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## TLO1 – AN OCCUPATIONAL PHYSICIAN'S PERCEPTION OF SAFETY ENGINEERING AND OCCUPATIONAL MEDICINE AT A PUBLIC MAIL AND PACKET DELIVERY COMPANY

Luciano Moresco Agrizzi

**Case description:** The Safety Engineering and Occupational Medicine Specialized Department (SEOMSD) at the analyzed company is responsible for about 6,000 employees. The department is located in Brasilia, DF. **Discussion:** The physician's perception of the department began from the moment he was hired through a public call held from October 2018 through January 2019. The physician's perception was analyzed based on a questionnaire, an interview and a free essay. This physician works 20 hours/week under the Labor Laws Consolidation regime; his job includes care provision and occupational medical examinations, responding technical reports, analyzing medical legal reports, following up medical legal examinations and absenteeism management. Some difficulties in organization were detected when he started in the job, since the reasons for consultations — even when requested by the physician himself — could not be identified. In time, an internal referral form was implemented, which helped optimize his task. His perceived stress level was high, resulting from some peculiar aspects, such as collective agreements, the company guidelines and complex cases. **Final remarks:** SEOMSD at the analyzed company exhibited some peculiar aspects and shortcomings, but also high potential to become a reference, which will demand investment in technical knowledge and management. According to the interviewed physician, courses on occupational orthopedics, occupational psychiatry and absenteeism management are needed. Also improvements in information technology are necessary to develop dynamic, practical and safe communication strategies.

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## TLO02 – IMPACT OF LABOR REFORM ON THE HEALTH OF HEALTHCARE WORKERS

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**Background:** Labor relations date from antiquity, having evolved and changed over time. Labor legislation ensured better working conditions, this being the current scenario for the labor reform in Brazil since November 2017 and to achieve a critical view of the current situation and impacts on the health of healthcare workers. These are the main reasons which motivated the present study, which sought to investigate the impacts of the labor reform on the health of healthcare workers. **Objective:** To analyze the impact of changes in the working time, breaks within and between working hours, mother and fetus health and circumstantial removal of pregnant women from unhealthy workplaces. **Methods:** Literature review. **Conclusion:** The analyzed data convey a feeling that the changes made in aspects which influence the health of healthcare workers were premature, since it is clear that the technical-scientific side of such changes was not discussed.

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## TLO03 – EXPOSURE TO PESTICIDES IN BRAZILIAN RURAL AREAS – REALITY AS AN OCCUPATIONAL DISEASE

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**Background:** Pesticides played a significant role in the development of modern agriculture since the onset of the Green Revolution in the beginning of the 1970s. Intensive farming contributes to degrade hydric resources, since pesticides have strong impacts on hydrographic ecosystems. Exposure involves a wide variety of occupational categories, including agricultural workers, workers engaged in vector control, fumigation, the pesticide industry and transport and trade of agricultural products. **Objective:** To characterize the relevance of occupational exposure to pesticides in rural areas. **Methods:** The search terms selected from DeCS (Health Sciences Descriptors) were “agrichemicals” (D27.720.031) and “occupational medicine.” The literature search was performed in databases PubMed, SciELO and Google Scholar. The most relevant articles and essays were included for integrative review. **Results:** The policies incentivizing the use of pesticides starting in the 1960s have repercussion to this day, inasmuch as Brazil is one of the largest global consumers of pesticides. Widespread knowledge of the risks posed by pesticides to human health and the environment did not suffice to deter the growth of their use, as shown by

the more than 70,000 cases/year of acute and chronic poisoning among Brazilian rural workers. **Conclusion:** While legal advances were made, the knowledge on pesticides should be divulged among rural workers through continuing education. Government surveillance should be extended to the use and destination of pesticides and compliance with regulations.

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### TLO04 – OCCUPATIONAL TUBERCULOSIS: ASSESSMENT OF THE OCCUPATIONAL LINK OF ACTIVE TB AMONG HEALTHCARE PROVIDERS

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**Case description:** 47-year-old male nursing technician who worked 12 years in the clinical inpatient wards of a university hospital. In September 2018 he began to complain of cough, expectoration, fatigue, weight loss and night sweats, which became worse along the following 8 weeks. In November 2018 he tested positive for AFB (++) ; a chest tomography evidenced abnormalities suggestive of pulmonary tuberculosis. He had been a smoker for many years (there is no information on the smoking load) and exhibited diabetes and hypertension. TB treatment was started with RHZE, and screening for household contacts was indicated. Investigation of a possible occupational link pointed to probable occupational TP. A Work Accident Report was issued, the patient was referred to the National Social Security Institute for treatment, and workplace contacts were screened. **Discussion:** Early identification and isolation of hospital workers with respiratory symptoms are highly relevant measures to avoid transmission to patients and healthcare providers. Once active TB is diagnosed to patients or workers, contact screening should be performed, including TST at baseline and after exposure. **Final remarks:** Healthcare providers exhibit 2 to 20 times higher risk of infection and TB disease compared to the overall population. Implementation of occupational TB control programs might contribute to accurate identification and management of contacts and to the detection of changes in TST and occupational TB.

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### TLO05 – THE RIGHT SIDE OF THE BOWTIE: SOCIAL DEBT ACCUMULATING IN BRAZIL

Ildeberto Muniz de Almeida; Mara Alice Batista Conti Takahashi; Rodolfo Andrade Gouveia Vilela

**Background:** The literature describes late consequences of disasters and work accidents (WA). These include physical and mental manifestations following traumatic brain injury, bone fractures, amputations, acute poisoning, traffic collisions, witnessing fatal accidents involving colleagues and other severe accidents. In this study we denounce the invisibility of these effects in Brazil. **Objective:** To emphasize accident analysis as an opportunity to identify the impacts of incidents. **Methods:** Analysis of investigation records based on the Accident Analysis and Prevention Model (AAPM) to detect gaps in the surveillance and care of late effects of WA. **Results:** Including AAPM and representing incidents as a bowtie led to an active search of cases of headache, bone necrosis, impaired joint mobility, cognitive deficit, amnesia, respiratory and neurological functional impairments as late consequences or manifestations on the right side of the bowtie. The invisibility of these impacts leads to fragmented and ineffective treatments and work disability unrecognized by the national health system, social security administration or employers, the outcomes being termination without cause, lack of social protection and poorer clinical conditions. **Conclusion:** Occupational health services should engage in active search of late impacts and mitigation and prevention measures for WA. The aspects considered in surveillance systems should also comprise impacts on family members, close relations, passersby, residents at the affected locations and other approaches to enable the determination of the origins and late (health, environmental, social, legal, etc.) consequences of WA.

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### TLO06 – WA FORUM: CONTINUING EDUCATION FOR ACCIDENT ANALYSIS AND PREVENTION

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Rodolfo Andrade Gouveia Vilela

**Background:** Studies performed in the end of the 2000s/2010s describe the practice of blaming the victims work accident as a kind of second punishment added to other consequences of incidents. Victim blaming also leads to inhibiting prevention. The idea that accidents are caused by unsafe acts by the victims began to be criticized by advocates of a new approach to prevention. **Objective:** To report the main aspects of activities developed within a permanent education initiative launched in 2008 to contribute to deconstruct the notion of victim blaming. **Methods:** Descriptive study based on the analysis of records in an internet portal (first and second versions) and related publications. **Results and discussion:** This initiative combined a portal ([www.forumat.net.br](http://www.forumat.net.br)) with in-person meetings held in the state of Sao Paulo, Brazil. A total of 67 meetings were held from 2008 to 2018, more than 15 of them with international guests. In 2018 the portal comprised 21,581 users, 31,691 sessions and was accessed 162,706 times. The portal includes open-access presentation files, news, a library and didactic materials. In addition, video files of meetings with experts are posted on a YouTube channel, which was accessed 28,063 times since 2011. **Conclusion:** The WA Forum contributes to spread the notion of accidents as psycho-organizational phenomena and to keep accident prevention within the scientific and political agenda in Brazil.

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## TLO07 – THE BRUMADINHO TRAGEDY: UNAVOIDABLE DISASTER OR ECHOES FROM MARIANA? PART 1

Ildeberto Muniz de Almeida;  
Rodolfo Andrade Gouveia Vilela

**Background:** Three years after the disaster in Mariana, the Corrego do Feijão dam failure in Brumadinho, Minas Gerais, upsets Brazil. According to Vale S.A. executives, the dam did not have any safety problems. **Objective:** To promote a reflection on what to do when everything is in “perfect conditions” but problems do happen. **Methods:** Survey of written and video news stories and documents seeking elements to confirm and call into question the explanations given by the company. This poster explores the version given by the company. **Results:** According to the report issued by the German company that inspected the dam last September, there were no “structural flaws” and “no damage was found.” Investigations should focus

on the assessment and criteria described in the report, TÜV-SÜD’s past history — a company that had been previously suspended by a “United Nations [committee] for failing to comply with procedures... and positive validation... of projects, even when there were some concerns” (<https://flip.it/rCUpKM>) — and the role of government agencies. All these aspects should be evaluated based on the best criteria available in the literature. If tragedy can happen when everything is perfect, prevention should consider whether dams built using the same technology as Brumadinho’s may be socially acceptable. The legislation should establish who is entitled to make such decision: company technicians? The government? Through a process involving potentially affected communities? **Final remarks:** Accident analysis should consider the nature of hazards and risks and the political strategies formulated by the involved actors.

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## TLO08 – THE BRUMADINHO TRAGEDY: UNAVOIDABLE DISASTER OR ECHOES FROM MARIANA? PART 2

Ildeberto Muniz de Almeida; Rodolfo Andrade Gouveia de Vilela

**Background:** Three years after the disaster in Mariana, the Corrego do Feijão dam failure in Brumadinho, Minas Gerais, upsets Brazil. According to Vale S.A. executives, the dam did not have any safety problems. **Objective:** To promote a reflection on what to do when everything is in “perfect conditions” but problems do happen. **Methods:** Survey of written and video news stories and documents seeking elements to establish the origins of this tragedy. **Results:** Since the dam did fail, looking for reasons is in order. The large number of workers at the most seriously hit area echoes the disaster at Mariana, including the failure of the alarm system and the downstream location of administrative buildings and the company restaurant, namely, conditions which hinder quick and safe evacuation if needed. In the case of Mariana, Bento Rodrigues, destroyed by the “tailings,” was also located downstream and the residents were not warned by alert systems. The Brumadinho dam had been deactivated three years earlier. Was prevention impaired by resource shortage, conflicting goals or other factors? **Conclusion:** Several scholars point to the need to be wary of interferences represented by knowledge of negative outcomes,

retrospective or outcome bias during investigations. They also observe that the history of man-made disasters, such as the dam failure in Brumadinho, is rooted in the development of the system and produce warnings which should be detected and taken into account. Both bias and warnings should be considered in analysis. Brumadinho does reflect echoes from Mariana.

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### TLO09 – EPIDEMIOLOGICAL PROFILE OF SOCIAL SECURITY BENEFITS FOR PESTICIDE POISONING IN BRAZIL

Rafael Silva Duarte Almeida; Andrea Franco Amoras Magalhães; Julianne Campos; Larissa Aires Oliveira de Moura; Aline Cristhina Araújo Silva; Joseane Prestes de Souza; Rosylane Nascimento das Mercês Rocha

**Background:** Pesticides have environmental and public health impacts. 70,000 cases of pesticide poisoning progress into death annually, and there 7 million non-fatal cases. Cases of this type of poisoning must be mandatorily reported to the System of Information for Notifiable Diseases (SINAN) independently from their link or not to work. Nevertheless, underreporting does occur in Brazil and worldwide. **Objective:** To analyze the epidemiology of sick-pay benefits granted for pesticide poisoning in Brazil. **Methods:** Cross-sectional retrospective study that analyzed DATAPREV data from 2007 through 2015 made available by the Ministry of Labor and Social Security. **Results:** The highest incidence of pesticide poisoning cases reported to SINAN corresponded to 2014, 6.26 cases/100,000 people. A total of 84,206 cases were reported from 2007 to 2015. Sick pay is granted to disabled workers and is characterized as a social security benefit when there is evidence of a causal link between disease and work. A total of 341 sick-pay benefits for pesticide poisoning were granted from 2007 to 2015, 153 of them characterized as accidents. Although pesticides are widely used and are permitted by the Brazilian legislation, occupational exposure might harm the health of the directly exposed workers. **Conclusion:** Periodic monitoring is needed for health assessment, disease prevention and early diagnosis of cases of poisoning. Poisoning has economic impacts, because it leads to absenteeism, loss of productivity and work overload to the remaining workers, in addition to the need to provide support to social security beneficiaries.

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### TLO10 – EPIDEMIOLOGICAL PROFILE OF ENVIRONMENTAL SURVEILLANCE AGENTS IN THE BRAZILIAN FEDERAL DISTRICT IN 2018

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**Background:** Pesticides were introduced in Brazil in the 1920s to achieve chemical control of disease vectors. Environmental surveillance agents (ESA) are exposed to chemical risk associated with pesticides. Cholinesterase inhibitors and pyrethroids are the most widely used pesticides. Occupational exposure is monitored in clinical-epidemiological and occupational medicine evaluations. **Objective:** To analyze exposure to pesticides among ESAs cared at the occupational toxicology outpatient clinic of the Federal District in 2018. **Methods:** Cross-sectional observational study performed with ESAs in the Federal District exposed to pesticides. **Results:** The sample comprised 69 ESAs, who were predominantly male and with average age 48.8 years old. The length of exposure was considerable, 11 to 35 years for 71.1% of the sample. Adherence to personal protective equipment (PPE) was low; gloves and masks were worn by 53.6% of the participants. The main reported signs and symptoms were headache, nausea, itch, dizziness and forgetfulness. **Conclusion:** Despite the efforts of occupational medicine in the Federal District toward continuing education and periodic monitoring of ESAs, poisoning prevention is deficient due to shortage of PPE, inadequate use of pesticides and lack of public policies to change a situation characterized by substantial economic and health impacts on this population of workers.

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### TLO11 – RECEPTION OF PREGNANT WORKERS AT AN OCCUPATIONAL HEALTH SERVICE

Romanniny Hévillyn Silva Costa Almino; Érika Carvalho de Araújo Silva; Cíntia Gouveia Costa de Alcântara; Valéria Regina Carvalho de Oliveira

**Background:** Pregnancy is a time when women require special care and some among the gestational risk factors are

related to work. Several pieces of the Brazilian legislation address the protection of pregnant healthcare providers, including the Ministry of Labor and Employment Regulatory Standard 32, the Labor Laws Consolidation (LLC) and Ministry of Health protocols. **Objective:** To describe how pregnant employees of a maternity hospital were received at an occupational health service. **Methods:** This study consists in an experience report relative to the care provided by occupational health staff to workers under the LLC regime in spontaneous visits, periodic examinations and/or requesting leaves of absence. **Results:** Thirty-four pregnant workers were followed up along 2018. Visits included clinical interviews to collect data on the participants' medical and reproductive history, clinical and pregnancy aspects, current complaints, vaccination status and identification of occupational and non-occupational risk factors. The participants were provided orientation on physiological and psychological aspects, vaccination, healthy eating, physical activity, pregnancy rights, work restrictions, personal and collective protective equipment. The participants were also referred to other healthcare providers and the safety at work department; work restrictions were discussed with supervisors. **Conclusion:** Pregnant workers require particular care in regard to occupational hazards given the need to protect their and their child's health in the workplace.

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### TLO12 – IMPLEMENTATION OF A VOICE HEALTH PROGRAM AT A FEDERAL EDUCATIONAL INSTITUTION

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Érika Carvalho de Araújo Silva; Cíntia Gouveia Costa de Alcântara; Valéria Regina Carvalho de Oliveira

**Background:** The voice is a working tool for teachers; individual, environmental and organizational factors might interfere with voice health. **Objective:** To describe the implementation of a voice health program at a federal educational institution. **Methods:** The present is an experience report. Participants were employees of Federal Institute of Rio Grande do Norte in 2017 and 2018. The program included voice health campaigns, distribution of squeeze bottles, educational workshops and individual consultations with speech therapists and nurses. Voice care was one of the topics addressed in the educational workshops. Consultations with nurses included general assessment of the participants' state of health, work process and environment.

In the consultations with speech therapists, the participants were prescribed voice exercises. **Results:** 25 workshops, with 600 participants, were held at 21 campuses in 2017; 15 workshops, with 409 participants, were conducted in 14 campuses in 2018. The number of consultations in 2018 was 27 with speech therapists and 26 with nurses. A total of 300 squeeze bottles were distributed. Voice campaigns were held in April 2017 and 2018, which included distribution of posters, folders and videos with orientation on voice care and exercises. **Conclusion:** Actions for voice health promotion and prevention and early detection of work-related voice disorders are essential.

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### TLO13 – EHS MANAGEMENT AS INSTITUTIONAL STRATEGY

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**Background:** Our research question was "What are the magnitude and outcomes of integrated management systems (IMS) at organizations?" **Objective:** To analyze the implementation of IMS at a metallurgic multinational company to compare advantages and problems and correlate costs and benefits following the restructuring of the EHS management system. **Methods:** Case study. **Results:** Restructuring improved productivity through direct effect on the organizational culture and climate, resulting in lower frequency of accidents, improved lifestyles and quality of life among the employees and their families and employee retention, thus corroborating previous scientific studies. After six years, restructuring had direct influence on the following indicators: economic — ROI of more than USD 4.50 per dollar invested and 66% reduction of the Work Accident Insurance; health — 67% reduction of absenteeism and 85% reduction of leaves for musculoskeletal disorders; safety — 82% reduction of the total number of accidents, 92% reduction of accidents requiring sick leave and 98.6% reduction of the severity of accidents; and environmental — improved efficiency of the Solid Waste Management Plan by 51% and almost 300% increase of the recyclable waste volume. Thus productivity increased and healthcare costs decreased. **Conclusion:** The results evidence that the investment in EHS is directly proportional to profit both financially and in terms of the employees' quality of life.

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## TO14 – MAPPING THE PRODUCTION PROFILE OF A DISTRICT OF CAMPINAS, SAO PAULO, BRAZIL

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**Background:** Part of the task of community health agents (CHAs) is to familiarize with the area of coverage of the corresponding Health Basic Units (HBUs) to improve healthcare actions targeting local residents and workers, while establishing the local production profile and potential occupational hazards. However, CHAs are not always duly trained for these actions. **Objective:** To train CHAs to identify occupational hazards and production profiles in their micro-areas of coverage. **Methods:** Visits performed by CHAs and occupational medicine residents at UNICAMP. Interviews with workers and direct observation of work processes, orientation and feedback. Hazards were categorized as physical, chemical, biological, ergonomic or accidents. The degree of risk was categorized as low, medium or high. Data were made available to the teams via Google Maps. **Results:** A total of 22 companies were visited along 3 months, 65% of which allowed direct observation on the premises. Addresses were exported to Google Maps, including identification and category of companies, type of hazards and degree of risk. The map was made available to CHAs via Internet for access and updating. The procedure followed the criteria recommended for risk maps. An educational workshop was conducted with the workers at the visited companies. Feedback sessions were held with the assistance of the medical residents. **Conclusion:** Onsite evaluation and supervised interviews helped CHAs detect previously unknown hazards. Internet open-access tools facilitate the use of risk maps.

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## TLO15 – HOW MUCH SHOULD TELEWORKERS PRODUCE? COMPARATIVE STUDY OF TELEWORK PERFORMANCE GOAL REGULATIONS IN THE FEDERAL JUDICIARY

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**Background:** Telework is currently discussed worldwide. There are countless publications on the impacts of this new form of work organization. Changes made into the Labor Laws Consolidation article 6, in 2011, equated the legal effects of remote to those of onsite subordination. Following the global trend, telework was implemented in the Brazilian public administration, and was regulated by the National Justice Council in 2006. In compliance with the Balance Scorecard strategic management method, implemented in 2009, determining performance goals for teleworkers relatively to onsite employees is mandatory. **Objective:** To analyze the goals established in regulations for telework in the federal judiciary. **Methods:** Qualitative and document analysis; sources were resolutions which regulate telework in the federal judiciary located via Internet. **Results:** Telework was regulated in 4 out of 5 courts; the pioneer was the 4th Regional Justice Court (TRF4) in 2013. All the located regulations establish performance goals and the need to develop individual work plans, up to 30% higher for TRF3, up to 10% higher for TRF4 and at least 15% higher for TRF5; TRF1 has not yet defined goals. **Conclusion:** The results point to the need to evaluate the expected standards and goals and their possible impacts on the health of workers. These goals require assessing the different telework environments according to their nature, physical and organizational characteristics.

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## TLO16 – INTEGRATION OF OCCUPATIONAL HEALTH ACTIONS INTO PRIMARY CARE

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**Background:** Most Brazilians work in small businesses or have informal jobs and seek healthcare at primary care facilities. Implementing occupational health actions is still a challenge to the national health system, while Occupational Health Reference Centers are not able to meet the entire demand. Therefore, engagement of primary care in occupational health is crucial to improve the healthcare provided to workers. **Objective:** To analyze the impact of primary care occupational health actions at a Health Basic Unit (HBU)

in Campinas, Sao Paulo, Brazil. **Methods:** Consultations by supervised occupational medicine residents with workers within the HBU area of coverage; support provision to other healthcare providers. The aim of consultations was to detect and report work-related diseases (WRD) and provide orientation to employees and employers. **Results:** A total of 141 consultations were performed along 18 months for 98 patients (47% male), 74% of whom had formal employment relationship. More than half (51%) of the patients had jobs in commerce or services. About 56% of visits were due to musculoskeletal disorders. Eight cases of WRD were reported. The various teams periodically shared the information. **Conclusion:** Primary care demands justify occupational health actions. The disease profile of workers is different than that of the overall population. There are gaps in the knowledge about occupational health among primary care providers. Participation of occupational physicians in primary care might contribute to increase the rate of reported WRD.

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### **TLO17 – SIASS MEDICAL LEGAL EXAMINATION MODULE: ANALYSIS OF THE SCOPE OF BRAZILIAN SOCIAL POLICIES IN THE STATE OF RIO GRANDE DO SUL**

Aline Rodrigues de Avila; Sandro Schreiber de Oliveira;

**Background:** This presentation derives from a PhD dissertation defended in December 2018. **Objective:** To analyze the Medical Legal Examination Module of the Civil Servant Healthcare Integrated Subsystem (SIASS) from the perspective of managers, operators and users in the state of Rio Grande do Sul, within the scope of Brazilian social policies. **Methods:** Mixed, quantitative and qualitative study conducted at SIASS units and federal agencies without SIASS and which thus depend on other institutions for medical legal examinations. Data collection was performed by means of semi-structured interviews and administration of a structured questionnaire. The study population comprised 63 civil servants, including managers, operators and users. Analysis was performed with software SPSS and also comprised content analysis. **Results:** The results were analyzed according to two perspectives, that of policies targeting workers, the role of the government in such policies and the relevance of

evaluating public policies as a form of development; the other perspective considered aspects of SIASS relevant for medical legal examinations. **Conclusion:** The government needs to strengthen its role in the enactment of public policies and evidence commitment to their execution and continuous evaluation. We call the attention to the role of managers and operators, who assumed the execution of policies beyond their prescribed tasks, to include political, economic and social aspects, resulting in harms for workers and the operators themselves, since weaknesses are not reported to the government.

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### **TLO18 – 360° DIAGNOSIS OF MENTAL HEALTH AT AN ORGANIZATION: INTEGRATING OCCUPATIONAL HEALTH AND HEALTHCARE DATA**

Luiz Antonio Setti Barbosa; Renata Simioni; Renata Tassi dos Santos; Carlos Eduardo Reis de Souza; Suelen Costa dos Santos; Simoni Paim Borges;

**Background:** Mental health at organizations is increasing in relevance as a function of absenteeism/sick leaves or of the multiple roles and responsibilities of employees. **Objective:** To analyze the current scenario and establish predictive/relevant factors. **Methods:** Analysis of recorded absenteeism, sick leaves, use of medical insurance and internal health services and administration of the Beck Anxiety Inventory (BAI) along the previous 12 months. The data were stratified per job position, department and progression along one year. **Results:** 5,500 employees were included in the database. Absenteeism and sick leaves accounted for 1% and 10% of medical certificates, respectively. BAI was administered to 35% of the sample; the results pointed to moderate-to-severe anxiety in 3% of the employees. The frequency of visits to psychology and psychiatry services increased discretely in the second semester. Mental health problems represented 4% of the costs of medical care and medications. The weighted mean (events/headcount) was significantly higher for 12 departments; in two departments more than one factor was significant. **Conclusion:** Identifying predictive factors and sentinel events enabled focusing on proactive actions rather than on reactive actions and late follow-up of the progression of disease, including absenteeism and sick leave.

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## TLO19 – A CORPORATE PHYSICAL HEALTH MANAGEMENT MODEL TO IMPROVE THE WORKERS' EXPERIENCE

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Ruth Helena Manoel dos Santos;  
Leticia Dias da Costa Galeto

**Background:** We developed a program that takes the experience of workers into account and comprises pre-employment examination, reception and integration, specific orientation, prevention training and reduction of workplace hazards. **Objective:** To develop a management model including humanized monitoring of the physical health of workers. **Methods:** In pre-employment examinations, we established the profile of the physical health of workers through kinesthetic-functional assessment (Veronesi, 2013) which helps in workstation allocation to avoid musculoskeletal impacts. In the case of pre-existing posture problems, physical training was indicated and orientation was given to allocate the employees to workstations which would not aggravate their problems. The ergonomics program includes specific regulation measures, including compensatory rest breaks, task alternation and workplace exercises (OCRA method). Proactive risk reduction actions include monthly meetings with managers and the engineering department to continuously improve workstations and design zero-risk projects. **Results:** 75% of workstations did not pose ergonomic risk. Nine percent of the medical certificates issued were due to ICD code M conditions. About 97.4% and 94% of employees and managers, respectively, were satisfied with the health staff. **Conclusion:** Risk reduction and the ergonomic culture afford opportunities to continue the employees' monitoring as an approach to prevention.

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## TLO20 – MEDICAL SCHOOLS AND OCCUPATIONAL HEALTH PUBLIC POLICIES

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**Background:** Administrative Ruling no. 1,823/2012 established the Occupational Health National Policy (OHNP) for health promotion, protection and reduction of the morbidity and mortality associated with

production processes. This perspective agrees with the National Curricular Guidelines for Undergraduate Medical Education, which favor a broad-scoped approach, according to which individuals should be seen as a whole and health in all its dimensions. Medical schools are seeking to change their pedagogic practice to adjust to this new scenario, including cooperation with the world of work and emphasizing the relationship between theory and practice. **Objective:** To describe an experience relative to the curricular axis "Integration, Teaching, Service and Community." **Results:** The Integration, Teaching, Service and Community is a transversal axis in the undergraduate medical curriculum. Thus it represent a crossroad of the various types of knowledge which represent the different levels of complexity of healthcare and its lifecycle, in close interaction with Unified Health System policies and its legal structure. In regard to OHNP, students are introduced to the main occupational diseases, legal aspects, the impacts of ecological imbalance on health and the relations between health and the world of work. **Conclusion:** We emphasize the relevance of close school-work interaction along undergraduate education to promote more thorough knowledge on individuals/service users as a whole and the entire healthcare network. The result will be physicians able to detect health problems and act on the work-health relationship, thus contributing to increase the effectiveness of OHNP and include interventions into their practice.

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## TLO21 – FEASIBILITY OF TELEMEDICINE AT AN OCCUPATIONAL HEALTH OUTPATIENT CLINIC

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Sabrina Geraldo Rosa Lemes

**Background:** As part of the attempts to improve the quality, efficiency and efficacy of healthcare, telemedicine is undergoing exponential growth, inasmuch as it enables care delivery in locations where distance is a critical factor and facilitates access to patients in large urban centers. **Objective:** To analyze the feasibility of telemedicine implementation to perform ECG, EEG and spirometry tests at an occupational health outpatient clinic in 2017 and establish eventual reductions of direct and indirect costs (time lost in tests, absenteeism, productivity and transport). **Methods:** Retrospective,

observational and analytic study conducted at a pulp and paper mill with 1,100 employees and at forestry units in São Paulo, Brazil, with 476 employees. We compared the cost of remote versus on-site tests. **Results:** The direct cost — cost of tests — decreased 31% at the head office relative to 895 tests (471 ECG, 375 EEG and 49 spirometry tests) and 61.8% at branch offices relative to 209 tests (177 ECG and 32 EEG). Reduction of the indirect cost was even more considerable, 73% at the head office and 73.5% at branch offices. **Conclusion:** Remote tests are feasible and financially advantageous within the outpatient occupational health setting. The attempts of organizations to reduce costs, together with efficient and strategic management enable success, as they contribute to the development of new knowledge and to its application into practice, thus improving the quality of services and strengthening the organizations themselves.

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### TLO22 – CONSEQUENCES OF FOURTH-PARTY SERVICES FOR THE HEALTH AND SAFETY OF WORKERS

Érica Nascimento Batista ; Anamália Queiroz de Carvalho Alcântara; Elias José de Alcântara

**Background:** The Brazilian Law no. 13.467/2017 added article 4-A to the Law no. 6,019/2014, consequently enabling outsourcing for any activity of the hirer, and service providers to subcontract a fourth party. These developments have several consequences for the labor relations. **Objective:** To analyze the consequences of subcontracting fourth-party providers for labor relations, especially as concerns the health and safety of workers, given that the legislation does not hold hirers responsible for the health and safety of the fourth-party provider's employees. This situation undermines the health and safety at work regulations included in the Occupational Health Medical Control Program and distorts the protection system for labor relations, especially as concerns disability and apprentice hiring quotas. **Methods:** Literature review. **Results:** The power endowed to the third-party provider to subcontract any activity without any attribution of responsibility to the hirer or the third-party provider for environmental and worker safety at the fourth-party service provider undermines the worker protection regulations. **Conclusion:**

A consolidated understanding is needed to attribute to hirers, third- and fourth-party providers joint responsibility for the health and safety of workers aiming at the protection of work environments.

