# PRESENTATIONS

By

International Speakers

# 1- National Diabetes Strategy –Qatar Experience

*Abdullah Al-Hamaq .MPH,PhD,FRSPH*

The Qatar National Vision 2030 recognizes the importance of its population health as key for delivering its goals. It is too often the case that health is thought of as absence of serious injury, something managed by doctors and delivered in hospitals. Without the commitment of individuals and the general public, the healthcare system stands powerless, wasting time and resource on conditions that could and should have been avoided.

Diabetes is one non-communicable disease that has reached pandemic proportions, with a worldwide prevalence of 8%. In Qatar, however, the 17% prevalence of diabetes is over double that of the world population. The estimate in 2015 is that 17% of the adult population in Qatar has diabetes compared to 8% of the global prevalence (SCH, PHR, 2015). 66% of the population in Qatar are <30 years old and close to 50% of this population are Obese or overweight (Bener, 2006).

Individuals in Qatar are leading shorter, less happy, and less productive lives on account of a disease that is potentially avoidable. To deliver the ambitious requirements of the National Vision, and to be the nation that we want to be, the increasing prevalence of diabetes is unsustainable. The National Diabetes Strategy sets out a comprehensive action plan to deliver not just the world's best Care for patients with diabetes, but to help Qatar develop the world's best workforce, infrastructure and Research.

The Diabetes National Committee was established in 2013 and it includes physicians and experts from health and academic institutions in the State of Qatar. The purpose of this strategy is to articulate a vision for future diabetes healthcare services and describe how we will improve health and quality of life in Qatar through the realization of our ambition of preventing diabetes together as a nation.

## Vision, Mission, and Goals of the National Diabetes Strategy

Diabetes is a growing global healthcare challenge . In 2014, the International Diabetes Federation (IDF) estimated that 382 million people (8% of adults globally)had diabetes. Addressing this significant growth in diabetes requires concerted action from all countries.

The IDF estimated the prevalence of diabetes in Qatar in 2014 to be 16.3% of adults (or a comparative prevalence of 19.8%, considering the age group of Qatar population compared to those of the world average); this is approximately twice the international prevalence of 8-9%. With the fifth highest comparative prevalence in the Middle East, Qatar has an urgent need to address this significant problem with a national strategy to prevent future increase in new cases and new complications as well as to improve national capabilities to address the current and growing challenges.

Qatar's National Diabetes Strategy for 2016-2022 is designed to achieve the future vision of reducing the number of new cases of diabetes, and its complications, by 25% in 5 years. The strategic mission is to increase awareness, mobilize prevention and increase access to integrated care delivery to prevent diabetes and its complications.

***The goals of Qatar's National Diabetes Strategy, through multi-institutional collaboration across Qatar are to provide a roadmap to:***

- Prevent Diabetes and its complications
- Increase public awareness and prevention efforts.
- Screen and address diabetes at the earliest stage possible.

- Offer education, tracking and lifestyle support services in the community.
- Develop policies, standards, national clinical practice guidelines.
- Build national capabilities, services, and health information technology for prevention, disease management and research.
- Enhance key research to improve understanding of diabetes in Qatar.

***According to the WHO , the health impact of having diabetes:***

- Diabetes increases the risk of heart disease and stroke. 50 % of people with diabetes die of cardiovascular disease (primarily heart disease and stroke).
- Combined with reduced blood flow, neuropathy (nerve damage) in the feet increases the chance of foot ulcers, infection and eventual need for limb amputation.
- Diabetic retinopathy is a known cause of blindness. One percent of global blindness can be attributed to diabetes.
- Diabetes is among the leading causes of kidney failure.

***Objectives:***

- To ensure that lifestyle advice, education and counseling is available to diabetic patients and those at risk of developing type 2 diabetes; in the long term this will lead to a modification of risk factors, improving rates of diabetes prevalence and morbidity.
- High quality services, easily accessible in the community, with primary, secondary and tertiary facilities available for those who need them, delivering improved care, patient experience and technological innovations for both type 1 and type 2 diabetes.

