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Scientific Tracks & Abstracts

Day 1

Epidemiology 2018

Day-1

SESSIONS

Epidemiology and Public Health | Medicine | Infectious Diseases | Surveillance | Genomic Research | Antibiotic Resistance | Congenital Heart Disease | Disease Control | Etiology

Chair: **Roberto Antonio Flores** | National University of Santiago del Estero |Argentina
Co-Chair: **Dawid Nidzworski** | SensDx Ltd | Poland

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Elizabeth Irvin-Barnwell et al., Epidemiology (Sunnyvale) 2018, Volume 8
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Hurricane Maria response in Puerto Rico: Developing app-based survey tools during disaster response and recovery

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[3]Puerto Rico Planning Board, Puerto Rico
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Background: Hurricanes Irma and Maria affected the US Territory of Puerto Rico in 2017 causing catastrophic impacts and damages to key facilities and services. As part of the overall public health response activities, a Public Health Branch (PHB), operating under the Department of Health and Human Services Incident Response Coordination Team, conducted environmental assessments of health care facilities throughout Puerto Rico using standardized Infrastructure Capacity Assessment Tools (ICAT).

Methods: After determining a redundancy of efforts and the significant amount of time required for data entry, data cleaning, and analysis and reporting of key findings, the PHB, in collaboration with the Puerto Rico Planning Board's GIS group, developed an app-based survey, including information on operational status and structural damage. The Field Assessment Teams piloted the ICAT app from October 31, 2017 to November 18, 2017 in 76 clinics. Additionally, the development team created a dashboard allowing real-time field data to be viewed by response leadership.

Results: The pilot work indicates the ICAT app saved a minimum of 1 hour per survey (minimum of 72 hours per week) that was previously required for data entry and data cleaning and reduced the errors encountered during translation of paper survey information into the electronic database.

Conclusions: GIS capabilities of the app were deemed extremely relevant and important in multi-agency emergency response settings allowing partners visibility on daily assessment activities. The ICAT app piloted during the Hurricane Maria response demonstrated the feasibility of this tool during disaster response activities. Currently, the ICAT app is being expanded to a broader set of assessment tools, the Comprehensive Disaster Assessment and Readiness Tools (CDART), which will allow for decrease redundancy/duplication of efforts, decrease respondent fatigue, and increase efficiency and data quality while allowing for real-time presentation of key information to response leadership during the disaster response phase.

Figure 1: Dashboard indicating status of health care clinics in Puerto Rico post-Hurricane Maria

Recent Publications

1. Ochi S, Kato S, Kobayashi KI, Kanatani Y. The Great East Japan Earthquake: Analyses of Disaster Impacts on Health Care Clinics. Disaster Med Public Health Prep. 2017 Aug 29:1-5. doi: 10.1017/dmp.2017.82. [Epub ahead of print] PubMed PMID: 28847343.
2. Matsumura T, Osaki S, Kudo D, Furukawa H, Nakagawa A, Abe Y, Yamanouchi S, Egawa S, Tominaga T, Kushimoto S. Water supply facility damage and water resource operation at disaster base hospitals in Miyagi Prefecture in the wake of the Great East Japan Earthquake. Prehosp Disaster Med. 2015;30:193-198.

3. Kirsch T.D, Mitrani-Reiser J, Bisseli R, Sauer L.M, Mahoney M, Holmes WT, Cruz NS, De La Maza F. Impact on hospital functions following the 2010 Chilean earthquake. Disaster Med Public Health Preparedness, 2010:4;122-128.
4. 4.FEMA. Hurricane Maria. Statistics Progress in Puerto Rico. Available at: https://www.fema.gov/hurricane-maria. Accessed November 2017.
5. 5.Malilay J, Heumann M, Perrotta D, Wolkin AF, Schnall AH, et al. The Role of Applied Epidemiology Methods in the Disaster Management Cycle. Am J Public Health. 2014;104:2092–2102.

Biography

Elizabeth Irvin-Barnwell graduated with a BS in Human Biology and Anthropology from Emory University and a PhD in Toxicology from the University of Georgia. She completed a post-doctoral fellowship in Epidemiology at the University of Georgia where she evaluated body burden levels of environmental contaminants during pregnancy in women living in Trujillo, Peru. She joined the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry in February 2010 as an Epidemiologist with the Health Investigations Branch. While at CDC/ATSDR, she has served as the lead project officer for the Polycythemia Vera Cancer Cluster Investigation where she provided expert consultation, guidance, and oversight for more than 15 research projects, including epidemiological, toxicological, environmental and genetics studies. Currently, she is working as a Community Studies Team Lead in the Environmental Epidemiology Branch where she supervises a group of multi-disciplinary scientists working on a number of diverse projects.

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Prevalence of sexually transmitted infections and their underreporting in a health region of Portugal, from 2015 to 2017

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Although public health surveillance system data are widely used to describe the epidemiology of communicable disease, occurrence of sexually transmitted infections may be misrepresented by under-reporting. Reporting of cases of notifiable sexually transmitted infections is important in the planning and evaluation of disease prevention and control programs, in the assurance of appropriate medical therapy, and in the detection of common-source outbreaks.

This study was carried out to examine the relationship between case-reporting of notifiable sexually transmitted infections in the Notifiable Diseases Surveillance System and the medical diagnosis recorded in Health Management Information System, of Regional Health Administration of Lisbon and the Tagus Valley.

Data on reported cases of notifiable sexually transmitted infections, in the geographical area covered by Arco Ribeirinho Health Centre Assembly, from January 2015 to December 2017, were obtained from the Notifiable Diseases Surveillance System at Arnaldo Sampaio Public Health. Data regard medical diagnosis in the same geographical area and time period were achieved in Health Management Information System, of Regional Health Administration of Lisbon and the Tagus Valley.

From 2015 to 2017, 167 cases of sexually transmitted infections were notified in Ribeirinho Health Centre Assembly. Twenty-eight perccnt of cases were syphilis, 25.7% of cases were gonorrhoeae, 18.5% of cases were VIH and 27.7% of cases were notified with at least one other STI. Most of reported cases were observed in Alto Seixalinho (27.5%), Baixa da Banheira (19.1%), and Montijo-Afonsoeiro (16.1%) counties.