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### TLO23 – ACUTE AND CHRONIC OTITIS ASSOCIATED TO HEARING LOSS AND ANXIETY AMONG TELEMARKETING OPERATORS IN THE INTERIOR OF THE STATE OF RIO GRANDE DO NORTE, BRAZIL

Fernanda Gurgel Fernandes Benjamim; Leonardo L. de Barros ; Ruslândia Sâmia S. M. Coelho ; Alexandre Eloi F. Paiva ; Kalyna Pinto ; Oscar de Lima Oliveira

An outpatient occupational medicine department affiliated with the national health system in a medium-sized town in the interior of the state of Rio Grande do Sul, Brazil, has been following up with much concern the occurrence of new cases of acute and chronic otitis media associated with hearing loss and anxiety among young employees of a telemarketing company. The demand started after a recent lecture delivered by department staff at the company premises and is increasing ever since. The patients' descriptions are quite similar in several respects. The initial complaint is tinnitus and hearing loss, followed by earache, then otitis; more severe cases might present otorrhea. Abnormal changes are detected on audiometry compared to the pre-employment test. Independently of the degree of the ear problems, all the patients exhibit some mental disorder in more or less severe degree, mainly anxiety and less frequently mixed anxiety and depressive disorder. **Conclusion:** The clinical manifestations exhibited by these workers demand seriousness in the formulation of health policies for health promotion and to protect this young population severely affected by work-related health problems in a way that the entire multidisciplinary service participates in the finding of solutions.

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### TLO24 – PROFILE OF CIVIL SERVANTS' REQUESTS TO A HAZARDOUS WORK COMMITTEE IN A PUBLIC UNIVERSITY IN RIO DE JANEIRO, BRAZIL

Rosane Todeschini Borges; Nadia Tavares El Kadi Monteiro Paiva; Márcio Matheus Rosas de Souza; Ana Carolina Bittencourt Ferreira; João Luiz Clara André; Ana Paula Pimentel Mendonça; Neemias Espindola dos Santos

**Background:** Insalubrity and Hazardous Work Committees are charged of assessing working conditions to characterize and classify unhealthy and hazardous work environments. **Objective:** To analyze the profile of civil servants' requests to the Insalubrity and Hazardous Work Committee at the occupational health department of a public university in the state of Rio de Janeiro, Brazil. **Methods:** Longitudinal, observational, descriptive and retrospective study that analyzed data collected at the department from 2 January through 30 November 2018. **Results:** A total of 125 requests for insalubrity and hazard pay, social security occupational profile (PPP) and vacation were recorded in 2018. 36/125 (36.5%) of the requests corresponded to nursing technicians, 35 of whom (97%) were allocated to the university hospital. 13/36 (36%) nursing technicians requested PPP, 11/36 (31%) maximum insalubrity pay and 9/36 (33%) hazard pay. **Conclusion:** The present study was designed to serve as basis for the management of working conditions and occupational health, prevention of occupational diseases and workplace health promotion.

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### TLO25 – MEDICAL LEGAL EXAMINATIONS: FROM SICK LEAVE CAUSES TO THE EPIDEMIOLOGICAL PROFILE OF THE EMPLOYEES OF A PUBLIC UNIVERSITY IN THE STATE OF RIO DE JANEIRO, BRAZIL

Rosane Todeschini Borges; Nadia Tavares El Kadi Monteiro Paiva; Márcio Matheus Rosas de Souza; Ana Carolina Bittencourt Ferreira; André Yuossef Blal; João Luiz Clara André

**Background:** The aim of medical legal examinations at the analyzed university is to assess the employees' physical and mental work capacity to confirm or disallow temporary or definitive sick leaves suggested by attending physicians. **Objective:** To identify the causes of sick leaves granted and to perform a descriptive analysis of the epidemiological profile of the employees who underwent medical legal examinations at the occupational

health department of a public university in the state of Rio de Janeiro, Brazil. **Methods:** Retrospective, longitudinal, observational and descriptive study based on data collected at the occupational health department from 2 January through 21 November 2018. **Results:** A total of 3,937 medical legal examinations were performed along the analyzed period. About 73.1% of the involved employees were female and 16.43% were aged 52 to 55 years old. The most frequent professional categories were nursing technicians (35.89%), administrative assistants (17.83%), professors (13.51%), nurses (10.26%) and physicians (2.67%). The main causes of sick leaves were mental and behavioral problems (ICD F0--F99), 16.94%; diseases of the musculoskeletal system and connective tissue (M00–M99), 16.71%; injury, poisoning and certain other consequences of external causes (S00–T98), 11.1%; and neoplasms (C00–D49), 6.27% (88.64% were malignant). **Conclusion:** Analyzing the profile of medical legal examinations is relevant for occupational health departments to establish whether efforts should be invested in preventive measures to eliminate or reduce the risk of illnesses among workers.

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### TLO26 – WATER INTAKE PROFILE OF EMPLOYEES OF A CELLULOSE COMPANY

Thereza Emilia Rosario Lima Brasil

**Background:** Water is essential to life and regulates several body functions. **Objective:** To analyze the water intake profile of workers occupationally exposed or not to heat at a cellulose company in the interior of the state of Sao Paulo, Brazil. **Methods:** A questionnaire was voluntarily responded by workers exposed or not to heat, according to the company's Environmental Hazard Prevention Program. **Results:** 213 employees responded the questionnaire, 83 of whom were exposed to heat and 123 were not. About 71.81% of the participants consumed half the daily amount of water while at work. About 23% of the participants reported to drink 1 ml to 800 ml of water per day (21.60% of the exposed to heat, 22.65% of the non-exposed); 39%, 801 ml to 1.99 liters (exposed: 34.93%; non-exposed: 42.18%); 20%, 2 liters (exposed: 22.89%; non-exposed: 18.75%); and 18% more than 2 liters (exposed: 20.49%; non-exposed: 16.42%). **Conclusion:** About 82.16% of the sample reported to drink less than 2 liters of water

per day. Most participants (71.8%) consumed half the daily amount of water while at work. The average water intake ranged from 801 ml to 1.99 liters for both groups.

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## TLO27 – BUILDING MORAL JUDGMENT COMPETENCE AT AN OCCUPATIONAL MEDICINE RESIDENCY PROGRAM

Ecléa Spiridião Bravo; Ildeberto Muniz de Almeida

**Background:** Specialization in occupational medicine involves approaching conflict and paradoxical situations made worse by rapid and radical changes in the world of work. Such circumstances pose demands to the professionals responsible for protecting the health of workers, who are thus challenged to review their practices. In consequence, the idea that training in this field should include moral judgment or professionalism competences to ground decision making when facing potentially conflict situations is growing. **Objective:** To analyze graduate medical training for action on the health-work interface and institutional practices relative to professionalism. **Methods:** Preliminary report of the results of a qualitative study based on document analysis and interviews involving administration of a semi-structured questionnaire. Participants were chairs of medical residency programs at traditional medical schools which implemented occupational medicine residency programs in the past 10 years. **Results:** The results indicated that residents feel insecure at the time of establishing causal links between accidents or diseases and work to avoid “blaming” the employers. This resistance gives rise to a further question: how to avoid the constraints to ethical action when prevention is neglected as a function of contradictions in occupational health? **Conclusion:** Specialization courses in occupational health should devote attention to the analysis of concrete situations from actual practice and cases studies to foster the development of moral judgment competence.

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## TLO28 – DEGREE VERSUS NON-DEGREE GRADUATE STUDIES IN OCCUPATIONAL HEALTH

Ecléa Spiridião Bravo; Ildeberto Muniz de Almeida

**Background:** The present preliminary report of the results of our study on occupational medicine residency programs (RP) indicates that this field underwent considerable changes since its creation in 2003. **Objective:** To analyze graduate education in occupational medicine and changes in institutional practices. **Methods:** Qualitative study based on document analysis and administration of a semi-structured questionnaire to RP chairs at medical schools which implemented RP in occupational medicine in the past 10 years. **Results:** The preliminary results suggest that RP are subjected to multiple influences, such as changes in epidemiological profiles, technological and organizational transformations in the world of work, advances in knowledge and political and institutional changes, particularly weakening of trade unions and inclusion of occupational medicine into the national health system. **Discussion:** The results indicate that RP do not represent the main locus for training of occupational physicians to work in the national health system. One possible reason is competition between RP and graduate degree programs, the latter having become more significant than the former. Teaching possibilities grew together with the graduate degree programs, and lost relevance in RP. **Conclusion:** Graduate degree programs seem to be competing with RP in occupational medicine.

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## TLO29 – SHARPS INJURIES AMONG HEALTHCARE WORKERS

Alexandre Reis BROM

**Background:** Work is rated positive when it helps meet the basic needs, and negative when it continuously exposes workers to occupational hazards (chemical, physical, mechanical, biological, ergonomic and psychosocial) in the workplace. Sharps injuries account for a large part (80-90%) of the transmission of infectious diseases among healthcare workers. The risk of transmission through contaminated needles is 1:3 for hepatitis B, 1:30 for hepatitis C and 1:300 for HIV. **Methods:** Quantitative, exploratory and descriptive study conducted at a state urgent care hospital in Goiania, Brazil. **Results:** A total of 114 accidents with exposure to biological materials occurred from 2010 to 2014; victims were employees and students. Most accidents occurred in the emergency

and surgical departments. **Conclusion:** The results indicate that the implemented preventive strategies (training, inspection and individual orientation) were insufficient or need to be reviewed.

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### TLO30 – IMPLEMENTATION AND EVALUATION OF A SLEEP GOOD PRACTICE PROGRAM FOR NIGHT-SHIFT WORKERS: EFFECTS ON FATIGUE AND SLEEPINESS

Leonardo Tavares Câmara; Ana Paula Monteiro Amaral

**Background:** Sleep is essential for a healthy life. Loss of sleep and/or inadequate sleep habits interfere with the activities developed at and outside work, might impair health and well-being and lead to errors and work accidents. **Objective:** 1) To analyze fatigue and sleepiness levels among night-shift workers to detect those at high risk; 2) To develop, implement and evaluate a sleep good practice program for the high-risk workers. **Methods and results:** Baseline assessment included 471 participants, with average age 32.1 (SD=8.6) years old, 94.9% of whom were male and 5.1% female. Analysis of fatigue and sleepiness levels led to categorize 9.6% (n=45) of the participants as with high risk, who were allocated to intervention. The average age of this group was 31 (SD=7.3) years old, ranging from 19 to 43; 93.3% were male and 6.7% female. The Epworth Sleepiness Scale and the Chalder Fatigue Scale were used for assessment before and after intervention. The fatigue and sleepiness levels exhibited significant reduction ( $p<0.001$ ) after intervention. **Conclusion:** The results reinforce the relevance of sleep good practice programs in the workplace.

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### TLO31 – EVALUATION OF DAYTIME SLEEPINESS AND FATIGUE AMONG PREHOSPITAL URGENT CARE PROVIDERS

Alessandra Batista de Campos; Rogério José de Almeida; Antonio Márcio Teodoro Cordeiro Silva

**Background:** The prehospital care work process is associated with two serious conditions which have become chronic problems: excessive daytime sleepiness and fatigue. Consequences are reduced work ability, safety issues and health problems. **Objective:** To analyze daytime sleepiness and fatigue among Mobile Urgent Care Service workers in the Federal District, Brazil. **Methods:** Cross-sectional analytic study with quantitative analysis. A questionnaire and two scales were administered to collect data on sociodemographic characteristics, fatigue and sleepiness. Analysis included descriptive statistics, statistical tests and Pearson's correlation. The sample included 323 participants, to wit, nursing technicians, nurses, drivers and physicians. **Results:** The participants were predominantly male (64.7%), under 40 years old (51.4%) and married (64.1%); the largest proportion was of nursing technicians (43.7%). About 44.9% of the participants scored  $>4$  on the fatigue scale and 36.55  $>10$  on the sleepiness scale. Correlation was found between female sex and fatigue ( $p<0.001$ ) and sleepiness ( $p=0.015$ ), between nursing technicians and fatigue ( $p<0.001$ ) and between job dissatisfaction and fatigue ( $p<0.001$ ). **Conclusion:** Managers should acknowledge and discuss with employees possibilities to improve the working and living conditions to ground public policies.

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### TLO32 – PESTICIDE HANDLING AND USE OF PERSONAL PROTECTIVE EQUIPMENT AMONG WORKERS EXPOSED TO PESTICIDES CARED AT THE OCCUPATIONAL TOXICOLOGY OUTPATIENT CLINIC OF THE FEDERAL DISTRICT, BRAZIL

Julianne Campos; Rafael Silva Duarte Almeida; Larissa Aires Oliveira de Moura; Aline Cristhina Araújo Silva; Andrea Franco Amoras Magalhães;

**Background:** The volume of pesticides used in conventional agriculture considerably increased in Brazil in the past decades. Since 2008, Brazil is the largest global consumer and accounts for 86% of pesticide sales in Latin America. **Objective:** To describe pesticide handling practices and use of personal protective equipment (PPE) among workers exposed to pesticides

cared at the occupational toxicology outpatient clinic of the Federal District, Brazil. **Methods:** An instrument was used to collect personal and occupational data and information on exposure to pesticides. Annual medical examinations including laboratory tests are performed in partnership with the Technical Assistance and Rural Outreach Company of the Federal District. A total of 189 workers were assessed and 119 were included for analysis as per the preset criteria. **Results:** Most participants reported regularly wearing at least one piece of PPE: boots (77.3%), gloves (68.1%), masks (58.8%), glasses/visors (43.7%) and overalls (20.2%); 13.4% reported not to wear any PPE. We also detected risk behaviors for human and environmental poisoning. About 79.8% of the participants reported to comply with the withholding period, 77.3% to establish an exclusive storage location, 79.0% to collect and dispose of empty packages and 72.3% to apply alternative methods to reduce the use of pesticides, and thus also human exposure. **Conclusion:** Reinforcing PPE use and changes in behavior and bad habits is indispensable. Permanent protection of the health of workers is necessary for the health of the entire population.

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### TLO33 – CASES OF PESTICIDE EXPOSURE AND POISONING CARED AT THE OCCUPATIONAL TOXICOLOGY OUTPATIENT CLINIC OF THE FEDERAL DISTRICT, BRAZIL

Julianne Campos; Rafael Silva Duarte Almeida; Larissa Aires Oliveira de Moura; Aline Cristhina Araújo Silva; Andrea Franco Amoras Magalhães

**Background:** The use of pesticides has been widely promoted in Brazil in the past decades. Violations of biosafety standards are frequent, being a cause of concern for health and safety at work experts, since poisoning is a considerable cause of illnesses and death. **Objective:** To establish the profile of workers exposed to pesticides cared at the occupational toxicology outpatient clinic of the Federal District, Brazil. **Methods:** An instrument was used to collect personal and occupational data and information on exposure to pesticides. In addition to clinical information, we also

collected biological samples to investigate abnormalities suggestive of overexposure. The laboratory tests included: complete blood count, fasting blood sugar, total cholesterol, triglycerides, urea, creatinine, ALT, AST and plasma cholinesterase (a biological indicator of occupational exposure). Annual medical examinations are performed in partnership with the Technical Assistance and Rural Outreach Company of the Federal District. **Results:** A total of 189 workers were assessed and 119 were included for analysis. About 76.5% of the participants were male, their average age was 44.9 years old and 58% had attended up to elementary school. About 31.1% of the participants had worked in agriculture for 11 to 20 years, 63.9% were self-employed, 84.9% reported contact with pesticides and 13.4% not to wear PPE. Based on clinical and laboratory criteria, we detected 14 (11.8%) cases of chronic poisoning. The participants received orientation on behavioral changes to minimize their occupational risk of contamination. **Conclusion:** Although with some shortcomings in their pesticide handling practices, most participants implemented safety procedures.

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### TLO34 – SILICOSIS AS OCCUPATIONAL DISEASE IN BRAZIL

Leonardo Ruiz Casemiro; Eduarda Ferro Agulhão

**Background:** Silicosis is the oldest, most severe and most prevalent lung disease associated with inhaled mineral dusts. It is the most prevalent pneumoconiosis in Brazil, which risk depends on the concentration, surface and size of particles, length of exposure, latency, variety of crystalline silica and whether particles were freshly produced (well drilling, blasting). **Objective:** To characterize the relevance of silicosis as occupational disease in Brazil. **Methods:** A literature search was conducted in databases PubMed, SciELO and Google Scholar using heading “silicosis,” selected from DeCS, Regional VHL (D012829). The most relevant articles and essays were included for integrative review. **Results:** 5,886 inpatients were reported in the period from 2008 through 2018. High prevalence of disease was found among shipbuilding and well drilling workers. The highest prevalence corresponded to the state of

Minas Gerais, in association with mining, artisanal mining and gem cutting. **Conclusion:** According to some estimates, 1,815,953 workers with formal employment relationship are exposed to silica more than 30% of their working time. Despite mandatory reporting, the available epidemiological data are scarce. The largest number of cases of silicosis corresponds to the state of Minas Gerais, 4,000, in association with gold mining. Improvements in diagnosis and control of exposure are needed, as well as continuing education, broader surveillance of high-risk occupations and compliance with the established regulations.

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### TLO35 – SPECIAL RETIREMENT FOR CIVIL SERVANTS: IMPLEMENTATION AND INSTITUTIONALIZATION OF AN AD HOC PROCEDURE

Hugo Ricardo Valim de CASTRO; Gustavo de ALMEIDA

**Background:** Special retirement of civil servants — included in the 1988 Brazilian Constitution — requires a complementary law (CL) which has not yet been passed. As a function of successive injunctions demanding compliance with constitutional rights, the Supreme Federal Court passed the Binding Decision no. 33/2014, which established the application of the Social Security General Regime (SSGR) to civil servants until the due CL is passed. However, the public agencies did not have the employees' occupational records required by SSGR to grant special retirement. Therefore, alternative sources of information were needed to ensure the civil servants' rights. **Methods:** A public agency developed and institutionalized an *ad hoc* procedure, based on a Social Security Occupational Profile (PPP) electronic system fed continuous data from civil servant allocation records and insalubrity and hazardous work reports issued by the Regional Labor Office (RLO). RLO occupational physicians were called to help fill PPP forms and to deliver an opinion for each individual case. **Results:** A total of 351 cases were analyzed in the period from 2015 through 2017 and 294 civil servants (83.7%) were granted special retirement. The main factors associated with successful requests were exposure to aromatic

hydrocarbons (55.6%), noise (23.7%), microorganisms (10.7%) and lead (7.1%).

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### TLO36 – ON-SITE NUTRITIONAL FOLLOW-UP OF ELECTRICIANS TO ACHIEVE ADEQUATE WEIGHT FOR WORK AT HEIGHT

Jose Rafael Assad Cavalcante; Juliana Boscoli Soler Morete; Zelia Caetano de Lima Gomes

**Background:** As a function of the safety regulations for work at height equipment for individuals with more than 100 kg of weight, after mapping the weight of its employees and finding it was over or close to this threshold in many cases, an energy company hired a nutritionist for on-site individual follow-up. **Methods:** The program comprised monthly visits, which included weight and height measurements and calculation of body mass index and body fat percentage. The participants received an eating plan and nutritional orientation and were able to freely communicate with the nutritionist via a smartphone application. This application comprises all the tools nutritionists need to design and record eating plans, store data, visualize and alter the client's food diary as per need. **Results:** Since visits were on the company premises and during the working hours, adherence to the program was excellent and the results optimal. All the participants who complied with the orientation received lost considerable weight. **Conclusion:** This experience was extremely positive, since the expected outcomes were achieved. Now the focus is on maintenance.

DOI: 10.5327/Z16794435201917SITL037

### TLO37 – MEDICAL LEGAL EXAMINATION OF A PREGNANT WOMAN EXPOSED TO ANESTHETIC GASES IN THE OPERATING ROOM

Jose Rafael Assad Cavalcante; Leticia D'Alcantara Calmon Cavalcante; José de Oliveira Costa Filho

**Case report:** Female patient, 31 years old, surgical nurse working for a pediatric surgeon, pregnant. She was granted a paid leave along the first 3 months of pregnancy, from

July through October 2013, due to the risk of gestational complications possibly associated with the anesthetic gases used in the operating room. At the end of this period, the occupational physician refused to let her return to work for the same reason. She underwent further three medical legal examinations, but in all the cases her leave requests were systematically denied, because pregnancy was evolving normally as expected. **Discussion:** There are no reports in the literature demonstrating that anesthetic gases are harmful after the third month of pregnancy. In addition, the National Social Security Institute is not meant for preventive actions. The nurse was oriented were she to disagree with the decision, to request to the occupational physician documents attesting to the harmful effects of anesthetic gases for pregnancy, but she delivered none at the medical legal examinations. **Final remarks:** The social security legislation does not consider cases without any actual disabling disease. In turn, prevention is entrusted to occupational medicine (constitutional labor laws).

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### TLO38 – WORK DISABILITY BENEFIT FOR A BULLDOZER OPERATOR WITH IMPLANTABLE CARDIOVERTER-DEFIBRILLATOR

Jose Rafael Assad Cavalcante; Leticia D'Alcantara Calmon Cavalcante; José de Oliveira Costa Filho

**Case description:** Male patient, 50 years old, bulldozer operator. Due to a heart disease, he was granted a paid leave from January 2017 through July 2018. In November 2016 he began exhibiting episodes of syncope, and in August 2017 he received an implantable cardioverter-defibrillator (ICD). The National Social Security Institute (INSS) ended the benefit by considering that the disease was stable after surgical treatment and that there were no signs of heart failure. However, the employer — via the occupational physician — refused to let him return to work and referred him again to INSS. **Discussion:** The Traffic Department (DETRAN) guidelines make no mention whatsoever to ICD. In turn, Brazilian Cardiology Society guidelines for driving and heart disease state that individuals with ICD are permanently banned from professional driving. **Final remarks:** However, the worker in the present case did not need a driving license to operate the machine. After the

last medical legal examination, the worker was referred to a professional readjustment service on the following grounds: since he had an ICD due to severe heart disease, he was not cured, but was at high risk of cardiac arrest. Therefore, operating a bulldozer put his and others' lives at risk, as stated in the INSS medical legal examination handbook, p. 27. For this reason, this job was absolutely contraindicated, and the worker needed professional readjustment to be trained for a job that would not mean risk for his and others' lives.

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### TLO39 – ANKLE BRACES TO AVOID SPRAIN AMONG ELECTRICIANS AND METER READERS

Jose Rafael Assad Cavalcante; Zelia Caetano de Lima Gomes; Fernando Bombarda de Moraes

**Background:** Since the incidence of ankle sprain was high among electricians and meter readers at an energy company, we made a test with ankle braces. **Objective:** To reduce the incidence of sprains. **Results:** Seven of the Work Accident Reports issued by the employer since 2015 were for ankle sprains among electricians and meter readers, representing a total of 47 days away from work. The employees were oriented as how to wear and care for the braces; adherence was excellent. They responded a questionnaire to assess brace use after 6 months. In case of any doubt, they were instructed to talk with the medical coordinator, who could be found at any time on the company premises. **Discussion:** After 6 months of continuous use, the incidence of ankle sprain decreased; none of the employees who wore the braces had a sprain along this period. **Conclusion:** Given the excellent results, we are analyzing the feasibility of indicating ankle braces to all the electricians and meter readers in the company. The basis for our calculation is not only the number of paid leaves, but also and foremost absenteeism, which is more significant. The cost of the braces was low.

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### TLO40 - RAYNAUD'S PHENOMENON WITHIN THE OCCUPATIONAL SETTING

Rafael Alves Cordeiro; Rogério Muniz de Andrade

**Background:** Raynaud's phenomenon (RP) is a definite discoloration of the fingers and toes caused by exaggerated vasospasm of the digital arteries and skin arterioles. Several conditions might be associated with RP, including occupational hazards: exposure to localized vibration, vinyl chloride and low temperature. **Objective:** To review the literature on the prevalence of occupational RP. **Methods:** Publications were searched in databases MEDLINE/PubMed, Embase, Web of Science, SciELO and LILACS. Eligibility criteria: observational studies which analyzed the prevalence of RP among workers exposed to localized vibration, vinyl chloride or low temperature, performed since 1988 and published in English, Portuguese or Spanish. Search strategy: for MEDLINE/PubMed, we considered combinations of the following headings "Raynaud's disease," "epidemiology," "prevalence," "occupational exposure," "occupational diseases," "occupational injuries," "cold temperature," "vibration" and "vinyl chloride". This strategy was adapted for the other databases. **Results:** 64 studies were retrieved, 18 of which met the eligibility criteria; 13 were cross-sectional and 5 cohort studies. All these studies addressed localized vibration, 6 temperature and none vinyl chloride. **Conclusion:** RP was more frequent among operators of vibrating machinery; prevalence increased together with the level of vibration and length of exposure. Cold is a known trigger of RP and seems to play a significant role in the development of the vascular manifestations of the hand-arm vibration syndrome.

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### **TLO41 – BURNOUT SYNDROME: SYSTEMATIC REVIEW OF PSYCHO-EMOTIONAL IMPAIRMENTS AMONG HEALTHCARE PROVIDERS IN BRAZIL**

Rodolfo Antonio Corona; Arthur Arantes da Cunha; Fabrizio do Amaral Mendes; Caroline Dias Pastana; Danielle Gonçalves da Silva; Rafael Henrique de Andrade Rodrigues

**Background:** Burnout might be caused by accumulated emotional load related to work and poses an occupational and social problem. It is currently defined based on the combination of three domains: emotional exhaustion (EE),

depersonalization (D) and reduced personal accomplishment (rPA). **Objective:** To evidence psycho-emotional impairments and analyze risk of burnout among health-care providers. **Methods:** Systematic review of scientific studies published from 2009 through 2018 and included in electronic databases. Search terms were "burnout syndrome," "healthcare providers" and "prevalence in Brazil." 62 studies were retrieved, 9 of which were selected for review. **Results:** We synthesized MBI-HSS results for 1,933 healthcare providers in Brazil. About 21.21% of the participants exhibited high EE, 36.21% moderate and 36.58% low. About 29.49% of the participants exhibited high D, 39.37% moderate and 31.14% low. About 30.47% reported high levels of rPA, 39.5% moderate and 29.95% low. **Conclusion:** The results indicate high risk of burnout among healthcare providers, possibly due to the high level of responsibility associated with their job. In addition, lack of recognition and high levels of work-related stress are a source of countless problems for this population of workers.

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### **TLO42 – ANALYSIS OF WORK-RELATED TRAFFIC ACCIDENTS PER ECONOMIC ACTIVITY IN BRAZIL, 2010-2016**

Rodolfo Antonio Corona ; Arthur Arantes da Cunha; Danielle Gonçalves da Silva; Fabrizio do Amaral Mendes; Rafael Henrique de Andrade Rodrigues

**Background:** Work-related traffic accidents are a social problem and a source of distress, in addition to a backlash in terms of public health and the global economy. **Objective:** To perform an epidemiological survey of work-related traffic accidents according to the main involved economic activities (EA). **Methods:** Retrospective and descriptive study based on data collected for the period from 2010 through 2016 available in the Brazilian Social Security Statistical Yearbooks. We only analyzed accidents for which Work Accident Reports were issued; EA were defined according to the National Classification of Economic Activities formulated by the Brazilian Institute of Geography and Statistics. **Results:** The highest proportion of works accidents corresponded to hospital care (8.24%) followed by retail trade — hyper and supermarkets (3.05%), public administration in general

(2.17%) and road freight transport (2.64%). However, the proportion of traffic accidents was highest for road freight transport (22.14%) and lowest for hospital care (17.14%). The number of traffic accidents increased for all EA. **Conclusion:** Work-related traffic accidents have direct impact on the national economy and the quality of life of workers. Identifying the economic sectors with the largest number of cases might provide grounds for the formulation of traffic safety and healthcare policies specifically focused on each EA.

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### TLO43 – ANALYSIS OF THE ASSISTANCE PROVIDED TO BANK EMPLOYEES WHO WERE ROBBERY OR KIDNAPPING VICTIMS AND OCCURRENCE OF POST-TRAUMATIC STRESS DISORDER

Manoel Juvenal da Costa Neto; Sergio Roberto de Lucca; Mara Cristina Ribeiro

**Background:** Increasing urban violence, such as bank robbery, exposes bank employees to traumatic situations in the workplace. Among work disabling conditions, post-traumatic stress disorder (PTSD) is one of the main causes of sick leave among bank employees referred to the Social Security Administration. Several studies point to the need to increase the knowledge on PTSD, its causes and consequences through research likely to contribute to the implementation of more efficacious preventive and therapeutic measures. **Objective:** To describe and analyze the occurrence of PTSD among employees of a public federal bank exposed to robbery and/or kidnapping in the period from 2012 and 2017. **Methods:** Cross-sectional and descriptive study with qualitative and quantitative approach. A sociodemographic questionnaire and PTSD diagnostic scale (PCL-5) was administered to 35 out of 139 bank employees who were robbery and/or kidnapping victims along the analyzed period. Seven participants were further selected by convenience sampling for in-depth interviews. **Results:** We identified 135 bank employees who were robbery victims (9 of them twice) and 7 kidnapping victims. Eight employees remained away from work for less than 15 days and 7 met the diagnostic criteria for PTSD. **Conclusion:** The participants acknowledged the relevance of the assistance received

after the traumatic events. Receptivity and assistance might prevent PTSD among bank employees who were robbery or kidnapping victims.

