

SCIENTIFIC SESSION I
Ramazzini in the time of Covid I

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Ramazzini in the Time of COVID-19 - Duty of Care and Prevention Failures

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Background: Even as the planet is brought to its collective knees by a novel corona virus pandemic, some familiar public health failures are regrettably evident. Inadequate preparation for this pandemic, long predicted by public health experts, resulted from chronic underfunding of public health capacity in both well- resourced and limited-resource countries.

Methods/Approach: Key observations, identified in the Collegium Ramazzini Statement on Work-related Covid-19 infection will be presented in this session.

Results: The spread of Covid-19 is closely related to work. In both direct and indirect ways, occupation influences risk. Work-related exposure to the covid virus played an important role in its spread globally with the health workforce and public- facing workers and those in crowded conditions differentially targeted (Lan, 2020). The employer's 'duty of care' toward worker safety was lacking in the promotion of perilous work and failure to provide PPE. Environmental exposures were seen to exacerbate Covid-19 disease severity through both personal choice, such as smoking (Vardavas,2020) and from ambient environmental pollutants (Ogen, 2020) increasing both morbidity and mortality of covid patients. Important medical care and public health activities were also suspended, including cancer treatment and vaccination campaigns, causing other unintended harm to population health.

Conclusions: These perilous outcomes arise from systematic public health neglect and were largely preventable.

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Situation of COVID-19 infection and occupational health and safety (OHS) measures in Thailand

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Introduction: The pandemic of COVID-19 infection is the worst public health problem worldwide. In Thailand, most of cases are among working populations. The aims of this study are to describe the situation of the disease among this group and currently implemented preventive and control measures.

Methods: The data from the Situation Awareness Team under the Department of Disease Control (DDC) were collected and analysed in September 2020. The Monitoring and Evaluation Team under DDC also conducted a rapid survey to identify any measures enterprises had implemented to protect their employees from the disease. The checklists were applied from the ILO guideline¹. The survey was conducted via an on-line questionnaire using Google Form and sent to enterprises and the network of safety officers during 13-17 April 2020.

Results: The total number of cases was 3,447 cases (5.18 per 100,000 population). Most cases (83.6%) were between 20-59 years old. The top 5 occupations among cases included general freelance/temporary jobs (18.3%), trade (small shop) (13.8%), hotel services (11.4%), working in entertainment sectors e.g. pubs/bars, etc. (7.38%), and government services (6.38%). Ninety-six health workers (2.86% of all cases) were infected from their work. Regarding the rapid survey, 101 samples responded. Almost all enterprises reported having a policy and implementation of preventive and control measures. Implemented measures included information sharing (99%), health screening of their workers (97%), work arrangement, e.g., work from home (75.2%), area arrangement for work/social distancing (81.2%), ventilation improvement (59.4%), and provision of masks (100%).

Discussions and Conclusions: Until now, Thailand has had a lower number of COVID-19 infections than other countries. Occupations, especially working with or contact with foreigners and working in a high density of people, are high-risk factors. Several enterprises had implemented preventive and control measures. Prompt policy advocacy, knowledge-based recommendations and communication with target groups are essential.

Reference: 1) Kawakami T. Protecting Your Employees and Business from Pandemic Human Influenza: Action manual for small and medium-sized enterprises. Avian and Human Influenza in the Workplace (Thailand) Project. Subregional Office for East Asia. International Labour Organization. 2009.

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The Consequences of the COVID-19 Pandemic in Occupational Health in Ecuador

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Background: The pandemic has severely affected Ecuador. Although the country quarantined the same day the World Health Organization declared COVID-19 a global pandemic, the subsequent government's response was slow and ineffective.

Methods/Approach: We have documented the effects of the pandemic in Ecuador as well as the response by the government, local municipalities, unions, academia, non-governmental organizations, and community groups.

Results: By the beginning of August 2020, the number of confirmed COVID-19 infections reached over 83,000, with over 9,400 deaths. Lack of medical supplies and personal protective equipment (PPE), accusations of corruption in the purchase of medical supplies and PPE, and lack of testing have led to over 5,000 infections in health-care workers. The protection of workers has been ignored, and exposures to healthcare workers, police officers, taxi drivers, and other essential workers continue to be out of control.

Conclusion: Internal and external pressures to “reopen” the country and “reactivate the economy” have led to a collapse of the major cities' public healthcare system. Simultaneously, the number of infections continues to rise throughout the country, as new cities become hot spots of this new disease. The social, occupational, economic, and political consequences of the COVID-19 pandemic in Ecuador are devastating and will endure beyond the discovery of a vaccine.

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The role of air pollution and meteorological factors in COVID-19 incidence and excess mortality: the case of Lombardy, Italy

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Introduction: An emerging evidence is being published on the role of air pollution and meteorological factors on COVID-19 incidence, and mortality. Lombardy is the most populated and industrialized Italian region and one of the areas with the highest levels of air pollutants in Europe. In March and April 2020, Lombardy was the epicentre of the first wave of COVID-19 pandemic in Italy, experiencing extremely high incidence and mortality rates. An ecological study was conducted to investigate the role of demographic, socioeconomic and community variables, meteorological factors, and long-term average exposure data on environmental particulate matter (PM) on COVID-19 incidence and all-cause mortality.

Methods: Publicly available data were collected at the Municipality-level and obtained from databases of regional and national sources. Statistical analysis was conducted using multivariable negative binomial mixed regression models were fitted, and results were reported as incidence rate ratios (IRRs) and standardized mortality ratios (SMR). The effect of winter temperature and humidity was modelled through restricted cubic spline.

Results: Data from 1439 municipalities out of 1507 (95%) were included in the analyses, leading to a total of 61,377 COVID-19 cases and 40,401 deaths from all-causes collected from February 20th to April 16th and from March 1st to April 30th, 2020, respectively. Demographic and socioeconomic variables resulted significantly associated with COVID-19 incidence and all-cause mortality in a multivariable fashion. An increase in average winter temperature was associated with a nonlinear decrease in COVID-19 incidence and all-cause mortality, while an opposite trend emerged for the absolute humidity. An increase of 10 $\mu\text{g}/\text{m}^3$ in the mean annual concentrations of $\text{PM}_{2.5}$ and PM_{10} over the previous years was associated with a 58% and 34% increase in COVID-19 incidence rate, respectively. Similarly, a 10 $\mu\text{g}/\text{m}^3$ increase of annual mean $\text{PM}_{2.5}$ concentration was associated with a 23% increase in all-cause mortality. An inverse association was found between NO_2 levels and COVID-19 incidence and all-cause mortality.

Conclusions: This ecological study showed that exposure to PM was significantly associated with the COVID-19 incidence and excess mortality during the first wave of the outbreak in Lombardy, Italy. These results support international data, indicating the need of air pollution control to further prevent the health impacts of COVID-19 pandemic.

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Dr. Lucchini is an MD, Professor of Occupational and Environmental Medicine with main research interest on neurotoxicology of metals. From 2012 to 2019 he was the Director of the World Trade Center Health Program Data Center, and developed an expertise on epidemiological health surveillance based on the WTC cohort of 9/11 responders.