Of 487 STIs medical diagnosis, 92 were reported to the National System Epidemiological Surveillance, corresponding to 65.7% of underreporting. The majority of these under-reported cases were for VHB and VHC (92.2%) and VIH (80.9%). This study underlines the need to increase the percentage of STIs notified to the Health Authority.

Biography

Ana Pinto de Oliveira has her expertise in microbiology, public health and disaster medicine. She is a university professor of disaster medicine and humanitarian action and for 15 years she was an assistant professor of microbiology and a researcher in microbiology field. She had work done in epidemiology of Burkholderia cepacia in cystic fibrosis patients and in pre-natal diagnosis (virus). Currently she is enrolled in International Health PhD, in a post graduate course of humanitarian missions, at Red Cross School and in the residence of Public Health. The first degree is Biology with a Master degree in Microbiology.

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Federal Research Action Plan on recycled tire crumb used on playing fields and playgrounds

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[2]United States Environmental Protection Agency, USA

Recently, concerns have been raised by the public about the use of recycled tire crumb rubber infill at synthetic turf fields in the United States. While the majority of studies identified numerous chemical compounds within the crumb rubber, including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and metals, the measured concentrations were generally low. To date, the studies have not shown elevated health risks from use of and contact with synthetic turf. However, the studies are limited and do not comprehensively address the concerns about the potential health risks associated with exposure to chemicals in the crumb rubber infill. To help address concerns raised by the public, the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry (CDC/ATSDR) and the U.S. Environmental Protection Agency (EPA), in collaboration with the Consumer Product Safety Commission (CPSC), launched a multi-agency research effort in February 2016. *The Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields and Playgrounds* (FRAP) focuses on understanding potential human exposure to chemicals in recycled tire crumb rubber used in synthetic fields, which includes characterizing the chemicals in recycled tire crumb rubber and identifying the ways in which people may be exposed to these chemicals based on their activities on synthetic turf fields. Specific activities outlines in the FRAP include 1) conduct a literature review and data gaps analysis, 2) identify and characterize chemical compounds found in tire crumb used in artificial turf fields, and 3) characterize exposures, or how people are exposed to these chemical compounds based on their activities on the fields. This presentation will provide an overview of the activities led by EPA and CDC/ATSDR on the multi-agency research initiative.

Figure 1: Example of collection methods for tire crumb rubber infill on synthetic turf fields

Recent Publications

1. Gomes J, Mota H, Bordado J, et al. Toxicological assessment of coated versus uncoated rubber granulates obtained from used tires for use in sports facilities. 2010. *J Air Waste Manage Assoc.* 60: 741-6.
2. Bocca B, Forte G, Petricci F, Constantini S, Izzo P. Metals contained and leached from rubber granulates used in synthetic turf areas. 2009. *Sci Total Environ.* 407: 2183-90.
3. Ginsberg G, Toal B, Kurland T. Human health risk assessment of synthetic turf fields based upon investigation of five fields in Connecticut. 2011. *J Toxicol Environ Health A*. 74: 1150-74.
4. Simcox NJ, Bracker A, Ginsberg G, Toal B, Golembiewski B, Kurland T, Hedman C. Synthetic turf field investigation in Connecticut. 2011. *J Toxicol Environ Health A*. 74: 1133-49.
5. Kim S, Yang JY, Kim HH, Yeo IY, Shin DC, Lim YW. Health risk assessment of lead ingestion exposure by particle sizes in crumb rubber on artificial turf considering bioavailability. 2012. *Environ Health Toxicol.* 27: e2012005.

6. Marsili L, Coppola D, Bianchi N, Maltese S, Bianchi M, Fossi MC. Release of polycyclic aromatic hydrocarbons and heavy metals from rubber crumb in synthetic turf fields: preliminary hazard assessment for athletes. 2014. *J Environ Anal Toxicol.* 5: 1-8.

Biography

Angela Ragin-Wilson is a Chief of the Environmental Epidemiology Branch in the Division of Toxicology and Human Health Sciences at the Agency for Toxic Substances and Disease Registry/National Center for Environmental Health, Centers for Disease Control and Prevention, she serves as an expert technical advisor on a wide range of environmental and public health issues. She manages several programs and projects including the Navajo Prospective Birth Cohort Study and the Federal Research Action Plan on Recycled Tire Crumb Used on Playing Fields and Playgrounds. During her federal career, she has held several scientific and leadership positions and worked on diverse projects. From 2003-2008, she was a team lead in Division of Laboratory Sciences, Organic Analytical Toxicology Branch. In this role, she developed cutting-edge innovative laboratory methods for improving, and increasing the timeliness and accuracy of domestic and international biomonitoring studies.

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Parental education and anthropometric indicators of childhood malnutrition as risk factors of type 2 diabetes in a multi-center cross-sectional study among Ghanaian migrants in Europe and their compatriots in Ghana: The RODAM Study

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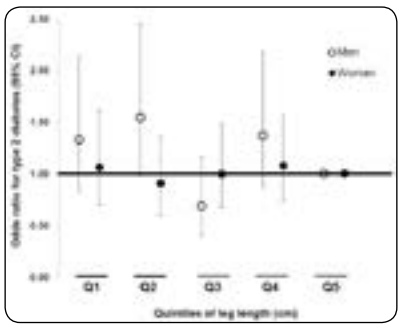
[1]GlaxoSmithKline, UK
[2]German Institute of Human Nutrition Potsdam-Rehbruecke (DIfE), Germany
[3]London School of Hygiene and Tropical Medicine, United Kingdom

Statement of the Problem: Early-life experiences may impact on the metabolic health of individuals in later life but few studies have explored this association in African populations. In this study, childhood socio-economic status and childhood malnutrition were evaluated as risk factors for type 2 diabetes (T2D) among adults in rural and urban Ghana and among Ghanaian migrants in Europe.

Methods: Data were derived from the multi-center, cross-sectional Research on Obesity and Diabetes among African Migrants (RODAM) Study. The associations of parental education and anthropometric markers of childhood malnutrition [leg length, leg length-to-height ratio (LHR)] with T2D were investigated using logistic regression models.