***Strategic framework***

***Awareness and Prevention Pillar***

- Patient Empowerment Pillar
- Human Capital and Capacity Building Pillar
- Research Pillar
- Care Delivery Pillar
- Information Management Pillar
- Policy and Enablers Pillar

***Future state 2022***

By 2022, Qatar will have a more robust diabetes research platform, infrastructure, and national research agenda to promote and motivate research in diabetes. The Research (RE) implementation team will be responsible for establishing the National Diabetes Research Committee as the governing body for diabetes research. In collaboration with Qatar Foundation (QF) and Qatar National Research Foundation (QNRF), the National Diabetes Research Committee will set and govern the policies and standards for research. The funding from QF and QNRF will drive the research agenda set by the National Diabetes Strategy

***The expected outcomes of the strategy to be achieved by 2022 are:***

- Target adult population will be screened for diabetes and referred to the appropriate track
- All health care professionals will receive continuing education in diabetes care
- All screened at-risk population and patients will be offered an annual health plan.

## CONCLUSIONS

- We believe that the people of Qatar need and deserve the highest quality and person-centered services. As diabetes presents a growing challenge for people's health and wellbeing, rapid and urgent action needs to be taken to address this.
- Implementing this strategy does not only rely on strong leadership, clinical oversight and the right resources to support the Implementation.
- We are also putting our faith in the dedication and energy of the people of Qatar to support this transformational program to significantly prevent diabetes and its complications, and improve health and quality of life in the State of Qatar.
- We believe that with the support of the people of Qatar, this ambitious strategy has every chance of success.

# 2- Assessment of Cardiovascular Risk among Bangalee Population

*Prof. Liaquat Ali MPhil, PhD.*
*Dept of Biochemistry & Cell Biology,*
*Vice Chancellor,*
*Bangladesh University of Health Sciences (BUHS)DHAKA,*
*Coordinator, Biomedical Research Group, BIRDEM, Bangladesh*

Prediction of cardiovascular (CVD) risk is important both for preventive and management purposes and, due to considerable heterogeneity, the risk should be assessed in each individual population groups. It is now thought that comprehensive risk assessment is a better guide compared to individual risk factor based approaches. Bangalees now form the 7th largest population group dispersed all over the world. Studies related to assessment of CVD risk factors in this population are still inadequate although accumulated evidence indicate that Bangladesh has one of the highest rates of CVDs among the South Asian countries. In recent years, we have conducted a series of studies to explore individual as well as comprehensive risk in a peripherally located rural Bangalee population. With inclusion of laboratory based biochemical markers, risk factors of CVDs were found to be quite high even in this rural population and it may be related to socioeconomic, demographic and cultural transition even at the village level. It is important to note that, identified by the WHO CVD risk screening tool, a higher proportion of high risk individuals are females. We tested the concordance between 'With' and 'Without' Cholesterol versions of the World Health Organization/International Society of Hypertension (WHO/ISH) Chart. From the absolute 10 years CVD risk progress analysis, about one-fifth of the adult population in Bangladesh, even in such a remote rural areas, seem to be at risk of developing CVDs (25% of them at high and 25% at very high risk) with males and females being almost equally vulnerable. It was also observed that, compared to single factor risk assessment approach, a much less proportion of subjects require drug treatment when they are scored by the WHO/ISH tool. However, this percentage of population is about 5-7 fold higher (whether the threshold of the absolute risk is >30% or >20%) when suggestion is generated by the 'With cholesterol' compared to the 'Without cholesterol' version of the tool.

- The short-term (2.5 years) predictive ability of various predictive tools was also tested. The two lab-bases Tools (the Framingham Risk Scoring and WHO/ISH Risk Prediction Chart) where found to have almost similar predictive ability compared to two non-lab based Tools (the Without Cholesterol version of WHO/ISH Tool and ABSI based newly proposed Tool). The last non-lab based Tool seems to have slightly better performance particularly for females and it may be potentially very useful in low resource settings.

