

**SCIENTIFIC SESSION V**  
**Work of the Fellows (Oral)**

1. Mortality from silicosis in Brazil: Temporal trends in the period 1980-2017 *Eduardo Algranti, Brazil*
- 2.. Radiographic changes in Colombian asbestos factory workers *Arthur Frank, USA*
3. Severe silicosis outbreak in engineered stone fabrication workers - U.S. perspectives *Robert Harrison, USA*
4. The first announcement of establishing The Japan Association of Occupational Health Law *Fujio Kayama, Japan*
5. The triumph of doubt: Dark money and the science of deception *David Michaels, USA*
6. Potential role of Army Medical Forces in fighting cancer: An untapped resource *Pier Giorgio Natali, Italy*
7. Sibaté, Colombia: Another asbestos induced public-health crisis *Juan Pablo Ramos-Bonilla, Columbia*

## Mortality from silicosis in Brazil: Temporal trends in the period 1980-2017

*Eduardo Algranti*<sup>1\*</sup>, *Cézar Akiyoshi Saito*<sup>2</sup>, *Ana Paula Scalia Carneiro*<sup>3</sup>, *Marco Antonio Bussacos*<sup>4</sup>

<sup>1</sup>FUNDACENTRO, São Paulo, Brazil; <sup>2</sup>FUNDACENTRO, São Paulo, Brazil; <sup>3</sup>Workers' Health Service of the Clinics Hospital of Federal University of Minas Gerais, Belo Horizonte, Brazil; <sup>4</sup>FUNDACENTRO, São Paulo, Brazil

*Background:* Silicosis is the main pneumoconiosis in Brazil. In 2002 a national programme to eliminate silicosis was launched, ending in 2017. The aim of this study is to calculate mortality rates, to analyze temporal trends, and to identify mortality clustering from silicosis.

*Methods:* Records from silicosis as the underlying cause of death in adults 20 years of age and over were extracted from the Brazilian Mortality Database (SIM) in the period 1980-2017. Age-standardized mortality rates (ASMR) were calculated. The annual trend in ASMR was analyzed by joinpoint regression. Municipalities were ranked according to mortality rates per 100,000 person-years. Temporal trends according to activity branches were analyzed by merging deaths in municipalities with similar profiles.

*Results:* There were 3,164 deaths records (96.6% men) distributed in 14% Brazilian municipalities. Mean age of death was 59.2 (SD 15.1) and mean ASMR was 0.085/100,000 (CI 0.080-0.091). A joinpoint regression showed one inflection point with a significant increase in the ASMR from 1980 until 2006 and a significant decrease after 2006, the latter driven by a decrease in deaths under the age of 70 years. Mean age of death increased from 56.0 years in 1980 to 64.1 years in 2017. The highest mortality per 100,000 person-years were observed in municipalities known to have activities of small mining operations of precious/semi-precious stones or stone carving, ranging from 1.45 to 21.83, in gold mining (0.76 to 18.36), in sand mining (0.34 to 13.92), in ceramic industries (0.36 to 6.91) and in pit digging (0.87 to 3.07).

*Conclusions:* In contrast with developed countries, mortality from silicosis rose until 2006 when it started to drop, mostly from a plateau/decrease in deaths occurring in municipalities harboring regulated economic activities. However, this was not reflected in the older age group and in the unregulated sector.

---

**\* Presenting author profile:**

Eduardo Algranti- E-mail: eduardo@fundacentro.gov.br

Dr. Algranti is chief of the Division of Medicine, FUNDACENTRO in São Paulo Brazil where he works since 1984, mainly focused in the clinical and epidemiological aspects of occupational respiratory diseases. At present his main interests are on the burden of asbestos and silica-related diseases in Brazil.

## Radigraphic Changes in Colombian Asbestos Factory Workers

*Arthur Frank*<sup>1\*</sup>

<sup>1</sup>Drexel University School of Public Health, Philadelphia PA, USA

*Background:* Colombia has recently banned the mining ,use and sale of asbestos but much of it has been used to primarily make cement and friction products.

*Objective:* To determine if the use of chrysotile asbestos in friction products gave rise to disease. Methods: 148 workers had x-rays taken.

*Results:* 19 of 148 workers had changes consistent with exposure to asbestos.

*Conclusion:* Colombian workers develop disease as has been documented elsewhere around the world.

---

**\* Presenting author profile:**

Arthur Frank- E-mail: [alf13@drexel.edu](mailto:alf13@drexel.edu)

Dr.Frank is an occupational physician who has specialized in the study of asbestos disease.

## Severe silicosis outbreak in engineered stone fabrication workers - U.S. perspectives

Robert Harrison<sup>1\*</sup>, Cecile Rose<sup>2</sup>, Ketki Pate<sup>3</sup>, Coralynn Sack<sup>4</sup>

<sup>1</sup>California Department of Public Health and University of California, San Francisco CA USA; <sup>2</sup>National Jewish Health University of Colorado, Denver CO USA; <sup>3</sup>Texas Department of State Health Services, Austin TX USA; <sup>4</sup>University of Washington, Seattle WA USA

*Background:* The emergence in the mid-1980s of silica-containing engineered stone products for residential and commercial countertops has led to multiple outbreaks of severe silicosis among fabrication workers in several countries, including Israel, Spain and Australia. This presentation details the largest outbreak of silicosis among these workers found to date in the US, highlighting the urgent need to identify stone fabrication workers at risk and prevent further excess exposure to silica dust.

*Methods:* Investigators from four States identified cases of silicosis among engineered stone fabrication workers through hospital discharge records and follow-up medical testing (California); review of electronic medical records in the practice of a physician specializing in occupational lung disease (Colorado); reports to the public health department in workers at an engineered stone countertop manufacturing and fabrication facility (Texas); and review of workers compensation claims data (Washington). All cases were confirmed based on chest computerized tomography (CT) scan or lung biopsy findings.

*Results:* Eighteen (18) cases of silicosis, including two fatalities, were identified among stone fabrication workers who worked principally with engineered stone materials. Many of the workers (10/18) were under age 50, with severe, progressive disease. Two of the patients had latent TB infection, and five had concurrent autoimmune disease.

*Conclusions:* In the U.S., stone fabrication shops are typically small businesses; workers in these shops are often Hispanic immigrants, who may be especially vulnerable to workplace health hazards. It is critical that stone fabrication employers monitor and control dust exposures in compliance with silica standards and provide respiratory medical examinations for all employees who are or have been exposed to silica dust. Employers and health care providers should notify appropriate public health agencies of any silicosis cases that are identified. Comprehensive occupational lung disease surveillance and regulatory enforcement are crucial to address this emerging silicosis threat.

---

### \* Presenting author profile:

Robert Harrison - E-mail: robert.harrison@ucsf.edu

Dr. Harrison is Public Health Medical Officer at the California Department of Public Health and Clinical Professor of Medicine in the Division of Occupational and Environmental Medicine at the University of California, San Francisco. He collects and analyzes work-related injury and illness data, and investigates outbreaks of occupational diseases in California

## The first announcement of establishing The Japan Association of Occupational Health Law

Fujio Kayama<sup>1\*</sup>, Shigeya Nakajima<sup>2</sup>, Katsutoshi Tanaka<sup>3</sup>, Nobuo Kuroki<sup>4</sup>, Koji Mori<sup>5</sup>, Takenori Mishiba<sup>6</sup>

<sup>1</sup>Jichi Medical University, Shimotsuke, Japan; <sup>2</sup>Sophia University, Tokyo, Japan; <sup>3</sup>Kitasato University, Tokyo, Japan; <sup>4</sup>Toho University, Tokyo, Japan; <sup>5</sup>University of Occupational and Environmental Health, Kitakyushu, Japan; <sup>6</sup>Kindai University, Kinokawa, Japan

*Background:* In 2018, approximately 1,000 work-related suicide cases were reported, but only 100 cases were compensated by Industrial Accident Compensation Insurance. Hardworking Japanese workers suffers “Karoshi”, or death by overwork, including suicide; cardio-cerebral vascular diseases have risen recently. The government promulgated several measures such as an annual worker’s stress check in 2015 to improve employees’ awareness of their own physical and mental stresses. However, the number of lawsuits related to occupational diseases has been rapidly increasing in Japan.

*Approach:* Professor Takenori Mishiba initiated workshops on occupational health law in 2012 for industrial physicians, certified social insurance labor consultants, lawyers, counselors, and company personnel in charge of human resources. Topics covered included the legal issues of occupational health disorders such as mental health, harassment and work-related diseases.

*Results:* The workshop secretariat has issued certified credits in the specialty of occupational health law to approximately 800 participants. We decided to establish an association of these multidisciplinary stakeholders to pursuit research in the past legal suits and to disseminate the past lessons to human resources management sectors for the sake of prevention of legal dispute among employers, employees and other stakeholders related in occupation health problems.