Findings: Among 5,575 participants (mean age 46.2 SD 11.1 years; 62% female), the crude prevalence rates for T2D were 11% in men and 8% in women. There was a gradient for increasing parental education from rural Ghana through urban Ghana to Europe among both men and women, and this was also true for leg length among males. Lower father's education tended to increase the odds of T2D in women (1.50; 95% CI: 0.96, 2.36) but not in men (0.74; 95% CI: 0.43, 1.30). Among men, lower quintiles of leg length tended to increase the odds of T2D (OR per 1 SD leg length decrease: 1.11; 95% CI: 0.95, 1.30). The strongest leg LHR gender difference was seen in rural Ghana, OR 1.83 (95% CI: 0.94, 3.57) and 0.93 (95% CI: 0.60, 1.42) for men and women respectively.

Conclusion & Significance: Further studies examining the association of early life socioeconomic and nutritional factors with T2D are needed in low and middle-income populations with reported increasing burden of T2D occurring alongside an unfinished agenda of malnutrition and other poverty related diseases. Interventions to prevent T2D may need to target the early life period and adults who experienced lower socioeconomic status during childhood.



Adjusted odds ratios of leg length (cm) quintiles and type 2 diabetes, stratified by sex

Recent Publications

1. Addo J, Agyemang C, de-Graft Aikins A, Beune E, Schulze MB, Danquah I, et al. Association between socioeconomic position and the prevalence of type 2 diabetes in Ghanaians in different geographic locations: the RODAM study. Journal of epidemiology and community health. 2017;71(7):633-9.

2. Agyemang C, Nyaaba G, Beune E, Meeks K, Owusu-Dabo E, Addo J, et al. Variations in hypertension awareness, treatment, and control among Ghanaian migrants living in Amsterdam, Berlin, London, and nonmigrant Ghanaians living in rural and urban Ghana - the RODAM study. Journal of hypertension. 2018;36(1):169-77.
3. Agyemang C, Beune E, Meeks K, Addo J, Aikins AD, Bahendeka S, et al. Innovative ways of studying the effect of migration on obesity and diabetes beyond the common designs: lessons from the RODAM study. Annals of the New York Academy of Sciences. 2017;1391(1):54-70.
4. Adjei DN, Stronks K, Adu D, Beune E, Meeks K, Smeeth L, et al. Chronic kidney disease burden among African migrants in three European countries and in urban and rural Ghana: the RODAM cross-sectional study. Nephrology, dialysis, transplantation : official publication of the European Dialysis and Transplant Association - European Renal Association. 2018.
5. Agyemang C, Beune E, Meeks K, Owusu-Dabo E, Agyei-Baffour P, Aikins A, et al. Rationale and cross-sectional study design of the Research on Obesity and type 2 Diabetes among African Migrants: the RODAM study. BMJ open. 2014;4(3):e004877.

Biography

Juliet Addo is a Clinical Research Director in Global Health R&D at GlaxoSmithKline (GSK). She joined the GSK non-communicable diseases (NCDs) Open Lab in 2016 and is currently part of the Global Health Catalyst team working in collaboration with academic partners to address major global health problems. She is a physician and epidemiologist by training, and was a lecturer in epidemiology at the London School of Hygiene and Tropical Medicine (LSHTM) prior to joining GSK. Her research has focused on cardiovascular diseases and their risk factors including strokes, hypertension and diabetes and the ethnic and socioeconomic differences in these. She is a member of the Diploma of Tropical Medicine and Hygiene (DTM&H) Board of the Royal College of Physicians and an Honorary Assistant Professor of Epidemiology at the LSHTM.

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Damien Mouly et al., Epidemiology (Sunnyvale) 2018, Volume 8
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Waterborne disease outbreak surveillance system in France: Perspectives for nationwide surveillance

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Outbreaks of infectious waterborne diseases are still a public health concern in developed countries [1-6]. France is also concerned by WBDO occurrence [7, 8], but to date, because of the absence of a nationwide specific surveillance system, the detection of these events is mainly based on the voluntary reporting of clusters of AGI by general practitioners to health authorities. The number of WBDO is thus most likely underestimated. In this context, an integrated approach to detect WBDO relying on the identification of medicalized AGI cases from the French health administrative database and drinking water networks (DWN) from French ministry of health database was developed [9] and tested in a pilot study. Each detected outbreak was investigated regarding environmental criteria during the days before the onset of the outbreak: results on bacterial water monitoring, weather (e.g. heavy rain), technical incidents in the drinking water system (e.g. chlorination breakdown, alarm malfunction). Sixty-seven potential WBDO were detected in 2014 and 2015 in the 7 french administrative districts of the pilot study. The combined population served by a DWN implicated in a WBO during the period was 914,599 inhabitants. Comparatively, only 2 WBDO had been detected and reported to the health authorities at the time of their occurrence. Four levels of strength of association have been defined based on epidemiological and environmental criteria: Strong, probable, possible and undetermined. The results of the pilot study highlight the public health utility of the implementation of a nationwide WBDO surveillance system in France based on data routinely collected by the Health Insurance. A web-application, named "EpiGEH", was also developed to support the surveillance system. Such a specific surveillance system should help health authorities to formulate recommendations regarding the management of drinking water systems and propose appropriate preventive measures, in accordance with the water safety plans.

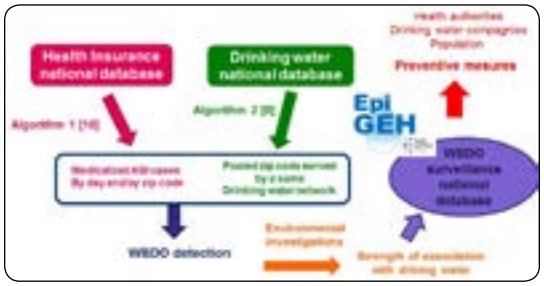

Figure: Waterborne disease outbreak surveillance system

Recent Publications

1. Craun, G.F., et al., Causes of outbreaks associated with drinking water in the United States from 1971 to 2006. Clin Microbiol Rev, 2010. 23(3): p. 507-28.
2. Hrudey, S.E. and E.J. Hrudey, Safe Drinking Water : Lessons from Recent Outbreaks in Affluent Nations. 2004, London: IWA publishing. 486.
3. Pons, W., et al., A Systematic Review of Waterborne Disease Outbreaks Associated with Small Non-Community Drinking Water Systems in Canada and the United States. PLoS One, 2015. 10(10): p. e0141646.
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5. Murphy, H.M., et al., A systematic review of waterborne disease burden methodologies from developed countries. J Water Health, 2014. 12(4): p. 634-55.
6. Guzman-Herrador, B., et al., Waterborne outbreaks in the Nordic countries, 1998 to 2012. Euro Surveill, 2015. 20(24).

