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2<sup>nd</sup> International Conference on  
**CHRONIC DISEASES**

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2<sup>nd</sup> International Conference on  
**Chronic Diseases**  
July 16-17, 2018 Berlin, Germany

**Keynote Forum**  
Day 01



2<sup>nd</sup> International Conference on

# CHRONIC DISEASES

July 16-17, 2018 Berlin, Germany



## *Shen-Yuan Yuan*

*Beijing Tongren Hospital-Capital Medical University, China*

### **A 48-month prospective study of the effects of multifactorial interventions on cardiovascular risk factors in patients with T2DM in an urban community: The Beijing communities diabetes study 12**

To assess whether multifactorial interventions have long-term effects on the risk of diabetes-related macro-vascular complications in patients with type-2 diabetes mellitus living in urban communities of Beijing. A total of 2926 patients with type-2 diabetes from 15 community health centers were divided into a Diabetes Mellitus (DM) group (n=824), a Hypertension (HTN) group (n=1267) and a Cardiovascular Disease (CVD) group (n=835). By applying Framingham Risk Scores (FRS), patients in the 3 groups were subdivided into low (FRS <10%), medium (FRS 10%-20%) and high (FRS >20%) Framingham risk strata. After 48 months, patients were followed-up to assess the long-term effects of the multifactorial interventions. At baseline, the patients' mean Neck Circumference (NC) was significantly higher in the HTN and CVD groups than in the DM group (P<0.05). After 48 months of follow-up, the CVD and HTN groups both had higher blood pressures and lipid levels than the DM group (both P<0.01). Although there was no significant change in the FRS versus baseline in the low and medium Framingham risk strata, a significant reduction in FRS was noted in the high Framingham risk strata. In Cox multivariate analyses, the HTN and CVD groups had higher incidences of endpoint events than the DM group. This study has demonstrated for the first time a relationship between NC and CVD in diabetic patients. Multifactorial interventions for CVD risk factors over 48 months lowered the estimated 10-year risk for CVD events in diabetes. FRS score influences the incidence of CVD events in diabetic patients. Aggressive risk reduction should be focused on these individuals who had high FRS score.

#### **Biography**

Shen-Yuan Yuan is the Professor and Chief Physician of Internal Medicine, Beijing Tongren Hospital, Capital Medical University, China. He has served as the Director of Internal Medicine, Director of Digestive Science and Director of Endocrinology in Beijing Tongren Hospital. He has won 21 awards, including the first Prize, the second prize and the third prize of Beijing Municipal Science and Technology Progress. Currently he is the Principal Leader of Beijing Community Diabetes Study (BCDS, 2008-2018) and the BRIDGES project from the International Diabetes Federation.

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**John Wodarski**

University of Tennessee Knoxville, USA

## The integrated behavioral health service delivery system model

Costs and effective management of health care in general and behavioral health care in particular, have been of primary importance and concern to federal, state and local governments. With the passage of Health Care Reform (HCR) these concerns will only escalate. Thus, the necessity for the development of innovative, successful and integrated cost-effective treatments and procedures is evident. The Behavioral Health Care Model presented here is proposed to address these needs. The model centers on the composition of effective psychosocial treatment and provides a cost analysis of social work and its services. By defining the problems that need to be addressed in health care management and cost containment, and through applying findings of evidence based studies this paper provides an effective model for health care organizations. It also presents a profile of the behavioral health social worker, defining the requisite abilities for effectiveness in the role and looking at the key impact areas for a behavioral health model. This comprehensive guide will prepare new social workers entering health care organizations as well as provide a valuable reference for existing social workers, academics and practitioners of behavioral health care.

### Biography

John Wodarski is a Professor in the College of Social Work and Senior Research Scientist in the Center for Behavioral Health Research at the University of Tennessee in Knoxville, Tennessee. He has served as a Principal Investigator on multiple projects funded by the Substance Abuse and Mental Health Services Administration and Foundations. His interests include substance abuse, HIV/AIDS and evidence-based treatments.

