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4<sup>th</sup> International Conference on

# Epidemiology & Public Health

October 3-5, 2016 | London, UK

## Keynote Forum (Day 1)



*Epidemiology 2016*

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*Eduardo J Simoes*

University of Missouri School of Medicine, USA

## ONLINE PRIORITY HEALTH INDEX: A TOOL FOR PUBLIC HEALTH ACTION

Public health funds are limited and require data-informed prioritization. We developed a priority health index for diseases (PHI-DZ) to prioritize health issues for 27 Brazilian capital cities using 2000-2012 data from 12 indicators across 51 disease groups: number of deaths; number of hospitalizations; number of days hospitalized, number of deaths before age 70; potential years of life lost; number of deaths among those who were hospitalized, trend over time in the number of deaths; trend over time in the number of hospitalizations; the ratio of the number of deaths among persons with less than high school versus persons with high school or more education; the ratio of the number of hospitalizations among persons with less than high school versus persons with high school or more education; effectiveness of an intervention to prevent illness, injury or death; and cost of preventing and treating diseases per person. Since conducting PHI offline has limited use for the local public health practice, we further developed PHI-DZ into a web-based application for users to upload data and prioritize health issues. We integrated the use of a statistical engine into PHI-DZ application for data analysis. We identified fifteen priority diseases ranging from non-communicable diseases (e.g., heart disease), violence, motor vehicle accidents, and infant health issues to infectious-transmissible diseases. PHI is extendable to summarize data from hundreds of indicators across diseases and years for rapid prioritization of public health issues. Web-based PHI-DZ broadens its availability and convenience to facilitate local level prioritization and planning of public health funds.

### Biography

Eduardo J Simoes is Chair of the Department of Health Management and Informatics (HMI), Wesbury Professor and HMI Alumni Distinguished Professor -University of Missouri School of Medicine (2011-current). His degrees: medical from Faculdade de Medicina, Universidade de Pernambuco-Brazil (1976-1981), diploma & master of sciences from University of London School Of Hygiene Tropical Medicine (1986-1987) and master of public health from Emory University School of Public Health (1989-1991). He is a fellow of the American College of Epidemiology, reviewer and editor for 12 journals. He published over 100 peer-reviewed publications, eight book chapters and 18 reports. He presented in 150 conferences.

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## David J Galton

St. Bartholomew's Hospital, UK

### CLARIFYING 'COMPLEX' INHERITANCE; LEADS TO NEW THERAPIES FOR ATHEROSCLEROSIS

**D**r. A Garrod (1857-1936), a physician at St. Bartholomew's Hospital, discovered a group of diseases which he called the Inborn Errors of Metabolism; examples include phenylketonuria, familial hypercholesterolaemia, cystic fibrosis etc. There are now more than 8,000 documented in clinical practice but are usually rare. He also showed they were inherited in humans according to the Laws discovered by Gregor Mendel (1822-1884); that is by dominant or recessive inheritance with ratios of 3:1 for the two different traits in progeny of first cousin marriages. However his ideas did not apply to the inheritance of common metabolic disorders such as diabetes, gout or atherosclerosis which have an inherited basis but occur much more commonly than the inborn errors. He thought that there must be alternative modes of inheritance to Mendel's binomial concept which he called the liability (or susceptibility) to inherit these common diseases.

My talk will describe how these susceptibility genes were discovered, where they are located, what is their function, and why they are found so widespread throughout the genome. I will end with some clinical uses these susceptibility genes have provided.

#### Biography

David J Galton is Emeritus Professor at London University from the Departments of Molecular Genetics and Metabolism, St. Bartholomew's Hospital. He gained doctorates in Medicine (M.D. at the National Institutes of Health, USA) and in Science (D.Sc). Eight students from his Laboratory have become Professors. He has been Chairman of Clinical Science, Secretary of the European Atherosclerosis Society, and Vice-President of the Galton Institute London, amongst other administrative posts. He has published 8 books and written more than 250 research publications on genetics of human disease. He has served as consultant physician to St. Bartholomew's Hospital and Moorfield's Eye Hospital London.