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8. Mouly, D., et al., Description of two waterborne disease outbreaks in France: a comparative study with data from cohort studies and from health
9. Bounoure, F., et al., Syndromic surveillance of administrative databases. Epidemiology and acute gastroenteritis based on drug consumption.Infection, 2016. 144(3): p. 591-601.Epidemiol Infect, 2011. 139(9): p. 1388-95.
10. Coly, S., et al., Waterborne disease outbreaks detection: an integrated approach using health administrative databases. Journal of Water and Health, 2017. Available Online 25 March 2017.

Biography

Damien Mouly has worked as epidemiologist at the French National Public Health Agency since 2004. He is qualified in pharmacy, drinking water treatment engineer and is university doctorate of ecology of human health. He is specialized in waterborne disease and in surveillance system. He has worked on chemical risk (disinfection by-products, arsenic) and microbiological risk associated with drinking water. He works at the head of the regional office Occitanie of the French Public Health Agency (Toulouse) and ensures the national coordination of the implementation of waterborne disease outbreak surveillance.

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Cicilia Windiyaningsih et al., Epidemiology (Sunnyvale) 2018, Volume 8
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Treatment of Cotrimoxazole prevention significantly improved CD 4 in HIV/AIDS patients

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Background: WHO estimates at year 2014 there were 9.6 million peoples worldwide suffering from TB. One third of the 37 million peoples living with HIV worldwide were infected by latent TB, in which people with latent TB were at risk 26 times (24-28) to become patients with active TB. In September 2014, the cumulative cases of HIV in Indonesia were 150,296 cases with the number of people living with HIV who were receiving ARV treatment as many as 45,631 peoples, and TB was the most opportunistic infection in people living with HIV in Hospital Infection Dr. Sulianti Saroso in year 2013 until year 2016, despite the number of people living of HIVAIDS +TB was decreased (year 2013 amount 29,50%, 2016 amount 22,02% (Adria Rusli. 2016). Purpose of research to determine the determinant influence of HIVAIDS +TBC.

Research Method: This research was a quantitative with case control study using secondary data in medical record. The study population in this study was all patients of TB-HIV Co-Infection at Infectious Hospital Dr. Sulianti Saroso, Jakarta at 2013-2016. The sample in the study was calculated using lemeshow formula amount 160 for cases and 160 controls taken by the ramdom sampling technique. Data analysis was done by univariate, bivariate and multivariate with multiple logistic regression.

Result: The final model of multivariate analysis has showed the variables were influenced of HIV-AIDS+Tb control with HIV-AIDS that were access to health facilities (p 0.001, OR 3,517, 95% CI 1.828-6.766) weight loss (P 0.001, OR 0.180, 95%CI 0.095—0.338), comorbid with other opportunistic infections (p 0,001; OR 4.617,95%CI 1.876-11.363); CD4 cell count 6 months after ARV (p 0,001; OR 15.769,95%CI 8.286-30.008). All patients have given treatment of Cotrimoxazole to prevention.

Conclusions: Difficult access, body weight decreased more than 7 kg, there were comorbidity, CD 4 <350 sel / mm3 have influenced for HIVAIDS +TBC. That variables have contributed for HIVAIDS +TBC 52,3%.

Biography

Cicilia Windiyaningsih currently working as Lecturer in Respati Indonesia University. Previously, She had worked in Ministry of Health, Indonesia for more than 20 year in Directorate of transmittable Disease. She has an expertise in epidemiological statistic, epidemiology and medical laboratory sciences. Her research interests are transmittable disease such as rabies, HIV AIDS, She also wrote book about epidemiological statistic and rabies. She and her team currently working at research about transmittable disease MDR TB and HIV AIDS.

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Engaging mothers for child nutrition: Qualitative insights from a mixed-methods impact evaluation of a community-based health literacy intervention

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[2]ASER CENTRE, India

Statement of the problem: Evaluation of public health interventions focuses on assessing magnitude of outcome/s but less on the underlying mechanism that explains the "black-box" in pathway/s that connect the intervention to the outcome; which is relevant for improving intervention design and scalability.

Methodology: We performed a program theory-based impact evaluation of a community-based health literacy intervention set in a socially disadvantaged area of Ahmedabad city, India. The intervention focused on improving nutrition, and health of under-three children by empowering their mothers with knowledge and skills through context-based participatory group activities in a few slums. We use the findings from the qualitative strand of this mixed-methods evaluation and unpack the mechanisms of action of the intervention. Data from 13 focus group discussions and 69 semi-structured interviews with participant mothers was analyzed using qualitative content analysis.

Findings: Encouragement and/or help with household work from their family motivated mothers' engagement. Intervention design elements such as scheduling meeting in consultation with the mothers, a rarity in India, maximized participation by overcoming gender-related mobility restrictions and ensured convenience. Model-based demonstrations resulted in better understanding, retention and application of messages. Collective efforts in following intervention-recipes, and observing children liking the dishes, instilled confidence in mothers to replicate them at home. Mothers formed innovative partnerships to overcome resource constraints such as taking turns in trying recipes and sharing the food with children of a few families. Mothers also noticed program rewards such as reduced intake of outside food by children which helped save money.

Conclusion & Significance: Qualitative findings revealed a complex interplay of multiple factors related to participants and program delivery, which facilitated mother's engagement. These findings are used to explain the impact of this complex intervention in a resource-poor setting. These insights may help improve intervention design and scalability in low and middle-income countries.

