping on its employees’ health. The program has emergency nature, and provides medical, psychological, legal and safety care until victims recover their personal and occupational balance. The program enables early intervention starting within 24 to 48 hours after an event, and includes orientation aiming at the preservation of the employees’ health and safety, with emphasis on prevention of mental disorders. Objective: To report the experience of Specialized Service of Safety Engineering and Occupational Medicine (Serviço Especializado em Engenharia de Segurança e em Medicina do Trabalho—SESMT) in the follow-up of robbery and/or kidnapping victims. Methods: Cross-sectional, quantitative and descriptive study conducted at a Brazilian financial institution. Data were collected from the reports of first consultations after an event at the People Management Office/SESMT, Rio Grande do Sul, as well as from follow-up forms, for the period from 2015 to 2017. The data were stored and analyzed using software Excel 2016. Results: Seven events occurred in 2015 involving 44 employees, one of which required sick leave. Eleven events occurred in 2016 involving 68 employees, 13 of which required sick leave. Seven events occurred in 2017 involving 25 employees, 4 of which required sick leave. Work Accident Reports (WAR) were issued in all instances. In two cases the WAR had to be updated 180 days after the event, one in 2016 and one in 2017. The program provides individual psychotherapy and medical care paid by the employer. All employees were followed up by SESMT for 6 months at least. Conclusion: The program implemented by the employer and partially developed by the regional SESMT evidences the institution’s concern with the preservation of its employees’ health. It also reinforces the relevance of early intervention and appropriate follow-up to avoid the occurrence of illness after an acute stress episode.

DOI: 10.5327/Z16794435201816S1P15

P15 – FOLLOW-UP PROGRAM FOR PEOPLE WITH DISABILITIES AT A FINANCIAL INSTITUTION, RIO GRANDE DO SUL, BRAZIL

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Background: Employees with disabilities are enrolled in a follow-up program implemented by the Specialized Service of Safety Engineering and Occupational Medicine (Serviço Especializado em Engenharia de Segurança e em Medicina do Trabalho—SESMT) of a Brazilian financial institution. This program aims at the inclusion of employees in the workplace through identification of
factors which favor or hinder this process to adjust the working conditions to the employees’ needs. **Objectives:**
a) To analyze the inclusion of employees in the institutional work process once they are hired; b) To assess the compatibility of positions with the employees’ disabilities; c) To verify the adjustment of employees to recommended changes. **Methods:** Cross-sectional, quantitative and descriptive study conducted at a financial institution in Rio Grande do Sul, Brazil, in 2017. Data were collected by means of a questionnaire on accessibility and workstation adjustment, which was administered to employees with disabilities. Additional information was gathered from occupational health records and work ergonomic work analysis (EWA). The data were stored and analyzed using software Excel 2016. **Results:** The questionnaire was sent to 82 employees with disabilities, 55 of whom responded it and 27 did not. Three respondents reported that the workplace conditions did not ensure accessibility, and two that workstations were not adequate to their needs. It should be observed that EWA performed when these employees were hired did not result in any recommendation of adjustment of the workplace/workstations. These complaints will be checked during Environmental Risks Prevention Program visits to be performed by the work safety department in 2018, and eventual necessary changes will be reported to the employer. Among the 82% employees with disabilities, 9% were hearing impaired, 26% visually impaired, 63% physically disabled, and 2% were enrolled in the social security professional rehabilitation program. **Conclusion:** The implementation of SESMT follow-up program evidences the employer’s interest in detecting the need for adjustments and accessibility beyond the ones identified at the time of hiring employees with disabilities.

**DOI:** http://dx.doi.org/10.5327/Z16794435201816S1P16

**P16 – MULTIDISCIPLINARY ASSISTANCE PROGRAM DEVELOPED BY THE OCCUPATIONAL MEDICINE SERVICE OF CLINICAL HOSPITAL OF PORTO ALEGRE, PORTO ALEGRE, BRAZIL**

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**Background:** The Occupational Medicine Service (OMS) of Clinical Hospital of Porto Alegre (Hospital de Clínicas de Porto Alegre–HCPA) established a multidisciplinary assistance program to improve the quality of the care provided aiming at ensuring integral care to its employees. This is a clinical and occupational program which develops health promotion activities. It includes evaluations of the state of health of employees in the various hospital areas, and provides information to ground the planning of interventions aiming at the preservation of the health and safety of workers. It further includes analysis and discussions of each hospital area involving occupational physicians, general practitioners, occupational health nursing technicians, work safety technicians, OMS administrative assistants and nurses allocated to the analyzed area (the hospital currently includes 6 areas). OMS-linked psychiatrists and orthopedists who serve the demands of all 6 areas are consulted as per need. **Objective:** To describe OMS–HCPA experience. **Results:** An action plan was developed for 2018, which consists of visits to the hospital areas to perform health promotion activities named “health dialogues.” During visits, employees are asked to describe their doubts on clinical and occupational health and workplace safety, which are meant to serve as guide for later meetings. This approach enables the epidemiological follow-up of each area based on clinical and occupational indicators, and analysis of the main causes of disease and job dissatisfaction. It further allows identifying the need for workplace improvement. **Conclusion:** HCPA multidisciplinary assistance program evidences the institution’s concern with the promotion of the health of its employees, with emphasis on the preservation of their well-being. In addition, the program reinforces the relevance of integral care of workers through adequate follow-up of all HCPA areas, as an attempt to avoid disease and promote improvement of the working conditions.

**DOI:** http://dx.doi.org/10.5327/Z16794435201816S1P17

**P17 – IN-COMPANY PHYSICAL THERAPY PROGRAM AT A METALLURGY FIRM: WHO GAINS, THE EMPLOYER OR THE EMPLOYEE?**

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Background: Institutional management of health and quality of work life promotion programs (HQLWPPP) has awakened increasing interest in the past decades. Any company needs healthy and productive employees, and employers are aware that the employees’ health and well-being are directly related to corporate productivity/competitiveness. Objective: To describe how well-structured corporate HQWLPP management led to significant decrease of absenteeism due to musculoskeletal disorders, contributed to increase productivity and to reduce healthcare spending. These outcomes were achieved by focusing on the individual demands of each employee, identification of their needs, relocation to positions compatible with their limitations, and workplace adjustments. Methods: Description of a case study. Results: After finding 64.4% increase in the number of missed work days due to musculoskeletal disorders and physical therapy, the company launched a Musculoskeletal Diseases Management Program within the context of HQWLPP. The program included ergonomic-based, in-company physical therapy provided by multidisciplinary staff (physical therapy, workplace exercise, occupational medicine and nursing and psychosocial care). The financial return one year after the establishment of the program was of BRL 487,364.00. Absenteeism due to musculoskeletal disorders and physical therapy decreased more than 85%. Discussion: The results of the present study show that when measures are taken to improve the quality of life of employees, not only the latter, but also the employers gain through reduction of absenteeism, turnover, presenteeism, work accidents and healthcare spending, talent retention and higher productivity. These data corroborate the results of scientific studies in which the financial return was about 4 times the investment in HQWLPP. Therefore, a set of health promotion, protection and recovery actions is essential to the development of a new corporate health management model. Conclusion: Our experience confirms that good corporate health management contributes to improve the daily well-being of employees. Although countless advantages of similar programs were demonstrated, many employers are still reluctant to implement programs targeting the quality of life of their employees due to their high initial costs, despite the fact that such investment might result in savings, or even profit. The results of the present study show that the most relevant aspect is the employers and employees’ awareness on that investment in HQWLPP is directly proportional to profit both financially and in terms of improvement of the employees’ quality of life.