# 3- Stem cell Therapy in Diabetes: Reality and Myths

*Prof. Liaquat Ali M.Phil, PHD*
*Bangladesh University of Health Sciences (BUHS),*
*Dhaka, Bangladesh.*

Problems encountered with islet transplantation led to intense research efforts on the possibility of use of stem cells in the treatment of type 1 diabetes. The initial euphoria, however, has largely been contained and the challenges are becoming more and more clear. There is currently no proven treatment for diabetes using stem cells. At present there are three major approaches in making new beta cells for therapy and all these approaches have common challenges of protecting the cells from being attacked by the immune system once they have been transplanted. In the first approach attempts are being made to make beta cells from pluripotent stem cells, either embryonic or induced. Initial success has been made to produce cells from human pluripotent stem cells with glucose response almost similar to normal beta cells both in the laboratory and in diabetic mice after being transplanted. Phase I clinical trials using these cells are under process. The second approach encourages cells already present in the patients pancreases to make new beta cells. The challenges are to find drug that can activate the beta cell progenitors or can reprogram other mature pancreatic cells to produce more beta cells. It may also be possible to reprogram other cells to produce beta cells in the lab. Experiments are still going on in this direction, but it has not reached to the stage of clinical trials. Using the third approach several research groups and commercial companies are trying to create a capsule which will protect beta cells from immune attack but it will not obstruct the outward movement of insulin. Clinical phase I studies with this approach are going on, but we still have to see the result.

Evidence regarding stem cell therapy in type 2 diabetes is much more scarce. Only few trials (mostly from China and India, but also from USA, Spain and Iran) using, almost exclusively, adult bone marrow stem cells are in progress and both, the treatment of diabetes as well as its complications are being targeted. More evidence is needed to determine if a proposed stem cell treatment is both safe and effective.

# 4- The Role of The Community Constituents in Building up a National Diabetes Program

*Prof. Morsi Arab,*
*Emeritus Professor and Former Head of Dept. of Medicine ,*
*University of Alexandria, Egypt.*

In 2006, after successful efforts from the IDF, the UN issued the resolution which calls all countries to establish national diabetes programs (NDP) to control the rapidly increasing prevalence of DM and to provide better care for people with Diabetes.

In 2009, the MENA Region developed a model NDP to suit the specific situation in the region, and invited each national association in the region to re-adapt this model to suit the specific situation in the country.

To define the concept of a NDP in a specific country or community it is essential to enlist all the constituents of this community who should be all invited to collaborate to achieve the aimed-at objectives of better care, prevention of complications and better life for people having diabetes, as well as to stop the increasing prevalence of DM.

Constituents of the community that should be involved here start from the family of the person with diabetes, his friends, and colleagues at working conditions, in schools and in all his other surroundings. It extends to the diabetes caring team of physician, nurses, pharmacist, educators etc.

Furthermore, other elements of the community at large should include the concerned NGOs, the different forms of media and finally the involved authorities and decision makers in the government, parliament, Ministry of Health and possibly several other ministries.

The local or national community should also collaborate with and to make use of the assistance and support from international facilities which can be provided from the IDF and WHO Organizations, both at global and regional levels.

In order to alert, motivate and direct each of the national constituents of the community to give an effective contribution, planners of the NDP should devise guidelines to advise what should be done and what should be avoided, in order to achieve the best inputs from everyone. A review of a proposed set of guidelines shall be displayed in this presentation.

Also, the IDF Regional Action Plan must include awareness campaigns, education and training workshops and establishing a system of surveillance and periodic evaluations of the taken procedures, to guarantee a successful implementation and progression of the NDP in all countries of the region. Collaboration with WHO should be a very effective additional procedure to achieve the intended mutual objectives with IDF.

# 5- Diabetic Foot: An African Perspective

*Dr. Zulfiqar G. Abbas*
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*Endocrinologist and Diabetologist,*
*Honorary Consultant Physician and Research Fellow ,*
*Department of Internal Medicine,*
*Muhimbili University of Health and Allied Sciences,*
*Dar es Salaam, Tanzania,*

Diabetes is the most common, non-communicable chronic disease globally. In African countries where incidence rates are increasing diabetic foot complications, such as ulceration, infection, or gangrene lead to considerable morbidity, long term disability and premature mortality. Published reports show variable prevalence rates (4%-19%) of foot ulcers among African diabetic patients. Although peripheral neuropathy is the underlying cause of most such complications in these patients (published rates 4%-84%), the occurrence of peripheral arterial disease (2.9%-78.7%) is rising parallel with increasing urbanisation. The frequency of patients presenting with gangrenous foot ulcers (Wagner score >4) ranges from 0.6-69% among patients attending diabetic clinics across the African continent. A study of such patients in Tanzania show mortality rates >50% among patients with severe foot ulcers, who do not undergo surgery. Other published data from Tanzania also suggest that surgical intervention, after the onset of gangrene, may be too late to significantly reduce the attributable mortality rate. Foot amputation rates from various parts of Africa, although high by any standard (0.3-45%), are almost certainly lower than they should be, and may be related to cultural factors and the reluctance of patients to give consent for surgery that leads to limb amputation. In conclusion, prevention and control programmes are needed to stem the rising occurrence of diabetic foot complications in Africa. Early presentation by patients and prompt surgical intervention during less severe rather than during later stages of an ulcer may improve patients outcome and reduce mortality rates.