Recent Publications

1. Johri M, et al. (2016) Maternal health literacy is associated with early childhood nutritional status in India, The Journal of Nutrition 146(7):1402–1410.
2. Johri M, et al. (2015) Association between maternal health literacy and child vaccination in India: a cross-sectional study. J Epidemiol Community Health 69:849–857.
3. Subramanyam MA, et al. (2011) "Is economic growth associated with reduction in child undernutrition in India?", PLoS Medicine 8(3): e1000424.
4. Subramanyam MA and Subramanian S V. (2011) "Nothing misleading about the lack of an association between economic growth and child undernutrition in India: A reply to Deonarine", PLoS Medicine 8(3): e1000424.
5. Pahwa S, Kumar G T and Toteja G S (2010) Performance of a community-based health and nutrition-education intervention in the management of diarrhoea in a slum of Delhi, India. International Centre for Diarrhoeal Disease Research, Bangladesh 28(6):553–559.

Biography

Ankita Shah is a doctoral research scholar at Indian Institute of Technology- Gandhinagar, India. Her doctoral research work is centered around evaluation of health literacy interventions in resource poor settings. She has Masters in Public Health (MPH) degree with majors in Social Epidemiology from Tata Institute of Social Sciences, Mumbai. She has experience of designing and carrying out public health research in community settings in resource poor urban and rural areas in India. Her previous research includes health behavior research as well as assessment of prevalence and social determinants of child health and nutiriton. She has presented her research work at various conferences. She has 4 years of experience working with the government and non-governmental organztion on planning, implementation and monitoring of public health programs in urban and rural areas. She has developed grant proposals and has co-taught public health nutrition course to post-graduate students.

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Amal Jamee Shahwan et al., Epidemiology (Sunnyvale) 2018, Volume 8
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Epidemiology of cardiovascular disease and associated risk factors in Gaza - Palestine

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Aim of study: To determine the prevalence of cardiovascular disease and associated risk factors in the population of Gaza strip in Palestine.

Methods: A cross sectional stratified cluster sample design was applied in this study. A sample of 2240 participant (1121 males and 1119 females) aged ≥25 years participated in the study. For each individual, trained staff administered a questionnaire, where all variables of interest followed WHO's STEP wise approach to surveillance chronic disease risk factors (STEPS) (WHO, 2001). Sociodemographic data, anthropometric measure (body mass index, blood pressure), and biochemical test (blood sugar and lipids profiles) were measured. Short International Physical Activity (IPAQ) questionnaire form was used. We used SPSS (version 22.0) to analyze the data.

Results: The most common condition was coronary artery disease (8.3%), followed by cerebro vascular events (3%). The associated risk factors were obesity (47.8%), hypertension (28.4%), current smoking account for (23.2%), diabetes mellitus (19.1%), high cholesterol level (8.8%), and high triglycerides level (40.2%). Additionally, physical activity was found to be low (48.3%); particularly with increasing age. More than 30% of the population has less than 4 days of consumption of fruit and vegetables per week and 65.9% has less than 2 servings per day.

Conclusion: The burden of CVDs and their associated risk factors is considerable in Gaza and represents a major public health concern. Effective strategies in management, education and healthcare centers are required for an accurate management and implementation of preventive measure in this area.

Recent Publications

1. Mendis S, Puska P, Norrving B, Organization WH, Federation WH, Organization WS. Global atlas on cardiovascular disease prevention and control [Internet] Geneva : World Health Organization; 2011 [cited 2017 Feb 14]. Available from: http://www.who.int/iris/handle/10665/44701
2. WHO. WHO | Cardiovascular diseases (CVDs) [Internet] 2017 [cited 2017 Dec 19]. Available from: http://www.who.int/mediacentre/factsheets/fs317/en/
3. Benjamin EJ, Blaha MJ, Chiuve SE, Cushman M, Das SR, Deo R, et al. Heart Disease and Stroke Statistics—2017 Update: A Report From the American Heart Association.
4. WHO | Cardiovascular diseases (CVDs) [Internet]. WHO [cited 2017 Feb 3].
5. GBD 2013 Mortality and Causes of Death Collaborators. Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet Lond Engl. 2015 Jan 10; 385 (9963):117–71.

Biography

Amal Jamee Shahwan is a cardiologist in Al Shifa hospital in Gaza- Palestine (ministry of health). She is a doctoral student at the University of Limoges (public health, tropical neuro-epidmiology INSERMU 1094) in France. Also, she has numerous publications in clinical cardiology research.

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Ana Pinto de Oliveira et al., Epidemiology (Sunnyvale) 2018, Volume 8
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A disaster medicine curriculum for medical students

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University of Algarve, Portugal

Background: The many recent catastrophic natural disasters and increased terrorist attacks have focused attention on disaster medicine. Nevertheless, gaps in undergraduate and postgraduate disaster medicine education have been note worldwide. Following the recommendations of the World Association for Disaster and Emergency Medicine to develop standards for training the undergraduates in disaster-relevant fields, many medical schools have begun to incorporate disaster related topics into their curricula. In Algarve University Medical School, a Disaster Medicine course was introduced in medical curricula in 2016.

Objectives: This study evaluated the efficacy of a disaster medicine curricula recently designed for medical students in their sixth year at Algarve University Medical School, Portugal, over the last two years.

Methods: A quantitative study was conducted in which students were asked to respond to a questionnaire using a 7-point Likert scale (7 = strongly agree, 1 = strongly disagree) in five core questions. Survey methodology was use to evaluate increased knowledge, clarity of content, content adjusted to needs, course duration and recommendation of the course to colleagues. Descriptive statistics were conduct for the quantitative data of the questionnaire using SPSS Version 23.0 (SPSS, Chicago, IL).

Results: A total of 93 medical students participated in disaster medicine course, in the last 2 years. The age of the respondents ranged from 25 to 48 years (mean 32, 6; median 32, 0). Fifty-one per cent were females. All students have a previous degree in health-related field: 29% in nursing, 25% biomedical sciences, 20% in physiotherapy, 12% in biological sciences and 14% with different studies. The questionnaire explored issues as "increasing knowledge about disaster medicine" that achieved a mean score of 5.85 out of seven points. Students endorsed the idea that a training course is need with a mean score of 5.75/7 and supported the idea that disaster medicine training should be provide to medical students (mean 6.37/7). The duration of the course and the pedagogical component was classified with 5.0 and 6.2, respectively.