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**Sasha Shafikhani**

*Rush University Medical Center, USA*

## **Molecular mechanisms underlying impaired infection control in diabetic ulcer**

Enhanced bacterial infection and microbiome shift toward pathogenic bacteria are major comorbidities that contribute to impair healing in chronic diabetic foot ulcer. The underlying reasons for the impaired infection control in diabetic wound remain poorly understood. We used the cutaneous full-thickness wound models in STZ-injected type 1 diabetic (T1D) rats and db/db T2D mice, to study the early dynamics of bacterial infection control in normal and diabetic wound tissues. We have found that unlike chronic diabetic ulcers which suffer from persistent un-resolving inflammation, the acute phase of inflammatory response which is needed to counter invading pathogens early after injury is significantly delayed in diabetic wounds, rendering these wounds susceptible to bacterial infection and healing impairment. Our data further suggest that normal wound tissues express pathogen-specific antimicrobial peptides (ps-AMPs) that preferentially target pathogenic bacteria amongst commensals by recognizing specific virulence structure(s) that are only found in pathogenic bacteria. In contrast, pathogen-specific antimicrobial defenses are impaired in diabetic wounds, thus setting the stage for the microbiome shift toward pathogenic bacteria. We further show that the inability to control pathogenic bacteria leads to persistent inflammatory state and impaired healing in diabetic wound. We have found that inadequate chemokine expression in diabetic wound early after injury leads to delayed inflammatory response, which in turn results in reduced ps-AMPs, rendering diabetic wound vulnerable to infection with pathogenic bacteria, which exacerbate wound damage and drive diabetic wound toward persistent un-resolving inflammatory state. Importantly, we show that jumpstarting inflammatory responses in diabetic wound early after injury resorts antimicrobial defenses and promotes healing in diabetic wound, indicating that inadequate inflammatory response early after injury in diabetic wound is just as harmful as the persistent inflammatory state that dominates these wounds as they become chronic.

### **Biography**

Sasha Shafikhani has obtained his PhD from University of California at Berkeley and Postdoctoral studies from University of California at San Francisco. He is currently an Associate Professor in the Department of Medicine at Rush University Medical Center. He serves on Editorial Board of six reputed journals. As a Cellular Microbiologist, his group conducts projects that involve bacterial pathogenesis, cancer biology and chronic wound healing. The primary focus of his laboratory is: (i) to determine the virulence mechanisms in the bacterial pathogens, particularly *Pseudomonas aeruginosa*; (ii) to determine the eukaryotic host responses that are intended to control bacterial pathogen infections; and (iii) to employ bacterial toxins as molecular tools to dissect important mammalian cellular processes such as cytokinesis, apoptotic program cell death, and apoptotic compensatory proliferation signalling.

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**Shaik O Rahaman**

University of Maryland, USA

## **Atherogenic role of TRPV4 in *P. gingivalis* induced exacerbation of oxidized LDL-mediated macrophage foam cell formation**

Epidemiologic studies suggest an association between periodontitis and increased risk of atherosclerosis, a chronic arterial disease responsible for the majority of mortality associated with cardiovascular disease. Epidemiologic studies suggest an association between periodontitis and increased risk of atherosclerosis. *P. gingivalis* (Pg), a predominant causative agent of periodontitis, has been linked to development of atherosclerosis. Emerging data support a role for both a biochemical factor, e.g., Lipopolysaccharides (LPS) and a mechanical factor, e.g., matrix stiffness, in regulation of macrophage function, vascular elasticity, and atherogenesis. In recent, exciting preliminary data, we obtained evidence that TRPV4, an ion channel in the transient receptor potential vanilloid family and a known mechanosensor, may be the mediator of periodontitis-dependent accelerated atherosclerosis. Specifically, we found that: (1) Macrophage TRPV4 activity (Ca<sup>2+</sup> influx) was increased in response to both *P. gingivalis* LPS (pgLPS) and pathophysiological range matrix stiffness and (2) genetic ablation of TRPV4 blocked pgLPS-induced and matrix stiffness-induced exacerbation of oxidized Low-Density Lipoprotein (oxLDL)-derived macrophage foam cell formation, a critically important process in atherogenesis. Mechanistically, we show that TRPV4 regulates oxLDL uptake but not its cell surface binding in macrophages and plasma membrane co-localization of TRPV4 and CD36 (a receptor for oxLDL) was sensitized to the increasing level of matrix stiffness under pgLPS-treated condition. Altogether, our results suggest that TRPV4 channels play an essential role in Pg-induced exacerbation of macrophage foam cell formation by modulating uptake of oxLDL.