# 6- Cultural and Demographic aspects of Diabetes Mellitus in MENA Region

*Prof.Adel A. El-Syed,*
*Professor of Internal Medicine and chair of Diabetes Unit,*
*Faculty of Medicine, Sohag University, EGYPT*

Reviews of the latest estimates for diabetes prevalence and projections worldwide revealed that the magnitude of the problem is not facing world communities only today but also for generations to come.The IDF Middle East and North Africa (MENA) Region has one of the highest prevalence rates of diabetes among the 7 world regions. It contains three of the top ten countries in diabetes prevalence and one of the top ten in the size of the diabetes population worldwide. This outstanding position is expected to be maintained during the coming two decades by a projected 96% increase in the size of the MENA diabetic population. Despite these alarming figures, the health system response to diabetes in the region is grossly inadequate. Not the least to mention is the low expenditure on diabetes compared to other countries and regions. Serious and collaborative actions are desperately needed in the region in order to be able to overcome the great problem of diabetes. The demographic and cultural aspects of the problem will be discussed in detail.

# 7- Osteoporosis Clinical Update 2016: Where We Stand

*Dr. Hameed Farooqi*
*Consultant Physician & Endocrinologist,*
*De Soysa Hospital for Women, Sri Lanka.*

An increase in human longevity has led to a concomitant increase in the prevalence of Osteoporosis. This increased fragility of the bones has led to an elevated risk of a whole range of clinical conditions such as fractures. These can then present with clinically insignificant symptoms all the way to debilitating conditions. In some situations, these may even lead to a loss of life from the resulting complications.

The talk will cover the current concepts in the diagnosis of osteoporosis, the understanding of the relevant pathophysiology along with a discussion covering the associated clinical risk factors. Some available local data will be reviewed. In terms of diagnosis, assessment of Bone Mineral Density as well as the the Fracture Risk Assessment Tool will be discussed. Finally, the available treatment modalities, from the established ones such as Biphosphonates, to the most recent additions such as Teriparatide, Denosumab and Sclerostin Antibodies will be highlighted.

# 8- Understanding Foot Mechanism Foot pressure Walk Analysis

*Piero Galasso,*
*Diasu Research Centre, Rome, Italy*
*University "La Sapienza" of Rome, Italy*

Human gait is a complex and cyclical process requiring the synergy of muscles, bones, and nervous system, mainly aimed at supporting the upright position and maintaining balance during static and dynamic conditions. The gait cycle is defined as the period of time from the initial contact of one foot to the following occurrence of the same event with the same foot. The correct discrimination of gait phases can be considered the starting point for several scientific applications, such as: the evaluation of gait recovery status in patients after interventions or rehabilitation treatments; the classification of daily life activities; athlete coaching; and, finally, distinguishing between normal and pathological gait.

On the medical field, changes in gait reveal key information about persons' quality of life. This is of special interest when searching for reliable information on the evolution of different diseases: neurological diseases such; alterations in deambulation dynamic due to sequelae from stroke systemic diseases; and diseases caused by ageing, which affect a large percentage of the population. Accurate reliable knowledge of gait characteristics at a given time, and even more importantly, monitoring and evaluating them over time, will enable early diagnosis of diseases and their complications and help to find the best treatment.

The traditional scales used to analyse gait parameters in clinical conditions are semi-subjective, carried out by specialists who observe the quality of a patient's gait by making him/her walk. This is sometimes followed by a survey in which the patient is asked to give a subjective evaluation of the quality of his/her gait. The disadvantage of these methods is that they give subjective measurements, particularly concerning accuracy and precision, which have a negative effect on the diagnosis, follow-up andtreatment of the pathologies.

In contrast to this background, progress in foot pressure technologies has given rise to devices and techniques, which allow an objective evaluation of different gait parameters, resulting in more efficient measurement and providing specialists with a large amount of reliable information on patients' gaits. This reduces the error margin caused by subjective techniques.

