



8th International Conference on

Epidemiology & Public Health

September 17-19, 2018 | Rome, Italy

Keynote Forum

Day 1

Epidemiology 2018

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Ray M Merrill

Brigham Young University, USA

Prescription claims according to wellness program participation for a large employer in the United States

Worksite wellness programs that include biometric screening and health risk appraisal can identify the need for lifestyle change and prescription medication. Hence, there may be an initial increase cost in prescription medication, but the aim is to prevent more costly health problems in the future, as well as lower absenteeism and presenteeism. The purpose of the current study was to identify the number and total cost of prescription claims and copays for a large US employer according to wellness program participation, age, and sex. A retrospective analysis was conducted of prescription medication use among 6810 workers during 2013-2016. Those completing the wellness program were more likely women (32.5% vs. 22.9%, $p < 0.0001$) and younger ($M=45.5$ vs. 48.5 , $p < 0.0001$). Approximately 72.7% (74.4% women and 68.6% men, $p < 0.0001$) filed a pharmacy claim. In 2013, there was no difference in number of claims filed or total cost between participants and nonparticipants. Mean number of prescriptions changed over the study period, initially increasing but then decreasing for wellness participants. Overall the decrease was 34.7% among wellness participants. The corresponding change for non-participants was an increase of 3.4%. Mean changes in total costs showed similar patterns. In 2016, program participants filed nearly 3 fewer claims, with total cost about \$329 less, on average. Approximately 96.5% of employees filing a pharmacy claim made a copayment. Overall, copays consist of 6.4% of total insurance and employee expenditure on pharmacy claims. In conclusion, the biometric screening and health risk appraisal components of the wellness program resulted in an initial increase in number and total cost of pharmacy medication. However, over the four-year study period, the number of claims and total cost of pharmacy medication significantly decreased.



Recent Publications

- Merrill RM, Frutos A. Reduced lung cancer mortality with lower atmospheric pressure. *Dose Response*. 2018; 16(2):1559325818769484.
- Merrill RM. Conditional relative survival among female breast cancer patients in the United States. *Breast J*. 2017; Epub ahead of print.

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3. Merrill RM, Johnson E. Benefits of marriage on relative and conditional relative cancer survival differ between males and females in the USA. *J Cancer Surviv.* 2017; 11 (5):578-589.
4. LeCheminant J, Merrill RM, Masterson TD. Changes in behaviors and outcomes among school-based employees in a wellness program. *Health Promot Pract.* 2017; 18 (6):895-901.
5. Merrill RM, LeCheminant JD. Medical cost analysis of a school district worksite wellness program. *Prev Med Rep.* 2016; 3: 159-165.
6. Merrill RM, Thygeson SM, Palmer CA. Risk of injury according to attention deficit hyperactivity disorder, comorbid mental illness, and medical therapy. *Pharmacopsychiatry.* 2016; 49(2):45-50.

Biography

Ray Merrill's expertise is in biostatistics and epidemiology. His research interests include analysis and modeling of trends in chronic disease incidence, mortality, and survival data; investigation of the impact of chronic disease treatment advances and increased utilization of screening tests on population disease statistics; methodologic investigations into new chronic disease measures, the relationships between incidence, mortality, and survival, and the impact of various biases on chronic disease statistics.

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Christolyn Raj

The University of Melbourne, Australia

Seeing through the eyes of artists: The Public Health impact of chronic eye disease

Statement of the Problem: Every hour in Australia, approximately 11 Australians are diagnosed with diabetes. Around the world, diabetes is predicted to increase by 55 per cent by the year 2040. Among the ocular complications of diabetes, diabetic maculopathy is the most common and potentially blinding. Typically, it affects individuals in their most productive years and has devastating complications on the patient as well as society as a whole. A recent epidemiology study estimated the prevalence of diabetic maculopathy to be 7 per cent of the Australian population but, within this group, almost half (39 per cent) had associated visual impairment. As eye care professionals, optometrists and ophthalmologists are the gatekeepers for this disease. If we educate our patients to manage their diabetes well, present early to their optometrists, and then refer them for treatment in a timely manner, this disease may be entirely reversible.

Methodology & Theoretical Orientation: To illustrate the nature of diabetic maculopathy I wanted to use the example of famous American impressionist Mary Cassatt, who was diagnosed with diabetes and developed severe complications of retinopathy. This, in addition to other ocular complications of cataracts, caused a premature end to her artistic career. Her fellow Impressionist artists gleaned rather inaccurately, from her poor progress, that cataracts alone – not diabetic retinopathy – was the grim reaper of an artist's life.

Findings: Many of our young diabetic patients exhibit a similar outlook to their disease as Cassatt did. They are eager to continue their lives and work unperturbed by their diagnosis. How then can we enlist our patients to help in prevention of the devastating complications of diabetic maculopathy? Education is key. By getting patients involved in their diabetic care – they can gain control of this disease.

Conclusion & Significance: Eye specialists are often the first to see progression of diabetes as it frequently manifests as worsening maculopathy and/or retinopathy. It is therefore in our patients' best interests that we co-ordinate the care from physicians promptly and provide feedback when we see signs of worsening eye disease.

Recent Publications

1. Dunstan D, Zimmet P, Wellborn T, et al. Diabetes and associated disorders in Australia 2000. The Accelerating Epidemic. Australian diabetes, obesity and lifestyle report 2001. Melbourne: International Diabetes Institute, 2001.
2. International Diabetes Federation, Diabetes Atlas 7th edition, 2015.
3. Sharma N, Ooi JL, Ong J et al. The use of fenofibrate in the management of patients with diabetic retinopathy: an evidence-based review. 2015 Vol 44.No6, 367-370.

Biography

Christolyn Raj is an ophthalmologist who specializes in retinal disease and is director of Sunbury Eye Surgeons in Melbourne. She is also affiliated with The University of Melbourne Australia holding a Senior Lecturer position. Her interest in congenital eye disease spans years of research and she also holds a degree in Medicine and Public Health. She is involved in hosting several educational seminars focusing on public health implications of chronic eye disease and what needs to be done to address this in the clinical setting. Her education focus is not limited to the medical arena; she has been involved in lecture series to allied health students and professionals as well as the general public and early graduates of the University of Melbourne. A passion of hers is the arts and this topic takes an innovative approach on how the visual impact of eye conditions is a 'real problem' in our society and current approaches on how we through science and medicine can look to improve our treatment of such conditions.

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Dawid Nidzworski

SensDx Ltd, Poland

The new device for monitoring of epidemiology of upper respiratory tract infections

Influenza is a contagious disease caught by humans and caused by viruses belonging to the family *Orthomyxoviridae*. Each year the Influenza virus infects millions of people and kills hundreds of thousands of them. Economic losses caused by employee absenteeism are counted in the hundreds of millions of dollars a year. In order to successfully treat influenza virus infections, it is necessary to detect virus during the initial development phase of the infection when tens to hundreds of viruses are present in the pharynx of the patient. *Streptococcus pyogenes* belongs to the family *Streptococcaceae* and is one of the most popular pathogen causing bacterial infections of upper respiratory tracts. The early symptoms of infections of influenza virus and *Streptococcus pyogenes* are very similar and there is a huge problem to recognize and distinguish those pathogens and start appropriate treatment. Here, we present results of pre-clinical study of novel mobile technology for detection of influenza virus and *Streptococcus*. Our team developed single-use biosensor (MultiSensDx), universal reader and mobile application for early detection of two types of pathogens in only 5 minutes. Our technology is a useful tool in telediagnostic procedure and may be an internal part of many telecommunication platforms. We strongly believe that this solution will have a huge impact on Public Health in the near future. In our labs, we have developed a single-use test for detection of influenza virus, the universal reader (ready to detect other pathogens and biomarkers) and user friendly mobile application which helps in whole procedure of analysis.



Complete system for introduction to telecommunications platforms

Recent Publications

1. Nidzworski, D., Siuzdak, K., Niedziałkowski, P., Bogdanowicz, R., Sobaszek, M., Ryl, J., Weiher, P., Sawczak, M., Wnuk, E., Goddard III, W.A., Jaramillo-Botero, A., Ossowski, T. 2017. A rapid-response ultrasensitive biosensor for influenza virus detection using antibody modified boron-doped diamond. *Scientific Reports* 7: 15707 | DOI:10.1038/s41598-017-15806-7
2. Nidzworski, D., Pranszke, P., Grudniewska, M., Król, E., Gromadzka, B. 2014. Universal biosensor for detection of Influenza virus. *Biosensors and Bioelectronics*. 15 (59), 239-242.

Biography

Dawid Nidzworski is an entrepreneur and scientist. A graduate both: The Faculty of Chemistry GUT and the IFB UG-MUG. He holds his PhD from IFB UG-MUG. Laureate of programs VENTURES FNP, IMPULS FNP, LIDER (NCRD), the SME Instruments (H2020), "Fast Track" (NCRD), Masovia programme, TechMatStrateg and 4.1.4 PIOR Programme. He developed biosensor (FluSensDx) which will identify influenza virus in the patient's throat swab. He is also working on an edible vaccine against influenza virus for poultry (LIDER). He is the winner of many awards and scholarships. Co-author of several publications, congress reports and patent applications. His start-up company SensDx will revolutionize the way of medical diagnostics in the world.

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Roberto Antonio Flores

National University of Santiago del Estero, Argentina

Blood hypertension in the center of adult, adults "virgin del valle" of the city of Santiago del Estero, Argentina

Introduction: The intention of this work was to obtain information referred to patients suffering from arterial hypertension, and the impact of programmed physical activity, in the hypertensive patients of the Day Center for Older Adults.

Objectives: General: Describe the hypertensive population and inquire about physical activity and its impact on blood pressure figures.

Specific: +) Describe the hypertensive population of the Day Center for Older Adults "Virgen del Valle" of the City of Santiago del Estero, Argentina. +) inquire about the physical activity programmed in said Center.

Material and Method: The present is a quantitative, descriptive and transversal work that began in March of the year 2017, recording the blood pressure of those who attend Day Center for Older Adults. The variables studied were age, sex, physical activity.

Result: 4622 blood pressure controls were recorded, 1 time per day from Monday to Friday to 20 patients, 60% of them maintain blood pressure figures within the limit of normal.

According to age: From 50 - 59: 11, from 60-69: 18, from 70 - 79: 01, with a total of 20 hypertensive patients.

According to sex: Men: 11, 55% of the total population. Women: 09, 45% of the total population.

Physical activity: All those who attend the Center, perform daily physical activities programmed according to age, which represents 100% of the total sample. Such activities consist of outdoor walks, for 30 minutes (Tuesday and Thursday), folk dance lessons for 120 minutes (Monday, Wednesday and Friday), Tai-Chi classes for 60 minutes (Thursdays), yoga classes during 60 minutes (on Tuesdays).

Miscellaneous: Diabetic patients are 05 in totals, 01 have Type 1 Diabetes; 04 have Type 2 Diabetes, of which 02 are Women and 03 Men. Those who suffer from osteoarthritis are 05 in total, 04 are women and 01 Man. Those who suffer with COPD are in total 03, 2 are Women, and 01 Man. The number of patients with Heart Failure: there are 02 in total, both being Men. In all cases, these patients receive the specific pharmacological treatment for each of their ailments.

Conclusions: Programmed physical activity has a positive impact on hypertensive patients since it enhances the pharmacological action of the drugs used in antihypertensive treatment. The figures tension remains within the range of normality, 60% of patients in the upper limit. Therefore, the control and individual and community monitoring of patients is suggested, and physical activity promoted.