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### TLO44 – THE ERGONOMIC FACTOR AS THE ORIGIN OF WORK ACCIDENTS

Hudson de Araújo Couto; Denis Carvalho Couto

**Background:** Investigations of work accidents commonly end by blaming the involved worker, without paying the due attention to ergonomic conditions which might have hindered workers from doing their work in another and risk-free manner. **Objective:** To estimate the frequency of typical work accidents in which poor ergonomic conditions played a relevant role. **Methods:** 983 typical work accidents which occurred at large companies (metallurgic and paper and pulp mills) were reanalyzed by three ergonomics experts based on cross-intersubjectivity criteria to conclude on the relevance or not of poor ergonomic conditions. **Results:** In 405 cases (41%) poor ergonomic conditions were significant. The main factors involved were: inadequate or inexistent tools (21%), inadequate layout (18%), non-ergonomic operational patterns (17%), awkward body posture (16%), inadequate flooring (15%), overload (10%) inadequate means for moving materials (10%), poor quality access, stairs and ramps (9%), strong effort (8%) inadequate equipment or machinery (7%) and impaired vision (7%). **Conclusion:** Many of the identified situations were related to poor supervision, others to poor projects and carelessness in the work methods. The results show that for the purpose of accident prevention, improving work ergonomics is as important as actions to promote a safe behavior culture.

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### TLO45 – MENTAL LOAD OF BANK EMPLOYEES: ASSESSMENT BY MEANS OF AMBULATORY BLOOD PRESSURE MONITORING

Hudson de Araújo Couto; Patricia Dias Junqueira Pereira; Fabiana Tobias Giffoni

**Background:** While the fact that work has an inherent mental load is widely acknowledged, overload should

be avoided. **Objective:** To investigate mental overload among tellers and managers at large and medium bank branches on regular and extremely busy days. **Methods:** The instrument used was ambulatory blood pressure monitoring (ABPM) which detects abnormalities of the sympathetic nervous system — increase of the systolic and diastolic pressure — in response to tense situations. Eighteen tellers and 23 managers were subjected to ABPM on 2 different days at least. BP records were made every 10 minutes and the participants were requested to register the task they were performing at the time of each measurement and its degree of difficulty. **Results:** Only one teller exhibited signs of mental overload, in association with personnel shortage on a very busy day; BP was normal on the measurements performed on a regular day, when he shared tasks with a coworker. Five managers exhibited high BP, reasons being system slowdown, having to deal with an irritated client, excessive demands from the head office in the presence of a client and difficult negotiations with a corporate client. **Conclusion:** Sufficient personnel was a relevant factor to maintain the level of tension bearable among tellers. Tense relations interfered with the autonomic nervous system function among managers.

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### TLO46 – CONFLICT MEDIATION AND OCCUPATIONAL HEALTH: RESTORING DIALOGUE AND PREVENTING DISEASE IN THE WORKPLACE

Lucas Alessandro Macedo Tavares Cruz; Samantha Mary de Melo Barbosa Cruz; Suzy Kelly de Melo Barbosa; Felipe Pereira de Castro Sampaio; Leonardo Pereira Cabral

**Background:** Mediation is a consensual conflict-solving method inherently involving permanent and continued relations and the fact that conflict should be seen in a positive light to build social dialogue within the employment relationship before problems reach the judiciary. Conflict is natural within relationships among all living beings, however, it is often associated with mental, and sometimes also physical illness among workers, leading to work-related diseases or accidents. **Objective:** To establish how extrajudicial mediation might be essential to restore dialogue in the workplace, and therefore

also to the health of workers. **Methods:** Having its epistemological framework provided by the qualitative and dialectic method, the present systematic review was based on explicit and rigorous criteria for study selection. **Results:** The results grounded an epistemological discussion on conflict mediation to restore dialogue and prevent diseases in the workplace. **Conclusion:** Health and occupational medicine teams, occupational physicians in particular, need the due technical knowledge, a soft and pacifist attitude and specific mediation skills to be able to behave as a link in the process of constructive dialogue between the involved parties.

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### TLO47 – EPIDEMIOLOGICAL ANALYSIS OF WORK ACCIDENTS IN THE BRAZILIAN NORTH REGION, 2012-2017

Arthur Arantes da Cunha; Rodolfo Antonio Corona; Danielle Gonçalves da Silva; Yan de Oliveira Castro e Cunha; Fabrício do Amaral Mendes; Rafael Henrique de Andrade Rodrigues

**Background:** Work accidents (WA) are a serious public health problem, with considerable impact on the economy mainly as a function of their social security costs. The Brazilian Social Security Administration currently understands as WA occupational diseases, commuting accidents and accidents due to the job done. **Objective:** To perform an epidemiological analysis of WA in the North region of Brazil from 2012 through 2017. **Methods:** Retrospective, descriptive and quantitative study based on secondary public and official data extracted from the Brazilian Social Security Statistical Yearbooks for 2012, 2013, 2014, 2015, 2016 and 2017. We considered all WA independently from whether Work Accident Reports were registered or not with the National Social Security Institute. **Results:** The number of WA decreased from 31,857 in 2012 to 23,859 in 2017, corresponding to a reduction of 25.1%. These were also the years with the largest and smallest number of accidents, respectively. Along the analyzed period, 141,308 WA were reported for the North region and 3,195,376 for Brazil as a whole, whence the former represented 4.42% of the national total. **Conclusion:** The number of WA tended to decrease in the North region. Reasons might be improved prevention, higher underreporting rates or a combination of both. In any case, the

absolute number of WA is still high compared to developed countries, which points to the need for better WA prevention strategies.

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### **TLO48 – INCLUSION OF SAFETY AND HEALTH AT WORK INTO SCHOOL CURRICULA IN THE BRAZILIAN SOUTH REGION: REVIEW OF STATE LEGISLATIVE PROPOSALS FROM 2007 THROUGH 2018**

Dalton Tria Cusciano; Rogério Galvão da Silva; Luis Fernando Salles Moraes; Mauro Maia Laruccia; Guilherme Masaki Koreda; Sérgio Antônio dos Santos

**Background:** Article 14 of the International Labor Organization (ILO) Convention C155 — duly considered in the Brazilian legislation — addresses the inclusion of occupational safety and health and working environment issues in all levels of education and training. Similarly, the National Safety and Health at Work Plan (PLANSAT) asserts the need to include “basic information on accident prevention and SHW in the elementary and secondary education curricula of public and private schools.” **Objective:** To survey state legislative proposals to include SHW in the official education curriculum of any of the three Brazilian Southern states in the period from 2007 through 2018. This time frame enabled surveying legislation along 12 sessions for three state legislatures. **Methods:** Systematic review based on a search on the databases of the Parana, Santa Catarina and Rio Grande do Sul state legislatures. Search terms were “health education,” “safety education,” “health, safety, worker,” “safety work” and “health work.” **Results:** No state law established the inclusion of SHW into the official curriculum of public schools in the South region, thus neglecting both PLANSAT and ILO Convention C155, in addition to other federal regulations in force.

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### **TLO49 – WORKERS’ MENTAL HEALTH AND SOCIAL RESPONSIBILITY: A STRONG TIE**

Gecimara Aparecida Hybner Dalcer

**Background:** There is a global concern with mental health. Mental and behavioral disorders are the third leading cause of sick leave in Brazil. Individual performance, disease rates, absenteeism, accidents and turnover are all influenced by the mental health state of workers. Organizations are called to promote health and quality of work life through strategic actions. As a result, the rates of absenteeism decrease, the working conditions improve and productivity increases. **Objective:** To analyze social projects implemented at a rural company to promote the mental health of its employees. **Methods:** Scheduled visits to analyze and experience the social projects implemented at the company. Organizational climate surveys before and after intervention. Analysis of sick leaves for mental and behavioral disorders during intervention. **Results:** The company rose 17 positions in the organizational climate ranking along the study period. No worker required sick leave for mental or behavioral disorders. **Conclusion:** Satisfactory work environments have significant impact on the mental health of workers. Employers might take profit of social responsibility projects to improve the organizational climate and thus promote the mental health of employees.

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### **TLO50 – PREVALENCE OF MENTAL AND BEHAVIORAL DISORDERS AMONG MUNICIPAL TEACHERS IN CURITIBA IN 2017**

Edevar Daniel

**Background:** Mental and behavioral disorders are some of the leading reasons for missing work. Production restructuring in the education sector brought new demands, which require changes in the organization of teaching. **Objective:** To describe the profile of sick leaves for mental and behavioral disorders among municipal teachers in Curitiba in 2017. **Methods:** Descriptive, time-series study with quantitative analysis. The study population comprised all teachers in Curitiba under the single juridical regime who required sick leave for mental or behavioral disorders in 2017. **Results:** The municipal school network of Curitiba comprised 11,350 teachers in 2017. 1,245 teachers required sick leave for mental disorders, resulting in a total of 26,580 missed work days. The average length of leaves was 9.4 days. Reasons were mood disorders (ICD F30–F39) for 764 teachers, and anxiety, dissociative, stress-related or somatoform

disorders (F40–F48) for 697. **Conclusion:** The results evidence high prevalence of sick leave for mental disorders. They also point to the need to foster studies on this type of problems and teaching to achieve a better understanding of the correlations found and ground actions to improve job satisfaction and the mental health of teachers.

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### TLO51 – INTRODUCING RISK MAPPING IN UNDERGRADUATE MEDICAL EDUCATION

Edevar Daniel; Emanuelle Leonel Ferreira; Mayra Coimbra Gonçalves; Aline Tatiane Rampim; Fernanda Yuki Ito; Michelu Mika Hirota

**Background:** Work-related health problems are a public health concern and require careful identification. Risk maps are a useful and practical tool for this purpose. Implementing risk maps in medical practice can be fostered by raising awareness within the academic milieu.

**Objective:** To describe the creation of risk maps and discuss the relevance of their use in undergraduate medical education to contribute with solutions and promote risk management. **Methods:** Undergraduate medical students at Federal University of Parana (UFPR) were instructed to create risk maps for UFPR Clinical Hospital sites of their choice. Then they were required to analyze the maps, identify hazards, their intensity and frequency, and suggest solutions to minimize them. **Results:** The students were divided into 20 groups which analyzed 13 different hospital sites. Hazards were categorized according to their nature (biological, physical, chemical, ergonomic and accidents), frequency and intensity. Hospital wards exhibited the highest frequency of biological and physical hazards and accidents. All five types of hazards exhibited high intensity in the waste disposal area. **Conclusion:** Knowledge of the peculiarities of each hospital area and understanding how risk maps work are essential for future physicians. We succeeded in raising their awareness and in didactically conveying visual information about hazards in different work environments.

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### TLO52 – ERETHISM FOLLOWING EXPOSURE TO MERCURY IN ARTISANAL MINING

Diego da Silva Dantas; Maria Júlia Parcias do Rosario; Dvora Joveleviths; Katiane Firmo Dantas; Ana Paula Bressan Filippin; Fabio Fernandes Dantas Filho

**Case:** Male, 53-year-old patient admitted to the psychiatric department of a university hospital for psychotic syndrome and Parkinsonism. He had had three episodes of paranoia between ages 18 and 33, when he worked as artisanal miner. Posture instability and tremors appeared at age 45, being treated as Parkinsonism. He had no family history of psychiatric disorders. Laboratory and imaging tests while at hospital, including serum and urine heavy metal measurements, did not detect any abnormality. He was discharged a few days later still presenting symptoms, treated with antipsychotics and with possible diagnosis of chronic mercury poisoning. **Discussion:** Despite its toxic effects are widely known since antiquity, mercury is still used in several industrial processes, such as gold extraction and lighting product manufacturing. The main route is inhalation, but exposure can also occur through ingestion and skin contact. Mercury is water and fat soluble and once in the bloodstream, it interferes with several enzyme reactions. It is deposited in several tissues, including the central nervous system. Blood and urine mercury levels are indicative of acute exposure, but are not helpful for chronic cases. **Final remarks:** While the patient's clinical manifestations were compatible with chronic mercury poisoning, the latency period between exposure and onset of symptoms posed a diagnostic challenge. Performing thorough occupational interviews is highly relevant in such cases to establish a causal link many years after exposure ended.

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### TLO53 – BIODESIGN AND HEALTH INNOVATION: DEVELOPING A DIGITAL HEALTH AND SAFETY AT WORK MANAGEMENT PLATFORM

Rodrigo Bornhausen Demarch; Tatiana Sampaio; Vinícius Franulovic

**Background:** The Brazilian health system is undergoing dramatic changes, characterized by demographic and epidemiological transition and population aging. This is a highly complex situation in terms of sustainability. Occupational health is a core component of the attempts to reach a balance and there is still plenty of room to

improve in occupational health management. The larger companies, i.e. with more than 500 employees, tend to be in better conditions to meet these demands and approach occupational health in a strategic manner to add value to workers, employers and the entire health system. However, smaller companies are less able to manage occupational health as indicated in Regulatory Standards. **Objective:** To develop a digital health and safety at work management platform for small- and medium-sized enterprises. **Methods:** We had resource to biodesign, i.e. a single process that comprises all stages in health innovation, namely: 1) identifying an unmet need; 2) creating an innovative solution; 3) developing a strategy to implement the innovative solution. **Results:** We developed a digital health and safety at work management platform for small- and medium-sized enterprises, which is already in operation in Sao Paulo. **Conclusion:** As a health innovation method, biodesign was successfully used to create a new product. We expect this platform will contribute to add value to Brazilian occupational health value chain stakeholders.

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### **TLO54 – DEVELOPMENT OF A REPLICABLE AND SCALABLE HEALTH INTEGRATED MANAGEMENT SYSTEM FOR COMPANIES OF DIFFERENT SIZES AND OCCUPATIONAL HAZARD PATTERNS**

Rodrigo Bornhausen Demarch; Diego Roger Silva; Daniele Kallas

**Background:** Management models to promote health in the workplace and achieve more efficient administration of health resources have grown in the past 15 years worldwide. Inspired in such models, health integrated management programs began to be implemented in Brazilian organizations to integrate healthcare and occupational health management, and thus contribute to create healthy work environments. Such programs proved to be effective, giving rise to a second wave of services, now provided by third parties, to improve the quality of, standardize and broaden the operational scope of services. **Objective:** To analyze the scalability and effectiveness of a health integrated management service through indicators enabling: 1) analyzing the health

experience of workers and 2) of healthcare teams; 3) improving the state of health of a definite population; and 4) reducing health costs. **Methods:** We administered a web-based health experience/satisfaction questionnaire at outpatient clinics of organizations of different sizes and hazard patterns in several locations to stratify individual and population risk and investigate the health experience of workers. **Results:** The tested model proved to be scalable and replicable; preliminary outcomes seem to be favorable. **Conclusion:** The tested health integrated management model proved to be scalable and replicable for some short-term goals. More time is needed to measure its full impact according to the aforementioned indicators.

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### **TLO55 – WORK DISABILITY AND MEDICAL LEGAL EXAMINATIONS**

Amanda Destefani Evangelista; João Daniel Hobeika; Danyllo Fagundes Evangelista; Isabella Rodrigues Destefani; André Yuji Osugui Mantovani; Renan Furquim Prieto

**Background:** The Brazilian legislation describes the various rights of citizens, including those corresponding to social security and its general regime. Some such laws concern the right to protection in case of work disability. The National Social Security Institute is charged of granting sick pay and disability retirement according to the recommendations of experts based on medical legal examinations. **Objective:** To analyze the notions of work capacity and work disability, the corresponding legislation and interpretations made by several authors. **Methods:** Literature review. **Discussion:** In addition to protecting workers, the Social Security Administration has another, non-visible role related to the mental health of workers. However, the benefits granted do not effectively meet the needs of workers, who require other modalities of assistance, particularly from society, which, however, tends to preserve stereotypes, such as: young people do not have sufficient knowledge, older people do not know how to deal with technology, workers disabled for some job are useless for any job, and so forth. **Conclusion:** The contribution of society is essential to achieve an equalitarian environment as concerns career development opportunities.

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## TL056 – ESOCIAL USE BY OCCUPATIONAL PHYSICIANS

Amanda Destefani Evangelista; João Daniel Hobeika; Danyllo Fagundes Evangelista; Isabella Rodrigues Destefani; André Yuji Osugui Mantovani; Renan Furquim Prieto

**Background:** Occupational medicine practice has changed in recent years as a function of the effects of production restructuring on the living and working conditions. In consequence, occupational health providers should seek to keep up-to-date. New technologies were developed to ensure compliance with the legislation, including eSocial, which was designed to facilitate the access to social security and labor information on employers and employees. **Objective:** To analyze eSocial structure and its adequacy for occupational medicine as a means that facilitates interaction between employers and employees. **Methods:** Literature review. **Results:** The so-called Digital Bookkeeping System was the first designed to convey taxpayer information to revenue services and overseeing agencies. To improve this process, the Brazilian government is expected to implement eSocial. **Conclusion:** eSocial goal is to rationalize and uniformize employers' accessory obligations by enabling single channel transmission to government agencies and information users, thus allowing for better control of payments and deadlines. eSocial will afford physicians past information, including former jobs of patients. In addition, it will facilitate social security inspection, thus reducing the opportunities for fraud or to disrespect the rights of workers.

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## TL057 – CHALLENGES TO THE IMPLEMENTATION OF LOWER LIMB EXOSKELETONS IN AUTOMOTIVE ASSEMBLY LINES

Ana Carolina Parise Diniz; Thiago Alves Oliveira; Lucas Alves de Andrade Volpe; Edgard de Oliveira Neto; Luiz Marcelo Marcondes Coelho de Oliveira; Vilson Paulo Tauffer; Douglas Rodrigo Sérgio; Reinaldo Rodrigues de Oliveira; Cláudio da Silva Nunes

**Background:** Exoskeletons are increasingly present in the Brazilian market. While their benefits to health are

well known, few tests were performed to investigate workers' adjustment to these new devices. **Objective:** To describe the results of tests and difficulties with the use of lower limb exoskeletons by assembly line operators at an automobile manufacturer. **Methods:** Based on a case study, we ran tests divided in three stages with 30 participants, 10 from the administration and 20 from the production department, who reported difficulties met while wearing an exoskeleton and their adjustment to the device. **Results:** Seven problems were reported in regard to use, including learning how to wear the device and fit the straps; adjustment to heat; adjustment to the feeling of unbalance upon sitting; and risk of the rubber feet getting stuck in the shoes. Further five difficulties concerned the performance of tasks, such as restriction to the ability to move together with the assembly line when sitting and risk of the rubber feet getting stuck in the conveyor gap. **Conclusion:** The results indicate that adjustment to the automobile assembly line work process is not simple as a function of the characteristics of tasks (available time, productivity, velocity, comfort and applicability) which thus hinder the implementation of exoskeletons.

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## TL058 – PREVALENCE AND FACTORS ASSOCIATED WITH SUICIDAL IDEATION AMONG TOBACCO GROWERS

Neice Muller Xavier Faria; Anaclaudia Gastal Fassa; Ana Laura Cruzeiro Szortyka; Rodrigo Dalke Meucci; Nadia Spada Fiori

**Background:** Several studies point to a high prevalence of mental disorders among agricultural workers in association with occupational exposures. **Objective:** To establish the prevalence and factors associated with suicidal ideation among tobacco growers in southern Brazil. **Methods:** Cross-sectional study with 2,400 tobacco growers in Rio Grande do Sul, randomly selected and interviewed during the harvest season (summer). We collected socio-demographic, economic, occupational data and on some diseases. The primary outcome was assessed based on the following question: "Have you ever thought of ending your life?" The participants were also inquired on suicide attempts and cases of suicide in the family. **Results:** The prevalence of suicidal ideation was 2.5%, 1.2% for suicide attempts and 12.7% for suicide in the family. Suicidal

thoughts predominated among the older participants mainly in association with debts, and secondarily with the need to adopt awkward postures at work and heavy exposure to pesticides. Evangelicalism, moderate working time, scaffold use and having worked in tobacco growing for up to 11 years were protective factors. Suicidal ideation was more frequent among the participants with chronic diseases — asthma, chronic low back pain, green tobacco sickness and pesticide poisoning. **Conclusion:** We identified several occupational factors associated with suicidal ideation, which might contribute to future actions to protect the mental health of tobacco growers. The prevalence of suicidal ideation, suicide attempts and suicide calls the attention to the relevance of policies to safeguard the mental health of agricultural workers.

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### TLO59 – SUICIDAL IDEATION AMONG HEALTHCARE WORKERS

Neice Muller Xavier Faria; Raquel Ferreira Silveira Klosinski; Luciana De Marco Oliveira; Graciane Rustick

**Background:** Suicidal ideation is a relevant indicator of mental distress, being associated with high risk of suicide. However, its magnitude and relationship to work among healthcare workers is not well known. **Objective:** To establish the prevalence and factors associated with suicidal ideation among healthcare workers at public healthcare services. **Methods:** Cross-sectional study performed with healthcare workers from all the departments of a municipal health secretariat (urgent care, primary care, medical specialties, health surveillance and administration). We analyzed sociodemographic and occupational characteristics, including employment relationship, working time, position and interpersonal conflict at work (ICW). Suicidal ideation was investigated with questionnaire SRQ-20. Associations were investigated by means of the chi-squared test and Poisson regression. **Results:** We interviewed 597 workers allocated to different departments and with different position. The prevalence of suicidal ideation was 11.6%. Prevalence was higher among the separated/divorced participants and those with low educational level. Crude analysis indicated higher risk among cleaners and community health agents, which was not confirmed on adjusted analysis. ICW was the main risk factor (relative risk

>2.0) particularly when involving supervisors and coworkers. **Conclusion:** The results of the present study are consistent with those of other studies which detected higher frequency of suicidal ideation among healthcare workers in association with excessive stress and work overload and called the attention to the risk of suicide among this population of workers. Future studies need to analyze ICW more thoroughly, as it seems to have greater magnitude and impact on mental health than was previously believed.

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### TLO60 – PREGNANT AND BREASTFEEDING WORKER CARE

Camila de Aquino Feijó; Marcelo Pustiglione; Symonne Pereira Tappes; Antonio dos Santos Barboza; Flávia Fazoli da Cunha Freitas Viana

**Background:** Most women are currently included in the labor market. Any discussion of work involving pregnant and breastfeeding women reveals a dual state of affairs: on the one hand, work is motivating and relevant to health; on the other, it might cause diseases. The pregnant woman is carrying a child, who in addition to being susceptible to work-related harms, interferes with their mother's immunity. **Objective:** To set rules for the care to be provided to pregnant and breastfeeding women (PBW) and define levels of responsibility and competences within the workplace. **Methods:** Survey of legal documents to understand and summarize the legislation in force to then establish a PBW care plan. **Results:** The Brazilian legislation made considerable advancement in regard to PBW. This subject is addressed in the Labor Laws Consolidation and Laws no. 13,287/2016 and 13,467/2017. Also Regulatory Standards (particularly no. 4, 7, 15 and 32) and the recent Federal Medical Council Resolution no. 2,183/2018 should be taken into consideration. Having established the theoretical framework, we describe a PBW care plan which includes the levels of responsibility and competencies of the involved actors. **Conclusion:** Special attention should be paid to the exposure of this population of workers to occupational hazards according to the legislation in force and the risks to which they and their children might be exposed.

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## TLO61 – ASSOCIATION BETWEEN PSYCHOSOCIAL RISKS AND MORAL HARASSMENT IN THE WORKPLACE: STUDY WITH JUDICIARY CIVIL SERVANTS

Fernando Ribas Feijó; Neil Pearce;  
Anaclaudia Gastal Fassa

**Background:** Moral harassment in the workplace is currently considered one of the main psychosocial risk factors at organizations, having negative impact on health. While its causes are a current topic of discussion, epidemiological evidence on how this phenomenon actually unfolds still lacks. **Objective:** To analyze the association between moral harassment and other psychosocial hazards for a sample of Brazilian judiciary civil servants. **Methods:** Cross-sectional study with 1,667 civil servants in Rio Grande do Sul. We administered the Psychosocial Safety Climate scale (PSC-12), a job stress scale and the Effort-Reward Imbalance (ERI) scale to investigate past history of moral harassment in the workplace. We also administered the Negative Acts Questionnaire-Revised (NAQ-R) to measure harassment. We tested associations by means of logistic regression analysis. **Results:** The overall prevalence of moral harassment was 17.7%. High psychosocial risk, high levels of exhaustion and of ERI increased the odds of harassment 3.72 (CI 2.52-5.52), 8.12 (CI 5.51-12.67) and 5.78 (CI 4.06-8.24) times, respectively. The logistic regression model fit with all the analyzed psychosocial hazards showed that all of them were strongly and independently associated with moral harassment ( $p < 0.001$ ). **Conclusion:** Our findings confirm the hypothesis that psychosocial and organizational factors are determinants of moral harassment in the workplace. Interventions to reduce moral harassment and protect the health of workers should focus on work processes and the organization of work.

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## TLO62 – HEALTH PROFILE OF EMPLOYEES OF A PUBLIC UNIVERSITY IN RIO DE JANEIRO, BRAZIL

Ana Carolina Bittencourt Ferreira;  
João Luiz Clara André; Nadia Tavares El Kadi

Monteiro Paiva; Márcio Matheus Rosas de Souza;  
Rosane Todeschini Borges

**Background:** Noncommunicable diseases (NCD) are some of the main current public health problems. NCD accounted for 68.3% of all deaths in Brazil in 2011, and this rate increased more than 3 times from 1930 to 2006. Most deaths by NCD are associated with a small number of risk factors likely to be controlled, particularly smoking, inadequate diet, physical inactivity and excessive alcohol consumption. **Objective:** To establish the health profile of employees of a public university in Rio de Janeiro, Brazil. **Methods:** Observational, longitudinal, retrospective and descriptive study based on the results of periodic medical examinations performed at the university's occupational health department from January through November 2018. **Results:** A total of 258 medical examinations were performed along the analyzed period. The largest proportion of employees were 30 to 39 years old (31.8%) and female (62.4%). The rates of risk factors were: smoking, 7.4%; alcohol consumption (including social drinking), 41.5%; and physical inactivity, 48.8%. The prevalence rates of NCD were: obesity (BMI > 30 kg/m<sup>2</sup>), 26%; diabetes, 8.9%; dyslipidemia (abnormal cholesterol), 22.5%; and arterial hypertension, 19.4%. **Conclusion:** Identifying the health profile of workers is necessary to implement measures to manage working conditions to prevent occupational diseases and promote and safeguard the health of workers.

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## TLO63 – PROFILE OF ACCIDENTS INVOLVING BIOLOGICAL MATERIALS AT A PUBLIC UNIVERSITY IN RIO DE JANEIRO, BRAZIL

Ana Carolina Bittencourt Ferreira; João Luiz Clara André; Nadia Tavares El Kadi Monteiro Paiva; Márcio Matheus Rosas de Souza; Rosane Todeschini Borges; Isabel Cristina de Moraes Gomes; Patrícia de Castro Barboza

**Background:** Accidents with exposure to biological materials are those which involve blood or other body fluids potentially able to transmit diseases, among which HIV, hepatitis B and C are the most common. **Objective:** To establish the profile of this type of accidents at a public

university. **Methods:** Observational, longitudinal, retrospective and descriptive study based on work accident reports issued from January through November 2018. **Results:** We analyzed 37 accidents involving biological materials. Most victims were female (67.6%). Rates according to occupation were: physicians, 29.7%; nursing technicians, 27%; and general attendants, 18.9%. The highest proportion of accidents occurred between 7:00 and 13:00h (48.6%). In most cases, exposure was percutaneous (86.5%), the biological material involved was blood (59.4%), the main agents were hollow needles (75.7%), and the most common circumstance, inadequate disposal (21.6%). About 97.3% of the employees wore at least one piece of personal protective equipment at the time of the accident and 75.7% had completed the hepatitis B vaccine series. About 48.6% of the victims were discharged because the source-patient was seronegative, and 35.1% are still being monitored. **Conclusion:** Identifying the profile of this type of accidents provides grounds to the implementation of measures to manage working conditions to prevent and reduce their incidence.

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### **TLO64-RETROSPECTIVE STUDY OF ABSENTEEISM AND OCCUPATIONAL READJUSTMENT MANAGEMENT WITHIN A PROGRAM FOR INTEGRATION AND APPLICATION OF THE TOTAL WORKER HEALTH CONCEPT BY AN OCCUPATIONAL MEDICINE SERVICE PROVIDER**

Luciano Resende Ferreira; Cristiano Machado Galhardi; Cristina Cerqueira Danziger; Regiane Reis Bastos; Laura Cristina Rios Ferreira; Luciel Henrique Oliveira

**Background:** The current view of occupational health has gained in relevance, resulting in a global trend to integrate safety and health at work. **Objective:** To establish whether the implementation of a Program of Integration and Application of the Total Worker Health Concept by Contato Gestao Empresarial, an occupational medicine service provider, had impact on absenteeism and occupational readjustment management. **Methods:** Retrospective cohort study that analyzed the program impact on absenteeism

rates, number of medical certificates issued, duration (days and hours) of sick leave and number of work accidents relative to regular and readjusted employees. The analyzed data corresponded to one year (2017) before and one year (2018) after program implementation. Statistical analysis was performed with Student's t-test; the significance level was set to  $p < 0.05$ . **Results:** The absenteeism rate decreased from 2017 (1.8) to 2018 (1.1). Reduction was also found in the total number of medical certificates issued (24%), duration — days (35%) and hours (29%) — of sick leave, total number of work accidents (50%) and duration of sick leaves after work accidents (81%). Further reduction (35%) was found in the number of medical certificates issued and missed work days relative to the readjusted employees. **Conclusion:** Integration of safety and health at work through application of the Total Worker Health concept led to considerable decrease of absenteeism and of the number of work accidents.