Foot pressure analysis is a method to describe, in an objective way, some of the characteristics of the human walk and of underlying mechanisms of any gait disability. Our experiences of over 25 years of research on foot pressures analysis allow to define a clinical investigation path, which makes possible the study of spontaneous ambulation without constraints, with acquisitions in high resolution of the foot's natural rolling, and that thanks to the optoelectronic evaluation tools and measuring the angular / linear movement also allows to assess postural influences on the body structure: the test takes few minutes and data can be consulted by any specialist.

To study ***walk mechanism analysis*** we have utilized the D.B.I.S. technology (Digital Biometry Images Scanning) for specific investigation of posture, used for clinical activities by Postural Biomedicine Team, which includes several Italian and International Universities. The data acquired through the D.B.I.S. system are the basis of Bio Postural Test that integrates the values of the following devices:

- Electronic Baropodometer, foot pressure evaluation systems
- Stabilometry Platform, body balance study systems
- 3D Body Analysis Kapture and Image System, investigation systems
- B3DR, three-dimensional column and body survey systems
- Podoscanalyzer, foot morphology study system

The data were analysed by the software for descriptive reporting of biometric indexes (Biomechanical Postural Index): it allows a comparison with indicators of more biometric tests with specific scale on each indicator detected and at the end giving indication of any additional biometric exam needed.

This analysis is useful in research, clinical analysis and to test follow-up of surgery or tratments, so used in Universities, Hospitals, Medical and Radiologic Clinics, Physiotherapy and Sport Centres; Medical Specialists(Orthopaedics, Dentistry, Otolaryngology, Ophthalmology, Phlebology, Forensic Medicine), health professionals such as Physiotherapists, Podiatrists, Osteopaths, Chiropractors, Physiotherapists, Kinesiologists, and by all those concerned with postural problems.

Electronic Foot Pressure Platform properly detect the characteristics of the pressure of the foot, to study the functional responses of each subsequent support of the same foot, to evaluate changes in the overall dynamic center of mass (COM, calculated from the single pressure points) is required the acquisition in high resolution. Scanning Foot Analysis memorize the morphology characteristics of the foot, detecting also arch thickness calculation.

The next technology we will add to the “walk analysis study” will be a new kind of innovative UltraSensor platform. The UltraSensor platform represent a concrete answer for a “trustable analysis of the walk employing foot pressure measurement”, to be used in the Walk Analysis. The sensor acquisition surface have a detail with more than 7 sensors each $cm^2$.

# 9- Micronutrient supplementation during pregnancy and maternal and delivery outcomes including neonatal micronutrient status.

*Prof. Akhtar Hussain MD; Ph.D. D.Sc,*
*Consultant Diabetologist & Epidemiologist,*
*Professor, University of Oslo, Norway*

- Given the widespread prevalence of micronutrient deficiencies in developing countries during pregnancy, supplementation with micronutrients like vitamin D, B12 in addition to iron-folate alone, could be of potential benefit to the mother and the fetus. Pregnancy is associated with physiologic changes that result in increased plasma volume and red blood cells and decreased concentrations of circulating nutrient-binding proteins and micronutrients. Occurrence of low birth weight in developing countries varies from 6 - 30% especially in settings with high rates of maternal undernutrition. Vast majority low birth weight, small for gestational age are due to fetal growth problems that occur during pregnancy, including intrauterine growth retardation (IUGR) Supplementation could relate to prevention of maternal complications and reduction in other adverse pregnancy outcomes such as small-for-gestational age (SGA) births, low birth weight, stillbirths, perinatal and neonatal mortality.
- There is clear evidence that low concentrations of vitamin D can predispose toward diabetes and cardio-metabolic disease. However, the evidence of reverse causality is not as strong, demanding well powered and properly designed trials of vitamin D replenishment; this is especially the case in pregnancy. The need, safety and effectiveness of vitamin D supplementation in pregnancy has been considered by; 400, 2000 and 4000 IU were given daily from 12-16 weeks gestation (n=494) to term (n=350).
- The Pune Maternal Nutrition Study showed that maternal vitamin B12 deficiency is associated with hyperhomocysteinaemia and low birth weight. Yajnik and colleagues have since shown an association between maternal B12 deficiency and increased insulin resistance and adiposity in the offspring, the first time that insulin resistance has been linked to a specific maternal nutritional deficiency.
- A new WHO guideline has begun to address all these issues. However it still leaves significant knowledge gaps with regard to ideal weight during pregnancy, notably for South Asian women who are between the extremes of underweight or overweight, and specific nutritional guidelines for key developmental regulators such as vitamin D and one-carbon metabolites (folate and vitamin B12 in particular). More notable is the absence of clear international guidance on how to achieve optimal conditions during this reproductive and early childhood period.