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DOI: 10.5327/Z16794435201816S1P20

P20 – EPIEMIOLOGICAL ANALYSIS OF ACCIDENTS IN THE WAY TO/FROM WORK IN BRAZIL (2007-2017)

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Background: Several health problems among workers are due to work accidents (WA), which might be classified as accidents in the way to/from work (AW), typical accidents (TA) or accidents due to work-related diseases (AWRD). In 2014, the Unified Health System (Sistema Único de Saúde–SUS) spent about BRL 244 millions with land transport accidents, a part of which were AW. These data point to the epidemiological relevance of AW for occupational medicine, given their impact on healthcare services and the lives of workers. Objective: To calculate the incidence and correspondent variation rates of WA in Brazil in the period from 2007 to 2016, with emphasis of the ratio of AW to TA, AWRD and total number of accidents notified by means of Work Accidents Reports (WAR). Methods: The present retrospective, descriptive and quantitative study analyzed public secondary data for the period from 2007 to 2016. The information on WA number were obtained from the Social Security Statistical Yearbooks, published by the Ministry of Finance/Secretariat of Social Security. We only considered the cases for which WAR were issued and registered by the National Social Insurance Institute. The reason is that accidents cannot be classified (AW, TA, AWRD) in the absence of WAR. The data on the economically active population — used to calculate annual incidence rates — were obtained from the National Household Sample Survey, performed by the Brazilian Institute of Geography and Statistics. The
frequency rate was calculated as number of accidents per 100,000 economically active individuals. **Results:** The frequency rate of AW increased from 79.9 in 2007 to 105.4 in 2016, i.e., 32%. From 2007 to 2016 the number of AWRD decreased 44.1%, the one of AW increased 36.9%, and the one of TA decreased 15.1%. The AW/TA ratio increased from 0.189 to 0.305 (61.3%), the AW/AWRD ratio from 3.53 to 8.65 (145%) and the ratio of AW to total number of accidents from 0.152 to 0.227 (49.3%). **Conclusions:** The results of the present study evidence increase of reported AW. This might possibly imply a nationwide problem, given the impacts of the costs of social security and SUS to the national budget, and the damage to the health of workers.

**DOI:** 10.5327/Z16794435201816S1P21

**P21 – THE ROLE OF THE OCCUPATIONAL PHYSICIAN IN HEALTH MANAGEMENT**

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**Background:** Occupational medicine started as industrial medicine, to then evolve through occupational health and workers’ health until incorporating the concepts of social and preventive medicine. Globalization and changes in work processes led to a shift in the occupational morbidity profile from work-related to chronic diseases. Within the current occupational medicine context, occupational medical examinations and the Occupational Health Medical Control Program (OHMCP) are performed as mere routine and/or as *pro forma* compliance with the legislation, to which one should add continuous changes in legal-institutional instruments. All these changes and the current scenario demand new occupational competencies, especially as concerns health management. **Objectives:** To identify the main competencies required from occupational physicians for health management, such as use of tools which might help them in health data collection, and to establish how information management contributes to health planning. **Methods:** Literature review including editorials, institutional documents, articles and dissertations retrieved from the main databases and journals. The inclusion criteria were: publications in Portuguese and/or English, from 2000 to 2017. **Results:** A total of 1,388 publications were retrieved, and 10 were selected for analysis. The role of occupational physicians has to do with diagnosis and workers’ health protection, and they should develop a strategic view of the health of the population of employees of a company. OHMCP as management tool, occupational medical examinations as an opportunity for health promotion and disease prevention, and use of information systems to collect health information are indispensable for the activities of occupational physicians in health management. In addition, they should be able to mediate between, and have good corporate relationships with the various areas of companies. Use of management models (pre-employment medical examination, hazards, long-term leaves, duration of social security benefits, social security reimbursements, evaluation of employees with restrictions, termination of employment) to achieve strategic alignment between health needs and the employer’s business interests, including generation of health indicators, allows for the understanding and interventions needed for decision making. **Conclusion:** Occupational physicians need to develop managerial and administrative competencies, including leadership and mediation skills, divulgation ability, and a broad scoped view of the health of workers, use adequate tools to generate health indicators, incorporate notions of preventive and social medicine, and undergo continued training.

**DOI:** 10.5327/Z16794435201816S1P22

**P22 – INCIDENCE OF OCCUPATIONAL DISEASES IN THE MANUFACTURING INDUSTRY IN THE STATE OF AMAZONAS, BRAZIL, IN 2016**

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**Background:** Data reported in the Work Accident Statistical Yearbook (Anuário Estatístico de Acidentes do Trabalho–AEAT) show that Amazonas was the Brazilian state with the highest incidence of occupational diseases in the period from 2013 to 2016. **Objective:** To identify which manufacturing activities were associated with the highest incidence of occupational diseases. **Methods:** We extracted from AEAT data on the incidence of occupational diseases/1,000 jobs reported in 2016 by means of Work Accident Reports issued by companies included in Section “C” (manufacturing industry) of the National Classification of Economic Activities (Classificação Nacional de Atividades Econômicas–CNAE), published by the Brazilian Institute of Geography and Statistics. The results relative to CNAE categories of companies in...
Amazonas were compared to the national data. **Results:** Considering all economic activities, the incidence of occupational diseases/1,000 jobs was 0.57 for Amazonas and 0.30 for Brazil. The highest incidence of occupational diseases/1,000 job in Amazonas corresponded to: battery and electrical accumulator manufacture — except for vehicles (15.02); unspecified plastic object manufacture (7.04); unspecified transport equipment manufacture (5.05); motorcycle manufacture (4.26); and manufacture of parts and accessories for motor vehicle transmission systems (4.22). The corresponding rates for Brazil as a whole were: 4.12, 0.56, 1.93, 3.15 and 4.37. **Discussion:** The manufacturing industry transforms materials, substances and components into new products through physical, chemical or biological processing. The Manaus Industrial Park (MIP) is one of the main sources of jobs and income in Amazonas. Relative to some economic activities, such as motorcycle manufacture, MIP accounts for a significant proportion of the goods made in Brazil. Such concentration of some industrial activities in the capital of Amazonas might influence the analysis of the indicator considered in the present study. The incidence of occupational diseases/1,000 jobs for Amazonas, when all economic activities were considered, was 90% higher compared to the one for Brazil as a whole. Among the five economic activities associated with the highest incidence of occupational diseases/1,000 jobs, the first four exhibited rates significantly higher than the ones for the country as a whole: the frequency rates were 264%, 1,161%, 161% and 35% higher for battery and accumulator, unspecified plastic object, unspecified transport equipment, and motorcycle manufacture, respectively. In turn, the incidence was 3.4% lower for motor vehicle transmission parts and accessories manufacture. The incidence of diseases was 2,513%, 1,124.7%, 778.7%, 641.1% and 633.8% higher for these five economic activities, respectively, compared to the total number of workers in Amazonas. **Conclusion:** The results of the present study point to the urgent need for joint interventions by the government, employers and workers to improve the health and safety conditions in the manufacturing industry in Amazonas.

**REFERENCE**

The incidence of accidents/1,000 jobs was 6 times higher in Amazonas compared to the whole population of workers, and 179% compared to the same activity in Brazil as a whole. The risk of death associated with real estate development for Amazonas was 21 times higher compared to the whole population of workers, and 6 times higher compared to the same activity in Brazil as a whole. The lethality of accidents associated with specialized construction services was 15 times compared to the total population of workers, and 3.6 times compared to the same activity in Brazil as a whole. These findings point to the urgent need for joint interventions by the government, employers and workers to improve the health and safety conditions in the construction industry in Amazonas.