### **Biography**

Shaik O Rahaman is an Assistant Professor at the University of Maryland, USA. His laboratory is interested in elucidating the signaling events underlying the pathogenesis of atherosclerosis and fibrosis. He has received his PhD in Molecular Biology at Jadavpur University and a BS in Human Physiology (Honors) and an MS in Biophysics and Molecular Biology from University of Calcutta. From 2000-2014, he has worked at Cleveland Clinic, Cleveland, USA, as a Postdoctoral Fellow, eventually as a Project Scientist and Assistant Professor. He was the recipient of the American Heart Association Scientist Development Grant, NIH-R01 grant and NSF grant. He is the author or co-author of 23 research papers in high impact international peer-reviewed journals of repute. He has given numerous invited talks nationally and internationally and is a Reviewer/Editorial Board Member in numerous scientific journals. He also served as a Reviewer for National Institute of Health, USA.

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*Vagharsh Khachikyan*

*International Postgraduate Educational Center, Armenia*

## **The dysfunction of cGMP-activated Na<sup>+</sup>/Ca<sup>2+</sup> exchange controlling cell hydration is a primary mechanism for cell pathology**

Over-hydration of cells is a hallmark for early detection of cell pathology. Na<sup>+</sup>/K<sup>+</sup>-ATPase, having a central role in metabolic regulation of cell hydration, has three catalytic isoforms with different affinities to ouabain and functional activities. Among these isoforms, the α3 isoform, with the highest affinity to ouabain, isn't involved in ion-transporting process and has an intracellular signaling function. It is known that α3 isoforms of Na<sup>+</sup>/K<sup>+</sup>-ATPase, which are absent in non-excitabile cells of healthy animals, are highly expressed in cell pathology, including cancerous cells. On the basis of this, the expression of these isoforms is considered as one of the early hallmarks for cell pathology). It has also been shown that α3 isoform, which is absent in non-excitabile cells of healthy animals, appears in non-cancerous tissues of women with breast cancer, as well as in all non-excitabile tissues of mice carrying sarcoma-180 tumor. Moreover, it has also been shown that this expression of α3 isoform is accompanied by cell hydration. On the basis of these data, it has been hypothesized that the dysfunction of intracellular signaling system controlling cell hydration could serve as a primary mechanism for carcinogenesis. To check this hypothesis, in non-excitabile tissues of healthy and sarcoma-180 carrying mice (including tumor tissues), dose-dependent ouabain effects on Na<sup>+</sup>/K<sup>+</sup>-pump activity, cell hydration, intracellular cyclic nucleotides (cGMP and cAMP), glycolysis rate (lactate concentration in blood and lactate dehydrogenase activity), membrane permeability for protons, Na<sup>+</sup>/H<sup>+</sup>, Na<sup>+</sup>/Ca<sup>2+</sup> exchange and cell proliferation by means of electrophysiological, isotope, immunoassay and microscopic methods were studied. These studies have brought us to conclusion that the dysfunction of α3 isoform-dependent cGMP-activated Na<sup>+</sup>/Ca<sup>2+</sup> exchange in forward mode, which controls Na<sup>+</sup>/K<sup>+</sup> pump activity, cell hydration, membrane permeability for Na<sup>+</sup> and Ca<sup>2+</sup>, glycolysis activity and cell proliferation, is a primary mechanism for generation of cell over-hydration and Warburg phenomena leading to carcinogenesis. Therefore, α3 isoform-dependent cGMP-activated Na<sup>+</sup>/Ca<sup>2+</sup> exchange in forward mode has been suggested as a novel therapeutic target for early stage of carcinogenesis.

### **Biography**

Vagharsh Khachikyan has received his PhD in Cancer Therapy at Yerevan State Medical University. Currently, he is a Physician at National Center of Oncology named after V. A. Fanarjyan and a Senior Scientist and Lecturer at UNESCO Chair in Life Sciences at Life Sciences International Postgraduate Educational Center. He also conducts lectures on oncology at UNESCO Chair in Life Sciences. His research includes the study of the dysfunction of intracellular signaling system responsible for cancer generation. He has participated in a number of international trainings and conferences.

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**Laurice Fretwell**

De Montfort University, UK

## Identifying and understanding the barriers towards uptake of cardiac rehabilitation amongst ethnic minority groups

**Purpose:** This systematic review examines the factors/barriers which prevent ethnic minority patients from accessing or completing their cardiac rehabilitation programs.

**Background:** Cardiac rehabilitation has been shown to improve physical health, encourage healthier lifestyles and decrease cardiac mortality and morbidity. However, despite these benefits ethnic minority patients often have the lowest attendance rates in comparison to the rest of the population. This review is exploring why this is and what can be done.