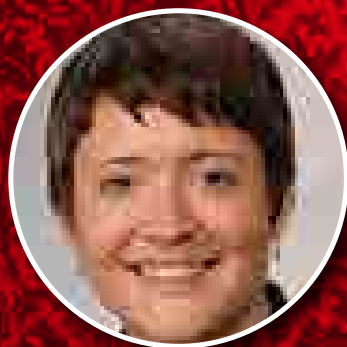
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## Laura Finn

Mayo Clinic, USA

### EPIDEMIOLOGY OF ADULT ACUTE MYELOID LEUKEMIA: IMPACT OF EXPOSURES ON CLINICAL PHENOTYPES AND OUTCOMES AFTER THERAPY

An increased risk of adult myeloid leukemia (AML) is associated with lifestyle and environmental exposures, including obesity, smoking, medications, and rural/farm habitats in case control studies. The association of exposures with AML cytogenetics, therapeutic outcomes, and survival is unknown. Relevant exposures were evaluated in 295 AML patients diagnosed and treated at Mayo Clinic. Our central cytogenetic laboratory reviewed standard cytogenetic categories. The association of exposures with cytogenetic risk, complete remission (CR) after therapy, and overall survival was evaluated using logistic and Cox regression models. A significant association between obesity and intermediate-abnormal cytogenetics was identified (OR: 1.94,  $P = 0.025$ ). Secondary AML patients were more likely to have poor risk (OR: 2.55,  $P < 0.001$ ) and less likely to have intermediate normal (OR: 0.48,  $P = 0.003$ ) cytogenetics. In multivariate analysis, overall survival was improved for patients  $\geq 60$  years receiving intensive (RR: 0.21,  $P < 0.001$ ) and non-intensive therapy (RR: 0.40,  $P < 0.001$ ) compared to no treatment, and was lower for smokers (RR 1.39,  $P = 0.032$ ), and those with poor risk cytogenetics (RR: 3.96,  $P = 0.002$ ) or poor performance status (RR: 1.69,  $P < 0.001$ ). Association between statins (OR: 2.89,  $P = 0.016$ ) and increased CR after intensive chemotherapy was identified. Solid organ transplantation was associated with lower CR after therapy (OR: 0.10,  $P = 0.035$ ). Our results provide evidence that specific epidemiologic exposures are significantly associated with AML cytogenetic risk categories and response to therapy. This supports a link between patient lifestyles, clinical exposures, and leukemogenesis.

#### Biography

Laura Finn is currently Associate Director of Inpatient Oncology at the Gail and Tom Benson Cancer Center of the Ochsner Health System in New Orleans, Louisiana. She completed residency at Louisiana State University, fellowship at Mayo Clinic Florida and bone marrow transplant scholarship at the University of Minnesota. She has an Assistant Professorship of Medicine from Mayo Clinic where she was also Medical Director of Inpatient Oncology. Her current research focuses are epidemiology of hematologic malignancies and early palliative care in acute leukemia and bone marrow transplant.

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## Keynote Forum (Day 2)



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*David Wroth*

Underwriters Laboratories, USA

## CORRELATION OF SOCIO-ECONOMIC FACTORS WITH UNINTENTIONAL INJURY

To prioritize investments in unintentional injury prevention programs, Underwriters Laboratories developed The UL Safety Index™. The Index is the quantification of the relative state of safety in 187 countries around the world. Based on societal drivers and outcomes related to unintentional injury, the Index measures the contributions of national resources and institutions, safety systems and frameworks and safety outcomes. Each of the potential Indicators and Drivers were analyzed for correlation with safety outcomes. Safety outcomes were computed using WHO DALY data, normalized by population. The analysis shows that all indicators exhibited a negative correlation with safety outcomes at a statistically significant level. The UL Safety Index offers insights into how safety works as a system, with diverse influences such as education and technology coupled with specific approaches such as codes, standards and enforcement of laws and regulations. This model and the research behind it supports the theory that, to improve safety, we must develop, implement and sustain a multi-layered, systems based approach. As such, the UL Safety Index can be used to support efforts by governments, safety professionals, policy makers, the private sector and non-governmental organizations to understand and prioritize actions to improve safety around the world. Investments in good government, education and economic development all correlate with fewer deaths and injuries from unintentional sources. Indeed, this strategy helps to create a mutually beneficial scenario, in which multiple positive outcomes result from investments in key development areas.