REFERENCE


DOI: 10.5327/Z16794435201816S1P24

P24 – ENVIRONMENTAL WASTE MANAGEMENT: MORE THAN AN OPPORTUNITY, AN INSTITUTIONAL STRATEGY FOR SUSTAINABILITY

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Background: Within the current macroeconomic context — in which sustainability might increase the viability and productivity of organizations — companies are increasingly concerned with externalities, and are adjusting to the new situation. Implementation of institutional Environmental Management Systems (EMS) is increasingly awakening the interest of companies, as a function of the gains yielded by the corresponding actions. Some economic sectors characterize productivity as “capitalism’s secret weapon.” Increasing productivity while preserving the environment is the drive for companies to improve their performance and develop competitive advantage, which is indispensable for survival in a globalized world.

Objective: To evidence the relevance of sustainability and its benefits for organizations and society.

Methods: With the support of a literature review, we analyzed a case study represented by EMS restructuration at a multinational metallurgy company.

Results: Restucturation was launched in 2014 motivated by opportunities detected in ISO 14001. Processes for continuous improvement were reinforced, which led to the detection of new procedures for waste sorting and final disposal within the context of the Solid Waste Management Program (SWMP). “Environment” was included in the company’s business strategy. Restructuration resulted in 51% increase of the SWMP efficiency; the rate of landfill disposal decreased from 78.5% in 2015 to 38.8% in 2018. The amount of monthly landfill disposal decreased from 68 tons in 2015 to 35.32 tons in 2018. The difference between waste disposal and reuse represented BRL 500,000 in 2016 — almost twice as high as in 2015, to decrease to BRL 170,000 in 2017; in 2018 the balance is a surplus of about BRL 61,000.

Conclusion: The results show that improving EMS results in profit for organizations inasmuch as waste is transformed in input for other processes, and reusable waste is sold. The present study should raise everybody’s awareness on the need to think attitudes vis-à-vis conscious consumption over. Environmental responsibility is currently demanded from organizations, and thus, in addition to production of goods and services, they should develop activities to contribute to a better society. Besides their legal obligations, organizations should proactively and coherently assume moral commitments, even when not directly related to their activities, to contribute to the sustainable development of the communities around. Since its establishment, the analyzed company developed guidelines for disposal of all the waste resulting from its operations. While the rate of recycled waste is now over 61%, one of the main challenges for the company is to increase reuse aiming at reaching zero waste, i.e., much beyond the legal requirements, and thus reassert its commitment to sustainability.

DOI: 10.5327/Z16794435201816S1P25

P25 – THE NORDIC MUSCULOSKELETAL QUESTIONNAIRE AND WORKPLACE EXERCISE

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Background: Given the high prevalence of work-related musculoskeletal symptoms, actions are needed to promote the quality of work life. Workplace exercise (WE) is an easy to apply, low-cost and efficient intervention when well planned. Program “Improving,” a component of a quality of life project developed at a Brazilian federal university, promoted a new direction for WE in 2016.

Objective: To establish the frequency of musculoskeletal symptoms among program participants.

Methods:
The sample comprised 60 employees of a Brazilian federal university in 2016. The participants responded the Nordic Musculoskeletal Questionnaire to establish the frequency of symptoms in the previous 12 months and previous 7 days. **Results:** About 90% of the participants were federal civil servants, with average age 42 years old (standard deviation ±11.34), 65% were male, and 56% had attended graduate education. The muscle load associated with job tasks was: 77% for predominantly static work, 11.5% for dynamic work, and 11.5% for mixed work. Joint analysis of affected body sites in the previous 12 months did not evidence any pattern of repetition. On individual analysis, 24 participants reported occurrence of symptoms in the neck, 23 in the shoulders, 24 in the upper back, 5 in the elbows, 20 in the wrists and hands, 32 in the lower back, 15 in the hips and thighs, 15 in the knees, and 7 in the ankles and feet. On individual analysis of occurrence of symptoms in the previous 7 days, 9 participants reported pain in the neck, 6 in the shoulders, 6 in the upper back, 5 in the elbows, 5 in the wrists and hands, 5 in the lower back, 13 in the hips and thighs, 3 in the knees, and 3 in the ankles and feet. About 15% of the participants reported absence of symptoms in the previous 12 months, and 58% in the previous 7 days. **Conclusion:** The Nordic Musculoskeletal Questionnaire was useful to map musculoskeletal symptoms, and thus orient the prescription of compensatory gymnastics in a workplace exercise program.

**DOI:** 10.5327/Z16794435201816S1P26

**P26 – ANALYSIS OF THE PREVALENCE OF EVACUATIONS FROM OIL PLATFORMS WITH TELEMEDICINE SUPPORT**

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**Background:** Oil platforms are located in remote sites, and medical resources are limited by comparison to urban environments. While there are healthcare professionals to treat crews on site, telemedicine has been increasingly implemented. In some countries, including Brazil, telemedicine support is mandatory in such setting. **Objective:** To analyze the causes of the evacuation of workers from three oil platforms with telemedicine support. **Methods:** Cross-sectional study which investigated the prevalence of diseases which compelled workers from three oil platforms in Bacia de Campos, Rio de Janeiro, Brazil, to be evacuated along the period from 2013 to 2017. Data were collected from individual electronic medical records stored in healthcare management systems. Data analysis was performed with Microsoft Excel. **Results:** The crews had a variable number of members (100 to 150 simultaneously) who were company or outsourced employees. Care was provided by physicians, who had access to telemedicine and remote consulting resources. We analyzed 10,555 medical interventions; in 0.85% of the cases the employees had to be evacuated. About 20.7% were emergencies and 79.3% were not. The most frequent causes of emergency evacuations were cardiovascular diseases (30%), trauma (26%) and psychiatric disorders (13%). The most frequent causes of non-emergency evacuations were eye (16%), dental (15%) and genitourinary (13%) disorders. Work-related evacuations represented 18% of the total. Trauma exhibited the highest prevalence (56%), followed by eye (19%) and orthopedic (13%) problems. Among the non-work-related evacuations (82%), the highest prevalence corresponded to cardiovascular diseases (16%), followed by dental problems (14%) and genitourinary disorders (12%). The remote consulting system was used in 7% of the cases, 92% of which did not need evacuation. Of the evacuated cases, the remote consulting system was used in 78%. Remote consulting was further performed for 91% of the cases which required emergency evacuation. The most prevalent diseases for which remote consulting was performed and required evacuation were injuries (16%), cardiovascular diseases (13%), genitourinary (13%) and eye (11%) disorders. **Conclusions:** Due to the complexity of operations in oil platforms, their remote location and limitations, management of health risks requires resources enabling high-quality and fast medical care. Telemedicine is increasingly being used to provide medical support to continuous and emergency care provision to workers.