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### **TLO65 – THE ROLE OF OCCUPATIONAL PHYSICIANS IN THE IDENTIFICATION OF EXPOSURE TO CHEMICAL HAZARDS: CADMIUM EXPOSURE CASE REPORT**

Nayara Maria Cortés Ferreira ; Ricardo Sallai Viciano; Sergio Roberto de Lucca; Marcia Cristina das Dores Bandini; José Dias de Araújo Neto

**Background:** Many workers are exposed to cadmium, an occupational hazard that is not always evident. Cadmium is a toxic heavy metal listed among the carcinogenic substances (group 1). Exposure occurs in several industrial processes: paint pigment manufacture, non-iron metal smelting and refinement, waste incineration, cadmium-containing battery and plastic manufacture, and welding, among others. **Objective:** To discuss the relevance of occupational physicians in the identification of exposure to chemical hazards through the report of a case of cadmium exposure. **Methods:** Case report corresponding to a patient cared at the toxicology outpatient clinic of Clinical Hospital, UNICAMP, Brazil. Biological monitoring and clinical assessment. Study of the effects of exposure to welding fumes. **Results:** Male, 46-year-old toolmaker who had worked with silver, brass and tin alloys for 23 years. The urine cadmium level was above

the Maximum Permitted Biological Index; the kidney function was normal. According to the corresponding Chemical Substances Safety Information Form, the silver welding rod contained cadmium, of which fact neither the occupational physician nor the Environmental Risk Prevention Program were aware. The recommendation was to relocate the employee to another job, follow-up every 6 months and to replace the welding rods for cadmium-free ones, thus eliminating the source of exposure. **Conclusion:** This case calls the attention to the need for thorough analysis of work processes, as well as of the safety information provided for materials. Integration among healthcare and safety and health professionals should be enhanced to avoid neglecting exposures to chemical hazards and their consequences for the health of workers.

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### **TLO66 – PREVALENCE AND SOCIODEMOGRAPHIC CHARACTERIZATION OF MUSCULOSKELETAL DISEASES LEADING TO SICK PAY BENEFITS: RETROSPECTIVE STUDY**

Cristiano Machado Galhardi; Luciano Resende Ferreira; Albano Freitas Júnior; Luis Otávio Cancian; Renata Cristiane Gennari Bianchi

**Background:** Work dignifies, but is also a source of suffering. Musculoskeletal disorders (MSD) are a considerable occupational health problem, having absenteeism as its worst outcome. **Objective:** To characterize and analyze the prevalence of MSD among workers who requested sick pay to the National Social Security Institute (INSS). **Methods:** Longitudinal retrospective study that analyzed data available in the INSS database (SUIBE) relative to the number of sick-pay requests for conditions under ICD code M, distributed per sex and place of residence, for the period from January 2013 to December 2013. Statistical analysis was performed with the Mann-Whitney test; the significance level was set to  $p < 0.05$ . **Results:** 89% of the beneficiaries resided in urban areas and 11% in rural areas ( $p < 0.001$ ) as a function of the massive move to cities since the mid-20th century. There was no difference in rates according to sex. **Conclusion:** MSD are the leading cause of disability due to pain. Investment in prevention is always

better, considering the costs of healthcare and losses from absenteeism. Formulating multiprofessional preventive measures targeting workers is essential, including ergonomic improvements, healthy work environments and healthcare insurance.

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### **TLO67 – RELATIONSHIP BETWEEN MUSCULOSKELETAL DISORDERS AND ABSENTEEISM: SYSTEMATIC REVIEW**

Cristiano Machado GALHARDI; Luciano Resende Ferreira; Leonardo Duarte Picchi; Renata Cristiane Gennari Bianchi

**Background:** Musculoskeletal disorders (MSD) are a considerable public and occupational health problem. Absenteeism is considered the worst outcome of MSD, because it interferes with the work routine, reducing the amount and quality of production. **Objective:** To perform a systematic review of the relationship between MSD among workers and absenteeism. **Methods:** Systematic review according to the PRISMA method. The literature search was performed on databases MEDLINE, LILACS, SciELO and PubMed, using headings “musculoskeletal diseases” and “absenteeism.” **Results:** The highest prevalence of MSD corresponded to women (78%), average age 58 years old (55%) and workers having completed elementary school (36%). MSD explained 87% of absenteeism and were associated with poorer quality of life and work. **Conclusion:** Multiprofessional preventive measures targeting workers are indispensable, as well as training to learn and identify warning signs to avoid negative impacts on their activities.

DOI: 10.5327/Z16794435201917SITL068

### **TLO68 – RELEVANCE OF PERIODIC MEDICAL EXAMINATIONS TO IMPROVE INDIVIDUAL AND CORPORATE OUTCOMES**

Alessandra Cantharino Granjo; Viviane de Souza Rosa; Monalisa Nobre Bastos; Leiliane dos Santos Gome; Katiane Andrade

Health promotion is part of the life of people and companies. Prevention and health promotion are associated with individual and corporate benefits, including

healthy aging, higher productivity, lower absenteeism and control of healthcare costs. The occupational health department of CardioPulmonary Hospital implemented measures, starting 2017, to enhance prevention and health promotion among its employees. The basis of this initiative are periodic medical examinations, which allow establishing the epidemiological profile of employees and defining prevention actions. The main means to raise the employees awareness on the relevance of periodic medical examination were: defining the rate of examinations as strategic indicator, including the lipid profile and blood sugar as part of examinations and discussing prevention-related aspects during consultations, such as diet and physical activity. **Results:** 100% of the examinations expected in 2017 and 2018 were effectively performed, resulting in closer ties between the employees and the occupational health department, better adherence to preventive measures, such as vaccination, smoking reduction, adherence to the diet program and better control of accidents. **Conclusion:** Promoting health in any environment is the right thing to do. The care of healthcare providers is a relevant subject, and humanization of care, by raising awareness on the relevance of preventive habits in the daily routine, increases job satisfaction and leads to better individual and corporate outcomes.

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### TLO69 – JOINT HYPERMOBILITY SYNDROME, CHRONIC PAIN AND WORK

Carlos Gropen; Marcos de Toledo

**Objective:** To describe the joint hypermobility syndrome (JHS), also known as hypermobile Ehlers-Danlos syndrome, and its relationship to work. **Methods:** Literature survey. **Results:** Based on an epidemiological study with 12,853 patients, Mulvey et al. (2013) and Morris et al. (2016) inferred that 3.4% of the participants exhibited joint hypermobility and generalized pain. In their study, Larsson et al. found correlation between hypermobility and work disability. In a study with 453 industry workers, 26% of the participants with hypermobility exhibited backache versus 14% of those without this condition. In another study with 326 industry workers who worked sitting or standing, 40% of those

with hypermobility complained of backache versus 12% of those without this condition. **Conclusion:** Prevalence studies on JHS are still scarce. According to estimates, there are 225 million cases worldwide, 10 million cases in the United States and a little more than 7 million cases in Brazil. This condition is quite relevant, as it might interfere with the workers' career. Impacts might vary from need of adjustments at work to definitive change of jobs, and even permanent disability.

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### TLO70 – STRESS MANAGEMENT AS EDUCATIONAL STRATEGY FOR HEALTH AND WELL-BEING PROMOTION IN THE CORPORATE SETTING

Thiago Lima Guedes; Maria Luiza Barros Fernandes Bezerra; Priscilla Vieira Coutinho Sabino; Elza Martins Fonseca; Bianca de Franco de Oliveira; Jane Batista de Almeida

**Objectives:** To report an experience within the Stress Management Project, which might be considered efficient for participants, organizations and healthcare insurance companies. **Methods:** Target population — employees of a financial institution (n=3,183) distributed across 128 branches. Framework — operative group theory: actions are performed with groups of employees of a same branch and are linked in time and space, resulting in a network of mutually linked roles; Participant selection — spontaneous demand, indications by the quality of work life management department or by primary care professionals among institutional health insurance beneficiaries. **Results:** 2,257 employees responded a questionnaire for stress symptoms. 152 participants (7%) exhibited level 3 stress, 490 (22%) level 2 and 152 (7%) level 1. According to their reports and a satisfaction survey, 89% of the participants rated their group excellent or good and their quality of life and the organizational climate better. The rate of sick leave for mental disorders decreased. **Conclusion:** For workers — enhanced satisfaction and quality of life by means of educational actions and resources to cope with stress. For the organization — increased productivity and reduced duration of sick leaves. For the health insurance company — reduced use of the mental health and psychiatry network.

DOI: 10.5327/Z16794435201917SITL071

## TLO71 – PSYCHOSOCIAL AND ORGANIZATIONAL FACTORS AND OCCUPATIONAL STRESS AT THE STERILE SERVICES DEPARTMENT OF A PUBLIC UNIVERSITY HOSPITAL

Paula Caroline Guissi; Sergio Roberto de Lucca; Daniela de Almeida Martins; Maria Amélia Stefanutto Zihlmann Pinho; Fidelis Ranali Neto; Israel Vieira; Lucia Arisaka Paes

**Background:** Work in healthcare is stressful as a function of the interpersonal relationship with patients. The sterile services department (SSD) is a support hospital service. While SSD workers are not involved in patient care, they are exposed to other psychosocial factors which might cause occupational stress. **Objective:** To identify psychosocial and organizational factors liable to cause occupational stress among the nursing staff at the SSD of a university hospital in Sao Paulo, Brazil. **Methods:** Cross-sectional quantitative and qualitative study. A sociodemographic questionnaire and the Effort-Reward Imbalance scale were administered to 63 nursing professionals; 51 participants who agreed were also interviewed. **Results:** About 92% of the participants were female and their average age 45 years old. Effort-reward imbalance was detected for 16% of the sample. Autonomy, development opportunities and lack of interaction with patients were described as positive psychosocial factors. In turn, the participants mentioned management problems, conflicting relationships and lack of recognition by the hospital management as factors with negative impact. **Conclusion:** Negative psychosocial factors at work, particularly conflict in management and interpersonal interrelationships, are relevant for the implementation of individual and collective actions and interventions at the analyzed hospital department.

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## TLO72 – SEXUAL VIOLENCE WHILE COMMUTING TO OR FROM WORK AS WORK ACCIDENT: ANALYSIS OF CASES CARED AT A REFERRAL UNIVERSITY HOSPITAL AND REPORTED TO SINAN

João Carlos do Amaral Lozovey; Fabiana Costa de Senna Ávila Farias;

**Background:** Work accidents while commuting to or from work (WAC) have impact on the Unified Health System (SUS) in terms of qualification, resources and overload to hospital emergency departments. Urban violence is increasing, workers are victims of traffic accidents, assault and rape. Yet, there are divergences in the understanding of this phenomenon from the legal, labor and social security perspectives. Rape is defined as “forcing someone, through violence or serious threats, to have sexual intercourse or perform some other libidinous act.” Is rape WAC? What is the role of occupational physicians? **Objective:** To analyze sexual violence as possible WAC and its relationship to occupational health. **Methods:** Cross-sectional, descriptive and retrospective study of data corresponding to a university hospital in Curitiba, Parana, Brazil, for the period from 2011 to 2017. Instances of “interpersonal violence” recorded in the System of Information for Notifiable Diseases (SINAN) were reviewed, with focus on sexual and labor aspects (place, time, occupation, description). **Results:** 182 cases were characterized as WAC, with the following annual distribution: 24, 21, 39, 33, 20, 28 and 17, respectively. The victims’ age ranged from 14 to 46 years old (37% 21–25 years old). 70.3% of events occurred in urban public places and 48.1% in the morning. 29.6% of victims had completed secondary school and none had attended higher education. 85.1% of victims were white. **Discussion:** Aspects to be considered are whether sexual violence may or not be considered WAC, legal frame and administrative issues for assistant and occupational physicians (confidentiality regarding specific details of assaults, need or not to issue a Work Accident Report, labor rights, ICD code). Receptivity and monitoring the health of victims by SUS and employers is relevant. Authorities are called to improve public safety. The Social Security Administration and the Judiciary should decide on the legal status of sexual assault within the labor context.

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## TLO73 – MEDICAL EDUCATION, RESEARCH AND HEALTHCARE BASED ON ACTIVE SEARCH OF THE OCCUPATIONAL LINK OF HEALTH

## PROBLEMS OF GENERAL PATIENTS AT A UNIVERSITY HOSPITAL

João Carlos do Amaral Lozovey; Taciana Elizabeth Zenger; Paulo Guen-iti Matsuzaki; Fabiana Costa de Senna Ávila Farias

**Background:** Occupational health — as part of collective health and the Unified Health System (SUS) — involves surveillance of hazards in the work environment and their social impacts, as well as the organization of healthcare (integrated diagnosis, treatment and rehabilitation). Here we describe the planning, implementation and outcomes of an occupational health project that combines tertiary care at a SUS-affiliated general hospital and the epidemiological and health surveillance demands of the Ministry of Health, in association with university teaching and research. Thus this project is intimately linked to the operationalization of a unified system able to contribute to the health of citizens. **Objective:** To describe the legal requirements for mandatory reporting of work-related health problems, as well as: 1) the protocol development steps; 2) procedures for active search of the occupational link of health problems of patients cared at SUS; and 3) procedures for analysis and reporting to the System of Information for Notifiable Diseases (SINAN). To discuss the contribution of undergraduate and graduate medical education and occupational health surveillance research as part of the National Medical Curricular Guidelines and the competencies required from occupational physicians. **Results:** We describe the project qualitative outcomes and the distribution of notifiable diseases over time (2011–2017). 442 records were located in SINAN (severe accidents: 6; cancer: 9; skin problems: 88; repetitive strain injury/work-related musculoskeletal disorders: 83; noise-induced hearing loss: 38; pneumoconiosis: 34; poisoning: 2; mental disorders: 20; violence: 182). We discuss difficulties, expectations and perspectives.

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## TLO74 – TELEWORK AND HOME OFFICE: CHALLENGES TO WORKPLACE HEALTH AND SAFETY

Sergio Roberto de Lucca; Marcia Dolores Bandini

**Background:** Applying technology to work processes enabled telework, defined as “Work performed away from

the company usual premises, facilitated by information and communication technologies.” Therefore, there is an actual possibility that home offices will replace onsite work. Telework exhibits specific characteristics and risk factors which might cause diseases to the about 10 million teleworkers. Preserving the health of teleworkers poses a challenge to occupational physicians and other occupational health providers. **Objective:** To discuss the advantages and disadvantages of telework of interest for health and safety at work. **Results:** While telework is advantageous in terms of time spent commuting and higher productivity, several studies call the attention to the ergonomic risks of home workstations, social and professional isolation, family conflict and difficulty to separate the professional and personal life. **Conclusion:** In addition to ergonomic aspects, also the psychosocial factors associated with telework should be taken into consideration. Working alone and losing the social interaction inherent to collective work favor isolation and loneliness and might affect the mental health of teleworkers. Telework and periodic monitoring of this population of workers is one of the main challenges to workplace health and safety in the present time.

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## TLO75 – STIGMA BARRIERS IN A PUBLIC INSTITUTION TO THE WORK REINTEGRATION OF WORKERS WITH PROBLEMS DERIVED FROM DRUG USE

Sergio Roberto de Lucca; Debora Almeida Martins; Fidelis Ranari Neto

**Background:** Stigma is a physical or social mark with negative connotation for individuals or groups, which might marginalize them or exclude them from social life and the work environment. Workers with problems due psychoactive substance (PS) use are stigmatized by society and at work. This situation might make their problems worse and hinder their reintegration to work. **Objective:** To analyze the negative impact of stigma on the work reintegration of PS-using employees of a public university enrolled in a work reintegration program. **Methods:** Qualitative study to analyze and identify internalized and social stigma within the process of work reintegration in a public institution. Based on

the profile of 34 PS-using employees enrolled in the program and recruited by convenience sampling, 5 of them, and their supervisors, were selected for in-depth interviews. The theoretical framework was supplied by Bardin's content analysis. **Results:** The participants' narratives confirmed the occurrence of internalized stigma among PS users, social stigma among supervisors and institutionalized stigma as a substantial barrier to the work reintegration of this population of workers. **Conclusion:** Awareness of the stigma associated with problems derived from the use of PS might contribute for occupational health professionals to develop strategies to minimize it within the process of work reintegration of this population of workers in public and private organizations.

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### TLO76 – FATIGUE MANAGEMENT PROGRAM – EVALUATION AND BENEFITS

Bruna Macedo; Caio Fonseca Campos;

**Background:** The fatigue management program (FMP) analyzed here is part of a set of actions to monitor risks, prevent incidents, improve the well-being of workers, increase production and reduce the problems associated with fatigue. FMP includes actigraphy, pre-functional and attention testing, online EEG monitoring, calculation of the Fatigue and Risk Index and wearing the Sempre-Alerta® device. **Objective:** To present FMP to a level 4 risk mining company, with 300 employees allocated to its iron ore extraction operation. **Methods:** Evaluation of FMP; explanation of its components and implementation; demonstration of its application and benefits. **Results:** Devices and tests for workers at high-risk situations for themselves and others to minimize the occurrence of incidents. The tests were implemented gradually, especially targeted equipment operators and are having satisfactory results. **Conclusion:** Employers are increasingly concerned with the safety of their employees and thus are continuously looking for technologies likely to reduce the occurrence of work accidents. Fatigue screening instruments enable the assessment of occupational risks to prevent work accidents and their consequences, particularly in terms of worker well-being.

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### TLO77 – OCCUPATIONAL MEDICINE GRADUATES FROM A TEACHING HOSPITAL IN SAO PAULO, BRAZIL, 2005-2013

Adalberto Malinverni Junior; Daniele Regozino Muniz; Flavia Souza e Silva de Almeida;

**Objective:** To analyze the choice of a medical residency or a graduate program for specialization in occupational medicine at a teaching hospital in Sao Paulo, Brazil, and job opportunities, for the period from 2005 to 2013. **Methods:** A questionnaire on training and work in occupational medicine was sent by e-mail. **Results:** 460 physicians concluded the occupational medicine programs in the analyzed period, 35 (7.6%) the residency and 425 (92.4%) the graduate program. 54 (11.8%) of them responded the questionnaire (15 from the residency and 39 from the graduate program). 33 (61.1%) respondents were working as occupational physicians (most from the graduate program) and 48 (88.9%) stated they had not met any difficulty to find jobs in this field. The weekly working time was 21–40 hours for 7 (46.7%) former residents and 11 (28.2%) former graduate students. Most (n=38, 70.4%) respondents worked at Occupational Medicine and Safety Engineering Departments of companies. Nine (60%) former residents and 20 (51.3%) former graduate students worked as coordinators. **Conclusion:** Integration into the labor market was satisfactory for occupational physicians attending either program. Already having a job was a relevant reason for the choice of program.

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### TLO78 – RELEVANCE OF OCCUPATIONAL PHYSICAL THERAPISTS IN ORGANIZATIONS

Ruth Helena Manoel; Karla Sales Fagundes; Leticia Dias da Costa Galeto; Cinthya Natel Baer; Renata Simioni; Luiz Antonio Setti Barbosa

**Background:** Active myopathy is associated with symptoms such as fatigue, muscle pain, loss of muscle strength, falls and cramps and impairs the function of the affected limbs, leading to sick leave. One female worker with active myopathy, seen in 2016, exhibited

these symptoms, in addition to difficulty to sit and rise from a chair and for the activities of daily living (ADL).

**Objective:** To demonstrate the relevance of occupational physical therapists in organizations, working together with orthopedists and preventive physical therapists, to improve the health of workers, reduce/eliminate absenteeism and contribute to the organization's performance. **Methods:** The affected worker underwent physical therapy 3 times/week at the company's outpatient clinic. The technique selected was kinesiotherapy to improve the strength and balance of the abdominal, lower and upper limb muscles. **Results:** On an electromyography test performed in 2018, there were no longer positive sharp waves or fibrillation potentials in proximal muscles. She no longer needed a wheelchair, but could walk with crutches and thus avoided missing work days. **Conclusion:** Electromyography and the worker's reports evidenced improvements in her state of health and quality of life. She recovered her ability to work and perform ADL as a function of the rehabilitation techniques and the multidisciplinary actions promoted by the organization, which thus contributes to improve the performance and productivity of its employees.

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### TLO79 – APPLICATION OF THE LEAN SIX SIGMA METHOD TO OCCUPATIONAL HEALTH

Ruth Helena Manoel; Renata Tassi dos Santos; Suzana Gonsalves de Aguiar de Paiva; Luiz Antonio Setti Barbosa; Lutiano Castro Pacheco; Elisio dos Reis Neto; Renata Simioni; Leticia Dias da Costa Galeto; Losangela Silva Sura;

**Background:** While it became common in the corporate world, outcome monitoring is rather recent and poses a challenge in occupational health practice. **Objective:** To map all process and activities in an occupational health department and establish productivity, efficiency, safety and worker satisfaction indicators to assess efficiency in the use of resources. **Methods:** Meetings were held along 4 months with the department coordinator, analysts and nursing technicians. The department productivity was mapped by means of the Lean Six Sigma method, which aim is to induce continuous improvements of processes, taking the workers and the organization's needs into consideration. **Results:** Based on the suggestions for

improvements derived from the initial mapping, 92 action plans were designed, which succeeded in reducing sickness absenteeism, improving worker satisfaction with the department and enhanced in the team a feeling of ownership and of care with processes and people. The productivity indicators evidenced 10% increase in the use of services, 15% increase in the use of physical facilities and reduction of idle time from 29% to 19%. **Conclusion:** The results indicate greater assertiveness and visibility of occupational health as strategic for organizational outcomes.

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### TLO80 – MORAL HARASSMENT IN THE WORKPLACE: COMPLIANCE AND THE ROLE OF OCCUPATIONAL PHYSICIANS IN THE PREVENTION OF INCIDENTS

Luana Gomes Mazucatto

**Background:** Modern changes in labor relations and the new market profile contribute to increase rivalry and hostility in the workplace, resulting in exponential growth of psychological violence at work, moral harassment in particular. With its focus on prevention, present-day occupational medicine should pay more attention to moral harassment in the workplace, as a function of its profound social and economic impacts. **Objective:** To define moral harassment, establish its psychological effects on victims, define the role of occupational physicians within this context and demonstrate the efficacy of compliance programs for prevention. **Methods:** Literature review. **Results:** The increasing rates of illness among workers who undergo moral harassment in the workplace show that first and foremost it affects the health of workers, but also the work environment as a whole, which becomes unmotivating and unfavorable to business. The affected workers might develop psychopathological, psychosomatic and also behavioral symptoms, which reflect the severity of the problem. **Conclusions:** Therefore, the occupational physicians' older pattern of action, restricted to a reactive attitude, should be replaced by preventive measures grounded on compliance programs and intensive supervision. This approach is less exhausting, more efficient and less expensive for all the involved actors.

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## TLO81 – ABSENTEEISM IN THE BANKING SECTOR: EPIDEMIOLOGICAL CHARACTERISTICS OF SICK LEAVES

Karla Gripp Couto de Mello; Lenita Fonseca Hamon Porto; Noel Gonçalves Cerqueira Junior; Luciane da Rocha Pacher

**Background:** The banking sector is one among those which most strongly feel the impacts of transformations in the world of work — digital transformation, production restructuring, changes in jobs and the work profile. The ongoing technological development, of the financial system in particular, is not attended by changes in the epidemiology of diseases among bank employees. **Objective:** To analyze the causes of disease among bank employees allocated to customer service or to internal areas, i.e. without contact with clients. **Methods:** Observational retrospective study performed at a public-private financial institution from January through December 2017. Causes of disease were categorized according to ICD codes. The sample comprised 7,536 employees, being 7,141 tellers at branches and 395 employees allocated to regional management offices. We analyzed a same function, although involving different activities (customer service and internal services). **Results:** The profile of diseases agreed with that known for bank employees. ICD M code diseases (musculoskeletal) were most frequent in both groups, followed by respiratory diseases and mental disorders. **Conclusion:** Depressive disorders predominated among the employees allocated to internal areas, without contact with clients, and anxiety disorders among those allocated to customer service. Enthesopathies predominated among the former and backache among the latter. Skin problems allegedly related to handling bills and coins were not significant.

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## TLO82 – RECYCLING WORKERS AT TWO SORTING STATIONS IN PORTO ALEGRE, RIO GRANDE DO SUL, BRAZIL: SOCIAL PROFILE AND OCCUPATIONAL HAZARDS

Morgana da Silva Miller; Camila Siqueira Alves; Cassia Soares; Paulo T Souza; Dvora Joveleviths

**Background:** The present study was performed to call the attention to the health of recycling workers. **Objective:** To establish the profile, living and working conditions and exposure to occupational hazards of employees at two sorting stations in Porto Alegre, Brazil. **Methods:** Cross-sectional study performed at two sorting and composting stations in Porto Alegre. Forty-two employees signed an informed consent form before responding a questionnaire adapted from a previous one. **Results:** 82.98% (39) of the participants were female. Few participants rated their work hazardous. While not perceived as such by the employees, analysis of the questionnaires showed that work accidents had indeed occurred in 25% of the cases, 30% of which possibly involving biological materials. Personal protective equipment was rated inadequate. **Conclusion:** Recycling workers require special attention and measures to improve their work environment. Public policies are needed, also to reinstate the status of this population as workers and citizens. The working conditions to which recycling workers are exposed pose risk to their health and contribute to occupational diseases they do not notice.

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## TLO83 – INCLUSION OF PEOPLE WITH DISABILITIES AT A FINANCIAL INSTITUTION

Camila Inês Silva Mio; Fernanda Aparecida Valeretto

**Background:** Inclusion of people with disabilities (PD) is increasing in the Brazilian labor market. Organizations promote institutional campaigns to sensitize employees to the fact that inclusion should be conscious and continuous. For this purpose, specialists have resource to ergonomic analysis to detect risk factors and design the work environment. **Objective:** To estimate the number of PD employed at a financial institution and establish whether workstations were adequate to their limitations, in the period from 2013 to 2018. **Results:** 85 employees already in the job were identified as PD and further 45 were admitted through a public call. The categories of disability found, as per the Decree no. 5,296, from 2 December 2004, included: physical disability (n=95), hearing loss (n=21), visual impairments (n=15), mental disability (n=1) and multiple disabilities (n=1); also monocular vision (n=13) as per the Supreme Justice Court Decision

no. 377. Ergonomic analysis was performed for 96.58% of the employees; 95.74% of the workstations were rated adequate and 4.25% inadequate, requiring reallocation of the involved workers. **Conclusion:** Ergonomic analysis of PD workstations is crucial for their inclusion. In addition to resulting in official reports which enable measures to adjust workstations, they contribute to develop trust between employer and employee and to improve health and safety in the workplace.

DOI: 10.5327/Z16794435201917SITL084

### TLO84 – SICK PAY FOR ACCIDENTS IN AMAZONAS BEFORE AND AFTER FAP/NTEP

Evandro Carlos Miola

**Background:** The implementation of the Social Security Epidemiological Technical Link (NTEP), starting 1 April 2007, enabled advances in the National Social Security institute acknowledgment of cases with a causal link between work and disease. **Objective:** To establish the number of sick-pay benefits for accidents granted in Amazonas and Brazil before and after the implementation of NTEP. **Methods:** Descriptive quantitative study. Data relative to the number of social security and accident benefits granted in the period from 1998 to 2016 were obtained from the Historical Work Accident Database; 2017 was not considered, because the new legislation was passed that year. **Results:** The average proportion of benefits granted for accidents in Amazonas before the implementation of NTEP was 13.1%, varying from 9.1% (2003) to 18.4% (1998); the corresponding rate for Brazil as a whole was 12.3%, varying from 6.1% (2006) to 19.2% (1998). The average proportion of benefits granted for accidents in Amazonas after the implementation of NTEP was 18.3%, varying from 15.8% (2004) to 20.9% (2008); the corresponding rate for Brazil as a whole was 12.8%, varying from 9.3 (2016) to 16.5 (2008). Therefore, the proportion of accident benefits granted in Amazonas increased significantly after the implementation of NTEP, from 13.1% to 18.3%, while for Brazil as a whole the corresponding rates were 12.3% and 12.8%. **Conclusion:** Future studies are needed to elucidate the reasons of this discrepancy.

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### TLO85-PEOPLE WITH DISABILITIES: PERCEIVED INCLUSION AND ACCESSIBILITY IN A LABOR COURT

Evandro Carlos Miola; Carolina Jean Pinheiro

**Background:** Based on the Convention of the Rights of Persons with Disabilities (CRPD), the Brazilian legislation seeks to promote full accessibility to people with disabilities. In regard to the Judiciary, the National Justice Council Resolution no. 230/2016 gives formal orientation on activity adjustments as per CRPD and the Brazilian Law on Inclusion of Persons with Disabilities. **Objective:** To investigate the perception of civil servants with disabilities of physical, architectural, communication and attitudinal/social barriers, in addition to suggestions or workplace adjustments in a labor court. We also seek to promote a reflection on a more inclusive society. **Methods:** Descriptive and exploratory study with qualitative analysis. The local multiprofessional health staff administered in 2018 an electronic semi-structured questionnaire with 16 questions on physical, architectural, communication and attitudinal/social barriers. 29 employees with disabilities were invited to participate, 12 responded the questionnaire. **Results:** For most participants, the signal, lighting and climatization requirements were met, there were no obstacles in their way and workstations were duly adjusted. However, they called the attention to the lack of hearing aid connections, too long distances between workstations and bathrooms and problems with elevators. **Conclusion:** Attitudinal/social barriers were determinant for perceived inclusion and quality of work life.