### Biography

David Wroth is a Director of Strategy and Operations for Underwriters Laboratories Inc., a 120-year-old safety science company, to identify opportunities to address safety issues across the globe. In this capacity, he analyzes data from disparate sources and provides a cohesive framework for research, development and deployment of solutions to safety issues in order to improve safe living and working environments for people. David received a Bachelor of Science in Nuclear Engineering from Purdue University and a Masters of Business Administration from Lake Forest Graduate School of Management.

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## Ling Liu

Healthy Environments & Consumer Safety Branch, Canada

### EXPOSURE TO AIR POLLUTANT EMISSIONS FROM INDUSTRIAL FACILITIES AND THE ASSOCIATED RISKS OF RESPIRATORY HOSPITAL ADMISSIONS OF YOUNG CHILDREN IN TWO CANADIAN PROVINCES

**Background:** Industrial plants are important emitters of air pollutants such as fine particles (PM<sub>2.5</sub>), sulfur dioxide (SO<sub>2</sub>) and nitrogen dioxide (NO<sub>2</sub>). But adverse health effects of industrial air pollution on children living nearby are not as well studied as those of urban air pollution resulting mostly from automotive transport.

**Objective:** We studied the associations between exposure to air pollutants emitted from oil refineries, metal smelters and pulp mills and hospital admissions for asthma and bronchiolitis in young children in Quebec (QC) and British Columbia (BC), Canada.

**Methods:** We defined industrial facilities emitting  $\geq 50$  tons per year as a major industrial plant. We used two types of estimates for children's exposure to industrial emissions: (1) Daily downwind exposure to emissions of PM<sub>2.5</sub>, SO<sub>2</sub>, or NO<sub>2</sub> from major pulp mills, oil refineries, and metal smelters. We calculated emission exposures at children's home, postal codes by multiplying estimated daily emissions from all nearby major industrial facilities (<7.5 km) with the percent of the day when each postal code was downwind. (2) Daily levels of these pollutants at centralized air pollutant monitoring stations. We collected 2002-2010 data of hospital admissions for asthma and bronchiolitis for children (aged 2-4 years) living within 7.5 km from a major industrial plant. We used a time-stratified case-crossover design and conditional regression models to analyze associations between children's exposure estimates and hospitalizations. We used meta-analysis to pool results from both provinces.

**Results:** Seventy-one major industries were selected for QC and BC. A total of 2868 cases of hospital admissions for asthma and bronchiolitis were included in our analyses. Although air pollutant levels were similar in two provinces, there were more cases living near a major industrial facility in QC than in BC (e.g. 2505 hospitalizations of children living near SO<sub>2</sub> industrial emitters in QC vs. 334 hospitalizations in BC). Mean downwind exposures across two provinces for PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> for all major industries combined were 0.17, 1.35, and 0.37 tons/day on case days. The risk estimates for exposure to refinery and smelter emissions were positive in QC but more variable in BC. For example, for an increase of 0.15 tons/day of PM<sub>2.5</sub> emissions in QC, the risk estimate was 13% (95% confidence interval: 0, 27%) for refinery, and 3% (95% confidence interval: -1%, 7%) for the smelter. Pooled results from both provinces show that for a 1.5 tons/day increase in exposure to SO<sub>2</sub> emissions from all sources, there was a 1% increase (95% confidence interval 0, 3%) in the risk of hospital admissions. Associations with measured pollutant levels were only seen in BC: Daily maximum SO<sub>2</sub> (interquartile range 6 ppb) near oil refineries was associated with 9% increase in the risk of hospitalizations (95% confidence interval 0, 19%); maximum NO<sub>2</sub> (interquartile range 9 ppb) from any industry was associated with 40% increase in the risk (95% confidence interval 10%, 78%).

**Conclusion:** Exposure to emissions of air pollutants emitted from petroleum refineries and metal smelters is associated with increased hospital admissions for wheezing diseases in young children.

#### Biography

Ling Liu is a tenured associate professor of epidemiology and biostatistics at Healthy Environments & Consumer Safety Branch, Canada. She serves as an academic advisor and chair for MPH and PhD students. Dr. Liu's research expertise is in cardiovascular disease and diabetes epidemiology with focusing on disease etiological study, the complex of multiple comorbidity, drug-diet interaction and pharmaco-epidemiology in aging, and global health.