**DOI:** 10.5327/Z16794435201816S1P27

**P27 – HOME-BASED WORK-PRIMARY CARE EXPERIENCE IN THE ANALYSIS OF WORKING CONDITIONS AT AN INFORMAL METALWORK SHOP**

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**Background:** Considered in the Health Organic Law¹, occupational health actions within the primary care setting pose a challenge in the terms of receptivity, surveillance...
and identification of working conditions. Recession and reduction of the number of job vacancies in Brazil led to an increase of home-based, precarious and informal work, whence occupational risks are shifted to the home environment. Community health agents (CHAs) play a relevant role in the identification of production activities developed at homes and surrounding areas, and possible risks to the health of workers. A partnership between a public university and the Municipal Secretariat of Health of Campinas, São Paulo, Brazil, enabled the establishment of an Occupational Health Program (OHP) at a health center to provide healthcare to workers, and describe and improve working conditions. Objectives: a) To analyze home-based work to identify risk factors and potential health problems among workers; b) To suggest possible improvements; and c) To plan actions together with workers. Methods: Report of a case located by a CHA, corresponding to a home-based metalwork shop, in which the working conditions posed potential health risks, and thus a an OHP visit was requested. The visit was performed by an occupational medicine resident, his supervisor and a CHA. A risk assessment script was formulated based on the results of direct observation and an interview with the involved worker. Information on products and raw materials used were obtained from the manufacturers. The team prepared a report, including recommendations for the working conditions, which was discussed and agreed together with the metalworker and the CHA. A follow-up visit was performed two months later. Results: After losing his job at a metallurgy company 2 years earlier, the worker decided to open a metalwork shop to fabricate iron doors. He set the shop in his garage. The following risk factors were identified: noise (from cutting and sanding machines), metal dust, welding fume (manganese, nickel, iron and silicates), aromatic and aliphatic solvents, paint containing organic and inorganic pigments, work standing up, and inadequate body posture. Unprotected equipment, irregular flooring and non-insulated electrical wiring represented risk factors for accidents. He reported to use hearing protection and dust mask. However, he was not aware of chemical hazards and potential health risks. Recommendations included: improvement of machinery and equipment, replacing the welding electrode, adequate respiratory protection, and improvement of ventilation. At a later technical visit, the team verified that several of the recommendations had been effectively implemented, and that the workplace had been moved to another location. Discussion and Conclusions: Socioeconomic conditions and unemployment resulted in increase of home-based and informal work, which poses potential risks. Improvised arrays at home might be associated with risks to the health of workers, their family and community. Collective analysis by CHAs and occupational health professionals, using occupational health tools, promotes more accurate identification of risks. Improvements might be achieved by means of simple, and often low-cost interventions, which might reduce the risk of illness. Involvement of workers is crucial. Health actions integrated with primary care might contribute to improve the safety and health at work, and thus empower workers and CHAs.

REFERENCES
Background: Smartphones are widely used, and also serve for communication, learning and professional updating among healthcare professionals. However, their use is also associated with suffering, addictive behavior, personality disorders, sleep and mood disorders. Objectives: To establish the profile of smartphone use among occupational physicians. Methods: An online structured questionnaire comprising 6 multiple choice questions was administered via Google Forms. The link to the questionnaire was sent to Telegram and Whatsapp groups of occupational medicine and occupational health professionals. We only considered the questionnaires responded by occupational physicians who lived and worked in Brazil. Results: The questionnaire was responded by 44 occupational physicians from 7 Brazilian states (Ceara: 20, Sao Paulo: 11, Rio Grande do Sul: 7, Piaui: 1, Pernambuco: 1, and Bahia: 1). About 59.1% of the respondents reported to work in the private sector only, 6.8% in the public sector only, and 34.1% in both. About 95.5% of the respondents stated they considered their smartphone as a work tool. When inquired about the number of Whatsapp and/or Telegram and/or Facebook groups related to their occupation, field of action/specialty, job, company, or for case or scientific (professional) discussions to which they belonged at the time of data collection, none reported to belong to just one. Most respondents (61.4%) participated in more than 5 groups. Twenty-seven respondents (61.4%) had their professional/corporate e-mail account configured in their mobile phones. Among the ones with private sector jobs, 63.4% accessed professional e-mails on their smartphones; the corresponding rate for the respondents who exclusively worked in public institutions was 33.3%. When inquired on how long it takes for them to check messages or e-mails on their mobile phones after waking up in the morning, 29.5% stated they check the phones immediately after waking up, 40.9% within 30 minutes up, and only 15.9% one hour after or do not check it. About 43.2% of the respondents check their phones right before going to sleep, and 34.1% within 30 minutes before retiring. About 25% of the respondents check their phones immediately upon waking up and right before going to sleep. Discussion: As a rule, occupational physicians use smartphones as work tools from the moment they wake up in the morning to the time they retire at night. Conclusions: Despite its limited conclusions, the present study calls the attention to situations deserving further research with better methodological design: how might smartphones, social networks and messaging applications be applied to training and to keep occupational physicians up to date? Are these professionals exposed to work overload or too long working hours? Have these factors impact on the physicians’ sleep and mood? Does smartphone addiction occur among occupational physicians?

P31 - DEVIATION OBSERVATION PROGRAM VERSUS SAFETY MANAGEMENT AT A LARGE METALLURGY COMPANY: APPROACH BASED ON PERFORMANCE INDICATORS

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Background: Organizations are in a dynamic environment as a function of the current global economic scenario, which demands continuous adjustments, mainly in regard to business management. The notion of continuous improvement gradually gained acceptance, in a structured and systematic manner, in the past decades, resulting in better approaches to organizational problems. This notion was incorporated by a company which was looking for definitive solutions to safety problems. New process control tools were implemented, and new performance indicators were defined for the Health and Safety at Work Management System (HSWMS). Objectives: To analyze the contribution of HSWMS reformulation to improve operational performance indicators relative to improvements in safety processes and their contribution to productivity. Methods: HSWMS reformulation at a multinational metallurgy company was taken as case study. Results: HSWMS reformulation was triggered by high accident and severity rates. Thirty-four accidents had occurred in 2012, with a total frequency rate (FR) of 1.66; the FR for accidents resulting in leaves was 0.87. The new HSWMS was developed based on performance indicators, which enabled the implementation of corrective actions at the time of establishing new management tools. HSWMS reformulation resulted in several improvements, among which a dramatic reduction of the total number of accidents by more than 82% from 2012 to 2017, and decrease of the number of accidents resulting in leaves of over 85%. The total FR of work accidents decreased by more than 90%, and the FR of accidents resulting in leaves by 93.15%. in addition, the severity rate decreased by 98.6% from 2013 to 2017. The gains yielded by an efficacious HSWMS go...
much beyond its main goal, i.e., to preserve the health of workers. In addition to the direct costs of events, in 2010 the company spent about BRL 3.75 millions in work accident insurance, which amount decreased to BRL 1.25 millions in 2017, i.e., more than 66%. **Conclusion:** The results of the present study show that implementation of HSWMs aiming at developing a workplace safety culture resulted in benefits not only to the employees, but in financial gains to the company. Therefore, the present study might contribute for companies to understand that health and safety should be considered strategic for their businesses.

**DOI:** 10.5327/Z16794435201816S1P33

**P33 – ENVIRONMENTAL CONTAMINATION BY AGROCHEMICALS AND HEALTH RISKS TO TOBACCO GROWERS IN SOUTHERN BRAZIL**

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**Background:** Tobacco growing is characterized by hard manual work and intensive use of agrochemicals. From sowing to harvesting, tobacco growth demands the application of large amounts of a variety of chemicals. Daily exposure to and the harmful effects of agrochemicals might impair the health of tobacco growers. **Objective:** To investigate the prevalent health problems among tobacco growers caused by exposure to soil and water chemicals in rural properties in Candelaria county, Rio Grande do Sul, Brazil. **Methods:** Cross-sectional study conducted at small rural properties in Candelaria covered by the Community Health Agent Strategy (CHAS). The sample was selected based on the areas covered by CHAS, tobacco cultivation as livelihood means, and deep water supply, as e.g., wells. Data collection was performed from March 2014 through December 2015 by means of a questionnaire for assessment of production units and farmers, and soil, kitchen garden and well water sampling. The data on production units and farmers were subjected to descriptive statistics. Detection and multiclass quantification of agrochemicals in environmental samples was performed by means of ultra-performance liquid chromatography. The study was approved by the research ethics committee of Federal University of Rio Grande do Sul, ruling no. 18647813.5.0000.5347. **Results:** Analysis of soil and water samples evidenced trace amounts of agrochemicals. The main compounds found were: carbaryl, carbofuran, clomazone, chlorpyrifos-ethyl, flumetralin, fluroxypyr, imidacloprid and mevinphos. These chemicals might cause acute reactions, such as nausea, vomiting, headache, skin and upper airway irritation. The most prevalent health problems among the analyzed tobacco growers were: green tobacco sickness, depression, systemic arterial hypertension and minor psychiatric hypertension. **Conclusions:** The chemicals found in the soil and water have potential to impact the human and environmental health. Studies with longitudinal design are needed to further the knowledge on the effects of agrochemicals on the health of rural workers. Although agrochemicals were found in trace amounts in the water and soil samples, since exposure is prolonged, their chronic effects on the health of workers should be better elucidated.

**DOI:** 10.5327/Z16794435201816S1P35

**P35 – WORK ACCIDENTS: EPIDEMIOLOGICAL STUDY OF ACCIDENTS IN THE WAY TO/FROM WORK PER BRAZILIAN REGION**

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**Background:** Work accidents (WA) derive from the exposure of workers to risks associated with work activities. One of WA categories is accidents in the way to/from work (AW). AW have considerable epidemiological relevance, as a function of their repercussion for health services and the workers’ productivity. **Objective:** To estimate the total number of AW per Brazilian region in the period from 2007 to 2016, as well as the percent ratio between AW and total number of WA for which Work Accident Reports (WAR) were issued. **Methods:** Quantitative and descriptive study based on public secondary data relative to the number of WA described in the Brazilian Social Security Statistical Yearbook, Ministry of Finance/Secretariat of Social Security for the period from 2007 to 2016. We only considered WA for which WAR were issued and registered at the National Social Insurance Institute. **Results:** A total of 1,000,468 WA with WAR issuance occurred from 2007 through 2016, 37,685 (3.8%) in the Northern region, 78,826 (7.9%) in the Central-West region, 111,068 (11.1%) in the...
Northeastern region, 187,167 (18.7%) in the Southern region, and 585,722 (58.6%) in the Southeastern region. The AW/total WA ratio increased in all the regions along the analyzed period: from 13.1% to 22.9% in the North, from 16.5% to 23.5% in the Central-West, from 14.1% to 26.47% in the Northeast, from 14.24% to 20.5% in the South, and from 15.81% to 23.05% in the Southeast, the corresponding rates of variation being 74.2%, 42.2%, 87.7%, 40.8% and 45.8%. **Conclusions:** The results of the present study evidenced increase of AW in all the Brazilian regions. A possible cause is the intensive flow of people and vehicles, resulting in higher traffic volume and frequency of accidents, especially in the regions with higher gross domestic product. Health problems derived from AW influence the social, health and economic costs.

**DOI:** 10.5327/Z16794435201816S1P36

**P36 – MALARIA IN THE BRAZILIAN STATE OF AMAPA: EPIDEMIOLOGICAL ANALYSIS AT LOURENÇO MINING CAMP AND CALÇOENE COUNTY (2012 TO 2017)**

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**Background:** The heterogeneity of the working conditions in the Amazon region represents one of the main challenges to the control of malaria. Gold extraction areas exhibit the highest prevalence of infection in the Amazon region, as a function of the characteristics of the mining population and the spatial organization. These locations represent a risk to the health of workers and the overall population, as gold extraction is associated with a considerable flow of prospectors arriving from different parts of the country. **Objectives:** To perform an epidemiological analysis of malaria in Calçoene county, Amapá (AP), Brazil, and Lourenço mining camp, located in this same county, and investigate correlations with the climate normals of temperature and precipitation for the period from 2012 and 2017. **Methods:** Retrospective, quantitative and descriptive study based on secondary data collected from 2012 to 2017. We analyzed changes in the incidence of malaria in Lourenço mining camp and Calçoene county, and the predominant infecting species. We also analyzed the monthly climate normals of temperature and precipitation. The information on number of malaria cases and population were obtained from the System of Information on Epidemiological Surveillance, Ministry of Health. Climate data were obtained from the National Meteorology Institute (Instituto Nacional de Meteorologia–INMET). We analyzed the climate normals of cumulative precipitation (in mm) and mean compensated temperature–dry-bulb (Celsius scale) for the period from 1981 to 2010. Since there is no meteorological station in Calçoene, the data were collected at the Serra do Navio county (AP) station, which is close. **Results:** From 2012 to 2017, the annual parasite incidence increased from 647.5 to 887.2/1,000 in Lourenço mining camp, and from 161.5 to 192.8/1,000 inhabitants in Calçoene, the corresponding variation rates being 37% and 19.4%. Along the analyzed period, 8,564 cases of infection with *Plasmodium vivax*, 1,148 cases of infection with *P. falciparum*, and 79 cases of coinfection with both species were recorded in Calçoene county — which includes the Lourenço mining camp. The incidence of cases tended to be lower in the months with higher precipitation index, i.e., March, April and May. Incidence was higher in the months with higher mean temperature, September, October and November. **Conclusions:** Climatic factors might be have relationship with the periods of higher incidence of malaria by promoting adequate means and temperature for vector proliferation. This association, together with lack of planning of land occupancy, sanitation and health care, has impact on the world of mining: it poses risk to the health of workers and makes them agents of disease transmission. Data on environmental and social factors associated with the prevalence of malaria are necessary for planning control policies targeting this endemic disease.

**DOI:** 10.5327/Z16794435201816S1P37


Solange Rita Bernardo dos Santos

**Objective:** To estimate the rate of sickness absenteeism among employees of a public federal university in Mato Grosso do Sul, Brazil, from 2013 to 2017. **Methods:** Cross-sectional, retrospective and descriptive study which included all the employees of a public university...
issued medical certificates for reimbursement of missed work days in the period from 2003 to 2017. **Results:** In 2013 1,905 certificates were issued to 1,320 employees; in 2017, 1,482 certificates to 1,520 employees. Therefore, the number of certificates issued decreased by 22.0%, while the number of employees increased by 13.2%. The average duration of leaves, in days, per certificate issued was 13.97 in 2013, 15.11 in 2014, 17.16 in 2015, to decrease to 11.10 in 2016, and then slightly increase to 15.86 in 2017. The involved International Classification of Diseases (ICD-10) codes were F, M and J in 2013, Z, F and J in 2014, Z, F and J in 2015, Z, F and J in 2016, and Z, F and J in 2017. **Conclusion:** The epidemiological situation evidenced from historical series analysis for the period from 2013 to 2017 was characterized by a high level of absenteeism. While the number of employees (200) increased from 2013 to 2017, the number of certificates issued decreased (456) and consequently also the number of leave days (5,686). This inverse relationship is probably due to measures implemented to improve the divulgation of norms, and of a program for adjustment of activities to employees with chronic diseases and restrictions for some tasks upon returning to work.