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### TLO86-TRENDS RELATIVE TO WORKERS REHABILITATED THROUGH THE BRAZILIAN SOCIAL SECURITY OCCUPATIONAL REHABILITATION PROGRAM, 2007-2016

Cristiano Barreto de Miranda; João Silvestre Silva-Junior; Frida Marina Fischer

**Background:** Occupational rehabilitation is provided by the Brazilian Social Security Administration to insured

workers with work disability. Analyzing trends relative to rehabilitated workers is relevant in the evaluation of the provided services. **Objective:** To analyze the trends relative to cases of workers rehabilitated through the Brazilian Social Security Administration occupational rehabilitation service for the period from 2007 to 2016. **Methods:** Time series, ecological study in which we analyzed secondary data to establish the trends of the coefficient between the number of rehabilitated workers and the total number of workers enrolled in the social security system. Analysis was performed by means of polynomial regression. Trends were considered significant when the model exhibited  $p < 0.05$ . **Results:** The coefficients for the Northeast, Central-West, Southeast and South region tended to decrease ( $p < 0.05$ ) all throughout the analyzed period. In turn, the coefficients for the North Region tended to increase until 2009, then to decrease until 2012 and finally to increase gain ( $p < 0.001$ ). **Conclusion:** Overall, the cases of rehabilitated workers tended to significantly decrease. Some of the factors associated with such decrease include: lack of actions for prevention of work disability and of intersectoral actions; more restricted eligibility criteria; reduced public investment in the program; increased number of workers without formal employment relationship; and increase of outsourced services.

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### TLO87-QUALITY OF WORK LIFE OF HEALTH AGENTS AT A FAMILY HEALTH UNIT IN RONDONIA, WESTERN AMAZON

Janne Cavalcante Monteiro; Osmar Brandao da Silva Neto; Ana Caroline Gonçalves de Siqueira;

**Background:** Community health agents (CHA) play an essential role in primary care. Therefore, accurate knowledge of their working conditions is necessary to improve health services and resource management. **Objective:** To analyze the quality of work life and working conditions of CHA allocated to the Aponia Health Unit in Porto Velho, Rondonia, Brazil. **Methods:** Administration of a questionnaire including educational level, age, marital status, socioeconomic category, main problems in the work process and knowledge on occupational health. Eleven CHA from the two local teams were interviewed. The data

were tabulated using Epi Info 3.5.3 and Google Forms. **Results:** Most CHA believed their work environment was likely to cause physical (headache, 72.7%; lower limb pain, 63.6%) and mental (stress, 90.9%; anxiety, 45.5%) health problems, in addition to risk of falls, animal attacks and car accidents. **Conclusion:** The CHA work process has direct impact on the quality of the care they provide. Understanding that work causes overload and exposes CHA to vulnerabilities is crucial to prevent health problems in this population of workers and also to ensure a more efficient primary care work process.

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### TLO88-HUMAN BEHAVIOR AND ITS RELEVANCE FOR PREDICTING OCCUPATIONAL RISK

Armando Cesar Gonçalves de Moraes Junior; Danielle Chaves Gonçalves Tavares

**Background:** The relevance of workplace safety is certainly acknowledged by any respected company worldwide. However, precise identification of sensitive factors and defining assertive strategies pose a considerable and continuous challenge. The reason is that the mind of humans, i.e. agents who interact with their environment and are susceptible to countless diseases, does not include a data binary processing system which output may be interpreted by means of Boolean logic. **Objective:** To understand how behavioral factors might influence the human perception of environmental hazards and to emphasize the need to consider this aspect in strategies and studies of complex organizational systems. **Methods:** Review of scientific publications on organizational culture and human factors. **Discussion:** To create safe workplaces, organizations should avoid environments liable to enhance uncertainty fear or excessive stress, because the resulting behaviors might be undesirable, even under hazardous conditions. Many organizational strategies which seek to develop and sustain a safety culture neglect extremely relevant aspects in their approach. **Conclusion:** The complexity of humans, i.e. the target of this type of programs, is not adequately considered. Human behavior and the responses to various types of stimuli need to be more emphatically considered in the analysis of complex organizational systems.

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## TLO89-IMPROVING QUALITY OF LIFE THROUGH MINDFULNESS IN THE CORPORATE SETTING

Juliana Torres Santos de Moraes; Joice Ferreira Alves

**Objective:** To establish the efficacy of an 8-week mindfulness program to improve quality of life among employees of a large company. **Methods:** Longitudinal prospective study. The company medical department indicated employees complaining of stress; other participants enrolled spontaneously. The Brief Causes and Stress Coping Strategy Inventory (Brief ICES) was administered before and after intervention. Intervention included in-person meetings and an online channel with guided meditation videos. Data analysis consisted in descriptive statistics with calculation of measures of central tendency, which was performed by the company IT department using software RapidMiner. **Results:** Forty-three employees participated in the program. The results of Brief ICES indicated that 60.4% of the sample had a worrisome stress level at baseline; this proportion decreased to 32.2% after intervention. All domain scores (environment, spiritual/religious, physical, independency, psychological and social relationships) improved after intervention, particularly the psychological domain (20%). **Conclusion:** In addition to improving the quality of life, mindfulness practice in the corporate setting is associated with non-measurable general benefits. Several comments were posted to the online channel, for instance “When I realize I’m anxious or nervous, I stop, breathe deeply and begin feeling my respiration, my body. Everything falls into place and becomes normal again. The power of meditation is impressive.”

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## TLO90 – REDUCTION OF REFERRALS TO THE EMERGENCY DEPARTMENT AFTER PROMOTING A WORKER INTEGRATED HEALTHCARE CULTURE

Moacyr Vergara de Godoy Moreira; Edmundo di Giaimo Caboclo

**Background:** A worker integrated healthcare program was implemented starting July 2016 in a large hospital in São Paulo, Brazil, with about 8,000 employees. The program included onsite laboratory tests, shorter time to the release of results, purchase of medications and equipment (e.g., an ECG machine), routine prophylaxis for sharps injuries and partnership with several medical specialty departments. **Results:** 5,707 consultations were performed from July 2015 through July 2016; 815 (14.28%) patients were referred to the emergency department. 10,045 consultations were performed from July 2016 through July 2017; 85 (0.84%) patients were referred to the emergency department. **Discussion:** The rate of referrals to the emergency department decreased by 94.2%, resulting in 90% reduction of the costs associated with emergency care (from BRL 220,836.47 — 815 patients to BRL 23,032.32 — 85 patients). This initiative further improved the patients’ experience, since enrollment in the Occupational Health Center afforded more efficacious and reliable care. **Conclusion:** This program is attuned to the international guidelines for worker integrated healthcare, in addition to the competencies required by good occupational medicine practice.

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## TLO91-SECOND-VICTIM CARE

Moacyr Vergara de Godoy Moreira; Edmundo di Giaimo Caboclo; Veridiana Penteado; Mônica Morgese Alves

**Background:** A hospital in Sao Paulo established a second-victim care program. The term “second victim” was coined in 2000 by Dr. Albert Wu, a physician at the John Hopkins Hospital, in a paper in which he called the attention to the fact that when a patient is seriously injured by healthcare — with eventually devastating consequences for themselves and their families — there is also a second victim, namely, the involved healthcare provider, who might develop symptoms similar to those of post-traumatic stress disorder. **Discussion:** According to the literature, up to 45% of healthcare providers involved in adverse events as second victim do not receive adequate assistance. In our service, this population is initially received by a nurse, who listens to them without interrupting or making judgments. Workers

might then be referred to an occupational physician, who in turn decides on the need to referral to a psychologist or a psychiatrist. Seven to 10 days later the worker is contacted again for follow-up. Experience showed that in 60% of cases the initial contact with the nurse ensured satisfactory emotional support and prepared the workers to cope with future situations.

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### **TLO92-SEVERE ERYTHRODERMA ASSOCIATED TO EXPOSURE TO A PYRETHROID PESTICIDE: CASE REPORT**

Larissa Aires Oliveira de Moura; Andrea Franco Amoras Magalhães; Rosylane Nascimento das Mercês Rocha; Aline Cristhina Araújo Silva; Rafael Silva Duarte Almeida; Julianne Campos; Joseane Prestes de Souza

**Background:** Pesticides are some of the most significant health hazards as a function of major public health problems they cause, including acute and chronic poisoning, especially in developing and emerging countries. **Case report:** 78-year-old male family farmer, with history of exposure to a pyrethroid pesticide (cypermethrin) without wearing personal protective equipment (PPE). He developed hyperemia on all four limbs, which extended until affecting 90% of the body surface area, his condition being compatible with erythroderma (generalized exfoliative dermatitis), so severe that he required admission to hospital. Analysis of a chest biopsy sample evidenced mixed inflammatory reaction in the superficial dermis involving monocytes, neutrophils and some eosinophils, a small epidermal ulcer covered by serous-neutrophilic exudate and mild spongiosis and acanthosis. Although unspecific, these findings are suggestive of hypersensitivity. **Discussion:** The histopathological findings reinforce the clinical diagnosis of erythroderma secondary to contact dermatitis. During the stay at hospital, the patient developed an infection, which led to septic shock, acute respiratory failure and finally cardiopulmonary arrest and death. For being an unnatural death, the body was sent to the Medical Legal Institute for autopsy. **Conclusion:** This case report calls the attention to the need for rural workers to make adequate use of PPE to avoid contamination and irritant contact dermatitis.

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### **TLO93-METHODS FOR VALUE ADDED ANALYSIS RELATIVE TO PREVENTIVE AND HEALTH PROMOTION ACTIONS TARGETING BRAZILIAN INDUSTRY WORKERS**

Francisco Claudio Patricio Moura Filho; Juliana Albuquerque de Souza; Bruno Sousa Simoes; Francisco Rodrigo Vieira Nogueira; Ana Livia Castro Sousa; Pedro Henrique de Mello Antunes; Daniel Domeneghetti

**Background:** Reverting the trend for healthcare cost increase requires innovative paradigm shifts, involving changes in how health system actors (including organizations) provide/contract services. This is based on the idea that keeping people healthy is better (and less expensive) than treating their diseases, even when the profit/business model formula is precisely the opposite. Within such a challenging context for organizational competitiveness and success, we adapted the Intangible Asset Management (IAM) method to measure one of the main assets of organizations, i.e. the health of their employees. **Objective:** To measure investment in prevention and health promotion, considering both tangible and intangible impacts. **Methods:** Identification of worker health tangible and intangible assets by means of IAM. Categorization and qualification from the perspective of impacts — improvement or worsening of the employees' state of health. Creation of indicators, measures and conditions for measurement. **Results:** Developing a value-based systematic assessment procedure might contribute to solve occupational health problems in Brazil. Creation of management indicators based on intangible aspects and focus on measures for disease prevention. **Conclusion:** Methods to measure impact/return on investment in prevention and health promotion might represent opportunities to maximize the generation and protection of tangible and intangible value inherent to the employer-employee relationship.

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### **TLO94-LARGE VESTIBULAR SCHWANNOMA: REPORT OF AN ATYPICAL CASE AND LITERATURE REVIEW**

Guilherme Justino Mundim; Roberto Alexandre Dezena; Hugo Francisco Zambrana

**Case report:** 55-year-old male agricultural irrigation general services assistant at a sugarcane-based energy company. He was asymptomatic until he began presenting episodes of syncope at work. He was evaluated at the company occupational health department, then referred for cardiovascular and neurological investigation. Magnetic resonance imaging evidenced a large extra-axial solid-cystic mass measuring 3.4 cm x 3.0 cm x 3.3 cm on the cerebellopontine angle, invading the left ear canal and compressing the brainstem and fourth ventricle. The tumor was removed by lateral suboccipital craniotomy. Severe facial paralysis was the single postoperative complication. He returned to his older job with some restrictions. **Discussion:** Vestibular schwannoma is a benign neuroectodermal tumor affecting the eighth cranial nerve. Its incidence is 0.001% in the general population and its etiology is unknown. It mainly manifests by unilateral sensorineural hearing loss, dizziness and vertigo. Here we reported a case of a large atypical tumor, which first manifestation was syncope in a previously healthy individual. A review of almost 8,000 cases did not describe any case with syncope as first clinical manifestation. Also the postoperative progression of the case was atypical, i.e. without sustained vestibulocerebellar abnormalities, but severe facial paralysis starting immediately after surgery. The joint action of the occupational medicine and neurosurgery departments enabled precise diagnosis and timely treatment, with a minimum of complications and safe return to work. **Final remarks:** We report a rare case of a large tumor affecting the eighth cranial nerve, which first clinical manifestation was syncope, which finding is not described in the literature. This case stresses the relevance of the joint action of the occupational medicine and neurosurgery departments to obtain the best possible clinical and occupational outcomes.

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## **TLO95-HYPERBARIC OXYGEN THERAPY IN THE MANAGEMENT OF WORKPLACE BURN INJURIES: 4-YEAR OCCUPATIONAL HEALTH EXPERIENCE AT A SUGARCANE-BASED ENERGY COMPANY**

Guilhermo Justino Mundim;  
Hugo Francisco Zambrana

**Background:** Burns are a serious public health problem. Hyperbaric oxygen therapy (HOT) accelerates wound healing and is increasingly being used for treatment of workplace burn injuries. **Objective:** To analyze cases of workplace burn injuries at a sugarcane-based energy company in the period from 2015 through 2018, with emphasis on the cases which received HOT. To analyze positive impacts for workers, the occupational health department and the company's upper management. **Methods:** Retrospective study in which we reviewed cases of burns in the period from 2015 through 2018 and identified those treated with HOT. Variables analyzed were age, sex, number of cases of burns, number of cases with indication of HOT, main agents, most affected body sites, burn depth, time to recovery, most frequently involved department and distribution of incidents over time. The data were obtained from onsite corporate software TOTVS RM. **Results:** We located 96 cases of burns, 26 (27.1%) of which met the criteria for HOT. Most cases involved men and workers aged  $37.9 \pm 10.1$  (range: 20 to 60, median: 37) years old. The most frequent agent was hot water/vapor (79.6%), the most frequently involved body site the lower limbs and most were second-degree burns (80.7%). The time to recovery was  $23 \pm 9.1$  (range: 14–38.6, median: 21.2) days. The industry department was the most frequently involved. The number of burns treated with HOT decreased from 2015 to 2018 (10 cases/year to 3 cases/year). **Conclusion:** HOT was efficient for treatment of workplace burn injuries and improved the occupational health approach to cases. Its relevance was made clear to the company's upper management and contributed to the establishment of preventive safety measures which decreased the rate of new cases. In regard to the workers, HOT shortened the time to recovery and minimized physical and psychological sequelae.

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## **TLO96-EPIDEMIOLOGICAL AND SOCIODEMOGRAPHIC PROFILE OF WORKERS CARED AT THE OCCUPATIONAL MEDICINE OUTPATIENT CLINIC OF A TEACHING HOSPITAL IN SAO PAULO, BRAZIL**

Daniele Regozino Muniz; Adalberto Malinverni Junior; Flávia S. S. Almeida;

**Background:** Occupational medicine was recognized as medical specialty in Brazil in 2003. The following year the first medical residency programs were started, which required occupational medicine outpatient clinics for training. **Objective:** To characterize the epidemiological and social profile of workers cared at the occupational medicine outpatient clinic of a teaching hospital in Sao Paulo from 2005 through 2017. **Methods:** We analyzed sociodemographic and occupational characteristics and diagnosis relative to 1,559 consultations performed from 2005 through 2017. **Results:** Most patients were male (54.5%) and the largest proportion worked in industrial production and services (34.9%). Fifty-six visits were performed to company premises; in 44.6% of these cases a causal link between disease and work could be established. The most frequent disorders involved the musculoskeletal system and connective tissue (23.4%), followed by the skin and subcutaneous tissue (23.2%). The prevalence of mental and behavioral disorders increased, to reach 6.7% in 2017. **Conclusion:** Occupational medicine outpatient clinics make a relevant contribution to the training of occupational medicine residents, who also perform visits to company premises. However, the disease profile at the analyzed clinic differs from the national one, mainly because the demand mainly targets the dermatology and psychiatry departments.

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### **TLO97-HEALTH SURVEILLANCE OF MARBLE MANUFACTURING WORKERS ACCORDING TO THE ORNAMENTAL ROCK PRODUCTION CHAIN IN NORTHWESTERN ESPIRITO SANTO, BRAZIL**

Paulo Roberto R. W. de Negreiros Filho; Elizabeth Costa Dias; Juliana Wotzasek Rulli Villardi

**Background:** In addition to benefits to the economy, the growth of the ornamental rock industry in Espirito Santo — the largest producer in Brazil — also causes serious environmental degradation and has negative impact on the health of workers. AN important step in the chain production involves marble manufacturers, which represent 60% of companies in this sector and are characterized by poor inclusion of technologies, low number of employees, precarious employment relationship and low investment in training or to improve

workplace health and safety. The situation is particularly serious within the informal sector, since companies are irregular and invisible to public authorities. **Objective:** To describe the working conditions in the ornamental rock production chain, with emphasis on risks, dusts in particular, to the health of workers at marble manufacturing companies in northwestern Espirito Santo. **Methods:** Document analysis, administration of a questionnaire, onsite inspection of the work process and interviews with workers and supervisors recorded on a field notebook to investigate the main risks to the health of workers and their perception of work. **Results:** We analyzed 18 companies, 6 of them within the informal sector. The number of employees was low and the working conditions poor, including abundant generation of respirable dust, lack of management and inadequate waste disposal. **Conclusion:** Our approach from the perspective of the production chain provides grounds for a more accurate understanding of activities and workers, thus favoring actions likely to interfere with risk and improve the working and health conditions of this population of workers.

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### **TLO98-ABSENTEEISM AMONG EMPLOYEES OF A FEDERAL EDUCATIONAL INSTITUTION IN RIO GRANDE DO NORTE, BRAZIL**

Daniel Ribeiro de Oliveira

**Background:** Sickness absenteeism in the public sector has negative consequences for the public funds, while personnel shortages result in poor quality service delivery to the population. **Objective:** To identify the diseases associated with sickness absenteeism among the employees of a federal educational institution in Rio Grande do Norte, Brazil, and the employees' epidemiological profile. Accurate knowledge and analysis of the causes of sick leave is necessary to formulate efficacious strategies to promote healthy work environments. **Methods:** Data on sick leave in the past 5 years were obtained from the Civil Servant Healthcare Integrated Subsystem (SIASS). Aspects analyzed included ICD-10 codes, leave duration and employees' position. **Results:** Historical time series analysis showed that mental and behavioral disorders were the leading causes of sick leave, which were the longest, followed by those caused

by musculoskeletal disorders. **Conclusion:** Actions involving psychological care and quality of life programs have already been implemented. More efficacious public policies to promote healthy work environments are needed, as well as the engagement of managers to foster an organizational climate likely to favor better interpersonal relationships.

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### **TLO99-WORK AND HEALTHCARE: RECEPTIVITY AND HUMANIZATION IN SPECIALIZED CARE SERVICES**

Jene Gryce Souza de Oliveira; Carlos Paula de Moraes; Marisol de Paula Reis Brandt; Andry Oliveira da Cruz; Cleide Lavieri Martins

**Background:** The Brazilian National Humanization Policy (NHP) was formulated to reorganize healthcare within the Unified Health System by changing the relationships among managers, workers and service users in a way that all these actors come to see themselves as part of a high-quality health promotion and care process. Within this context, workers play the leading role in the combat against deleterious work processes by developing autonomy in regard to their health, safety and relationship to the organization of work. **Objective:** To analyze the relationship among different work practices and specialized care, with emphasis on the possibilities and limits of receptivity guidelines and NHP. **Methods:** Qualitative study performed at an outpatient clinic for medical specialties. Data were collected in semi-structured interviews and focus groups held with healthcare workers (managers, providers and support) and subjected to content analysis. **Results:** The management style remains bureaucratic, far removed from NHP recommendations. The organization of work is centered on productivity, which does not encourage workers to engage. Ambience, physical structure and interpersonal relationships contribute to conflict in the workplace, resulting in illnesses, physical and emotional exhaustion and depersonalization. **Conclusion:** NHP can be implemented in specialized care services. However, managers should consider introducing tools to improve receptivity and make room for dialogue with workers.

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### **TL100-NEUROIMMUNOLOGICAL MARKERS FOR SCREENING AND DIAGNOSIS OF WORK-RELATED MENTAL DISORDERS**

Julia Leticia Gorski Cora Gastao de Oliveira; Paulo Henrique Gastao de Oliveira

**Objective:** To analyze Brazilian and international literature on the most relevant innovations in the study of neuroimmunological markers and their application to screening, diagnosis and follow-up of work-related mental disorders. **Methods:** Review of publications included in databases LILACS, SciELO, MEDLINE and VHL. **Results:** The most commonly mentioned biomarkers of anxiety and depression were IL-6, TNF- $\alpha$ , IL-2, IL-6 and cortisol. **Conclusion:** Immediate advances are necessary in the diagnostic and therapeutic approach to work-related mental disorders. Neuroimmunological biomarkers seem to be a promising adjuvant for screening and follow-up of the mental health of workers.

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### **TL101-SUSPENSION TRAUMA AND REGULATORY STANDARD 35**

Luiz Felipe Gonçalves de Oliveira; Raffaello Popa Di Bernardi; Arnaldo Gomes do Amaral

**Background:** The purpose of establishing a specific Regulatory Standard (RS 35) for work at height is to ensure the safety and health of the directly or indirectly involved workers. While it describes protective equipment and behaviors to avoid falls, RS 35 does not indicate what to do when a fall does occur, the safety device works and the worker is consequently suspended in a hanging position. Workers suspended by safety devices might develop suspension trauma. This is a rapidly evolving, potentially fatal condition, which might cause loss of consciousness and multiple organ failure. Although it is a potentially fatal medical emergency requiring specific care, suspension trauma is scarcely known by the professionals involved in the safety of workers who work at heights. **Conclusion:** Adding an appendix to RS 35 on suspension trauma would contribute to improve the knowledge about this condition. Discussions on rescue plans and management of patients with suspension trauma should be widely divulgated to

raise awareness on this condition and improve the safety of workers who work at heights.

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### TL102-SHARE, LEAD, ACT: ESSENTIAL COMPETENCIES IN THE HOSPITAL SETTING

Maristela Brum de Oliveira; Maria Angela Felicio;  
Andrea Maria Silveira

**Background:** Work in the hospital setting is associated with exposure to countless hazards, high cognitive and emotional demands and need to make decisions under critical conditions. Within this scenario, conflict interferes with the quality of work life and organizational actions. **Objective:** To integrate knowledge and autonomy in actions, through the development of collective competencies centered on health promotion and leadership to train and lead teams. **Methods:** Administration of a questionnaire to measure worker satisfaction at a healthcare facility; workshops to discuss literature and the responses to the questionnaire; evaluation of the team internal and external scenarios. **Results:** 44.7% of participants responded to be dissatisfied with training/continuing education opportunities, 53.7% with performance feedback, 31.9% with the degree of autonomy granted, 36.1% with the care provided to themselves and other workers and 31.9% with the institutional initiatives to improve health and safety at work. The participants in workshops proved to be disposed to improve their interaction skills to promote cooperation and solidarity and thus achieve transformations through collective action. **Conclusion:** Promoting integration among team members, theoretical and practical knowledge on human resource management and ethical coexistence strengthen relationships and the possibility to share opinions and solutions to conflict in the workplace.

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### TL103-MEDICAL STUDENTS' KNOWLEDGE OF THE CRITERIA TO ESTABLISH A CAUSAL LINK BETWEEN DISEASE AND WORK

Pedro Fernandez Fernandes de Oliveira; Maria Nilde Plutarco Couto Bem; Ana Roberta Silveira Castro;

Breno Bezerra Bluhm; Edilson Lopes de Oliveira Júnior; Enan Henrique Batista Cavalcante; Jadson de Braga Chaves; Lara Fernandes Fonteles; Lara Pereira Arcanjo; Lília Sousa Martins de Alcântara Meireles; Lucas Nunes Ferreira Andrade

**Background:** Physicians in different practice settings are continuously challenged to establish a causal link between their patients' condition and job as a means to contribute to prevention, health promotion and recovery, and safeguard their work capacity. The Brazilian Federal Medical Council established criteria for these purposes, ratified in its Resolution no. 2,183/2018. **Objective:** To investigate undergraduate medical students' knowledge of the technical and ethical requirements to establish a causal link between health problems and work. **Methods:** We designed a questionnaire for respondents to indicate what they believed to be necessary to establish a causal link between disease and work; response options were items listed in the Resolution no. 2,183/2018 article 2. The questionnaire was administered online to students at a private medical school in Ceara, Brazil. **Results:** 94 students voluntarily participated in the study. Most (67%) participants were female, aged 18 to 20 years old (60.6%) and attended the 2nd to 5th terms (84%). All the participants stated that the current and past medical and occupational history is indispensable to establish a causal link between disease and work. However, only 37.2% of the sample selected all the nine items listed in the resolution. Analysis of the organization of work was the least selected item (43.6%). **Conclusion:** The results point to the need to reinforce the teaching of occupational medicine in undergraduate medical courses, particularly of aspects related to physical, mental and organizational ergonomics.

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### TL104-MEDICAL STUDENTS' KNOWLEDGE OF HEALTH REASONS FOR EXCUSED ABSENCE FROM WORK

Pedro Fernandez Fernandes de Oliveira; Maria Nilde Plutarco Couto Bem; Amanda Carvalho Guilherme; Amanda de Andrade Cavalcante; Guilherme Van Der Linden Fialho; Isabela Corrêa Cavalcanti Sá; Lais Araújo Perazo Nunes de Carvalho; Larissa Férrer Freire Dias; Luana Camelo Oliveira; Marco Antonio de Lucena Furtado

**Background:** Physicians in different practice settings are required to provide certificates or opinions to workers, considering that rest, access to treatment or removal from harmful exposures are part of treatment. **Objective:** To analyze undergraduate medical students' knowledge of health reasons for excused absence from work as per the Brazilian Social Security General Regime. **Methods:** We administered an online questionnaire to undergraduate students at a private medical school in Ceara, Brazil. The questionnaire comprised 26 statements relative to situations considered in the legislation, which respondents were requested to mark as right or wrong. **Results:** 118 students voluntarily participated in the study, most attending the 2nd to 5th terms (76.3%) and 11.8% internship. Only 18.5% of the sample correctly indicated all the health-care providers who are entitled to issue excused absence certificates. The frequency of right responses relative to information on diagnosis in certificates significantly differed between interns (71.4%) and the other students (41.3%). Only 39.8% of the sample selected the right answer to the question on whether cancer screening testing is a reason for excused absence, and only 37.3% to the item relative to child care. **Conclusion:** The results point to the need to reinforce the teaching of labor and social security legislation to undergraduate medical students.

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### TL105-KINESIO-FUNCTIONAL LEGAL EXAMINATIONS: DO THEY MEET THE REQUIREMENTS FOR LEGAL EXAMINATION OF ERGONOMIC CONDITIONS?

Bárbara Mary de Araújo Pereira

**Background:** The present study was performed to analyze labor justice kinesio-functional legal examinations performed by physical therapy legal experts in the Northeast region of Brazil. In these examinations, ergonomic aspects should be technically and adequately assessed. **Objective:** To analyze the quality of such examinations in regard to ergonomic aspects. **Methods:** Critical analysis of 20 randomly selected kinesio-functional legal examinations sent by e-mail to medical legal experts. The inclusion criterion was: cases involving or not accidents aggravated by poor ergonomic conditions. The exclusion criterion was: occupational diseases without

ergonomic causes. We surveyed and classified the main aspects mentioned as necessary for satisfactory ergonomic evaluation. The questions to be responded were: was ergonomic evaluation adequate to the legal requirements? Was the full set of activities during the working hours assessed? Particular criteria were established for low back pain, herniated disk, pulling/pushing, shoulder and hand injuries, heat and heavy work. **Results:** None of the examinations met most of the ergonomic criteria, 30% some aspects and 70% very few. Ergonomic analysis was performed for 95% of the cases. Use of ergonomically suited tools was rated adequate in 20% of the reports, inadequate in 15% and lacked in 65%. A causal or concausal link between disease and work was established for 80% of the cases despite inadequate evaluation. **Conclusion:** The following are the components of adequate legal examinations: clinical interview, physical examination, ergonomic analysis of the workplace and availability of ergonomically adequate tools.

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### TL106-OCCUPATIONAL REHABILITATION AND RETURN TO WORK: COMPARISON BETWEEN BRAZIL AND OTHER COUNTRIES

Rose Meire Canhete Pereira;  
Maria Inês Monteiro

**Background:** Considering global trends and demographic changes that will occur in the near future, population aging, (work-related or not) diseases and accidents which cause work disability and the sustainability of social security systems, implementing rehabilitation services is indispensable. Rehabilitation comprises three aspects: medical, occupational and social. **Objective:** To analyze and compare return to work-centered occupational rehabilitation in Brazil, United States, Canada, Chile, Japan and 31 European countries; to identify occupational rehabilitation-based return-to-work strategies; and to identify factors which facilitate or hinder ongoing initiatives. **Methods:** Theoretical and descriptive study based on data collected from government and workplace health and safety and social security institutions websites. Analysis of documents published until April 2018. **Results:** Many European countries developed a holistic view and their focus is on the workers' skills, perception and residual work capacity. The situation is similar in Japan, United States

and Canada. In Chile, the emphasis falls on people with disabilities and workers with sequelae from work accidents and diseases. In Brazil, several interesting initiatives have been already developed, however, there are countless barriers to the implementation of a system of excellence.

**Conclusions:** The ongoing approach does not include actions to implement occupational rehabilitation, thus disagreeing from the global view on this subject.

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### TL107-QUALITY OF WORK LIFE OF FREIGHT DRIVERS WITH SLEEP-WAKE CYCLE DISORDERS DUE TO NON-PHYSICAL CAUSES

Rafaela de Paula Peres

**Background:** Quality of work life is increasingly used to describe some environmental and human values neglected by industrial societies which prioritize technological advances, productivity and economic growth. Sleep deprivation is a risk factor for stress and consequent reduction of performance at work, in addition to favoring accidents and causing changes in mood, autonomic functions and the immune system. **Objective:** To assess, by means of a questionnaire based on the Walton's model, the quality of work life of freight drivers; also the Epworth Sleepiness Scale was administered. The target population were individuals aged 25 to 55 years old with sleep-wake cycle disorders due to non-physical causes. **Results:** 156 of 300 drivers provided valid responses. On global analysis, all the parameters were rated satisfactory. However, on closer analysis, some parameters received high indices of dissatisfaction, including: feedback, promotion and hiring criteria, and training outside regular hours. **Conclusion:** Most freight drivers have irregular working hours and complain of poor sleep quality despite adequate quality of work life. In our opinion, the quality of sleep interferes with the quality of work life.

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### TL108-CASE REPORT: HYPERSENSITIVITY PNEUMONITIS

Rafaela de Paula Peres; Adriano Vicentini Alves; João Paulo Alvarez; Silvio K. Shiroma

**Case report:** 58-year-old male patient, from Parana, Brazil, not having completed secondary school. He was hired in 1994 as machine operator by a metallurgy company in Curitiba, Parana. He presented nasal obstruction and dry-to-productive cough, which had started while working in vehicle frame size control. In 2008 he consulted a physician; the chest radiograph was normal. He was diagnosed with rhinitis, prescribed symptomatic medication and remained in the same job. However, his condition did not improve, for which reason he consulted a pneumologist. The chest tomography exhibited bilateral diffuse reticulonodular infiltrate and small juxtapleural nodular opacities in the lower lobe of the left lung. The diagnosis was hypersensitivity pneumonitis. He was prescribed steroids and granted a 30-day leave. A control chest tomography in 2013 evidenced two small non-calcified nodules in the upper lobe of the right lung (unspecific, residual) and two non-calcified nodules measuring 2 and 3 mm in the apical zone of the upper lobe and lateral zone. A further chest tomography performed in 2015 showed three non-calcified nodules measuring 4 mm in the upper lobe. Spirometry was normal and the oxygen saturation 95%. His requests for reallocation were denied, due to unavailability of alternative jobs. Thus he remained idle at work, progressing into depression. In 2011 he was granted sick leave by the National Social Security Institute. He returned to work in 2017, now at the warehouse, and is asymptomatic. **Conclusions:** Treatment was the factor with greatest impact on the progression of disease. The abnormalities on chest tomography did not linearly match the patient's functional complaints.

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### TL109-MEDICAL LEGAL EXAMINATIONS WITHIN THE CIVIL SERVANT HEALTHCARE INTEGRATED SUBSYSTEM (SIASS)

Carolina de Mendonça Brandão Pinto; Bruno David Henrique

**Background:** The Civil Servant Healthcare Integrated Subsystem (SIASS) was created to foster health promotion actions and facilitate standardized application of the Single Legal Regime. Medical legal examination required specific skills to establish the work capacity of ill workers for their job, assess ill dependents and comply with legal

administrative requirements. **Objective:** To describe data relative to the activities developed at a SIASS unit from 2013 through 2018 per type of objective. **Methods:** Data were extracted from SIASS through the “SIASS manager” user access. We then selected the box “Types of medical legal examinations” and collected information on the number of examinations of active or retired employees, dependents and pensioners. The search focused on 12-month intervals and the time series was analyzed by means of graphs representing trends over time. **Results:** The number of examinations to grant sick leave, change of working hours, permanent disability, income tax exemption and retirement payment increased. This was not the case of examinations to grant leave or disability benefits for work accidents or occupational diseases. **Conclusion:** Accurate knowledge of the reasons for medical legal examinations might ground epidemiological studies helpful for health policies targeting this population of workers.

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## TL110-MUSCULOSKELETAL REHABILITATION PROGRAM

David de Mario Porto; Jean Felipe Makdissi

**Background:** This is a corporate musculoskeletal rehabilitation program to improve the quality of life and productivity of employees, as well as return on investment by reducing healthcare costs. A study performed in Brazil with 180,000 employees of large enterprises revealed that orthopedics was the medical specialty associated with the largest expenses for employers, even above the cost of treatment of the most frequent types of cancer. **Objective and Methods:** Given this scenario, a workplace health promotion company developed a unique and highly-efficacious orthopedic health program, in which chiropractic has the leading role, combined to physical therapy to potentiate outcomes. **Results and Conclusions:** The program was implemented at a tire manufacturing company. The outcomes relative to spinal surgery before (January to December 2016) and after (January to December 2017) implementation were as follows: the frequency of spinal surgery decreased from 0.45% to 0.22%, with corresponding reduction in costs of BRL 710,000.00 (8 surgeries less in 2017). The return on investment was BRL 3.82 per BRL1.00.

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## TL111-MEDICAL CONTROL OF WORKERS POTENTIALLY EXPOSED TO TUBERCULOSIS

Marcelo Pustiglione; Maria Aparecida Trindade Batistuzzo; Symonne Pereira Tappes; Camila de Aquino Feijó; Flávia Fazoli da Cunha Freitas Viana

**Background:** Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*. It might affect any body organ or system, lung involvement being the most frequent. It was identified as a risk for workers almost one century ago. According to some studies, some occupational groups are at higher risk, including healthcare workers and those who assist individuals in detention or with high social vulnerability. Therefore, work-related TB acquisition should be a subject of concern to infection control and health and safety teams at healthcare facilities. **Objective:** To provide grounds to the design and implementation of a health and safety promotion and prevention program for workers potentially exposed to TB, and to describe the model for an Occupational Tuberculosis Medical Control Program (OTMCP). **Methods:** Review of legislation, manuals and guidelines addressing the subject of interest. **Results:** Following analysis of 5 legal documents and 9 manuals and guidelines, we designed an OTMCP proposal. **Conclusion:** Specific preventive actions targeting workers potentially exposed to TB are absolutely necessary. The program described here is a dual prevention and precaution tool likely to promote the health and safety of workers and patient safety.

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## TL112-THE ROLE OF WORKPLACE HEALTH AND SAFETY TEAMS IN REDUCING/ELIMINATING OCCUPATIONAL RISK AGENTS WITHIN THE FIRST 1,000 DAYS OF LIFE

Marcelo Pustiglione; Symonne Pereira Tappes; Débora Cavalheiro Chaves Folly; Camila de Aquino Feijó; Flávia Fazoli da Cunha Freitas Viana

**Background:** The “first 1,000 days of life” is the period from conception to age 2 years old. This expression serves to emphasize the relevance of interventions on dietary,

behavioral, environmental and health determinants along this period, because benefits last for life. Among the environmental determinants, the workplace salubrity conditions have considerable influence. **Objective:** To discuss the relevance of workplace health and safety (WHS) teams in the identification of occupational risk agents (ORA) and in the reduction/elimination of their impact on health. **Methods:** Literature search in database VHL, other publications and legislation. **Results:** The available data point to the potential impact of ORA of any type on pregnancy, the unborn baby and infants. According to the Brazilian Labor Laws Consolidation, employers are responsible for occupational medical examinations, which should be part of occupational health medical control programs implemented by WHS teams. Occupational physicians are charged of assessing the adequacy of the state health of workers for their job and/or the work environment, suggesting reallocation to compatible jobs and giving orientation to employers on readjustments. **Conclusion:** The results of the present study point to an intimate relationship between exposure of pregnant/breastfeeding workers to ORA and impacts on the future health of individuals. Therefore, attention should be paid to ORA, with emphasis on the technical evaluation of the salubrity of the work environment, methods and processes. This is not the task for “trusted physicians,” but for HSW teams.

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### TL113-OCCUPATIONAL RISK IN RURAL WORK: HOW TO ENSURE ITS VISIBILITY

Marcelo Pustiglione; Silvana Tognini; Camila de Aquino Feijó; Flávia Fazoli da Cunha Freitas Viana

**Background:** Work might have a causal or concausal relationship with diseases and accidents. Acknowledging this relationship is crucial for the implementation of preventive actions. This goal is easier to achieve in the case of workers with formal employment relationship, which, however, is the status of only 30% of rural workers. Indeed, 70% of rural workers only become “visible” when they suffer accidents or fall ill and seek healthcare. If a causal link between disease and work is not established at that time, eventual preventive actions will be threatened. **Objective:** 1) To ratify the need to implement a program

of sensitization and training of healthcare professionals for integrated care of the health and safety of rural workers; 2) To provide grounds to the design of such programs; 3) To describe the preliminary results of a workgroup at a state secretariat of health. **Methods:** Review of legal sources, manuals and other literature on the subject of interest. **Results:** We retrieved 17 sources. Among the preliminary results obtained by the workgroup, we emphasize the design of a clinical protocol entitled “Rural workers in agricultural activities” and of a program of integrated care of the health and safety of rural workers. **Conclusion:** Considering the principles underlying the Unified Health System, the mission of the National Integrated Worker Healthcare Network and Worker Health Referral Centers, and the evident risk to which rural workers are exposed, the following actions are necessary: 1) continuing training of healthcare professionals; 2) clinical protocols or other information resources; and 3) implementing a program of integrated care of the health and safety of rural workers.

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### TL114-IT COMES WITH THE TERRITORY: APPROACH TO PSYCHOSOCIAL RISKS IN OCCUPATIONAL HEALTH MEDICAL CONTROL PROGRAMS IN THE MEATPACKING INDUSTRY IN RIO GRANDE DO SUL, BRAZIL

Bruna Carolina Bruna Quadros; Paulo Antônio Barros Oliveira

**Background:** The frequency of sick leave for mental and behavioral disorders is higher for workers in the meatpacking industry compared to the overall working population. **Objective:** To investigate how Occupational Health Medical Control Programs (OHMCP) in meatpacking companies approach the psychosocial risks associated with the working conditions and work organization. **Methods:** Observational and descriptive study, with qualitative and quantitative analysis, including survey of documents and content analysis. Sources were 26 documents grounding OHMCP in 26 meatpacking companies in Rio Grande do Sul, Brazil, in force in October 2017. **Result:** Only two companies considered psychosocial risks in their OHMCP. Only 5 companies developed mental health strategies, consisting of mental

health promotion and prevention of mental and behavioral disorders, which, however, were rated as with low effectiveness. No program explicitly acknowledged the causal or concausal relationship of work with mental and behavioral disorders. **Conclusion:** Failing to acknowledge psychosocial risks and the possible occurrence of mental and behavioral disorders hinders the implementation of adequate preventive and health promotion measures. These circumstances impair the effectiveness of OHMCP to safeguard the mental health of workers, resulting in high frequency of sick leaves, with the consequent burden to the Social Security Administration.

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### TL115-ZIKA: WHEN PUBLIC HEALTH MEASURES INTERFERE WITH OCCUPATIONAL HEALTH

Bruna Carolina de Quadros; Paulo Antonio Barros Oliveira

**Background:** The presence of several species of vectors and simultaneous circulation of potentially harmful viruses, as e.g. the dengue, chikungunya and Zika viruses, represent an alarming public health scenario in Brazil. Vector control is the recommended approach, to be carried out by endemics combat teams through the use of insecticides and larvicides. In turn, early identification of new transmission zones is achieved through the epidemiological surveillance system. However, the occupational health of the involved workers has been neglected by both the Unified Health System and occupational medicine services. **Results:** A survey performed by the Labor Inspection Secretariat of the five largest municipalities in Rio Grande do Sul in 2016 found that none of the workers involved in the application of organophosphates and carbamates had been subjected to medical controls, even though they were covered by the Labor Laws Consolidation. Given the high interindividual variation of biological markers, as e.g. acetylcholinesterase, pre-employment (pre-exposure) and periodical examinations are mandatory to detect changes in such markers. Cases of occupational diseases must be mandatorily reported. **Conclusion:** Given the need to combat vectors through the use of pesticides, the public authorities should ensure adequate protective measures and epidemiological monitoring for the involved workers, either in public agencies or companies hired for this purpose.

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### TL116-ABSENTEEISM IN THE ARMED FORCES: LITERATURE REVIEW

Filipe de Jesus Rametta

**Background:** Accurate knowledge of the risks to which military personnel are exposed, the main causes of leaves and the profile of military personnel requiring leaves is necessary to reduce the rates of absenteeism. **Objective:** To perform a theoretical review of the main causes of sickness absenteeism among military personnel. The present study is justified by the fact that this occupational group exhibits peculiar characteristics different from those of all others, by virtue of which the military personnel are exposed to particular types of hazards all throughout their career. **Methods:** A search was conducted for studies published from 2000 to 2016 using headings “absenteeism,” “sickness absenteeism,” “military personnel absenteeism,” “military activity” and “quality of work life.” **Results:** The largest proportion of sick leaves corresponded to males, sergeants and soldiers, and musculoskeletal disorders. **Conclusion:** Most of the risk factors identified are modifiable, therefore, educational measures should be implemented to reduce the rates of absenteeism.

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### TL117-PROJECT OVERCOMING

Luis Marcio Araujo Ramos; Fernanda Ferreira Monteiro de Souza; Andre Alves Barbosa; Fernanda Gonçalves de Almeida Campera; Tatiany Bouzas Sales Quintão; Marcelo Gouvea Teixeira; Amalia Regina Lage Leão; Vinicius Da Cunha Linhares; Daniel Marun Coutinho; Glayco Oliveira Bustamante; Ana Paula Santana Pereira Hauck; Emerson Da Silva Gonçalves; Cassia Soares Pereira; Paulo Henrique Lemos de Moraes

**Background:** Project Overcoming was launched in 2014 as a response to absenteeism associated with musculoskeletal disorders and injuries, which represented 30% of sick leaves granted to Usiminas employees. **Objective:** To give orientation to the company employees on prevention of musculoskeletal injuries in sports and traffic accidents, in addition to educational and therapeutic actions. Further objectives were to reduce the odds of complications and the need for hospital admission and surgery. **Methods:**

Assessment of the project outcomes was based on analysis of the number of missed work days along 12 months before enrolment and 12 months after discharge. **Results:** We analyzed sick leaves granted to employees allocated to the Ipatinga unit for disorders involving the axial skeleton (ICD M50–54). The study population comprised the employees (n=274) who had completed the program at least 12 months earlier. The number of missed work days decreased by 75.1% for workers granted leaves up to 15 days and 70.8% for those granted leaves longer than 15 days. Enrolment increased from 103 in 2014 to 900 in 2017. **Conclusion:** The program succeeded in raising awareness on that self-care does not only contribute to work, but to health in general.

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### TL118-EFFECTS OF HUMAN FATIGUE ON CIVIL AVIATION IN BRAZIL

Tulio Eduardo Rodrigues; Luciano Baia; Eduardo Morteo Bastos; Raul Bocces; Frida Marina Fischer; Fabiano Paes Gonçalves; Andre Frazão Helene; Paulo Rogério Licati; Alfredo Menquini; Mariana Lima Paulo; Paulo Spyer; Eduardo Stefenon

**Background:** As a function of its impact on alertness, fatigue is a considerable risk factor in aviation. Methods for analysis, comprehension and management are of much interest in the present time. Within this context, in the present study we analyzed fatigue among civil aviation pilots and flight attendants in Brazil. **Objective:** 1) to suggest indicators of fatigue in the critical phases of flights (takeoff and landing); 2) to identify seasonal variation factors for these indicators, and 3) to suggest methods for analysis of strategies to reduce fatigue. The present study was approved by the research ethics committee of Institute of Biosciences, University of Sao Paulo (89058318.7.0000.5464). **Methods:** We collected data relative to 5,000 flight schedules and 450,000 working hours. Schedules were spontaneously and anonymously uploaded to a platform developed by our group. The data were analyzed by means of human fatigue management software SAFTE-FAST, which algorithm considers homeostasis and circadian rhythms related to attention/wakefulness and sleep inertia. **Results:** A preliminary analysis of 323 cases evidenced a factor considerably associated with reduced alertness during the critical phases of

flights. As a result, we succeeded in developing a global indicator of relative odds of fatigue, which evidenced wide seasonal variation, with significant increase of fatigue during the high season (January and July 2018) compared to the low season (April 2018). **Conclusion:** Analysis of flight schedules allowed detecting potential risks during the working hours of aviation personnel, which might be used to ground strategies to reduce fatigue.

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### TL119-OCCUPATIONAL REHABILITATION AND POST-TRAUMATIC STRESS DISORDER: REPORT OF A SUCCESSFUL CASE

Maria Júlia Parcias do Rosario; Fabio Fernandes Dantas Filho; Ana Luisa Porsch; Alvaro Roberto Crespo Merlo

**Case report:** 37-year-old female nurse at a university hospital intensive care unit (ICU) for the past 10 years. In January 2013 she volunteered to provide care to the victims of a fire in a nightclub, in which hundreds of young people died. A few days later she began exhibiting symptoms of anxiety and depression. Her condition became gradually worse along the following months during work at ICU and on the anniversary of the event. Three years later she sought the occupational medicine department. On that occasion, she exhibited serious symptoms, including malaise, tremors, impaired concentration and memory, fear of work and feeling of impending doom. She was granted a sick leave and started treatment with an occupational psychologist, a psychiatrist and an occupational physician. Diagnosis was post-traumatic stress disorder (PTSD) and a Work Accident Report was issued. However, she did not improve and was thus referred for occupational rehabilitation in 2017, with the recommendation to ban ICU and work with seriously ill patients. She was retrained to work at the hospital infection control committee and returned to work in April 2018. She adjusted successfully to her new job and no longer complained of any symptom. **Discussion:** PTSD might be triggered by traumatic events in the workplace. Bank employees, police officers, nurses and firefighters are some of the most affected occupational groups. Occupational rehabilitation poses a major challenge in such cases, particularly when PTSD is diagnosed late. **Final remarks:** Occupational health services

should be alert to the possibility of work-related PTSD to enable early diagnosis and timely treatment. Occupational rehabilitation is often needed in such cases, its success depending on several factors.

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### TL120-RELATIONSHIP BETWEEN STRESS AND PHYSICAL ACTIVITY AMONG MILITARY POLICE OFFICERS

Maria Júlia Parcias do Rosario; Abel Raimundo Viga do Rosario; Keila Rausch Pereira; Gustavo Klauber Pereira

**Background:** Occupational stress might affect military police officers; physical activity has been described as a protective factor against stress. **Objective:** To analyze the association of stress with levels of physical activity for two groups of military police officers in a town in southern Brazil. **Methods:** The sample comprised 110 military police officers (average age  $36 \pm 7.8$  years old) from the 7th Military Police Battalion (n=65) and the Police Special Operations Battalion-PSOB (n=45). A questionnaire was administered including: personal characteristics (age, sex, educational level, professional qualifications, working hours and time in the job), socioeconomic category (ABEP), a job stress scale and the short version of the International Physical Activity Questionnaire (IPAQ). **Results:** Relative to the total sample, 96% of participants were subjected to high psychological demands, 57% had high decision-making power, 82.7% high social support, 99.1% high level of stress and 70% were considered physically active. We did not find significant association between physical activity and stress ( $p=0.187$ ). **Conclusion:** The results indicated high levels of stress, high psychological demands, high control over tasks (intellectual discernment and decision-making power) and high levels of social support; most participants were physically active. Physical activity did not influence stress in the analyzed sample.

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### TL121-PNEUMOCONIOSIS SURVEILLANCE IN CAMPINAS, SAO PAULO, BRAZIL, 2005-2016

Mariana De Alcântara Rossetto; Marcia Bandini; Sérgio Roberto De Lucca; Vamir Antonio Zulian de Azevedo; Djalma de Carvalho Moreira Filho; Ericson Bagatin

**Background:** The prevalence of pneumoconiosis is still relevant in Brazil, however, the Social Security Administration lacks the information needed to ground surveillance actions in the workplace. **Objective:** To analyze the epidemiological profile of cases of pneumoconiosis reported to the System of Information for Notifiable Diseases (SINAN) of Campinas, Sao Paulo. **Methods:** Descriptive study based on SINAN data relative to cases of pneumoconiosis in Campinas from 2005 through 2016. **Results:** The total number of cases was 1,205; 97% were reported by the local Occupational Health Reference Center. Most data in the report forms were missing. 93% of the patients were exposed to asbestos and worked for asbestos-cement product manufacturers. The distribution of asbestos-related disorders were: pleural plaques, 82.2%; asbestosis, 10.5%; and two cases of mesothelioma. The prevalence of silicosis was 6%. **Conclusion:** Most cases of reported pneumoconiosis corresponded to pleural plaques. We suggest that term "pneumoconiosis" be replaced by occupational respiratory diseases. The information required in SINAN report forms is essential for the implementation of preventive actions, therefore, all the items should be rigorously completed. Given the relevance of consistent information for surveillance and the ongoing lack of the required information, we suggest raising the awareness of healthcare providers on the relevance of all the boxes in the report form.

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### TL122-VISION DISORDERS IN A SAMPLE OF TRUCK DRIVERS IN SAO PAULO, BRAZIL,

Eduardo Costa Sá ; Emílio Zuolo Ferro; Felipe Fontana Alpert; Diego Toniolo do Prado; Vilma Leyton; Daniel Romero Muñoz

**Background:** The aim of assessing physical and mental fitness to drive is to detect conditions which pose risks to road safety, such as vision disorders. As per the Brazilian National Traffic Council Resolution no. 267/08, all professional drivers must undergo complete ophthalmology evaluation. **Objective:** To establish the prevalence of vision disorders in a sample of truck drivers tested at the Regis Bittencourt (BR-116) and Fernao Dias (BR-381) highways on 17 and 24 August 2011, respectively. **Methods:** Cross-sectional study that included ophthalmology evaluation of

truck drivers and literature review. **Results:** The sample comprised 89 truck drivers. Visual acuity—19.1% of the sample had vision below 0.66 in both eyes and 24.7% below 0.66 in one eye, below 0.5 in the other and binocular vision below 0.80. Stereoscopic vision — 1.1% of the sample exhibited abnormal depth perception. Color vision — 100% of the sample successfully distinguished between green, yellow and red colors. Horizontal campimetry — 44.9% of the sample exhibited abnormalities. Glare test — 12.3% of the sample exhibited abnormal responses. **Conclusion:** We found considerable vision disorders in a sample of truck drivers tested at highways in Sao Paulo. These results lead us to suggest shortening the interval to renew category C, D and E driver's licenses and periodic visits to ophthalmologists.

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### TL123-COMPUTER VISION SYNDROME AND VISUAL FUNCTION AMONG WORKERS WITH JOBS REQUIRING COMPUTER USE IN A PUBLIC UNIVERSITY HOSPITAL IN SAO PAULO, BRAZIL: ASSOCIATED PSYCHOSOCIAL FACTORS

Eduardo Costa Sá ; Maria Carmen Martinez; Frida Marina Fischer

**Background:** Eye and vision problems related to computer use are being studied as a function of their high global prevalence and increasing frequency among some professional groups. **Objective:** To analyze computer vision syndrome (CVS) symptoms and psychosocial risk factors associated with visual function among workers with jobs requiring computer use at a tertiary public university hospital in Sao Paulo, Brazil (n=303). **Methods:** Cross-sectional, observational, analytic and quantitative study conducted in 2014 and 2015. Participants responded a structured questionnaire and were subjected to standard ophthalmic exam. **Results:** The most frequent symptoms were “eyestrain at work” (47.9%), “feeling of heaviness in the eyes at work” (38.3%) and “eyestrain at home” (36.3%). We found association of age with strain at work (OR 2.18, 95%CI -0.276;0.161) and visual function (OR 0.656, 95%CI -0.928;0.383). Relative to strain at work, the items which behaved as main sources of stress were

“interruptions at work” (3.7%), “work after hours” (3.6%) and high demands (3.6%). **Conclusion:** The results point to the relevance of work organization, psychosocial factors at work associated with CVS symptoms, and consequently of the visual function of workers with jobs requiring computer use. We suggest measures to improve the working environment and periodic eye examination for this group of workers.

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### TL124-PREVALENCE OF POOR SLEEP QUALITY AMONG EMPLOYEES OF AN ADMINISTRATIVE SERVICES ORGANIZATION

Thiago de Paiva Sales; Tiago Zan

**Background:** Adequate sleep quality is indispensable to restore the disposition to face the workday. Consequently, poor sleep quality has negative impact on the productivity of workers. Some causes of poor sleep quality are excessive daytime sleepiness, insomnia, obstructive sleep apnea/hypopnea syndrome, chronic sleep deprivation and poor sleep hygiene. **Methods:** The present study was performed at Group Edson Queiroz Holding headquarters. We administered the Pittsburgh Sleep Quality Index (PSQI) to establish the prevalence of poor sleep among the company employees. **Results:** 242 employees responded the questionnaire. 117 participants scored < 5 (“good sleepers”) and 125 >5 (“poor sleepers”). **Conclusion:** Poor sleep quality might have impact on several aspects of work, including difficulty with sustained attention, impaired ability for strategic planning, fine motor skills (precision and dexterity) and memory.

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### TL125-“GETTING BACK ON TRACK”: PILOT QUALITY OF LIFE PROGRAM AT A CHEMICAL COMPANY IN SAO PAULO, BRAZIL

Natalia Oliveira do Espirito Santo; Leandro Muller de Arruda; Ana Lidia da Silva Bueno; Fabiana Destefani; Vivian Benites; Bruna Alencar da Purificação; Daiane Rodriguez

**Background:** Cardiovascular diseases and mental disorders are significant causes of work disability in Brazil. Therefore, they should be a high-priority target of preventive actions

within the context of integrated worker healthcare. **Objective:** To analyze the progression of clinical data relative to participants in a quality of life program at a chemical company in Sao Paulo, Brazil. **Methods:** The company implemented “Getting Back on Track,” i.e. a multidisciplinary program to follow-up 20 employees at high risk of developing metabolic syndrome, who voluntarily underwent assessment by an occupational physician, a nutritionist, a physical therapist, a psychologist and a physical educator. The participants received orientation on health promotion, physical activity and food re-education. After 3 months, the participants were assessed by means of the Framingham Risk Score, anthropometric measurements, bioelectrical impedance analysis and mental health. **Results:** The results evidenced average reduction of 6.9 cm of the waist circumference (103.3 cm at baseline), total weight loss of 104.5 kg, 80 kg corresponding to fat (mean weight at baseline: 87.3 kg) and reduction of 51 points on the Framingham Risk Score. The scores on the instruments to investigate anxiety, depression and stress improved for most participants. **Conclusion:** The tested program proved to be effective to reduce cardiovascular risk and prevent mental disorders and thus can be used as corporate model to improve the health of workers in general.

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### TL126-MUSCULOSKELETAL DISORDERS AMONG HAIRDRESSERS IN SAO PAULO, BRAZIL

Claudia Teixeira Santos; Cesar Augusto Patta

**Objective:** To investigate musculoskeletal disorders among hairdressers in Sao Paulo, Brazil, to establish the most frequently involved body sites and identify ergonomic hazards inherent to this activity. **Methods:** Cross-sectional epidemiological study performed at 8 salons with a total of 32 workers. General and ergonomic occupational hazards were investigated through analysis of the working conditions. Information on musculoskeletal symptoms was collected by means of physical examination and the Nordic Musculoskeletal Questionnaire. **Results:** 75% of the sample had exhibited some musculoskeletal problem in the previous 12 months. The body sites most frequently involved were the lower back, shoulders, wrists and hands. Detected ergonomic hazards included awkward upper

limb posture and occupational standing. **Conclusion:** Hairdressers’ activity is associated with frequent exposure to ergonomic hazards which might lead to repetitive strain injury/work-related musculoskeletal disorders.

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### TL127-STANDARD RESPONSE TO LABOR COURT MEDICAL LEGAL EXPERT CALLS

Anisio Silvestre Pinheiro Santos Filho; Wanessa Fernandes Matias Regis; Crister Jose Ocadaque; Bruno Rocha Amando; Débora de Souza Collares Maia Castelo-Branco

**Background:** Legal medicine and legal medical examination was recently acknowledged as an official medical specialty in Brazil through the Federal Medical Council (CFM) Resolution no. 1,973/2011. For being recent, several working tools still need to be developed. Reporting standards are a particular cause of concern, however, very little is discussed about how to respond court calls to medical legal experts. **Objective:** To develop a standard response including information relevant to medical legal examinations. **Methods:** We analyzed questions frequently asked by courts, hearing proceedings, Decree-Law no. 12,842/2013, CFM Resolution no. 2,183/2018 and National Justice Council Resolution no. 232/2016. **Results:** The formulated response includes court, lawsuit, legal expert’s identification and payment data; plaintiff information, including labor card, occupational health certificates, medical certificates, test results, medical prescriptions, police reports filed, hospital records, hospital certificates, Work Accident Reports; defendant information, including Workplace Conditions Technical Report, Occupational Health Medical Control Program, Environmental Hazard Prevention Plan, photographs of workstations/accident sites, number of employees who performed the same job in the past 5 years, Occupational Medicine and Safety Engineering Department members, Social Security Occupational Profile, receipts for personal protective equipment delivered, sick leaves granted by the National Social Security Institute and Ergonomic Analysis of Work. Finally, date and time of examination and the medical legal expert’s qualifications. **Conclusion:** The suggested model meets the needs of the labor market and is likely to have favorable impact on the judiciary, thus

evidencing the relevance of this specialty for the development of this field. This model is already widely used by medical legal experts in Ceara.

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### TL128-BURNS DURING CHAFING DISH FUEL REFILLING: A DANGEROUS ACTIVITY WITH EVENTUALLY SEVERE ESTHETIC SEQUELAE

Anisio Silvestre Pinheiro Santos Filho; Wanessa Fernandes Matias Regis; Crister Jose Ocadaque; Bruno Rocha Amando; Débora de Souza Collares Maia Castelo-Branco

**Background:** Burns account for more than 250,000 deaths/year worldwide. According to estimates, 1 million individuals suffer burns of variable degree in Brazil, requiring hospital admission and liable to cause considerable weakness, particularly when they involve the skin on joints, restricting motion, with consequent impairment of work capacity. **Objective:** To demonstrate, based on 4 cases, how unsafe and dangerous chafing dish fuel refilling is, and thus call the attention of the scientific community to this subject. **Methods:** The corresponding medical legal examinations were performed in Fortaleza, Ceara, Brazil, in the period from 2014 to 2018. Medical legal experts were randomly selected by courts from the 17th Region Labor Court database. **Results:** In one case alcohol was used as fuel, which is banned in the legislation. In no case the workers received the due training, all had esthetic impacts, and the chafing dish was off during fuel refilling. Three of the cases involved women under 30 years old, the fourth was of a man over 40. **Conclusion:** Chafing dish fuel refilling is dangerous and should be replaced by induction cooktops, which do not require combustible fuels. If not replaced, this activity must be immediately rated hazardous and workers must receive additional pay, in addition to mandatory training and fireproof gloves; fire extinguishers should be available close on the premises.

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### TL129-FIBROMYALGIA: A SILENT SYNDROME AFFECTING WORKERS

Edson Pedroza dos Santos Junior; Victor Rodrigues Nepomuceno

**Background:** Fibromyalgia is a clinical condition characterized by chronic generalized pain and usually associated with fatigue, sleep disturbances and cognitive impairments. It is one among the causes of musculoskeletal pain requiring sick leave and visits to occupational physicians and rheumatologists. Despite few, studies have shown high prevalence of fibromyalgia in Brazil, 2.5%, being higher for women compared to men and children. **Objective:** To establish the profile of patients with fibromyalgia. **Methods:** Longitudinal study with all the patients referred to a medical specialty outpatient clinic in Tocantins from June to November 2018. **Results:** 25 patients agreed to participate in the study, all were female, aged 48 to 74 years old. 16% of the participants were divorced, 44% married, 32% single and 8% widowed; the average number of children was 2.24 per patient. 44% of the participants were employed and 56% unemployed or retired. **Discussion:** While the causes of fibromyalgia are still unknown, experts consider that emotional factors and sedentary lifestyle might contribute to this condition. Occupational physicians play an essential role in early identification of symptoms and consequent referral of patients for adequate treatment, ensuring their well-being and avoiding absenteeism and unemployment. **Conclusion:** Additional studies are needed to ground actions and public policies for treatment and follow-up of workers with fibromyalgia.

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### TL130-INTERDISCIPLINARY COMMITTEE FOR EMPLOYEES OF AN ENERGY COMPANY WITH WORK RESTRICTIONS

Fernanda Cabral Schweitzer; Grazieli Loise Pereira Hoppe; Carla Pinna Guimarães Svoboda; Werner Olinto Amorim Braga; Andréia Pereira Duarte Trevisan

**Background:** Safeguarding fitness for work and facilitating the access of workers with work restrictions to occupational rehabilitation are common challenges faced by employers. **Objective:** To describe the results obtained by an interdisciplinary committee for workers with work restrictions. **Methods:** Retrospective review of the medical records of 69 employees with work restrictions followed up by an interdisciplinary committee at

an energy company in Brazil from 2009 through 2017. The committee comprised two occupational physicians, one occupational nurse, one organizational psychologist and one social worker. Variables analyzed included: sex, disease, sick leaves, outcomes and agreement between the committee and the National Social Security Institute INSS) recommendations. **Results:** 51/69 (73.9%) employees were male and 18/69 (26.1%) female. The largest proportion of cases concerned musculoskeletal disorders (33.3%), followed by mental disorders (28.9%), external causes of morbidity (10.1%) and neoplasms (8.7%). The most frequent conditions were low back pain (11.5%) and depression (7.2%). 20.2% of the workers did not require sick leave along the follow-up period. 43.6% of the workers could remain in their job, 24.6% were rehabilitated to another job and 20.2% required disability retirement. The committee recommendations agreed with those by INSS in all 21 cases, disability retirement (14) and occupational rehabilitation (7). **Conclusion:** Implementation of the interdisciplinary committee improved the company's management of workers with work restrictions and supported occupational rehabilitation, considering INSS agreement in all instances.

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### TL131-KAIZEN TO IMPROVE WORKPLACE HEALTH AND SAFETY AT AN ENERGY COMPANY

Fernanda Cabral Schweitzer; Mery Cristiane Oliveira Reis Sanchez; Renata Aparecida Quirino Rocha

**Background:** Efficient workplace health and safety (WHS) management demands structured and optimized approaches in compliance with the legislation. **Objective:** To describe the application of the kaizen method, based on the lean philosophy, to achieve continuous WHS improvement. **Methods:** The kaizen method was applied from 2013 through 2018 to the following 9 WHS processes: work accident registration and reporting, periodic medical examinations, authorization for high-risk activities (Regulatory Standards 10, 33 and 35), hazard pay (electrical hazards), follow-up of employees on sick leave, registration and analysis of occupational diseases, personal protective equipment management, pre-employment procedures and outsourced WHS management. Kaizen cycles involved a multidisciplinary team, process

actors and clients. Analysis of the process, including identification of the root causes of problems, provided grounds to the suggested action plans and new workflows. **Results:** The 14 kaizen cycles led to 131 action plans for improvement, which resulted in more structured and efficient processes. The main gains were: 22 new optimized workflows; creation of 52 performance indicators and goals; optimization of the communication with clients; closeness to clients and client satisfaction; optimization of costs; compliance with the legislation; and integration with other processes. **Conclusion:** The kaizen method contributed to improve HSW processes and to shift the organizational culture toward excellence and continuous improvement, with positive impacts on WHS management.

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### TL132-TIME ALLOTTED TO PRE-EMPLOYMENT MEDICAL EXAMINATIONS OF ADMINISTRATIVE EMPLOYEES OF FOUR OCCUPATIONAL MEDICINE CLINICS IN THE ITAJAI VALLEY, SANTA CATARINA, BRAZIL

Guilherme Antonio Siementcoski;  
Vanessa Golfetto Uliano

**Background:** Occupational medicine clinics and consultants are available all across Brazil and provide services to all types of companies. However, there is not any standard criterion for the time that should be allotted to occupational medical consultations. **Objective:** To investigate the time allotted to pre-employment medical examinations of administrative employees of four occupational health clinics in the Itajai Valley, Santa Catarina, Brazil, and to establish whether all examinations were necessarily performed by an occupational physician. **Methods:** An e-mail message was sent to the analyzed companies communicating the need to perform 100 pre-employment medical examinations of administrative employees and that all examinations ought to be performed by one and the same physician. **Results:** Appointments were scheduled every 4 minutes at company A, B 8 minutes, C 6 minutes and D 7.5 minutes. Examinations would not be performed by an occupational physician at A, B or C; company D allowed for this possibility, provided all

visits were appointed on one particular day in the week.

**Conclusion:** In all the analyzed cases, the medical examinations would last up to 8 minutes, and in 75% of the companies the examinations would be performed by physicians without specialization in occupational medicine.

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### TL133-MULTIFORM INVASION OF LIFE BY WORK: STUDY WITH TEACHERS AT REGULAR AND FULL-TIME SCHOOLS IN SAO PAULO, BRAZIL

Jefferson Peixoto da Silva; Frida Marina Fischer

**Background:** Impelled by the technological revolution, work has increasingly overreached its conventional time and space boundaries, invading the everyday personal life of workers. Several studies point to a scenario of precariousness and illness for teachers. The implications of work on everyday personal life have not received substantial attention, even when taking work home is common among this population of workers. **Objective:** To analyze the repercussion of work on the everyday personal life of teachers and implications in terms of the health-disease process. **Methods:** Qualitative exploratory study based on a systematic literature review, semi-structured individual interviews, a questionnaire for sociodemographic characteristics, protocol of daily activities and analogue scales. The sample comprised 29 elementary teachers at four public elementary schools, being two regular (one municipal and one state school) and two full time (both state schools). The data were analyzed based on thematic codes using software MAXQDA version 12. **Results:** Health risks at work invade the personal life of teachers in countless ways. **Conclusion:** Given the social distressing and pathogenic nature of this multiform invasion, this phenomenon might be one of the factors which account for repetitive illnesses among teachers.

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### TL134-WORK ACCIDENTS IN CIVIL CONSTRUCTION: OCCUPATIONAL RISK FACTORS AND PREVENTIVE MEASURES

Júlio César Rocha Silva; Guilherme José de Paula Oliveira

**Background:** Civil construction generates a large number of jobs, however, with poorly safe work organization and minimal conditions for accident prevention and to protect workers from illness and death. Work accidents are currently considered a public health problem and civil construction is associated with the poorest safety conditions worldwide. In Brazil, this is the economic activity associated with the largest number of work accidents liable to cause functional incapacity or death. Such high rates of accidents result in high annual costs, including sick pay, accident pay, treatments and hospital care. **Objective:** To perform a literature review of types of work accidents, occupational risk factors which contribute to accidents and how to prevent them. **Methods:** Review of studies published in the past 10 years and included in databases SciELO, LILACS and MEDLINE and the Trade Union Department of Statistics and Socioeconomic Studies (DIEESE) database. **Discussion:** Accurate knowledge of the context and hazards to which civil construction workers are daily exposed is necessary for employers, accident prevention committees and occupational health and safety departments to implement preventive measures. **Conclusion:** Educational, training and awareness initiatives and adequate planning and organization of activities are possible paths to make civil construction safe for workers, thus safeguarding their health and quality of work life.

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### TL135-NOISE-INDUCED HEARING LOSS: AN OCCUPATIONAL HEALTH PROBLEM

Júlio César Rocha Silva; Guilherme José de Paula Oliveira

**Background:** Noise is a perceived, but undesirable mixture of sounds that might have negative impact on health and interfere with the public environmental order. Noise is extremely harmful in the work environment, as it might cause hearing loss and facilitate work accidents by impairing communication, concentration and memory due to distraction, and increases the risk of occupational stress and fatigue. **Objective:** To survey the literature on noise-induced hearing loss (NIHL) among workers and to discuss the legislation in vigor, consequences for workers exposed to noise above the permitted range and the role of occupational physicians and employers facing suspected

cases of NIHL. **Methods:** Search of studies published in the past 10 years in Portuguese or English and included in databases MEDLINE, SciELO and Cochrane Library. We also analyzed books, Ministry of Health documents and the Brazilian legislation. **Results:** NIHL is one of the most prevalent occupational diseases worldwide. It is chronic and irreversible and has deep impacts on the health and quality of life of workers. **Conclusions:** Therefore, prevention and risk control programs are needed in companies, in compliance with the legislation in force, to safeguard the health of workers.

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### TL136-FRONTOTEMPORAL DEMENTIA DIAGNOSED BY OCCUPATIONAL MEDICINE STAFF

Paula Cristina Moreira Couras da Silva; Priscilla Vieira Coutinho Sabino Monforte; Luciana Fabíola Juliano Leite

**Case report:** Male patient, 55-year-old bank employee, with complete secondary school. In 2012 he began to experience cognitive deficits and was diagnosed with bipolar disorder, for which he started psychotherapy and psychiatric treatment, including lithium carbonate and quetiapine, however, with poor response. The condition became worse in 2015, and he was further diagnosed with depression. He was prescribed escitalopram 15 mg, without any improvement, but several times required sick leave until he was called by the occupational health department. On that occasion, magnetic resonance imaging evidenced volume reduction in the temporal lobe; 1-minute animal naming test: 5 (normal: >15); anomia combined with cognitive deficit; score 15 on the Mini-Mental State Examination (normal: >29). Diagnosis was semantic dementia; differential diagnosis: progressive fluent aphasia and frontotemporal dementia spectrum disorders — which are more common at a younger age. He was granted disability pension for mental illness. The clinical presentation of frontotemporal dementia, attended by progressive degeneration of the frontal and/or anterior temporal lobes, is heterogeneous, resulting in diagnostic uncertainty or delay. This condition can be as common as Alzheimer's disease among young individuals. **Final remarks:** Additional studies are needed on cognitive deficits among young people and their differential diagnosis with occupational, metabolic and venereal diseases,

stress, bipolar disorder, vitamin deficiency and dementias, for prevention and the earliest possible treatment to improve the quality of life of workers and reduce health and social security costs.

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### TL137-MENTAL DISTRESS AMONG EMERGENCY DEPARTMENT NURSING STAFF IN GREATER SAO PAULO, BRAZIL

Pollyanna Aquino Silva ; Jefferson Benedito Pires de Freitas; Flavia Souza e Silva de Almeida

**Background:** Work is essential for human beings. It must cause satisfaction and pleasure, but is also liable to cause suffering and stress, resulting in risks to the health of workers. Healthcare providers are one of the most affected occupational groups, as a function of several factors: long working hours, more than one job, low salary, precarious employment relationship, daily contact with ill patients, pain, suffering and death. **Objective:** To investigate the prevalence of common mental disorders among nursing staff at the emergency department of a private hospital in Greater Sao Paulo, Brazil. **Methods:** Cross-sectional observational and descriptive study with qualitative and quantitative analysis of data collected in interviews and clinical examination. The Self-Reporting Questionnaire (SRQ) was used to detect common mental disorders. **Results:** The study population was predominantly female (77.1%), worked under cooperative regime (65.7%) and one single shift/day (54.3%). About 34.3% of the participants exhibited abnormal results on SRQ, the rate being higher for the men (87.5%) and participants with double burden (80%). The most frequent complaint was tiredness/stress, with prevalence of 50% among the men. **Conclusion:** The results of the present study suggest that work predisposes to mental distress. A health management and worker recognition plan combined with awareness on the need for self-care might be useful to prevent the occurrence of common mental disorders.

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### TL138-FACTORS INFLUENCING DECISION-MAKING TO IMPROVE WORKPLACE HEALTH AND SAFETY: EXPERTS' PERCEPTION

Rogério Galvão da Silva; Luis Fernando Salles Moraes; Alcides Barrichello; José Damásio de Aquino; Dalton Tria Cusciano; Diego Fernando Ferreira de Oliveira

**Objective:** Based on a literature review and a survey of the opinion of occupational safety technicians, we sought to identify which factors influence upper management decision making vis-à-vis improvements of workplace health and safety (WHS). **Methods:** We selected 10 factors commonly mentioned in Brazilian and international literature. The study was performed in October and November 2018 and consisted in an online survey with Google Forms, divulged with the help of the Occupational Safety Technicians Union of the State of Sao Paulo (SINTESP), Brazil. The data were subjected to descriptive statistics and logistic regression analysis. **Results:** 244 questionnaires with valid responses were returned. The factors indicated as most influencing upper management decision making were: risk of business inspection, fines or closures (25.4%) and compliance with the legislation (23.8%). In regard to an open-ended question asking to describe other relevant factors, the respondents mentioned: improving productivity, genuine concern with employees, maintenance of ISO certification and eSocial implementation. **Conclusion:** Similar studies were performed in central countries, but this subject still needs to be more thoroughly investigated in Brazil. There are opportunities to perform additional studies approaching factors not considered in the present one, with other populations and to assess more thoroughly the factors mentioned as most important.

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### TL139-EFFICACY OF AN ERGONOMICS PROGRAM ON CARE DELIVERY AT A PRIVATE HOSPITAL IN BELEM, PARA, BRAZIL

Tais Braga Silva; Lorena Silva

**Background:** Hospital workers who usually provide direct care to non-self-sufficient patients are the occupational group most affected by musculoskeletal disorders, particularly involving the spine. Handling patients manually is an ergonomic factor of aggravation and thus justifies workplace ergonomic improvement measures. **Objective:**

To perform ergonomic analysis of hospital nursing staff workstations. **Methods:** The MAPO (Movement and Assistance of Hospital Patients) method was used as ergonomic tool in the assessment of a private hospital in Belem, Para, Brazil. Results and **Conclusions:** Application of the MAPO method enabled mapping workstations in wards, the surgery and emergency departments. Ergonomic hazards were identified during manual handling of patients and ergonomic improvements were implemented in the recommended areas. We could also predict musculoskeletal disorders before and after implementation of improvements. The physical effort required from workers decreased, with consequent reduction of the risk of aggravation of occupational diseases derived from manual handling of patients.

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### TL140-HEALTH PREVENTION: STRATIFYING THE POPULATION ACCORDING TO HEALTHCARE NEEDS

Renata Simioni; Luiz Antonio Setti Barbosa; Carlos Eduardo Reis de Souza; Cintia Natel Baer; Lutiano Castro Pacheco; Elísio dos Reis Neto; Lucélia Maria de Freitas; Mariana Gomes Conceição; Caroline Estrela da Costa; Marluci Cristine Domingues da Silva; Simoni Paim Borges; Magaly de Oliveira Soares

**Background:** The Health Code Classification Program, launched in 2018, distributes workers across three categories according to their state of health: green, yellow and red. Thus it enables establishing the workers' profile and actions relative to the four levels of prevention — primary, secondary, tertiary (Leavell & Clark, 1965) and quaternary (Jamouille & Roland, 1995). The red code corresponds to diseases with high risk of complications and/or requiring sick leave; workers are referred to occupational physicians for follow-up. The yellow code corresponds to stable chronic diseases, and workers are scheduled for follow-up twice per year. The green code corresponds to healthy workers, who are included in primary and secondary prevention programs, as also are all the others. **Objective:** To evaluate and classify workers according to health codes during occupational medical examination; to analyze the data monthly to allocate workers to the corresponding health prevention actions. **Results:** The study population

comprised 2,631 workers. Thirty-four participants were classified as red code (1.2%), the main (uncontrolled) diseases were hypertension and metabolic syndrome. 488 workers were classified as yellow code (18.5%), main diseases were hypothyroidism and controlled hypertension. **Conclusion:** The project needs to be improved through definition of criteria to standardize categories and procedures. The number of workers included in the classification will increase with the upcoming biannual examinations. Red and yellow code workers require longitudinal and multiprofessional follow-up to ensure their adherence to treatment, effective monitoring, increase positive outcomes, engagement and effective healthcare.

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### TL141-THE ROLE OF INTERNAL TEAMS IN MAJOR HEALTH CHALLENGES AT ORGANIZATIONS: FOCUS ON POSITIVE OUTCOMES

Renata Simioni; Luiz Antonio Setti Barbosa; Losangela Maria da Silva Sura; Lutiano Castro Pacheco; Elisio dos Reis Neto; Lucelia Maria de Freitas; Mariana Gomes Conceição; Caroline Estrela da Costa; Marluci Cristine Domingues da Silva; Magaly de Oliveira Soares; Simoni Paim Borges; Suelen Costa dos Santos; Adriana Aparecida Riuzim

**Background:** Following analysis of health insurance outcomes and the demographic characteristics of the employees of a company (70% women of reproductive age) we found a window of opportunity to extend follow-up for pregnant women and breast cancer prevention. At baseline, only 48% of the women had gotten a mammogram and 69% of the pregnant women had been followed up within a specific preventive program. **Methods:** We launched a breast cancer campaign, in which workers who had had the disease shared their experience about disease and treatment, in addition to onsite mammograms and lectures by experts to raise awareness. In regard to pregnant workers, we performed an active search and provided tele-follow-up and in-person courses. **Results:** 92% out of 425 women defined as target population got a mammogram and 3 cases in early stage of disease were diagnosed. Surprisingly, the campaign extended beyond the company, with more than 2 million materials printed and more than 400,000 shares

in social networks. 91% out of 275 women who gave birth were followed up within the preventive program. **Conclusion:** The extended coverage of the pregnant worker program allowed detecting and referring high-risk cases. The breast cancer campaign reinforced the culture of prevention and helped detecting three cases, thus reducing negative health insurance outcomes.

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### TL142-ASSESSMENT OF THE HEALTH OF PROPERTY AND VALUABLE GOODS TRANSPORT SECURITY GUARDS: WORK ORGANIZATION ASPECTS RELATED TO MENTAL OVERLOAD

Fabiano Ribeiro Soares; Edgard Thomas Martins

**Objective:** To analyze stress as cause of mental overload among property and valuable goods transport security guards in a private company in Teresina, Piauí, Brazil, and to investigate the possible correlation between mental stress and hypertension, with emphasis on organizational factors likely to interfere with the health of workers. **Methods:** Pereira & Couto's stress questionnaire (items 1 and 2), Self-Reporting Questionnaire (SRQ-20) and structured interviews on work organization. Next, all the participants underwent ABPM to establish blood pressure levels at work. **Results:** Stress assessment tools and ABPM enabled early identification of changes in the participants' health. 93.3% of the property security guards reported an adequate state of health. 20% of property security guards associated sick leave for mental disorders with organizational factors versus 6.6% of the valuable goods transport security guards. **Conclusion:** Combining questionnaires and ABPM is useful for early diagnosis of occupational stress and for companies to intervene early, thus avowing further harms, particularly to the mental health of workers.

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### TL143-OCCUPATIONAL HEALTH IN UNDERGRADUATE MEDICAL COURSES IN BRAZIL

Fabiola Tatiana de Souza; Beatriz Santos Cordeiro; Francilu Rodrigues Beloti; Angélica Gomides dos Reis Gomes

**Background:** Occupational medicine outpatient clinics often represent the access to the labor market for newly graduated physicians. Yet very few of them have experience in occupational health at the time of starting their job, since this field is not devoted much attention in undergraduate courses. In addition, graduates who choose to become medical practitioners need the due preparation to approach work-related diseases. **Objective:** To analyze the curriculum of undergraduate medical courses in Brazil to establish the rate of disciplines related to occupational health. **Methods:** We obtained the total number of medical courses from the Ministry of Education website; courses taught at different campuses of a same university were excluded. We thus located 277 undergraduate medical courses and analyzed the curriculum of 120. **Results:** Only 40% of the analyzed curricula included occupational medicine/occupational health disciplines or this subject as a part of others, as e.g. “collective health” and “community interaction.” Nine schools (7.5%) did not post the curriculum to websites. The number of credit hours varied from 20 to 150. **Conclusion:** When patients are adults or older adults, one should bear in mind they are/were workers and that, therefore, their occupational history is relevant for diagnosis and should be given the due place in medical education.

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### TL144-IDENTIFICATION OF ERGONOMIC PROBLEMS IN A COMMERCIAL KITCHEN THROUGH SIMPLIFIED ERGONOMIC CENSUS

Fabiola Tatiana de Souza; Beatriz Santos Cordeiro; Francilú Rodrigues Beloti; Angélica Gomides dos Reis Gomes

**Background:** Work in commercial kitchens is associated with considerable physical demands to workers liable to result in musculoskeletal disorders. **Objective:** To analyze the working conditions in a commercial kitchen where three workers had required sick leave for work-related diseases in the first semester of 2018. **Methods:** Administration of the Simplified Ergonomic Census — Is there any activity at work that causes you discomfort, difficulties, fatigue or pain? Which one? — describe it; In which part of your body you feel more strain? What

do you believe it should be done to improve that feature at work? **Results:** The sample comprised 35 participants, with average age  $40 \pm 10$  years old; 68.57% were female and 31.43% male; average length in the job was  $2 \pm 2$  years. The sample consisted in: one butcher, 21 kitchen assistants, 2 stock assistants, 3 general services assistants, one chef, 4 cooks, one cook trainee and 2 salad makers. Twenty-five participants (71.43%) reported some complaint, 40% of them pain in more than one body site. Causes of discomfort were: carrying loads  $>20$  kg (32%), long time standing (32%) and repetitive arm movements (20%); 28% of the sample reported more than one complaint. 24% of the participants reported low back pain, 40% pain in the lower limbs and 56% pain in the upper limbs. The ergonomic suggestions made by the participants included: change of boots, hiring more personnel, alternating tasks and better equipment maintenance. **Conclusion:** Participation of workers is fundamental in ergonomic studies. Inclusion of the four questions mentioned above in periodic medical examinations, investigation of the reported complaints and attention to the suggestions made might contribute to improve the work environment.

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### TL145-ANALYSIS AND INTERVENTION IN CASES OF OCCUPATIONAL EXPOSURE TO LEAD: INTEGRATIVE REVIEW

Horst Naconecy de Souza; Helen Maria Filgueiras Costa; Hérica Maria Filgueira Costa; Dayanne Chrystina Ferreira Pinto; Gilberto Santos Cerqueira; Katarina Maria Brasileiro Leal; Ana Paula Frago de Freitas

**Background:** Lead is a toxic element widely used in industries. A considerable number of workers is frequently exposed to lead, eventually resulting in severe poisoning, with consequent effects on health, since lead might interfere with any biological function. **Objective:** To analyze and intervene in cases of exposure to lead. **Methods:** Integrative review of literature located in databases SciELO and LILACS. The review process involved six steps: formulation of the research question, literature search, data collection, critical analysis of the selected studies, discussion of results and

presentation. **Results:** We synthesized the profile of occupational exposure to lead in two tables. Then we selected five studies for systematic and judicious discussion to achieve conclusive results. **Conclusion:** Poisoning by lead or lead-containing products might cause serious harms to health and even death. Chronic exposure to lead might cause gastrointestinal, neuromuscular and central nervous system disorders, in addition to effects on the blood pressure and the liver. Intervention is needed in cases of lead poisoning, including adequate pharmacological treatment, monitoring and especially elimination of exposure.

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### TL146-REASONS FOR MEDICAL CONSULTATIONS AT THE OCCUPATIONAL HEALTH DEPARTMENT OF A PUBLIC UNIVERSITY IN RIO DE JANEIRO, BRAZIL

Márcio Matheus Rosas de Souza; Nadia Tavares El Kadi Monteiro Paiva; Rosane Todeschini Borges; Ana Carolina Bittencourt Ferreira; João Luiz Clara André

**Background:** Occupational health services represent a wealth of opportunities for worker health surveillance. Occupational and medical legal examinations, as well as regular, urgent and emergency care enable familiarization with each individual worker and their past medical history, early diagnosis, identification of risk factors, establishing causal relationship between exposure and signs, symptoms or diseases. **Objective:** To establish the profile of reasons for consultations at the occupational health department of a public university in Rio de Janeiro, Brazil. **Methods:** Observational descriptive study based on the review of consultations at the university occupational health department in the period from January through November 2018. **Results:** A total of 7,737 consultations were performed in the analyzed period, 3,754 (50.5%) for medical legal examination, 1,826 (17.9%) for non-occupational reasons, 1,334 (17.9%) to homologate medical certificates, 129 (1.7%) for occupational readjustment and 120 (1.6%) for pre-employment examination; reasons were unavailable for

13 (0.2%) consultations. **Conclusion:** The results reinforce the relevance of occupational health services in the understanding of the causes of disease and to provide workers access to healthcare.

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### TL147-EPIDEMIOLOGICAL PROFILE OF EMPLOYEES OF A PUBLIC UNIVERSITY IN RIO DE JANEIRO, BRAZIL, GRANTED LEAVE FOR MENTAL DISORDERS

Márcio Matheus Rosas de Souza; Nadia Tavares El Kadi Monteiro Paiva; Rosane Todeschini Borges; Ana Carolina Bittencourt Ferreira; André Youssef Abrão Blal; João Luiz Clara André

**Background:** Mental and behavioral disorders are the third leading cause of work disability in Brazil; 668,927 cases were reported from 2012 through 2016. Although few studies addressed the epidemiological profile of absenteeism among civil servants, mental and behavioral disorders are a significant reason for sick leave. **Objective:** To establish the epidemiological profile of leaves granted to employees of a public university in Rio de Janeiro, Brazil, for mental and behavioral disorders. **Methods:** Observational and descriptive study in which we reviewed the medical records of employees seen at the university occupational health department from January through November 2018. **Results:** A total of 3,937 medical legal examinations were performed in the analyzed period, 667 (16.94%) employees exhibited mental or behavioral disorders. Most employees were 31 to 50 years old (53.22%) and female (73.16%). As per the occupation distribution, 35.53% were nursing technicians, 20.53% administrative assistants and 20.53% nurses. The most prevalent mental and behavioral disorders were major depressive disorder (ICD F32), other anxiety disorders (ICD F41), reaction to severe stress and adjustment disorders (F43), recurrent major depressive disorder (ICD F33) and bipolar disorder (F31), with prevalence of 43.62%, 17.99%, 8.84%, 7.49% and 6.44%, respectively. **Conclusion:** The epidemiological profile of leaves for mental and behavioral disorders is necessary for the implementation of measures for management of the working conditions to prevent occupational diseases and promote and safeguard the mental health of workers.

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## TL148-INNOVATION IN INTEGRATED HEALTH MANAGEMENT

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Andrea Medici Bastos; Fernanda Veloso Magalhaes;  
Juliana Ferracini de Souza; Klebson Alessandro  
Rodrigues de Oliveira; Renata Danieli

**Background:** Given the difficulty to consolidate information on the health of Odebrecht Group employees, in 2015 we launched a project to provide a specific solution for process automation and integrating occupational health, healthcare and insurance data to improve health management and optimize financial and human resources. **Results and conclusion:** Several processes were automated, resulting in higher efficacy and agility in calls for periodic examinations, agility in healthcare delivery, population management based on health indicators, health promotion campaigns and/or actions also based on health indicators, employee satisfaction with the simplicity of self-service, shorter wait at the health support department, management of health costs, follow-up of medical appointments, reduction of human error and recognition by the health support department of the simplicity of operationalization and control of internal processes.