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 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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Cristina Stasi

University of Florence, Italy

The epidemiology of HCV transmission as a global health problem

The hepatitis C virus (HCV) infection transmission has changed considerably, reflecting both the evolution of medicine, with the discovery of HCV in 1989, and the health and social changes. Parenteral exposure is the main way of HCV transmission. After 1989, the introduction of antibody screening tests among blood donors has reduced the rate of post-transfusion hepatitis. Currently, in many countries, routine blood donor screening by nucleic acid amplification testing for the presence of HCV-RNA has been introduced. The HCV prevalence in drug users exceeds 80% in some countries. Moreover, the HCV infection is common in the Baby Boomers. As recommended by Centers for Disease Control and Prevention, given the high prevalence of HCV infection in these patients, it is conceivable that an anti-HCV screening, with subsequent detection of HCV-RNA in positive anti-HCV subjects, could be offered to people born between the years of 1946 and 1964 to greatly reduce the HCV infection in the world by anti-viral treatment. Moreover, the HCV screening could be offered to people most at risk for HCV infection such as those had blood transfusions, blood products, or organ donations before the 90s, prisoners, health care workers, drug users, infants born to HCV-infected mothers. Furthermore it is necessary to remember the hundreds of thousands of people in the developing world who have very limited access to HCV diagnostics and treatment.

Biography

Cristina Stasi graduated in Medicine and Surgery at the Catholic University of "Sacred Heart" in Rome in the year 2001. In 2006 she specialized in Gastroenterology at the University of Pisa. From 2006 to 2009 she took part in clinical research projects at the "Careggi" University Hospital in Florence. At the same time she improved her knowledge in Study Design, Management of Clinical Research Project, Statistics, Epidemiology. In 2013 she received her PhD in Experimental and Clinical Medicine from the University of Florence. Currently, she is collaborating with the Regional Health Agency of Tuscany and with the Department of Clinical and Experimental Medicine, University of Florence on clinical research projects on chronic hepatitis. In 2017 she obtained the National Scientific Qualification to function as Associate Professor of Gastroenterology in Italian Universities. She has published more than 50 papers in reputed international journals and she is serving as an editorial board member of some peer-reviewed journals.

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Peizhong Peter Wang

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Life styles and colorectal: What we know and what we need to know – A Canadian perspective

Colorectal cancer (CRC) is a major health problem of increasing significance in Canada with estimated 22,000 new cases and 9,000 deaths in 2010. Descriptive epidemiological study suggests significant variations of CRC incidence rates across Canada with the highest incidence and average rates in Newfoundland and Labrador (NL) and Ontario (ON), respectively. Research to date suggests that CRC is a result of complex interactions between genetic-environmental factors and diet has long been regarded as the most important environmental factor. Life styles and diet have long been regarded as important environmental factors, which are believed to be responsible for about 80% of all CRC cases. With the support from the Canadian Institute of Health Research (CIHR), in 2001 a multidisciplinary team two Canadian provinces (NL and ON) launched a comprehensive research project involving more than 4,000 CRC cases and controls. Epidemiological research is a major component of this project. The team has made many important scientific discoveries in the past 10 years including: Identifying new genes and modifiable life styles factors, examining gene-environment interactions, evaluating clinical outcomes, and assessing psycho-social impact on patients and their families. In this presentation, the author will focus on epidemiological research findings by the accomplished by multidisciplinary to date including:

1. Briefly discuss of the epidemiology of CRC in Canada
2. Describe the large the large population based study and associated methodological issues.
3. Highlight major discoveries in epidemiological study achieved by this team so far.
4. Possible future studies and collaborations.

Biography

Wang received his MD (1983) and MSc (1986) in Epidemiology from Tianjin Medical University and obtained his PhD in Epidemiology (2003) from the Dalla Lana School of Public Health Sciences, University of Toronto. His research interests include: Cancer epidemiology, arthritis and disability, immigrants health and quality of life, health surveys and epidemiological modeling. Among many recognitions, he received the Arthritis Society and CIHR joint fellowship Award, distinguished visiting professor award from Tianjin Government, and Science and Chinese National Technology Achievement Award (as a co-recipient). He is the principal investigator of a colorectal cancer epidemiology project, which is part of a larger CIHR team grant involving more than 40 investigators across Canada. He is a reviewer for a number of funding agencies and academic journals; he has published more than 80 articles in peer reviewed scientific journals. Currently he is a Professor at the Memorial University of Newfoundland and distinguished visiting professor at Tianjin Medical University. Prior to his tenure at the Memorial University of Newfoundland, he was an assistant professor at University of Toronto and Scientific Associate at University Health Network in Toronto.

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