**DOI:** 10.5327/Z16794435201816S1P39

**P39 – LEUKEMIA AMONG ENDEMIC DISEASE COMBAT AGENTS EXPOSED TO AGROCHEMICALS: CASE REPORT**

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**Background:** Endemic disease combat agents are workers involved in health surveillance, vector control and educational actions aiming at the control of infectious diseases. As a result, they are exposed to occupational hazards, especially of chemical nature, due to exposure to several agrochemicals used for vector control. These substances are able to damage the DNA, and thus are associated with the development of occupational cancer. **Objective:** To describe a case report to call the attention of physicians and other healthcare professionals to the relevance of the occupational medical interview, given the presence and underreporting of work-related cancer. **Methods:** Case report involving a public health worker engaged in the combat of endemic diseases, vector control, and with long occupational exposure to pesticides, who developed chronic myeloid leukemia and several gene mutations. The worker voluntarily agreed to have his occupational medical history and tests reported, provided anonymity was ensured, and signed an informed consent form. **Results:** The worker was examined by a medical legal examiner following several leaves due to chronic myeloid leukemia. As the disease was refractory to treatment, a karyotype test was performed, which evidenced several mutations, in addition to translocation between chromosomes 9 and 22 (Philadelphia chromosome). Based on these findings, exposure to genotoxic agents was investigated — the patient had worked for more than 30 years in vector control campaigns, involving exposure to agrochemical fumigation. The present case report evidenced a causal relationship between disease — which included karyotype damage in addition to the Philadelphia chromosome — and prolonged exposure to agrochemicals used in vector control campaigns. **Discussion:** Exposure to agrochemicals is associated with higher incidence of neoplasms, including lung, liver and stomach cancer, in addition to hematopoietic disorders and DNA damage, which contribute to the occurrence of myelodysplasia, leukemia and lymphoma. **Conclusion:** Causal relationships are difficult to establish for occupational cancer as a function of the many factors involved and the latency period. However, given the long exposure of the worker described here, and the development of mutations other than the Philadelphia chromosome, we conclude that the present was a case of occupational cancer.

**DOI:** 10.5327/Z16794435201816S1P41

**P41 – CHANGE OF AN EMPLOYEE WITH RESTRICTIONS TO A COMPATIBLE JOB: REPORT OF A CASE OF NESIDIOMBLASTOSIS FOLLOWING BARIATRIC SURGERY**

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Background: Bariatric surgery is the first-choice procedure for treatment of type 2 diabetes among patients with morbid obesity, with a therapeutic efficacy rate of 80%. However, some patients develop hyperinsulinemic hypoglycemia after recovering from surgery. This condition, known as nesidioblastosis, is due to beta cell pathological enlargement. One of the explanations suggested is rapid arrival of nutrients to the duodenum, which increases the release of GLP-1 (glucagon-like peptide 1), which in turn causes beta cell hypertrophy, proliferation and neogenesis. Objective: To report the case of a female worker who developed nesidioblastosis after bariatric surgery.

Methods: Case report involving a nursing technician at the emergency department of a large hospital in São Paulo. Results: EDF, 41 years old, after bariatric surgery began to develop repeated episodes of hypoglycemia. Following exhaustive investigation, the endocrinology staff diagnosed nesidioblastosis. Sudden hypoglycemia episodes threatened the worker’s safety, and impaired her work at the emergency department. Following a leave due to temporary work disability paid by the Social Security Administration, she returned to work, but without any recommendation for relocation. However, given the risk to her and her patients’ health, the hospital Specialized Service of Safety Engineering and Occupational Medicine (Serviço Especializado em Engenharia de Segurança e em Medicina do Trabalho—SESMT) called in the relocation committee, which performs medical, psychological and physical therapy assessments. The case was discussed with area managers and a SESMT representative, and it was decided to relocate the worker and redefine her job tasks. Given her restrictions, her work ability was assessed, and she was offered a new position as assistant at the patient transfer service. The new tasks were of administrative nature, but she could take profit of her experience in nursing in the daily activities and technical decision making. Discussion: We call the attention to the relevance of the occupational medicine and safety engineering staff in the professional relocation of the worker described here. Restrictions are assessed by SESMT multidisciplinary staff, and actions are implemented by a multi-professional team. First a decision is made on whether a case exhibits temporary or definitive restrictions. On these grounds, the staff discusses possible temporary or definitive tasks, which the involved employee starts performing under supervision. With the employee’s agreement, restrictions are formally described and periodically reassessed to make adjustments as per need. Conclusions: Following careful evaluation by the restrictions committee of a large hospital in São Paulo, the health of an employee was preserved, and conditions were granted for her to take profit of her technical knowledge in the new area.

DOI: 10.5327/Z1679443520181651P42

P42 – LIFESTYLE AND HEALTH CONDITIONS OF TRUCK DRIVERS IN THE FEDERAL DISTRICT, BRAZIL

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Background: The epidemiological profile of the Brazilian population underwent substantial changes, with relevant effects on morbidity and mortality indicators. The work performed by truck drivers might impair their health, because it favors unhealthy lifestyles including sedentary behavior, poor dietary habits, overweight, drinking and smoking, among others. The professional routine also interferes with the family and social lives of truck drivers. Objective: To analyze the lifestyle and working conditions of truck drivers in the Federal District, Brazil.

Methods: Cross-sectional study conducted with 1,223 truck drivers enrolled in the Health Program on Highways which provide access to the Federal District (BR40, BR50, BR60 and BR70). All the participants were subjected to measurement of the body weight, height, body mass, neck and waist circumference, visual and hearing acuity, heart rate, blood sugar, triglycerides and cholesterol. All the analyses were performed using software STATA 12.0.

Results: The average age of the participants was 38.5 years old (standard deviation — SD±6.4). Most were married (61.8%), had not completed higher education (70.8%), were of low socioeconomic class (78.5%), smokers (35.6%) and consumed alcohol on a regular basis (54.3%). About 42.6% of the sample exhibited excess weight, and 82.5% did not practice physical activity. They drove 10.8 hours/day, on average (SD±5.2). About 23.6% of the participants stated they had already been involved in a highway accident. About 52.7% of the sample was at high-risk for cardiovascular disease, established based on the waist circumference measurement. About 52.4% of the participants had mild hearing loss, and 78.2% normal visual
In regard to chronic diseases, 12.5% of the participants were diabetic, 37.7% had hypertension, and 42.4% dyslipidemia. We found association between waist circumference and blood sugar and high cholesterol ($p=0.04$). Association was found between dyslipidemia and waist circumference for the participants who did not practice physical activity ($p=0.03$), and therefore, high risk for cardiovascular disease.

**Conclusion:** The lifestyle of truck drivers includes health damaging habits, such as lack of physical activity and unhealthy behaviors (drinking and smoking), which are risk factors for noncommunicable diseases.
Engenharia de Segurança e em Medicina do Trabalho–SESMT). **Objective:** To discuss benefits resulting from the availability of physicists specialized in diagnostic and interventional radiology, their role as RPS, and the relevance of their joint work with SESMT. **Methods:** Qualitative study conducted by a group of experts in medical physics, safety engineering and occupational medicine at a cardiology facility including a diagnostic and interventional radiology service. Joint visits were performed to the premises to analyze the working conditions and work processes in the presence of employees. The resulting discussions led to: a) the identification of occupationally exposed individuals (OEs); b) control of the occupational doses; c) assessment of personal protective equipment; d) a quality assurance program; and e) training in radioprotection. **Results:** Reformulation of the OEI staff demanded individual quantitative dosimetry adjustments, changes in the frequency of periodic examinations and hazard pay. The planning of structural changes was based on the quality assurance program, and led to improving the adequacy and modernizing the service, through the removal of inadequate equipment and reclassification of areas. Interactive radioprotection training was provided to the employees in different areas, which was performed during interventional procedures, when errors were identified and solutions were suggested. Procedures were optimized, with consequent reduction of exposure for patients and staff, particularly as concerns C-arm equipment, for which use most professionals do not have previous radioprotection training. **Conclusion:** Mapping areas and functions interfered with the semi-annual periodic examination and in hazard pay granting. The interaction of the physicist with SESMT allowed standardizing procedures, improving the working conditions and organization of work, and the surveillance of the health of workers occupationally exposed to ionizing radiation.

**REFERENCE**

The worker involved in the case was an autonomic professional who had to reduce his work due to a stroke. Implementation of new control methods, monitoring of work processes, and updating radioprotection techniques should converge with the development of medical technologies. Training and continued education are crucial to determine the risks posed by X-rays and know how to reduce them. Professionals become exposed to radiation because they ignore the associated risks, or due to institutional neglect to provide safe conditions.