*Conclusions:* We will establish an academic association named the Japan Association of Occupational Health Law in November 2020. International exchanges of information and collaboration are highly welcomed for establishing academic body of knowledge in occupational health law.

---

### \* Presenting author profile:

Fujio Kayama- E-mail: kayamafujio@gmail.com

Fujio Kayama M.D., Ph.D. graduated from University of Occupational and Environmental Health and was a postdoctoral fellow at NIH/NIEHS in 1991-1993. Dr. Kayama is currently a professor emeritus of Jichi Medical University, a toxicologist and epidemiologist in the field of food safety. He was an initial organizer of the Japan Environment and Children Study and serves as a vice-chair, Board of Directors of the Pacific Basin Consortium for Environment and Health.

## The triumph of doubt: Dark money and the science of deception

David Michaels<sup>1\*</sup>

<sup>1</sup> George Washington University, Washington DC USA

*Background:* “Product defense” experts employed by polluters and manufacturers of dangerous chemicals have applied the tobacco industry’s strategy of manufacturing scientific uncertainty to impede public health and environmental protections and defeat claims of compensation for victims. Far from acknowledging products cause harm, it is now standard corporate practice to deny and defend, hiring consulting scientists and economists.

In the current US administration, polluters and manufacturers of dangerous products have a great deal more power. Rollbacks in environmental public health protections are occurring.

*Approach:* We need to rebuild our system of public health protection. It is an opportunity to reimagine how it could be made more effective and make better use of scientific evidence.

*Results:* We must strengthen the evidence base for public health and environmental protections, including complete disclosure of research funding and control of research by independent scientists. We must build a research infrastructure in which corporations pay for the research into the potential harms of their products, but do not control any aspect of that research. The structures and policies that protect the integrity of this evidence base should preclude studies paid for by or through attorneys on behalf of a client, end rigged data re-analyses and rely on unconflicted scientists for data syntheses.

*Conclusions:* It is important to explore and implement programs and policies that discourage irresponsible corporate behavior. Voluntary guidelines and self-certification may be useful but have not been adequately evaluated. Litigation, especially class-action suits, can also drive corporations to act more responsibly. Many laws place the burden on public health agencies to prove the danger before acting to protect the public. The presumption of innocence should not apply to chemicals and other products that might be reasonably predicted to be harmful. Waiting for proof of harm before acting will too often permit harm to occur.

---

**\* Presenting author profile:**

David Michaels - E-mail: drdavidmichaels@gmail.com

Dr. Michaels is an epidemiologist and Professor at George Washington University. He was US Assistant Secretary of Labor for Occupational Safety and Health from 2009 to 2017, the longest serving in OSHA’s history. From 1998 to 2001, he was US Assistant Secretary of Energy for Environment, Safety and Health, charged with protecting the workers, community residents and environment in and around the nation’s nuclear weapons facilities.

## Potential role of Army Medical Forces in fighting cancer: An untapped resource

Pier G Natali<sup>1\*</sup>, Maisam Akroush<sup>2</sup>

<sup>1</sup> Mediterranean Task Force for Cancer Control, Rome, Italy; <sup>2</sup> Mediterranean Task Force for Cancer Control, Amman, Jordan

*Background:* An appreciation that military medicine can support global health is growing in many countries which are recognizing the military as an ideal partner in such civil activities. However, attempts to explore strategies to govern military engagement in civil public health activities are limited. Understanding how to guide and govern military activities in public health can aid in achieving a balance between military and civilian global health capacities relevant nationally and at a global level.

*Methods:* Using the example of Non-Communicable Diseases (NCDs), cancer has been recognized by the United Nations as a Global Emergency. In this context, prevention, in conjunction with early diagnosis, is recommended as a priority strategy. This is especially significant in view of the diminishing economic resources and increasing economic burden of treating advanced disease. However, arguing the economic cost of treatment is wrongly placed since the largest proportion of the most commonly occurring tumors can be efficiently prevented and diagnosed at early, curable stages with enormous costs saving. Thus, dissemination of policies which translate and implement effective preventive interventions into practice is critical.

*Results:* Since 2015, the Mediterranean Task Force for Cancer Control (MTCC) has recognized the lack of cancer prevention and early detection efforts in the Mediterranean region as it developed its founding strategy. MTCC recognizes also that military doctors could become valuable supportive partners of their civilian counterparts in cancer control. In this way, the power of anticipatory (preventive) care is likely to be significantly enforced to counter the foreseen increasing cancer burden .

*Conclusion:* Thus, efforts should be devoted to enriching military medicine missions by widening its defense and security commitments to better include those of humanitarian and civil society.