**Methods:** A systematic review following barriers which prevent ethnic minority patients from attending and completing their programs were analyzed. For this review, only primary research papers (qualitative and mixed methods studies) were considered. We excluded systematic and literature reviews, perspective papers and meta-analysis. There were no restrictions placed in terms of country and date of publication. Around 387 journals were found through selected search terms, which were then analyzed through the CASP framework model. Currently, over 10 journals have been analyzed and their themes identified below.

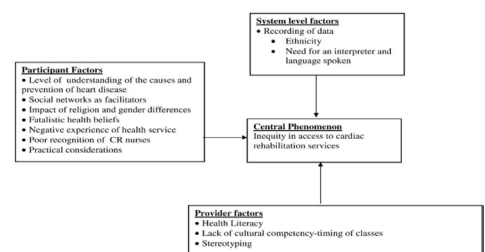
**Conclusion:** Six overarching themes have been identified in assessing the lack of uptake and upkeep of cardiac rehabilitation amongst ethnic minority patients: Language barriers, knowledge of cardiac rehabilitation services, accessibility, fatalistic health beliefs, gender, cultural and religious influences and support. Changes in the management of these services can help to eliminate the above barriers.

### Biography

Laurice Fretwell is a Senior Lecturer and Acting Associate Head of School in the department of Health and Life Sciences, De Montfort University, UK. Her research interest includes Cardiovascular disease, Cardiovascular cell signalling, Physiology, Pharmacology, GPCRs, VEGFRs. She completed her BSc in Physiology and Pharmacology – Nottingham Trent University in the year 2005. In 2009, she completed her PhD in Cardiovascular Cell Signalling – Nottingham Trent University. In 2013, she completed her Career Development Fellow in Cardiovascular Pharmacology and Drug Discovery – The University of Nottingham. Since starting at De Montfort University, Laurice has diversified her research to span both laboratory-based investigations and health-related research, forging collaborations with local clinicians and Psychology colleagues at De Montfort University. She is currently supervising one PhD student and two MRes students, and is now focusing on growing her research team and developing expertise in meta-analysis.

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## *Enkhtuya Palam*

*National center for Public Health, Mongolia*

### **Smoking prevalence and determinants of cigarette use among the young people in Mongolia**

**Background & Aim:** Cigarette use in the Western Pacific Region among school aged children is a growing public health concern. Surveillance of the prevalence of cigarette smoking among the youth in this region is the first step in a long process of implementing policy change and public health interventions to combat the widespread tobacco epidemic in this region. In addition to estimating the prevalence and determinants of cigarette use (in packs and singles) within a national sample of school aged children in Mongolia, this study determined how a child's pocket money, familial and social contextual factors, and access to cigarette vendors influenced his/her smoking status.

**Methods:** The 2014 Global Youth Tobacco Survey, a stratified multi-stage cluster design survey, was utilized to predict prevalence and determinants of cigarette use. Analysis was conducted using SAS-callable software SUDAAN to account for the design effect and increased homogeneity of within cluster groups. Prevalence and determinants of single cigarette use among current smokers was also estimated using the same variance estimation methods.

**Results:** Cigarette use among school children was most evident in those children who were older, male, urban dwelling, with parents or friends who smoke. Cigarette use was almost two times more prevalent in urban than rural school children and, among urban school children who smoked, more than half purchased a single cigarette, an illicit product in Mongolia. Pocket money strongly influenced the purchase of cigarettes and single cigarettes. A child's choice to smoke cigarettes was associated with the sale of cigarettes (pack or single cigarette) near their school.

**Conclusion:** The findings of this study provide evidence and information for the Mongolia Ministry of Health to use in future tobacco related policy change. Strong correlations between our variables of interest and cigarette use indicate that the WHO FCTC need to focus on further increasing the price of cigarettes and also enforce restriction of the sale of legal and illegal (packs and single cigarettes) cigarettes to minors.

### **Biography**

Enkhtuya Palam is the Lead Researcher of the National Center for Public Health Mongolia. She is a Pediatrician, completed her degree in Public Health Sciences at the Medical University of Irkutsk, Russia in the year 2003 and Postgraduate Internship at Seoul National University in Korea. She is a Lead Researcher of the National Center for Public Health from 1997 to till date. Her research activity includes the NCD KAP survey since 2010 and 2012 and also National STEPS survey on prevalence of risk factors in 2005, 2009 and 2013.

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### **Notes:**