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## Madhusudan B Jani

*Adani Institute of Medical Sciences, India*

### EXERCISE TRAINING IN COPD

COPD (Chronic Obstructive Pulmonary Disease) is associated with exercise & activity limitation, may result from, ventilator limitation, cardiovascular impairment-and/or skeletal muscle dysfunction. Persons with COPD and other chronic lung disease often experience barriers to normal functioning. Physical barriers include increased airway resistance, abnormal breathing mechanics - inadequate gas exchange, weakness of respiratory & skeletal muscles, diaphragmatic flattening, poor endurance & dyspnea. Emotional barriers include anxiety, depression & fear of dyspnea.

COPD is a difficult challenge. But -diagnostic methods, treatments and Pulmonary Rehabilitation (PR) techniques such as “Exercise Therapy” (ET) have advanced to the point that people are living productive life while managing their condition. Four major components of PR education, psychosocial / behavioral intervention outcome assessment & exercise training the “Core Component” of PR. Outcomes of ET/PR include improved respiratory system control, improved muscle function, exercise tolerance, quality of life, reduced respiratory hospitalizations & emergency room visits. ET it does improve, physical conditioning & improved, pacing results, increased walking distance with less, dyspnea emotional benefits e.g. less fear of dyspnea & desensitization to breathlessness leading to improved quality of life. ET reduces the number of hospitalizations and number of hospital days for patients with COPD.

Exercise has emerged as a “primary modality for the reversal of deconditioning & for improving quality of life for health as well as COPD”. Importantly, in contrast to “irreversible abnormalities of lung architecture and airflow obstruction, the structural, metabolic & physiologic skeletal muscle abnormalities of COPD can be improved by ET. ET can restore the patient to the highest level of functional capacity for any degree of ventilatory impairment. Exercise cannot reverse the physiological and structural deficits of COPD, but it can reduce disability by improving endurance, breathing efficiency, and dyspnea tolerance, especially in severely impaired patients. Patients need encouragement, may also need supplemental oxygen & treatment with bronchodilators, mucolytics, and/or corticosteroids. Patients who undergo for exercise training in COPD can often increase their work capacity 70% to 80% within 6 to 12 weeks.

### Biography

M B Jani, got the M Sc (Medical) & Ph. D degrees . in Physiology from Medical College, Baroda affiliated to Maharaja Sayajirao University of Baroda. He was head, Department of Physiology, Faculty of Medicine M S University of Baroda. He has UG & PG teaching experience of 34 years. His fields of research work are, exercise physiology, obesity, hypertension, and COPD. At present Dr. M B Jani is working as Professor, Department of Physiology, Gujarat Adani Institute of Medical Sciences, Bhuj, Gujarat, India

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## Gary Stephen Young

Cooper Medical School of Rowan University, USA

### SOCIOECONOMIC DEPRIVATION IN THE CAUSAL PATHWAY OF DISEASE

There is no widely accepted conceptual framework for incorporating social causation and the role of social factors in the biomedical physiological model that dominates contemporary epidemiology. Social epidemiology has contributed significant insights about the distribution of disease and poses fundamental questions about disease pathology. The social determinate of health literature emphasizes inequality across populations, but typically uses status measures (SES, SEP) rather than socioeconomic deprivation (SED) to account for variability in health outcomes. This paper views population vulnerability as the interaction of differential exposure and differential susceptibility related to SED. This paper reviews the sociology of SED and explores plausible mechanisms of the disease process related to SED. Two indices of SED (Townsend Index, Neighborhood Concentrated Disadvantage) are then used in three demonstrations of SED-related vulnerability: (a) differential exposure to hazardous air pollution among U.S census tracts (1999-2005); (b) differential susceptibility to cardiorespiratory hospitalization among the 566 towns in New Jersey (2000-2005); and (c) differential vulnerability to premature mortality among U.S counties (1999-2008). Findings include support for construct and convergent validity of SED measures, and statistically significant effects (beta coefficients) for SED after adjustment for population size and density: (a) greater environmental respiratory hazard exposure (.17) among U.S. census tracts; (b) higher respiratory (.89) and cardiovascular (1.9) hospitalization among NJ adults 25-64 years; and (c) increased premature all cause mortality (.44) among adults aged 35-64 in U.S counties. This paper demonstrates how sociological models of SED can be incorporated into epidemiology and advances understanding of social causation in the disease process.