---

### \* Presenting author profile:

Pier Giorgio Natali- E-mail: natalipg2002@yahoo.it

Pier Giorgio Natali developed his scientific career at the “Regina Elena” National Cancer Institute where he was also Scientific Director (1995-2001) focusing his work on laboratory and clinical studies and translational medicine, including the areas of cancer prevention and public awareness. He is the former President of the Italian Cancer Society and is currently Secretary General of the Mediterranean Task Force for Cancer Control (MTCC). He is on the Advisory Board of the Collegium Ramazzini Journal.

## Sibaté, Colombia: Another asbestos induced public-health crisis

Juan Pablo Ramos-Bonilla<sup>1</sup>, María Fernanda Cely-García<sup>1</sup>, Margarita Giraldo<sup>1</sup>, Pietro Comba<sup>2</sup>, Benedetto Terracini<sup>3</sup>, Roberto Pasetto<sup>2</sup>, Daniela Marsili<sup>2</sup>, Valeria Ascoli<sup>4</sup>, Benjamin Lysaniuk<sup>5</sup>, María Camila Rodríguez<sup>1</sup>, Agata Mazzeo<sup>6</sup>, Rocio del Pilar López Panqueva<sup>7</sup>, Margarita Baldión<sup>7</sup>, Diana Cañón<sup>7</sup>, Luis Gerardo García-Herreros<sup>7</sup>, Bibiana Pinzón<sup>7</sup>, Luis Jorge Hernández<sup>1</sup>, Yordi Alejandro Silva<sup>1</sup>, Corrado Magnani<sup>8,9</sup>

<sup>1</sup>Universidad de los Andes, Bogotá, Colombia; <sup>2</sup>Istituto Superiore di Sanità, Rome, Italy; <sup>3</sup>University of Turin (Now Retired), Turin, Italy; <sup>4</sup>“Sapienza” University of Rome, Rome, Italy; <sup>5</sup>IRD/UMR Prodig, Paris, France; <sup>6</sup>University of Bologna, Bologna, Italy; <sup>7</sup>Fundación Santa Fe de Bogotá, Bogotá, Colombia; <sup>8</sup>Università del Piemonte Orientale, Novara, Italy; <sup>9</sup>AOU Maggiore della Carità e CPO-Piemonte, Novara, Italy

**Background:** Sibaté is a 40,000-inhabitant municipality located 25 km southwest from Bogotá, the capital of Colombia. In 1942 the first asbestos cement facility of the country was built in Sibaté. Inhabitants of Sibaté have perceived an unusual large number of asbestos related diseased cases diagnosed over the years. Inhabitants have also reported the construction of landfill zones with asbestos-cement residues in the urban area of Sibaté. In 2015, a study was initiated to analyze the situation in Sibaté.

**Methods:** Based on the information collected from 355 door-to-door surveys, 29 mesothelioma case reports were identified. Copies of the medical record of 17 of the 29 case reports were obtained, which were subsequently evaluated by a panel of six physicians. Landfill zones were identified using topographic maps, aerial photographs, and satellite images, was complemented with information collected in two participatory workshops engaging the residents. Soil samples were collected on the identified landfill zones.

**Results:** The panel of physicians classified 15 mesothelioma cases as Certain, one as Probable, and one as Not Mesothelioma. Focusing on cases diagnosed while living in Sibaté between 2008 and 2017 (i.e., 6 males, 3 females), the age standardized incidence rate for Sibaté was  $3.1 \times 10^{-5}$  persons-year for males and  $1.6 \times 10^{-5}$  persons-year for females. Both incidence rates are among the highest when compared with the same indicators in Colombian and worldwide cancer incidence registries or in other areas affected by asbestos exposure. Soil samples confirmed the presence of a friable asbestos buried in the landfill zones.

**Conclusions:** The evidence supports the existence of a mesothelioma cluster in Sibaté, with most of the cases experiencing non-occupational asbestos exposure. During the construction of landfill zones, relevant asbestos exposures of the general population of Sibaté may have occurred.

### \* Presenting author profile:

Juan Pablo Ramos-Bonilla- E-mail: jramos@uniandes.edu.co

Dr. Ramos-Bonilla is Associate Professor in the Department of Civil and Environmental Engineering at Universidad de los Andes in Bogotá, Colombia, where he has led research projects analyzing occupational and environmental health risks resulting from asbestos use. He has also conducted projects to determine the potential health impacts of criteria air pollutants, chlorine pesticides and lead.