Conclusions: Disaster medicine in the medical curricula was found to be highly relevant and acceptable to the students.

Biography

Ana Pinto de Oliveira has her expertise in microbiology, public health and disaster medicine. She is a university professor of disaster medicine and humanitarian action and for 15 years she was an assistant professor of microbiology and a researcher in microbiology field. She has done her work in epidemiology of Burkholderia cepacia in cystic fibrosis patients and in pre-natal diagnosis (virus). Currently she is enrolled in International Health PhD, in a post graduate course of humanitarian missions, at Red Cross School and in the residence of Public Health. The first degree is Biology with a Master degree in Microbiology.

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Notes:

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Co-Chair: **Cristina Stasi** | University of Florence | Italy

SESSION INTRODUCTION

Title: **Development of breast cancer risk prediction models using the UK biobank dataset**
Kawthar Al-ajmi | University of Manchester | UK

Title: **Evaluation of the relationship between social phobia and internet addiction in adolescents**
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Title: **Evaluation of internet addiction and related factors in adolescents**
Ramazan Saglan | Eskisehir Osmangazi University | Turkey

Title: **Evaluation of gastroesophageal reflux disease and related factors in seasonal agricultural workers**
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Title: **Risks factors of multidrug-resistant tuberculosis in Casablanca-Settat Region, Morocco 2012-2016**
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Title: **Dynamical augment in mining healthcare datasets**
John Heironimus | Fleming Scientific | USA

Kawthar Al-ajmi, Epidemiology (Sunnyvale) 2018, Volume 8
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Development of breast cancer risk prediction models using the UK biobank dataset

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We developed two individualized risk prediction models for breast cancer focusing on the modifiable risk factors using the UK Biobank data. The models have been built based on the menopausal status pre- and post-menopausal. A nested case-control study within the 273,467 female participants was used to develop the models. Bootstrap stepwise regression was employed to identify variables that best fit the models followed by conventional stepwise logistic regressions to confirm the set of variables. We employed machine learning decision tree classification analysis using the significant epidemiological risk factors to fit the trees and explore any interactions. We also used a Mendelian Randomization (MR) approach to seek further factors. A polygenic score of predisposition SNPs that reached GWAS significant p-value was incorporated into both models. Model performance was tested through calibration and discrimination for both models. We applied a cross validation approach of 10 folds to test internal validation. For model external validation, we plan to utilize breast cancer datasets from international cohorts. The model provide risk scores derived from the presence or absence of specific factors and are converted to relative risk estimates to enable the comparison of individual risk to the population risk at the same age group. The models have the potential to help a woman modify her lifestyle. The models will be implemented in the primary care and community based facilities as part of breast cancer prevention initiatives with the main aims of improving cancer education and prevention.

Recent Publications:

1. Risk of breast cancer in the UK biobank female cohort and its relationship to anthropometric and reproductive factors, July 2018. (Published)
2. Review of non-clinical risk models to aid prevention of breast cancer. (Accepted for publication)
3. Insulin-Like Growth Factor 1 Gene Polymorphism and Breast Cancer Risk among Arab Omani Women: A Case-Control Study, July 2012.

Biography

Kawthar Al-ajmi is a PhD student at university of Manchester in Epidemiology department. Kawthar has an expertise in statistical genetics, epidemiology and medial laboratory sciences. Her research interests are cancer epidemiology and public health. Kawthar and her supervisory team are developing an epidemiological tool for cancer to be used by public aiding for improving cancer education and prevention in the UK.

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Ramazan Saglan et al., Epidemiology (Sunnyvale) 2018, Volume 8
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Evaluation of the relationship between social phobia and internet addiction in adolescents

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Statement of the Problem: Adolescents with social phobia are trying to socialize via the internet in order to avoid the stress of face-to-face communication with others. However, if they cannot cope with the social challenges in the real world, the increased use of the internet to provide social support increases the risk of the individual being addicted to the internet. The aim of the study was to determine the frequency of social phobia and to evaluate the relationship between internet addiction among high school students.

Methodology: This cross-sectional study was performed on high school students in semi-rural area of Eskisehir (Turkey) in 2017. The study group included 793 (91%) students educated in school during the study and agreed to participate in the study. Social phobia was assessed by the Social Phobia Scale for Çapa Children and Adolescents, and internet addiction was assessed by the Young Internet Addiction Scale. Logistic regression analysis was performed to determine the independent variables associated with social phobia.

Findings: Of the study group, 402 (50.7%) were male and 391 (49.3%) were female. The age of the students ranged from 14 to 18 years, with a mean age of 15.94±0.99 years. The frequency of social phobia was found 11.0% (n = 87) and internet addiction was found 11.7% (n = 93) in the study. In multivariate analysis, the prevalence of social phobia was higher in females (OR: 2.468), high school and over educated maternal education status (1.939), not good friend relationship (1.836) and have internet addiction groups (2.206) (for each; p≤0.05).

Conclusion & Significance: Social phobia and internet addiction are important health problems related to each other in adolescents. Social phobia can be prevented by controlled use of the internet. Screening programs on social phobia and internet addiction should be done in adolescents.

Variables		Social phobia (%)	OR (95% CI)	p
Gender	Male	6.7	1	<0.001
	Female	15.3	2.468 (1.501-4.058)	
Maternal education status	Primary and lower educated	9.7	1	0.017
	High school and over educated	16.5	1.939 (1.128-3.333)	
Friend relationship	Good	9.3	1	0.022
	Not good	16.9	1.836 (1.093-3.083)	
Internet addiction	No	9.4	1	0.005
	Yes	22.6	2.206 (1.284-3.941)	

Table 1. Multiple logistic regression results of social phobia related factors in the study group

Recent Publications:

1. Bayraktar, F. 2001. 'İnternet kullanımının ergen gelişimindeki rolü (Yüksek lisans tezi, Ege Üniversitesi, Sosyal Bilimler Enstitüsü, İzmir)', UlusalTezMerkezi/tezSorguSonucYeni. jsp adresinden edinilmiştir.
2. Demir, Türkay, Demet Eralp-Demir, Erdoğan Özmen, and Ömer Uysal. 1999. 'Çapa Çocuk ve Ergenler için Sosyal Fobi Ölçeğinin geçerlilik ve güvenilirliği', Düşünen Adam, 12: 23-30.
3. Ko, C-H, J-Y Yen, C-F Yen, C-S Chen, and C-C Chen. 2012. 'The association between Internet addiction and psychiatric disorder: a review of the literature', European Psychiatry, 27: 1-8.