# 10- The management of Obesity: Past, Present and Future:

*Professor Wasim Hanif MBBS, MD, FRCP.*
*Prof of Diabetes & Endocrinology,*
*Consultant Physician & Head of Service in Diabetes,*
*University Hospital Birmingham, UK.*

The obesity was considered a sign of prosperity and good health in antiquity. The later part of 20th Century is a unique event in human history as we moved from living in a calorie deficient environment to a calorie excess environment especially in the Western hemisphere. The unintending sequel of this has been increasing prevalence of obesity along with its associated complications. This talk examines the rising prevalence of obesity across the globe along with focusing on the weight management. It examines the evidence for life style interventions, the medical options currently available including the "failed drugs", it also looks at the surgical interventions and takes a peak at the future developments. It also covers how to set up a multidisciplinary weight management service.

# 11-Formulating Guidelines for Diabetes Management during Ramadan: Do we have enough evidence?

*Professor Wasim Hanif MBBS, MD, FRCP*
*Prof of Diabetes & Endocrinology,*
*Consultant Physician & Head of Service in Diabetes,*
*University Hospital Birmingham, UK.*

There are nearly 1.6 billion Muslims in the world with nearly 132 million having diabetes. Ramadan is an important religious obligation of Muslims. The exact number of Muslims with diabetes fasting during Ramadan is not known and most of the data is extrapolated from observational studies like EPIDIAR and CREED. In the last decade a number of guidelines have been published by recognized organizations like ADA, IDF, SAHF and many others. This session examines the hierarchy of evidence and the current up to date evidence from recent meta-analysis along with other up to date studies to explore whether we have enough evidence to be able to formulate guidance for patients fasting during Ramadan.

# 12- Pregnancy and early childhood: An opportunity for diabetes prevention

*Prof. Graham Hitman MB, BS, MD, FRCP(Lond),*
*Professor of Molecular Medicine and Diabetes,*
*Consultant Diabetologist,*
*Barts and the London School of Medicine,*
*Queen Mary University London.*

GIFTS is an acronym for Genomic and lifestyle predictors of foetal outcome relevant to diabetes and obesity and their relevance to South Asian people. Diabetes and obesity are disorders caused by the combination of inherited factors in the genes and a changing environment that involves choosing lifestyles known to aggravate a tendency to put on weight, make poor food choices and exercising less – these are all aggravated by poverty and a rapidly changing lifestyle. In South Asians this has led to an epidemic of diabetes.

Current diabetes prevention strategies are focused on adult life and target over-nutrition with interventions designed to reduce obesity in high-risk adults. However, for many population groups across the globe, such strategies ignore a key determinant of nutritional deficiencies driven by poverty and rapid 'westernization'. These conditions are of particular importance during pregnancy and may affect the early developmental stages of baby growth when environmental insults may interact with the genetic risk to program the developing baby to later become overweight and develop diabetes and related disorders.

The primary goal of the GIFTS program has been reached "to enhance understanding of the convergence of genetic and environmental factors involved in developing diabetes and obesity, and their transmission through parent child units" and preliminary results will be discussed.

# 13- Obesity in Women: A Challenge in Arab World

*Dr. Firdous Jahan*
*Associate Professor and Head of the Department of Family Medicine,*
*Oman Medical College,*
*Sohar, Sultanate of Oman.*

The WHO (World Health Organization) defines obesity as a BMI (body mass index) of 30 kg/m2 or more. WHO report discovered that 30% of the population in the Arab World is overweight or obese, including adolescents and adults.