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## TL149-EXPOSURE-RELATED DISEASES AMONG WORKERS AT BENZENE FUEL RETAIL POINTS OF SALE

Cleber Oliveira de Souza Junior

**Background:** Benzene, an industrial solvent with several applications, is one of the components which contribute to increase the power and reduce the consumption of automobile gasoline. However, it is also a powerful cancerogenic substance, which safe exposure range has not yet been established. **Objective:** To investigate possible correlations between exposure to benzene and occupational diseases among workers at fuel retail points of sale. **Methods:** We established parameters for analysis based on a literature review with focus on toxicology aspects, risk prevention and health promotion, among others. **Results:** Several

conditions were detected among the exposed workers. While on the one hand, the safe exposure range has not yet been established, on the other, several regulations describe the employer's obligations in regard to risk prevention and health promotion. **Conclusion:** Although there are some consolidated regulations, actual practices should be aligned to the legislation in force, for which more intensive inspection of compliance is necessary.

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## TL150-RESILIENCE AND THE UNIVERSE OF WORK-RELATED DISEASES AFTER EMPLOYMENT TERMINATION

Ana Paula de Oliveira Teixeira

**Objective:** To discuss diseases related to employment termination not detected or reported for epidemiological purposes. **Methods:** Report of a case in which illness was caused by moral harassment, duly reported by the involved worker (the employer was already being investigated by the local Public Prosecutor Office for institutional harassment). As a result, employment was terminated and the worker developed a mental health problem (anxiety disorder), which required psychiatric treatment with vortioxetine combined with topiramate for prevention of post-traumatic stress disorder (reduction of re-experiencing, intrusive memories, flashbacks, avoidance symptoms and emotional numbness). Psychotherapy is mandatory in such cases. **Discussion and conclusion:** Violence is ubiquitous in companies undergoing continuous change, with minimum personnel and increasing competitiveness, reaching alarming levels worldwide. Its consequences certainly continue after the employment relationship is severed, however, we do not know much about this situation and its impact on workers. If there are still gaps in the management of psychosocial risk for active workers, how to care for or orient workers in transition and at high risk of disease? What is the responsibility of occupational physicians in such cases? Studies are needed on this subject to minimize the damage to all the involved parties through care provision based on clinical protocols and effective referral to a qualified support network.

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## TL151-SOCIAL DETERMINANTS AND BEHAVIORAL ASPECTS RELATED TO MOTORCYCLE ACCIDENTS

Filipe Frans Holanda Terzis; Marco Akerman; Lys Esther Rocha (in memorian); Maria José Fernandes Gimenes; Sergio Roberto de Lucca; Marcia Bandini

**Background:** According to WHO, motorcyclists exhibit 34% higher risk of dying in traffic accidents compared to other vehicle users, corresponding to 1.2 million deaths/year worldwide. Demands for faster services and the low cost of motorcycles increase the number of motorcyclists in urban areas. The use of motorcycles is conditioned by social determinants. **Objective:** To analyze behavioral aspects and social determinants for different profiles of motorcyclists. **Methods:** Cross-sectional study based on a PAHO/WHO preliminary questionnaire administered to focus groups. The final questionnaire included socio-environmental and behavioral aspects in nine dimensions and was administered during interviews with motorcyclists who were victims of accidents and received cared at hospitals in the ABC Region, Sao Paulo, Brazil. Variables were analyzed relative to three groups of motorcyclists according to the reasons for riding motorcycles: service delivery, commute mode or leisure. **Results:** The sample comprised 82 participants, 97.6% of whom were male; their average age was 27.4 years old, and significantly differed between the groups (leisure: 23.2 years old, 54.5% of whom did not have a driver's license). 81.3% of the participants had attended only primary or secondary school. Sensory-seeking was detected for 47.6% of the leisure motorcyclists, including riding at high speed at the time of the accident (21.8%). **Conclusion:** We found sociodemographic and behavioral differences between the three groups. The profile of leisure motorcyclists was characterized by less pressure, but with sensation-seeking, including driving without a license. Against the common belief, the profile of service delivery motorcyclists was not more imprudent and riskier, but they are exposed longer to vehicular traffic.

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## TL152-ABSENTEEISM AND WORK ACCIDENT MANAGEMENT MODEL AT A NATIONAL FINANCIAL INSTITUTION IN RIO GRANDE DO SUL, BRAZIL

Sheila de Castro Cardoso Toniasso; Ana Luiza Santos de Souza; Liziane da Silva Matte; Renata Pavão Moreira;

**Background:** Workplace health and safety (WHS) indicators are important, because they enable monitoring goals and thus contribute to the development of management methods. **Objective:** To design an absenteeism and work accident management model to contribute to the planning of WHS actions. **Methods:** A nursing assistant at the occupational health department of the analyzed company is responsible for filling and analyzing a spreadsheet and of presenting the data to the rest of the staff. Absenteeism is analyzed by dividing the total number of missed work days in the month by the total number of employees times the number of working days in the month; also the reasons for employees to miss work days are analyzed. Work Accident Reports are counted and categorized according to type (typical, to and from work and occupational diseases). **Results:** The rates of absenteeism in 2018 varied from 2.1% to 2.8%, being mainly associated with mental, musculoskeletal and respiratory disorders. Forty-two cases of work accidents were reported, 33 of which were typical accidents. These data were used to plan health actions. **Conclusion:** The management model designed at the analyzed company evidences its interest in identifying the main reasons for employees to miss work days. It also reinforces the relevance of data on absenteeism and work accidents for planning preventive health actions.

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## TL153-TIME MANAGEMENT IN THE EVERYDAY ROUTINE OF INTERNAL MEDICINE RESIDENTS AT A PUBLIC UNIVERSITY HOSPITAL IN SAO PAULO, BRAZIL

Rafael Augusto Tamasauskas Torres; Frida Marina Fischer

**Background:** Medical residency programs consolidate a learning process that begins at medical school. Although these programs are acknowledged as an efficient training method, criticism is raised against the excessively long working hours, work overload and sleep deprivation. **Objective:** To establish time management strategies used by internal medicine residents at a university

hospital in Sao Paulo, Brazil. **Methods:** We conducted interviews with 8 2nd-year residents, in which the topics addressed were aspects of their personal life, jobs, theoretical studies and practical activities. Content analysis was performed using software MAXQDA. **Results:** We identified six thematic categories in the participants' narratives: work organization; a learning or professional program?; housing, financial planning and household chores; leisure time and interpersonal relationships; family planning; rest/sleep. **Discussion:** Medical residency are intensive learning programs, characterized by high workload, complex activities, night shifts and work on weekends. The actual working hours are usually longer than planned, as a function of unexpected events during call and ward activities. According to reports, residents might interpret the results of tests wrong and make prescription errors; their family and social life is impaired, particularly in association with night work. Medical residents often have other jobs, which further reduce the time available for rest, learning and leisure. **Conclusion:** Medical residents have resource to several time management strategies, such as living close to the hospital, hiring maids to help with household chores, eating at the hospital restaurant, delaying having children and social support centered on spending time with other residents and program supervisors.

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### TL154-EXPERIENCE REPORT RELATIVE TO A PROGRAM OF ASSISTANCE FOR KIDNAPPING AND ROBBERY VICTIMS AT A FINANCIAL INSTITUTION IN THE INTERIOR OF THE STATE OF SAO PAULO, BRAZIL

Fernanda Aparecida Valeretto

**Background:** Bank robberies and kidnapping for ransom are frequent in Brazil. Bank employees are potential victims of these events, which might cause disease and mental disorders. Facing this scenario, the analyzed institution established "Program of Assistance to Robbery and Kidnapping Victims" to minimize the negative impacts of incidents on the everyday life of victims. This program, which is considered an example for the financial sector, includes medical and psychological care, legal and safety advice, all paid by the employer, as well as possibilities

to relocate. **Objective:** To report an experience with the program as developed by the company Occupational Medicine and Safety Engineering Department (OMSED). **Methods:** Cross-sectional and descriptive study with quantitative analysis. The study setting was a public-private bank. **Results:** The sample comprised 247 bank employees, 54 family members and 83 outsourced workers who were robbery (60.6%) or kidnapping (39.4%) victims in the period from 2013 through 2018. All the participants were followed up by OMSED along 6 months to detect post-traumatic stress disorder symptoms. Work Accident Reports were issued in all cases; only one case was reopened, 32 days after the event. **Conclusion:** The program evidences the employer's interest in safeguarding the health of its employees and mitigating the mental distress caused by the traumatic experience.

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### TL155-INCLUSION, ACCESSIBILITY AND ADEQUACY OF WORKSTATIONS FOR BANK EMPLOYEES WITH DISABILITIES

Fernanda Aparecida Valeretto; Camila Inês Silva Mio

**Background:** Including people with disabilities (PD) in the labor market is a legal obligation and a social interest. For inclusion to be effective, the work environment should afford comfort and safety and avoid increasing limitations. **Objective:** To analyze accessibility and ergonomic conditions of workstations and work tools for employees with disabilities at a bank and to suggest recommendations. **Methods:** Cross-sectional, descriptive and quantitative study. The sample comprised 29 employees hired as per the Quota Law or transferred in 2018. We performed workplace ergonomic analysis to evaluate working conditions. **Results:** Based on the results, we established the following categories "workstations inaccessible to PD," "workstations adjustable to PD" and "workstations adequate to PD." Finally, we suggested adjustments for workstations and changes were made in those rated inaccessible. Raising awareness meetings were held at all the bank branches. **Conclusion:** The actions implemented contributed to avoid risks to the health and physical integrity of workers and enhanced well-being and inclusion by removing architectural, communication and attitudinal barriers.

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## TL156-CRITERIA APPLIED BY LABOR MEDICAL LEGAL EXPERTS IN RIO GRANDE DO SUL, BRAZIL: ESTABLISHING A CAUSAL LINK FOR DISEASES AMONG BANK EMPLOYEES FROM MARCH 2006 THROUGH MARCH 2017

Franciene Scapin Duarte Vasconcelos;  
Valmir Dorn Vasconcelos;

**Background:** Musculoskeletal and mental disorders are some of the main conditions mentioned in labor lawsuits. In such cases, forensic evidence is required, therefore, technical-scientific criteria should be available for medical legal experts to be able to establish a causal link between work and disease. **Objective:** To identify the criteria applied by medical legal experts in a sample of 41 labor lawsuits involving bank employees in Rio Grande do Sul, Brazil. **Methods:** Descriptive and quantitative study of secondary data obtained from medical legal reports. **Results:** We found significant association ( $X^2$ ) between causal link and Social Security Epidemiological Technical Link (NTEP) and type of medical legal examination (psychiatric or orthopedic). The most prevalent conditions were rotator cuff syndrome and carpal tunnel syndrome. Causal link was not established in 63.4% of the reports. 53.7% of the experts did not cite references in their reports. **Conclusion:** The criteria applied by the analyzed labor medical legal experts to establish a causal link between work and disease were heterogeneous. Most of the variables mentioned in the literature as likely to support a causal link between work and disease did not exhibit statistically significant association with the outcome.

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## TL157-PSYCHOSOCIAL EVALUATION PRACTICES (REGULATORY STANDARDS 33 AND 35) OF PSYCHOLOGISTS AND PHYSICIANS IN BRAZIL

Valmir Dorn Vasconcelos; Clarissa Marcelli Trentini;  
Franciene Scapin Duarte Vasconcelos

**Background:** Analyzing psychosocial factors of work is part of preventive strategies targeting workers who work indoors and at height. In Brazil, this analysis is commonly performed by physicians and psychologists. The aim of the

present study was to provide grounds for this activity based on the experience of healthcare providers. **Objective:** 1) To survey and systematize psychosocial evaluation practices relative to workers who work indoors and/or at height; 2) To compare the results with the scientific literature to establish which criteria, aspects and instruments are considered in measures targeting psychological/psychosocial hazards. **Methods:** Cross-sectional and descriptive study in which an online questionnaire (SurveyMonkey) is administered to psychologists and physicians. The sample size, as calculated using GPOWER 3.1.9.2, is 200 participants, being 100 physicians and 100 psychologists. **Results:** The present study is in progress and is expected to be concluded in March 2019. We will analyze the respondents' profile, the methods and theoretical frameworks to which they have resource, and the criteria they apply to define unfit-ness. Analysis will include descriptive statistics for each separate group. We will describe the instruments most frequently used and the reasons for selection. **Conclusion:** A literature review showed that psychosocial evaluation is commonly based on stress theories (job demands-control and effort-reward imbalance models) as well as on theories related to the psychodynamics of work. However, how the corresponding evidence reaches healthcare providers is not known. In turn, physicians and psychologists have resource to psychosocial interview models and/or psychological assessment instruments.

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## TL158-OCCUPATIONAL SUN EXPOSURE AND SKIN CANCER

Juliana Cristina de Oliveira Vedovato; Juliana Yumi Massuda; Sérgio Roberto de Lucca

**Background:** Skin cancer is the most frequent type of cancer in Brazil, representing 30% of malignant tumors, the highest incidence corresponding to non-melanoma skin cancer. According to IARC, about 90% of skin cancer cases are avoidable, since the main risk factor is unprotected sun exposure. Although workers exposed to the sun during the working time are more susceptible to skin cancer than all other occupational groups, they are not supplied the due personal protection equipment (PPE). **Objective:** To investigate possible association between unprotected sun exposure and incidence of non-melanoma skin cancer. **Methods:** We administered a questionnaire on occupational history and use of PPE to patients cared

at a specialized outpatient clinic. **Results:** The sample comprised 53 participants, 80% of whom had not been previously inquired as to their occupation, although they had been exposed to the sun (25 years in the job, 44 hours/week, 8-hour exposure/day, on average). 76% were agricultural workers, 69% wore PPE (e.g. hats) and only 4.7% regularly used sunscreen. **Conclusion:** Inquiring on the occupation of workers is essential for prevention. In the present case, failure to use sunscreen decisively contributed to the occurrence of skin cancer. Therefore, establishing sunscreen as PPE for agricultural and other workers exposed to the sun is urgent, as well as training and information on its relevance.

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### TL159-RELATIONSHIP BETWEEN EXPOSURE TO RESPIRATORY HAZARDS AND USE OF PPE AMONG BRICK WORKERS: LITERATURE REVIEW

Gabriel Henrique da Silva Vieira; Laryssa de Souza Paulino; Mabel de Sousa Araújo; Elisa Sonehara de Moraes; Leiliane Duarte de Almeida

**Background:** Brickworks is considered one of the oldest industries. Structural ceramics includes the fabrication of hollow and solid bricks, tiles, sealing and structural blocks. Due to the high demands for products, workers exceed their productivity limits. They are exposed to high temperatures over long periods of time and inhale fumes and dust. **Objective:** To establish, based on studies located in databases, the main respiratory hazards, their correlation with exposure to fumes and awareness on the use of PPE among brick workers. **Methods:** Literature review of studies located in 13 databases. **Results:** There are few studies on the subject of interest, which, however, show that workers do not have much knowledge or awareness of PPE. Respiratory risk is associated with direct exposure to residuals and fumes, daily working hours and years in the job. **Conclusion:** More studies are need and also more health promotion policies targeting brick workers.

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### TL160-HEALTH RELATED QUALITY OF LIFE OF WORKERS WITH DIABETES MELLITUS

Daniela Vieira Silva Vitor; Luciano Resende Ferreira; Victor Rabelo Silva; Cristiano Machado Galhardi; Nathalia Campos; Laura Cristina Rios Ferreira; Gustavo Henrique Ventali

**Background:** The increased prevalence of noncommunicable diseases is related to higher incidence of diabetes mellitus (DM). The chronic complications of DM might impair the health-related quality of life (HR-QoL) of workers. **Objectives:** To analyze HR-QoL of workers with DM and associated factors likely to interfere with their perceived quality of work life. **Methods:** Cross-sectional study in which we administered SF-36 and a sociodemographic questionnaire to 75 workers with DM. HR-QoL was evaluated based on 8 domains: vitality, physical functioning, bodily pain, general health perception, physical role functioning, emotional role functioning, social role functioning and mental health. Variables included in the sociodemographic questionnaire were: sex, age, DM type, disease duration, hypoglycemia and emotional aspects, such as fear of discrimination at work and fear of missing work days due to DM, among others. **Results:** Most participants were female (54%). We found negative correlation between vitality and female sex, and between DM type and general health perception. There was positive correlation between hypoglycemia and all HR-QoL domains, between physical role functioning and absenteeism due to DM, and between fear of missing work days and HR-QoL domains physical functioning, bodily pain and vitality. **Conclusion:** The HR-QoL of workers with DM was overall impaired, particularly among women with type 2 DM relative to bodily pain, vitality and physical and emotional role functioning.

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### TL161-ENVIRONMENTAL ASSESSMENT AND ANALYSIS OF THE ACUTE TOXIC EFFECTS OF FORMALDEHYDE AT ANATOMY AND PATHOLOGY LABORATORIES

Debora Tomita Watanabe; José Tarcísio Penteado Buschinelli; Flávia Souza e Silva de Almeida

**Background:** Human bodies and tissues are preserved to keep their morphology and characteristics as close as possible to those of people alive. There are several techniques to preserve tissues for studies in the present time.

Formaldehyde has been widely used for this purpose. In the present study we performed an environmental evaluation and analyzed the acute toxic effects of formaldehyde at anatomy and pathology laboratories by means of an advanced analysis tool (ART 1.5) to avoid high levels of exposure. **Objective:** To perform environmental assessment and analyze the acute toxic effects of formaldehyde at the anatomy and pathology sciences laboratories of a medical school in Sao Paulo, Brazil. **Methods:** Cross-sectional study conducted on the premises to assess risk, analyze exposure using ART 1.5 e perform medical examinations to workers. **Results:** The level of exposure to formaldehyde was almost 4 times higher than the limits defined by ACGIH and 22 times higher than those defined by NIOSH. 61.5% of the participants reported eye dryness or irritation. **Conclusion:** Considering the reported symptoms and the potential carcinogenetic effect of formaldehyde, its concentration should be kept as low as possible through alternative techniques for specimen preservation. Such replacement is expected to reduce the exposure to highly toxic agents and thus improve the health of workers.

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### TL162-EFFICACY OF A SHOULDER PASSIVE EXOSKELETON TO REDUCE EFFORT IN AN AUTOMOBILE ASSEMBLY LINE TASK

Paulo R. Zetola; Hudson Couto; Dennis Couto; Karina Straub; Manuela Pucci; Vanessa Martins

**Background:** Passive exoskeletons are increasingly used in industries to reduce the intensity of effort, particularly of static effort, which might cause muscle pain due to accumulation of lactic acid. An Ekso shoulder passive exoskeleton was tested to reduce muscle effort among workers allocated to brake hose installation from underneath the car. This step lasted 60 seconds and workers spent 66% of this time with the arms raised above the shoulder height. In turn, hand effort was low. **Objective:** To test the efficacy of a shoulder passive exoskeleton to reduce static effort during work from underneath the car requiring arm abduction. **Methods:** An experienced worker performed the analyzed task 15 times without and 13 times wearing the exoskeleton. Effort intensity was measured with a 6-channel surface electromyography system on the right and left anterior deltoids, right and left lateral deltoids and

right and left paravertebral muscles. **Results:** The exoskeleton effectively reduced the right lateral deltoid effort by 29% (mean) to 42% (peak) and somewhat less the left lateral deltoid effort (8.3% to 10%). Also the evaluation by the participating worker was positive.

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### TL163-ABILITY OF A SHOULDER PASSIVE SKELETON TO REDUCE STATIC EFFORT

Paulo R. Zetola; Hudson Couto; Dennis Couto; Karina Straub; Manuela Pucci; Vanessa Martins

**Background:** Static effort poses a challenge to ergonomics as a function of its high frequency in the world of work. One of the most critical types of static effort is the one required by work with the arms above the shoulder level, which causes fatigue via two mechanisms: reduced blood flow due to gravity and the deltoid effort, and lactic acid accumulation, which also causes pain. **Objective:** To test the ability of an Ekso shoulder passive exoskeleton to reduce static effort. **Methods:** Six muscles were subjected to dynamic electromyography: right and left anterior deltoids, right and left lateral deltoids and right and left paravertebral muscles. Evoked potentials were measured for preset positions while wearing or not the exoskeleton; measurements included peak and adjusted mean effort. The participating worker had experience with exoskeletons and adjusted it as needed for comfort. **Results and conclusion:** The tested exoskeleton was highly effective to reduce isolated static effort of the upper limbs in horizontal position and at 135° (50% to 58%). As the arms were well supported, the effect extended to the spinal muscles, with 38% reduction of effort despite the weight of the device (4.6 kg). Analysis further showed that the exoskeleton was little advantageous for work involving arm flexion.

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### TL164-ANALYSIS OF RISK MAPS OF THE SURGERY DEPARTMENT IN A TERTIARY HOSPITAL

Paulo Roberto Zétola; Mayra Coimbra Gonçalves; Emanuelle Leonel Ferreira; Michely Mika Hirota; Fernanda Yuki Ito; Aline Tatiane Rampim

**Background:** Surgery departments are complex environments involving constant circulation of staff, patients

and materials. For this reason, attention should be paid to hazards (physical, chemical, biological and ergonomic/mechanical) to which the staff is exposed. Risk maps are a means to evidence and help prevent situations liable to harm the health of workers. **Objective:** To evidence through risk maps the main occupational hazards to which surgery department staff in a tertiary hospital were exposed. **Methods:** Cross-sectional observational study performed at the surgery department of a tertiary hospital. Based on photographs, we obtained risk maps for all the hospital sites related to the surgery department; maps not available at units were obtained from the Occupational Medicine and Safety Engineering Department. The data were subjected to descriptive analysis. **Results:** 19 hospital sites were mapped. Physical (9/19), biological (8/19) and ergonomic (15/19) were the types of hazards which most frequently posed medium to high risk. Risk was rated low for more than half (60%) of the analyzed sites, medium for 36.8% and high for 3.15%. **Conclusion:** Based on accurate knowledge of hazards in the workplace and their consequences to health, raising awareness and training are essential.

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### TL165-IMPLICATIONS AND SCOPE OF THE GREEN APRIL MOVEMENT

Paulo Roberto Zétola; Aline Tatiane Rampim; Michely Mika Hirota; Fernanda Yuki Ito; Emanuelle Leonel Ferreira; Mayra Coimbra Gonçalves

**Background:** As a response to the high rates of work accidents and occupational diseases, the Green April Movement was launched in 2014 to raise society's awareness on the health and safety of Brazilian workers. **Objective:** To analyze the scope of awareness actions centered on occupational health and safety performed as part of the Green April Movement and their direct impact on workers. **Methods:** Experience report of an activity developed by the Occupational Medicine Academic League of Federal University of Parana as part of the Green April Movement and survey of the main actions carried out nationwide and divulged online. **Results:** The Green April Movement expanded over time to reach all the Brazilian states in 2018. Activities are manifold, including symposia, photography exhibitions, walks and building and monument light up in green, among others. Involvement of social media is also considerable. The movement includes discussions and planning with companies, associations and government

agencies and direct activities with workers. Both workers and organizations were receptive and manifested interest in awareness actions centered on work accidents and occupational health. **Conclusion:** Mobilizing society through movements such as Green April contributes to enhance its awareness, debate and the implementation of protective and preventive measures against work accidents.

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### TL166-PREVALENCE OF BURNOUT SYNDROME AMONG OCCUPATIONAL PHYSICIANS IN PARANA, BRAZIL: ARE THERE DIFFERENCES AMONG MANAGERS AND PHYSICIANS WHO PROVIDE DIRECT PATIENT CARE AND/OR PERFORM MEDICAL LEGAL EXAMINATIONS?

Paulo Roberto Zetola; Viviane Flumignan Zétola; Giovana Memari Pavanelli; Gabriella Ueharo Pereira; Edevar Daniel

**Background:** Burnout syndrome is a psychological disorder caused by work-related stress, characterized by emotional exhaustion (EE), depersonalization (D) and reduced personal accomplishment (PA). **Objective:** To establish the prevalence of burnout syndrome among occupational physicians and compare it between physicians allocated to managerial tasks (G) and those who provide direct patient care and/or perform medical legal examinations (PE). **Methods:** Cross-sectional observational study with quantitative analysis performed with 96 occupational physicians in Parana, Brazil. We administered the Maslach Burnout Inventory–Human Services Survey and collected demographic data. **Results:** About 39.6% of the participants met the criteria for burnout syndrome, of whom 52.6% were female and 76.7% PE. About 32.3% of G and 43.1% of PE met the criteria for burnout syndrome ( $p > 0.05$ ). G exhibited higher levels of EE and D and poorer PA ( $p > 0.05$ ). There was directly proportional relationship between PA and age ( $p < 0.05$ ) for the total sample. **Conclusion:** The frequency of burnout syndrome was low, which disagrees from the reports in the literature. Older physicians reported higher levels of personal accomplishment, which finding corroborates the results of other studies. Our hypothesis was that there would be difference in the frequency of burnout syndrome as a function of the tasks

performed by occupational physicians, which we failed to confirm. Occupational medicine is a recent and growing specialty, which situation makes more thorough investigation of burnout among occupational physicians necessary.

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### TL167 - WORKING CONDITIONS OF MOTORCYCLE TAXI DRIVERS IN MANAUS, AMAZONAS, BRAZIL

Anderson Lincoln Vital da Silva

**Objective:** To investigate the working conditions of motorcycle taxi drivers in Manaus, Amazonas, Brazil, and risks associated with work outdoors. In particular, we sought to establish the socioeconomic profile of this population of workers to discuss the relationship between work and urban conditions as determinants of income and working conditions. We finally sought to understand subjective perceptions of environmental health from the perspective of everyday activities. **Methods:** Data were collected in semi-structured interviews with 25 participants (all male) conducted at motorcycle taxi stands. Analysis was performed by means of Bardin's content analysis technique. **Results:** Most participants were young adults, within age range 20 to 40 years old, with complete secondary school, single and with children. 64% of the participants worked up to 12 hours/day, income was about BRL 2,000.00; only 20% paid the social security tax. While some equipment is mandatory, helmets was the only piece worn by all the participants. **Conclusion:** As a function of their working conditions, motorcycle taxi drivers are exposed to long working hours, weather changes, fatigue and traffic violence.

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### TL168 - RISK OF ROBBERY AND REPERCUSSION ON THE HEALTH OF BUS DRIVERS AND FARE COLLECTORS IN THE SALVADOR METROPOLITAN AREA, BAHIA, BRAZIL

Cristiane Maria Galvão Barbosa; André Luis Santiago Maia; Gecynalda Soares da S. Gomes; Marcos Paiva Matos; Suerda Fortaleza de Souza

**Introduction:** In addition to hazards inherent to their job, bus drivers and fare collectors are also exposed to urban

violence. **Objective:** To analyze exposure to and impact of robbery among bus drivers (BD) and fare collectors (FC). **Methods:** 1,297 participants (795 BD and 502 FC) selected by convenience sampling responded an *ad hoc* questionnaire to investigate exposure to violence and health problems. **Results:** 99.6% of BD and 86.5% of FC were male; the average age of the participants was BD 41.8 ( $\pm 8.8$ ) and FC 39.8 ( $\pm 9.5$ ) years old. Most BD (96%) and FC (95.2%) reported to be exposed to robbery and stress; 30.2% of BD and 28.7% of FC reported having been robbery victims in the past year, but less than 1% underwent medical and/or psychological assessment. Both groups reported stress-related health problems (BD: 93.7%, FC: 90.8%) and insomnia (BD: 34.5%, FC: 31.5%) in the past 6 months. **Conclusion:** Fear of and actual robbery are part of the everyday experience of bus drivers and fare collectors in Salvador, Bahia, Brazil. This situation increases the psychological pressure to which these workers are subjected, with consequent effects on their health. Actions to control fear of robbers and individual care of victims are a challenge to occupational health management in regard to this category of workers.

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### TL169 - IMPACT OF WORKPLACE-RELATED ILLNESS AMONG EMPLOYEES OF A PUBLIC FEDERAL LEARNING INSTITUTION

Tirze Barbalho Krolls; Diego Guedes R. dos Santos;

**Objective:** Our aim is to make a theoretical reflection, based on data extracted from the literature, on the possible causes of illness and its impacts on the work of employees of Federal Rural University of Pernambuco (UFRPE). **Methods:** Literature review and survey of secondary data on sickness absenteeism obtained from the Federal Civil Servant Healthcare Integrated System (SIASS) database, more particularly, records of medical certificates homologated by UFRPE medical legal experts since 2016. We also analyzed data collected from medical records at UFRPE occupational medicine outpatient clinic (2016–2018). **Conclusion:** Indicators of mental and musculoskeletal disorders might be seen as hints pointing to situations which should be more exhaustively investigated and which might become the subject of more thorough study in the future.

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## TL170 - DEATH ANALYSIS COMMITTEE: A STRATEGY TO DEAL WITH WORK ACCIDENTS

Paulo Roberto R. W. de Negreiros Filho; Andrea Figueiredo Saporiti; Liliane Graça Santana;

**Background:** One worker dies every 3 days in consequence of work accidents in Espírito Santo, Brazil, with a rate of about 37 work accidents/day. Given these alarming numbers, the need for a committee integrating several institutions and trade unions separately involved in the analysis of work accidents was felt. **Objective:** To create an inter-institutional and multiprofessional committee with ethical, technical, scientific, educational and consulting nature to prevent determinants of work-related deaths and amputations. **Methods:** Initially the committee meetings involved the Occupational

Health Surveillance Unit (Núcleo de Vigilância em Saúde do Trabalhador–NEVISAT) in partnership with the occupational health department of the Municipal Government of Vitoria. Later on, a further partnership with the Labor Prosecutor Office resulted in about 20 additional members and the establishment of the committee statutes. **Results:** A flow of information necessary for investigating work-related deaths and accidents was designed, a protocol for investigation was created and two training courses on death investigation were taught. The work of the committee enabled sharing information on work accidents and discussions on — currently so much necessary — promotion and preventive actions from several perspectives, likely to improve the effectiveness of occupational health actions. **Conclusion:** The creation of a space for inter-institutional discussion involving several institutions and trade unions seems to be a possible and necessary path to deal with serious public health problems, such as work-related deaths and accidents.