4. Shepherd, Robin-Marie, and Robert J Edelmann. 2005. 'Reasons for internet use and social anxiety', Personality and individual Differences, 39: 949-58.
5. Young, Kimberly S. 1998. 'Internet addiction: The emergence of a new clinical disorder', Cyberpsychology & behavior, 1: 237-44.

Biography

Ramazan Saglan has been graduated from Cumhuriyet University, Turkey as medical doctor in 2013. He is a research assistant at Public Health Department of Eskisehir Osmangazi University Faculty of Medicine since 2015. He is interested in Preventive medicine and community mental health subjects.

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Evaluation of internet addiction and related factors in adolescents

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Eskisehir Osmangazi University, Turkey

Statement of the Problem: Adolescents have become a major population of Internet users. While Internet use is rapidly spreading, internet addiction becomes a serious problem in adolescents who have not yet completed their physical and psychological development. The aim of this study was to determine the frequency of internet addiction and related factors in adolescents.

Methodology: The study is a cross-sectional study performed on high school students in Eskişehir (Turkey) in 2017. Ethical and administrative permissions were got for the study. In the study, multi-stage cluster sampling method was used according to settlement units and school types. In the sampling schools, a total of 3,468 students who agreed to participate in the study formed the study group. The Young Internet Addiction Scale was used to assess Internet addiction. Logistic regression analysis was performed to determine the independent variables associated with Internet addiction.

Findings: Of the study group, 44.2% were male and the age of the study group ranged from 14 to 18 years and the mean (SD) was 15.89 (1.20) years. The frequency of internet addiction among students was found 13.7% (n = 474). In a multivariate analysis, the risk of Internet addiction was higher among women (OR: 1.293), not living in core families (1.364), connecting to the internet via computers (1.674), who reported that they could not limit themselves to using the Internet (5.071), who were 10 years old or younger at the age of first internet use (1.312) and who reached the internet within the first hour after waking up in the morning (3.124) (for each; p≤0.05).

Conclusion & Significance: Internet addiction is an important health problem in adolescents. Internet addiction can be avoided by educating adolescents on the control of the internet and preventing children from using the internet in their at an early age by their parents.

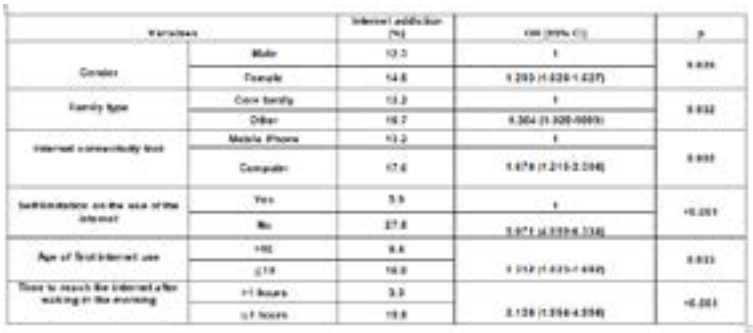

Table 1: Multiple logistic regression results of internet addiction related factors in the study group

Recent Publications:

1. Bayraktar, F. 2001. 'İnternet kullanımının ergen gelişimindeki rolü (Yüksek lisans tezi, Ege Üniversitesi, Sosyal Bilimler Enstitüsü, İzmir)', UlusalTezMerkezi/tezSorguSonucYeni. jsp adresinden edinilmiştir.
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5. Young, Kimberly S. 1998. 'Internet addiction: The emergence of a new clinical disorder', Cyberpsychology & behavior, 1: 237-44.

Biography

Ramazan Saglan has been graduated from Cumhuriyet University, Turkey as medical doctor in 2013. He is a research assistant at Public Health Department of Eskisehir Osmangazi University Faculty of Medicine since 2015. He is interested in Preventive medicine and community mental health subjects.

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Yasemin Saglan et al., Epidemiology (Sunnyvale) 2018, Volume 8
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Evaluation of gastroesophageal reflux disease and related factors in seasonal agricultural workers

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[2]Eskisehir Osmangazi University, Turkey
[3]Ankara Yıldırım Beyazıt University, Turkey

Statement of the Problem: Seasonal agricultural workers are agricultural workers migrating to places where agricultural demand is high, migrating to their own countries at the end of the season. This group is a vulnerable group because of the inadequacy of living conditions and the inability to reach basic human rights services (health, education). Our aim is to determine the frequency of gastroesophageal reflux disease in seasonal agricultural workers that is exposed to the worst conditions of working life.

Methodology: The study is a cross-sectional study was carried out on seasonal agricultural workers working in the countryside of Eskişehir (Turkey) in 2017. A total of 536 seasonal agricultural workers agreed to participate in the study constituted the study group. The National Institutes of Health (NIH) Patient-Reported Outcomes Measurement Information System (PROMIS®) Gastroesophageal Reflux Disease (GERD) Scale was used to assess the frequency of gastroesophageal reflux disease in the study. Logistic regression analysis was performed to determine the independent variables associated with gastroesophageal reflux disease.

Findings: In the study group, 201 (37.5%) were male and 335 (62.5%) were female. The age of the seasonal agricultural workers ranged from 18 to 92 years, with a mean age of 39.05 ± 13.59 years. The prevalence of gastroesophageal reflux disease in seasonal agricultural workers was found 82.8 (n = 444) in the study. In multivariate analysis, gastroesophageal reflux disease was found to be higher in male (OR: 2.072), those age >30 (OR: 1.891), with monthly average income <500€ (OR: 5.200) and body mass index of ≥25 (OR: 1.962) (p ≤ 0.05 for each).