**Methods:** Documentary analysis based on a case report.

**Results:** The worker involved in the case was an autonomous systems analyst. At age 30 he had a stroke (rupture of a previously unknown brainstem arteriovenous malformation) which left tetraparesis and dysarthria as sequelae. He received sick pay for about 4 years. Then he was hired as a systems analyst by an information technology company. He requested sick pay discontinuation, and despite the aforementioned motor sequelae, he worked at the new job for two years. However, he suffered a second stroke, with even more severe sequelae: quadriplegia and considerable aggravation of dysarthria. During the stage of functional rehabilitation, he developed skills in the use of assistive technology, especially computers use with support software, which allow moving the cursor with head motion and clicking with lip motion. Although he depended on caregivers for the activities of daily living, he used the software to send an e-mail to the former employer requesting a job, on which occasion he observed that his cognitive ability was preserved. He emphasized the relevance of work as a part of his rehabilitation, and detailed the activities he could or not perform as a telecommuter, based on the remaining skills and limitations. Following a home visit, the technical department of the company backed his request. Based on the opinion of technology information professionals, the employer requested discontinuation of the social security benefits to include the worker in its production process as telecommuter. A medical examination performed at the worker’s home corroborated that he exhibited motor limitations as sequelae of the second stroke, and required continuous assistance by caregivers and a multi-professional staff. His skills to handle software were determined. As a function of the particularities of the case, the social benefits were discontinued, and the worker allowed to return to work. In an interview one year after having returned to work, the worker stated he was satisfied for being normally performing the activities he was able to do. **Discussion:** In this case “doing” was the instrument for rehabilitation. Instead of a situation leading to disability retirement, here there is worker performing his job with the support of his family, employer and social security administration. The medical legal examination facilitated the process set on the worker’s own initiative to return to work. **Conclusion:** It is crucial for occupational physicians and medical legal examiners to consider all the particularities of each individual case when called to opine on work disability. The motivation of workers should always be taken into account in order to respect their will when returning to work under safe conditions is possible.
organochlorines (hexachlorobenzene — BHC, dichlorodiphenyltrichloroethane—DDT). No personal protective equipment (PPE) was worn. High resolution computed tomography (HRCT) of the chest evidenced numerous parenchymal bands, bilateral honeycomb images and diffuse air trapping areas. Spirometry revealed a severe restrictive pattern. Open lung biopsy confirmed the presence of interstitial pneumonitis with bronchiolocentric distribution, old fibrosis areas and cholesterol crystals surrounded by giant cells. Endoscopy showed no abnormalities. A 24-hour esophageal pH test was indicated to perform differential diagnosis with gastroesophageal reflux disease, despite the absence of pyrosis and dyspepsia.

**Conclusions:** Although knowledge and use of PPE are widely spread, some workers still inadequately adhere to basic safety protocols. Hypersensitivity pneumonitis damage can be partially or completely reversed in cases of early diagnosis and exposure cessation. As the aforementioned pesticides are still widely used, this case illustrates ongoing public health impacts and calls the attention to the importance of protective measures and early diagnosis.

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**DOI:** 10.5327/ZI679443520181651P52

**P52 – PREVENTIVE ASSESSMENT OF COMMON AND MAJOR MENTAL DISORDERS-DEPRESSION IN PERIODIC MEDICAL EXAMINATIONS AT A LARGE PUBLIC COMPANY**

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**Background:** Depression is considered by the World Health Organization (WHO) as the main isolated factor associated with disability worldwide. According to projections, by 2030 depression will be the second most prevalent disorder in medium-income countries, and the third in low-income countries. Implementing actions is urgent given the current global situation and projections. In 2018, the medical department of a large company defined “mental health” as a differential aspect in the annual periodic examinations through the administration of questionnaires targeting common mental disorders (CMD) and major depression. **Objective:** To map psychiatric disorders among the employees of a public and a private company. **Methods:** Study conducted with the employees of a public and a private company in 2018. Participants responded questionnaires SRQ-20 (Self-Reporting Questionnaire) and PHQ-2 (Patient Health Questionnaire). SRQ-20 is used for screening CMD in the primary care setting. PHQ-2 detects individuals with depression symptoms (sensitivity 83%, specificity 90%). **Results:** A total of 1,869 questionnaires were responded in the first semester of 2018, corresponding to 64% of the target population. A total of 1,209 (65%) respondents were male, and 660 (35%) female, most within age range 30 to 49 years old (77%). The results for SRQ-20 were rated positive for 228 respondents (12%), CMD being more frequently among the women (16.7%) compared to the men (9.8%). The results for PHQ-2 were rated positive for 154 respondents (8%), depression symptoms being also more frequent among the women (10.5%) compared to the men (7.0%). Positive results on both questionnaires were more frequent for age range 30 to 39 years old, however, the investigated disorders affected all age groups, being more frequent for the range corresponding to the economically active population (30–59 years old). Positive results on both questionnaires were exhibited by 6% of the sample. **Discussion:** Since SRQ-20 was developed to be administered within the primary care setting, it might be used for identification and prevention of CMD in the workplace. The fact that positive results were more frequent for the age range corresponding to the economically active population corroborates the need for implementation of preventive actions at organizations.
Given the complexity of the factors involved in the pathophysiology of these disorders, their chronic nature, high impact on occupational and social life, difficulties in the therapeutic approach and for attainment of favorable outcomes, this initiative is valid particularly in regard to early diagnosis. Thus it might facilitate management and treatment, with benefits for the health of employees, and consequently also for organizations. **Conclusions:** The results obtained justify the need to approach the subject of interest within the occupational health setting, as well as the implementation of preventive actions. The ongoing project includes individual and collective actions, in addition to follow-up of employees with mental disorders identified based on the results of the questionnaires, and whose outcomes should be the target of studies.

**Method:**
To detect (dyslipidemia) and hyperglycemia among the employees of a large corporate health company.

**Objective:** To analyze the outcomes of a program of prevention of cardiovascular and metabolic diseases through early detection and control of risk factors, such as overweight/obesity, high cholesterol and/or triglyceride levels (dyslipidemia) and hyperglycemia among the employees of a large corporate health company. **Methods:** To detect employees eligible for the program during medical and occupational consultations. The eligibility criteria were: LDL > 160 mg/dL; HDL: men < 40 mg/dL and women < 50 mg/dL; triglycerides > 170 mg/dL; fasting blood sugar > 100 mg/dL; uric acid > 8,0 mg/dL; BMI > 25 kg/m²; presence of any other cardiovascular risk factor, such as systemic arterial hypertension, diabetes mellitus and fatty liver; thyroid dysfunction; and previous bariatric surgery. Eligible employees were seen by an endocrinologist and/or nutritionist (according to individual risk stratification) once per month. Outcomes were assessed every six months by the physician who first enrolled the employee in the program. **Results:** A total of 292 employees participated in the program from January to December 2017. Weight loss and reduction of the waist circumference (WC) were assessed among other parameters. A total of 142 (49%) participants lost 3% or more of their weight at baseline, 82 (29%) 5% or more, and 22 (8%) 10% or more. WC decreased by at least 3 cm compared to baseline in 130 (45%) cases, at least 5 cm in 81 (27%), and at least 10 cm in 35 (11%). **Discussion:** The prevalence of overweight/obesity was 54% in the analyzed population. According to the medical literature, weight loss of 3% suffices to promote reduction of the cardiovascular risk. The results of the present study show that lifestyle habits might be changed through a program of prevention of cardiovascular risk in the workplace, to thus reduce the incidence of related diseases, such as hypertension and diabetes, among others. **Conclusions:** Investing in a program of prevention of cardiovascular risk should be considered a high priority by organizations. The reason is the high prevalence of risks factors among the global population, while the costs of the treatment of the related diseases are extremely high, as also are the costs associated with sick leaves (absenteeism).
main areas of soapstone craft products in Brazil. This is the source of income for many craftsmen, who thus become often exposed to inhalation of rock dust along many years, with consequent risk of developing talcosis. **Objective:** To investigate the occurrence of talcosis among craftsmen exposed to soapstone dust in Cachoeira do Campo. **Methods:** An active search of craftsmen was performed by means of visits to small soapstone pot factories, soapstone crafts shops, household, arts and crafts stores and the local association of craftsmen. Craftsmen were invited to perform the diagnostic routine for pneumoconiosis, which includes: clinical and occupational interview, physical examination, investigation of respiratory symptoms, chest radiographs according to ILO standards, and spirometry. We visited the craftsmen workplace, and performed educational activities, which included lectures and talks, to identify risk factors and discuss solutions to reduce the occupational exposure to dust. **Results:** Nine craftsmen agreed to participate in the study. Two of them exhibited radiological abnormalities, which were compatible with talcosis in one case. The frequency of respiratory symptoms was high, particularly cough (55.5%) and expectoration (55.5%). Three (33.3%) participants had normal and six (66.6%) abnormal spirometry. Among the latter, three (50%) exhibited the restrictive pattern, two the obstructive pattern and one an unspecific pattern. The intensity and length of exposure to dust (32.3±191.1%) were rated high, which reinforces the possibility of occurrence of talcosis. The participation of craftsmen in educational activities was satisfactory. **Conclusions:** The results obtained point to the need to broaden the scope of the study, as well as to reinforce the epidemiological surveillance of talcosis in Cachoeira do Campo.

**DOI:** 10.5327/216794435201816S1P55

**P55 – SUICIDE BY PILOTS: A SCARCELY STUDIED POPULATION OF POTENTIAL INTEREST FOR OCCUPATIONAL MEDICINE**

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**Background:** One considerable challenge in aviation medicine is the early identification of pilots with psychiatric disorders, which might increase the risk of incidents and accidents. Suicide is one of the events strongly associated with mental disorders. Although rare, suicide has substantial social relevance as a function of its impact on third parties, and significant visibility in the media, as e.g. the case of the Germanwings pilot in 2015. Therefore, it is a relevant subject also for occupational medicine. **Objective:** To perform a narrative review of publications addressing suicide by pilots. **Methods:** Literature search in scientific journals included in database PubMed. We looked for articles published from 1988 to 2018 whose titles or abstracts included keywords “pilots” and “suicidal,” or “pilots/air” and “suicide.” Thus 12 studies were located. Publications without available full text or unrelated to the subject of interest were excluded. **Results:** Of the selected articles, 5 were reviews, one a comment, and one a cross-sectional descriptive study. No article was found in Brazilian journals. Data collected by the National Transportation Safety Board for the period from 1982 to 2014 show that 51 pilots committed suicide on board (general aviation). All were male, with average age 38 years old. About 64.7% were premeditated, 54.9% had communicated their intention previously to someone, and 15.7% were taking prescribed medications. **Conclusions:** The results obtained point to the need to broaden the scope of the study, as well as to reinforce the epidemiological surveillance of talcosis in Cachoeira do Campo.
other people is a major concern should have a resilient personality. More thorough studies on this subject are needed to ground effective measures of prevention of mental disorders and suicide among pilots, particularly on board.

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DOI: 10.5327/Z16794435201816S1P56

P56 - PREVALENCE OF THE MAIN DISEASES STATED IN MEDICAL CERTIFICATES ISSUED FOR EMPLOYEES OF A FEDERAL UNIVERSITY IN MATO GROSSO DO SUL, BRAZIL FROM 2013 TO 2017

Solange Rita Bernardo dos Santos

Background: When the employees of a federal university in Mato Grosso do Sul, Brazil, are granted sick leave, they should present the corresponding medical certificate to the occupational health department. Objective: To establish the more prevalent diseases in medical certificates presented by the employees of a federal university.

Methods: Data for the period from 2013 to 2017 were obtained from the People Management Dean Office. The medical certificates were categorized per ICD-10 codes and divided in two groups: university hospital and units I/II. Results: The most frequent diseases stated in medical certificates corresponded to ICD-10 code F (mental and behavioral disorders). The number of medical certificates citing code F issued at the university hospital was 117 in 2013 (4,132 sick leave days), 147 in 2014 (4,952 sick leave days), 143 in 2015 (4,132 sick leave days), 80 in 2016 (2,515 sick leave days) and 92 in 2017 (2,786 sick leave days). Code F also predominated in units I/II: 87 medical certificates issued in 2014 (2,721 sick leave days), 60 in 2015 (2,419 sick leave days), 85 in 2016 (2,951 sick leave days) and 108 in 2017 (4,008 sick leave days). As the single remarkable exception, code Z conditions (factors influencing health status and contact with health services) were the most frequently stated in medical certificates issued in units I/II in 2017 — 160 certificates (4,561 sick leave days, followed by code F (108 medical certificates, 4,008 sick leave days). Discussion: Given the predominance of code F conditions in almost all the analyzed years, evidently psychiatric disorders are one of the main causes of sick leaves among the studied population. Conclusion: Analysis of the 2013-2017 historical series showed that the largest number of medical certificates corresponded to psychiatric conditions. This finding points to the impact of these diseases on the service, as well as to the susceptibility of employees. More studies in other occupational settings are needed to establish the risk for psychiatric disorders among Brazilian workers.

DOI: 10.5327/Z16794435201816S1P57

P57 - EPIDEMIOLOGICAL ANALYSIS OF RECURRENT HEALTH PROBLEMS AMONG BRAZILIAN WORKERS (2012 TO 2016)

Arthur Arantes da Cunha

Background: Work accidents (WA) derive from hazards inherent to each particular type of job, and might also occur on the way to/from work. These accidents are highly relevant as a function of the damage they cause to the health of workers and the costs to the Unified Health System (Sistema Único de Saúde–SUS). Objectives: To calculate the total number of WA, identify the most recurrent types of accidents based on the International Classification of Diseases (ICD), and analyze the variation in the number of cases in Brazil for the period from 2012 to 2016. Methods: Quantitative and descriptive study based on public secondary data on the number of WA in Brazil published in the Work Accident Statistical Yearbooks, Ministry of Finance/Secretariat of Social Security, for the period from 2012 to 2016. We considered the total number of WA, independently of whether Work Accident Reports were issued or not. Results: A total of 3,353,264 WA occurred along the analyzed period; 332,042 (9.9%) involved open wound of wrist, hand and fingers.
(ICD-10 S61); 222,308 (6.6%) fractures at wrist and hand level (ICD-10 S62); and 157,453 (4.7%) superficial injury of wrist, hand and fingers (ICD-10 S60). The number of WA in 2012 was 713,984, and 578,935 in 2016, which corresponds to a reduction of 18.9%. The number of conditions included in code S61 decreased from 69,675 to 55,217, the one of code S62 conditions from 49,558 to 36,405, and the one of code S60 conditions from 34,030 to 26,075. The corresponding (negative) rates of variation were -20.75%, -26.54% and -20.75%. **Conclusions:** The results of the present study evidence reduction in the occurrence of WA, as well as in the main corresponding diseases according to ICD code. Nevertheless, the number of WA remains high, and its reduction is still a challenge for the purpose of reducing the costs to the Brazilian government with social security and SUS.