### Biography

Young graduated from the Johns Hopkins Bloomberg School of Public Health as Master and Doctor of Public Health, with specialization in Epidemiology and Social Medicine. He also took a Master's degree in Sociology from Pennsylvania State University where he studied demography, biostatistics and quantitative research methods as a doctoral candidate. His research focuses on the distribution of air toxic exposure, neighborhood health effects, and vulnerability to chronic disease and health care disparities. He holds positions as Executive Vice President for Health Policy at Cooper University Health Care and Assistant Professor in the Department of Medicine of Cooper Medical School of Rowan University, where he is Director of the Center for Injury Epidemiology and Social Medicine.

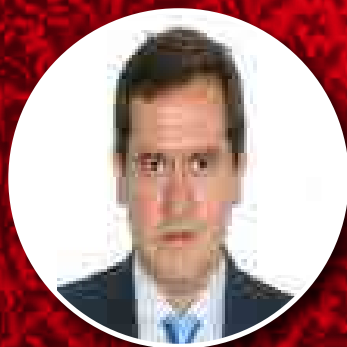
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## Roberto Antonio Flores

*National University of Santiago del Estero, Argentina*

### IMPACT OF THE ASSOCIATION OF SOME OF THE CARDIOVASCULAR RISK FACTORS IN PATIENTS WITH HYPERTENSION OUTPATIENT CLINIC

**Purpose:** The aim of this study was to obtain information related to the patients attending the outpatient clinic consultation, Medical Clinic with high blood pressure, and see how the presence of any risk factors for cardiovascular disease impacts the tension figures these hypertensive patients.

**Objectives:** General: Perform the control and monitoring of the hypertensive population and investigate the presence of some risk factors for cardiovascular disease. Specific: 1) Describe the hypertensive population that goes to the consultation. 2) Demonstrate the presence of some risk factors for cardiovascular disease such as smoking and physical inactivity, impact on the blood pressure in hypertensive patients said.

**Methods:** This is a quantitative, descriptive and transversal work, which began in October of 2015 ending in December 2015, registering the blood pressure and questioned about physical inactivity and smoking, in Office External Hospital. The variables studied were age, sex, sedentary lifestyle, smoking.

**Result:** The total number of consultations were 60. 180 controls blood pressure were recorded, the first control was discarded and the last two controls were averaged and were questioned about smoking and physical activity. The blood pressure were normal in 26 patients (44% of the sample), 34 patients registered high pressure values (56.66% of the sample). All patients were medicated with a drug 15, and 45 with two drugs. According to age: 20-29: 05, from 30-39: 10, from 40-49: 12, from 50-59: 14, 60-69: 16, from 70-79: 02, 80-89: 01, with a total of 60 hypertensive, all medicated. According to sex: Men: 25, is 41.66% of the total population. Women: 35, is 58.33% of the population. Sedentary amount: 34, representing 56.66% of the total sample. Number of smokers: 33, representing 55% of the total sample.

**Conclusions:** Hypertensive patients with drug treatment who do not perform physical activity and smoking, elevated blood pressure values recorded, despite pharmacological intervention. In patients with drug treatment, who are physically active and not smoking the blood pressure they were normal.

#### Biography

Roberto Antonio Flores has been Graduated from National University of Tucuman, Argentina as Medical Doctor, with the specialties including Internal Medicine, Social and Community Medicine and Diploma in Cardiology from the National University of Tucuman and Medical Clinic National Academy of Medicine Argentina. Later on he obtained his post-graduation from National University of Cuyo with subjects Pharmacology & Biology and then started working at The Nurses School, Faculty of Humanities, Social Sciences and Health, National University of Santiago del Estero, Argentina where he has continued his research. Presently he has been working at the at the Regional Hospital Dr. Ramon Carrillo, Santiago del Estero City. He has got eminent memberships in many Scientific Societies including Internal Medicine and Cardiology at the Society of Santiago del Estero, Argentina, Membership of Argentina Federation of Cardiology, Membership of Hypertension Committee of Argentina Federation of Cardiology, Membership of Inter American Society of Cardiology and Board of Epidemiology of Inter American Society of Cardiology.

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