Conclusion & Significance: In order to reduce the frequency of gastroesophageal reflux disease in seasonal agricultural workers, the average family income situation should be corrected and combated with obesity

Variables		GERD (%)	OR (95% CI)	p
Gender	Female	79.4	1	0.007
	Male	88.6	2.072 (1.219-3.522)	
Age	≤30	75.3	1	0.014
	>30	87.4	1.891 (1.139-3.141)	
Monthly average income	≥500 €	52.4	1	0.001
	<500 €	84.1	5.200 (2.028-13.335)	
Chronic disease	No	78.8	1	0.053
	Yes	87.7	1.740 (0.951-2.547)	
Body mass index	<25	73.9	1	0.009
	≥25	86.5	1.962 (1.183-3.256)	

Table 1. Multiple logistic regression results of gastroesophageal reflux disease related factors in the study group

Recent Publications:

1. Villarejo, Don. The health of US hired farm workers. Annual review of public health 24.1 (2003): 175-193.
2. Katz, P.O., Gerson, L.B., Vela, M. F. Guidelines for the diagnosis and management of gastroesophageal reflux disease. The American journal of gastroenterology, 2013. 108(3), 308.

3. Özseker B, Yasar NF, Bilgin M, Kurt Y, Balcioglu H, Bilge U. Turkish validation of National Institutes of Health (NIH) patient-reported outcomes measurement information system (PROMIS®) Gastroesophageal Reflux Disease (GERD) scale. Biomedical Research. 2016.
4. Kutlu, Seher, and İbrahim Koruk. Migrant seasonal farmworkers: Health related quality of life and the factors that affect it. Turkish Journal of Public Health 12.2 (2014): 80-90.
5. Cohen E, Bolus R, Khanna D, Hays RD, Chang L, Melmed GY, et al. GERD symptoms in the general population: prevalence and severity versus care-seeking patients. Digestive diseases and sciences. 2014;59(10):2488-96.

Biography

Yasemin Saglan has been graduated from Cumhuriyet University, Turkey as medical doctor in 2012. She was a research assistant from 2013 to 2017 at Eskisehir Osmangazi University Faculty of Medicine, Turkey. She is currently working as a family medicine specialist in Eskisehir Odunpazarı District Health Directorate. Diagnosis and treatment of chronic diseases and community health projects are interests of her. In addition, she works in the smoking cessation clinic.

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Soad Redwane, Epidemiology (Sunnyvale) 2018, Volume 8
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Risks factors of multidrug-resistant tuberculosis in Casablanca-Settat Region, Morocco 2012-2016

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Background: Multidrug resistance tuberculosis (MDR-TB) is defined as resistance to isoniazid and rifampicin. In Morocco, The prevalence of MDR-TB is 0.48 % in new cases and around 12% in among the restatement cases. The aim of this study was to identify the risk factors for MDR-TB, in Casablanca-Settat region, Morocco.

Methods: This was a case control (1 cases: 2 controls) study design. That has included patients notified as between January 1st, 2012 and the December 31st, 2016 at the Center for the diagnosis of tuberculosis in the region. The cases are patients with MDR-TB and the controls are patients with drug-sensitive tuberculosis. In which the following factors were analyzed: Socio-demographic and clinical characteristics, and MDR-TB patient contact. Data from MDR-TB cases and controls were analyzed using logistic regression. The association between the variables studied and MDR-TB was estimated by Odds Ratio (OR) with the 95% confidence interval. The analysis was performed using SPSS software version 24.0.

Results: One hundred sixty-eight cases and 336 controls were collected. A male predominance was noted in the two groups, the mean age was 37 years for the cases and 35 years for the controls. Multivariate analysis revealed that cases compared to controls were significantly more likely to have had a previous history of retreatment (OR = 60.9) or relapse after antituberculosis treatment (OR = 20.6) or a patient - contact with MDR-TB (OR = 10.5) or a hookah smoker (OR = 3.6) or have a low monthly income.

Conclusion: Our results emphasize that previous history of retreatment with first-line anti-tuberculosis drugs is the main risk factor regained, hence the interest of surveillance close and especially the application of the directly observed treatment, Short-Course (DOTS) strategy.

Biography

Soad Redwane is an epidemiologist in Casablanca-Settat Region - Ministry of Health, Morocco. Her Areas of Expertise is Infectious Diseases (epidemiology and control).

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John Heironimus et al., Epidemiology (Sunnyvale) 2018, Volume 8
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Dynamical augment in mining healthcare datasets

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Statistical processes commonly applied to healthcare datasets can overlook important dynamical relationships. However, understanding dynamicals often involves complex and expensive modelling. We demonstrate a simple approach to "dynamical data mining" using Fourier transform and the Kuramoto model. We compare results from this approach to cross correlations using CDC's ICD-113 data (1999-2016). We find that the ICD-113 is a synchronous anti-phase nodal system much like the spontaneous synchrony of pendulum clocks observed by Christiaan Huygens in 1665 (see image). It is a state of order in which ICDs are related phasallyabout common frequencies. We find that about 20% of these phasalrelationships are novel to the statistical approach and corroborated by research findings. Many of these novel insights appear to be complex time series relationships suggesting stronger linkages between initial conditions/care and final causes of death than statistics would typically reveal. ICD-113's state of order remains stable even as the mix of ICDs changes. This suggests that declining US healthcare productivityis perhaps more attributable to complex dynamical relationships within the system than to rising obesity or opioid abuse rates as often hypothesized. Given the system's stablestate of order, we can simulate the impact of changing incidence of any one condition on all others without consideration of causality. As a synchronous system can reflect the influence of external factors, we also consider the possible influence of solar cycles. Using the SILSO dataset, we find consistency with ICD-113 (see image). Each ICD's phasalrelationship to individual solar cycles allows us to infer its most likely time series relationship and possibly forecast future incidence on the same basis. We offer several detailed examples of all points in our paper and conclude that simple "dynamical mining" offers an important augment to statistical processing of healthcare datasets.

Biography

John Heironimus founded Fleming Scientific to develop novel dynamical approaches to understanding human populations where said offers augmentation to statistical and cognitive processes typically employed. FS has successfully characterized a wide variety of social and commercial populations based on the notion that stability accrues from states of order, in some dimensionality, that are the steady state solutions of dynamical processes. He holds degrees from Harvard and the University of Pennsylvania. Emma Heironimus assisted in the development of the above paper and is a dual-enrollment student at UoL where she participates in trauma research.

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Notes: