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### CHRONIC CADMIUM INTOXICATION WITH RENAL INJURY AMONG WORKERS IN A SMALL-SCLAED SILVER SOLDERING COMPANY

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10.1136/oemed-2018-ICOHabstracts.1035

**Introduction** Cadmium exposure may induce chronic intoxication with renal damage. Silver soldering may be a source of cadmium exposure.

**Methods** We analysed working environment measurement data and periodic health screening data from a small silver soldering company with ten workers. Concentrations of cadmium in air from working environment measurement data were obtained. Concentrations of blood and urinary cadmium, urine protein and urine beta2microglobulin (B2M) were obtained. We used generalised linear model to identify the association between blood and urine cadmium and urine B2M. Clinical features of chronic cadmium intoxication focused with toxicological renal effects were described.

**Results** Mean duration of work was 9.7 years (range 3~20 years). Cadmium concentrations in air were ranged from 0.006 to 0.015 mg/m<sup>3</sup>. Blood cadmium was elevated in all ten workers with highest level of 34.5 µg/dL. Urinary cadmium was elevated in nine workers with highest level of 63.0 µg/g Cr. Urine B2M was elevated in three workers. Urinary cadmium was positively associated with urine protein (beta coefficient 10.27, 95% confidence interval [CI] 4.36, 16.18), while blood cadmium was not significantly associated with urine protein (beta coefficient 1.37, 95% CI: 10.00 to 7.28). Electron microscopic findings and other clinical parameters were compatible with renal tubular damage.

**Conclusion** Cadmium intoxication may occur at quite low air concentrations. Exposure limit may be needed to be lowered

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### CHEMICAL CONTAMINATION: BENZENE IN BRAZIL

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10.1136/oemed-2018-ICOHabstracts.1036

**Introduction** Pathogenicity of benzene was identified in the late nineteenth century. The number and kinds of morbidities related to this substance has been growing ever since due to their continuous and intensive use and the clinical and epidemiological investigations carried along during this period. The trajectory of the use of this substance and related findings of diseases caused by benzene occupational exposition combined with the progressive displacement of typical activities on steel, petrochemical, chemical and oil industry from core countries to peripherals was recovered.

**Methods** A historic review was conducted to build a narrative capable of revealing connexions between globalisation and disease prevention in peripheral countries. Scientific literature was used for international experience. Brazilian experience was reviewed by official documents and local investigations.

**Results** Several situations repeated themselves in countries of later industrialization. Benzene exposure can be divided in four periods. First one with little use and almost without

reported cases. A second when use of benzene increases significantly and exposure is more important: this is a moment in which several cases of bone marrow aplasia were reported; in Brazil, in spite of high levels of exposure, diagnosis are practically absent. A third with prohibition of benzene in solvents and a reduction in environmental concentrations, but at levels relatively high and a change in the morbid-mortality pattern with leukaemia being very valued. In the fourth period occupational exposure are even more reduced and environmental exposure to Volatile Organic Components, group in which benzene is included, turns to be a marked discussion, approaching definitively these two questions. Haematological cancer becomes the most important discussion then.

**Conclusion** Peripheral countries have impact with technology transfers but are not able to perform adequate health surveillance as should be required especially with regard to the diagnosis and follow-up of sick workers

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### CURRENT SITUATION ON THE HYGIENE MANAGEMENT OF LOCAL GOVERNMENT FOR PREVENTING ASBESTOS DISPERSAL DURING BUILDING DEMOLITION

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10.1136/oemed-2018-ICOHabstracts.1037

**Introduction** The aim of this study is to improve the level of the hygiene management at asbestos demolition site. For this aim, we conducted a questionnaire survey to understand the differences in local governments' efforts towards to the hygiene management. We consider that a good example of a local government must be a reference to others. Now, it is banned to use asbestos and asbestos-containing materials except temporary exemption for some uses. Asbestos survey and removal before the demolition of buildings are requested by the law. Measurement asbestos concentration in the air during the demolition is also requested. However, some cases were found where asbestos surveys were not perfect. Furthermore, asbestos dispersal in the demolition was confirmed in some cases. We would like to prevent the dispersal of asbestos into general environment.

**Methods** We have conducted a questionnaire survey among 159 local governments that make onsite inspection at the time of the demolition.

**Result** Our analysis focuses mainly on how the system of the local government influences onsite inspection at the time of the demolition. The result of this survey shows current situation of onsite inspection (check with eyes, measurement of asbestos concentration in the air, instruction to demolition stuffs). In addition, we have made a study of the suitable asbestos measurement method adjusted to the demolition site. We also have considered cost-effectiveness of dispersal of asbestos.

**Discussion** One of our key findings is difficulty of that all demolition sites are made onsite inspection by the local governments in the current government system. On the other hand, some local government make onsite inspection to all demolition sites with good systems and methods. We hope that these good systems and methods should be shared to other local governments