Development, urbanization, and improved living conditions in the Arab countries have led to greater consumption of unhealthy/fast food intake; accompanied by decreased physical activity, this has caused an increase in prevalence of obesity. This increases the risk of cardiovascular diseases, diabetes, musculoskeletal disorders, affects fertility throughout a woman's life, cancer (endometrial, ovarian, breast, cervical), and premature death. Obesity is an independent risk factor for the development of coronary artery disease (CAD) in women and is an important modifiable risk factor for prevention of CAD. In Oman the prevalence of obesity reached 16.7% in men and 23.8% in women in year 2000 and it is gradually increasing. There are significant cultural barriers that appear to affect women more. Traditional/cultural restrictions in lifestyle choices available to women in Arabic countries are one source for increased rates of obesity and females have limited access to sporting/exercise activities.

# 14- Organizing Diabetes Care in Resource Poor Countries: Bangladesh Experience

*Prof. AK Azad Khan,*
*President,*
*Diabetic Association of Bangladesh (BADAS)*

In developing countries i.e Bangladesh, Pakistan, India etc. there is lack of organized care for life long chronic diseases like diabetes, hypertension etc. Although these diseases have become epidemic in the world. The epidemic is rising faster in developing countries. BADAS has created a sustainable model of health care (Ibrahim Model) in Bangladesh. Through this model BADAS is currently looking after over 35% of all diabetic in Bangladesh and is hoping to cover 50% by 2020.

Different components of the model include: 1) Organizational set-up - democratically elected leadership interested in social development and healthcare ensuring community ownership 2) Decentralized model - one central Association and 62 affiliated associations, almost one in every district, seven sub affiliated associations below district level 3) Healthcare and Educational institutions – from the beginning the Association has built healthcare institutions of its own. At present the Association owns more than 109 institutions. Owns hospitals having over 3762 beds, provide primary, secondary and tertiary care in all disciplines including organ transplantation (kidney, liver), cardiac bypass and stenting 4) Financial sustainability – capital development with govt. assistance and from public philanthropy. Running cost is managed through cross-financing from surplus generated from rich patients, non-diabetic patients and from diagnostic services 5) Manpower creation – MBBS in 3 medical college, 18 post graduate programs, public health courses and other courses on applied and allied health sciences in our own University (Bangladesh University of Health Sciences). Certificate course for graduate doctors in diabetes is being successfully run and till today over 10,000 doctors have been trained. At Upazilla level these practitioners have been accredited expanding diabetes care to the periphery.

Great emphasis is given on using appropriate technology. At present giving healthcare through mobile phones and call centers and connecting the care to the newly created doctors' network of certified physicians is being implemented.

Ibrahim model has shown that with proper planning and dedicated leadership it is possible to create health care for diabetes and other chronic diseases even in poor countries.

# 15- Establishment of diabetes clinics in low resources situation: The Diabetes Clinic In Remote Area

*Dr. Mesbah Syed Kamel MD,*
*Consultant Diabetologist,*
*Minia University, Egypt.*

***Objectives:*** The aim of the study was to assess the feasibility and effectiveness of a structured diabetes shared care service in a remote area and to analyze the impact on total patient care.

***Methods:*** This study was carried out at diabetes clinic in One-day surgery hospital,Samalout,Minia Governorate during 2010. The files of 800 patients with type 2 diabetes who attended the clinic during 2006-2008 were evaluated. Biophysical outcomes (HbA1c, blood pressure, body mass index,lipidprofile,CVS mortality and morbidity,microvascular complications), psychosocial measures (smoking status and Diabetes Clinic Treatment Satisfaction and Diabetes Well-being scores) and process outcomes were collected.

***Results:*** Findings of this study will be presented.

***Conclusion:*** There can be no question that this experiment has been a success. All the patients have welcomed it. Apart from the ease of attending special clinic they are glad to come into an atmosphere which is familiar and to be greeted by staff whom they know.

# 16- Incretin-based Therapies in Ramadan

*Dr. Mafauzy Mohamed,*
*Director of Campus,*
*Professor of Medicine and Senior Consultant Endocrinologist,*
*Health Campus, Universiti Sains,*
*Kelantan, Malaysia.*

About 75% of patients with T2DM fast during Ramadan. Fasting during Ramadan may increase the risk of hypoglycemia, hyperglycemia, dehydration and thrombosis. Incidence of symptomatic hypoglycemia with sulphonylureas (SUs) had been reported to range between 14.0 – 25.6% during Ramadan. Incretin-based therapies offer a better alternative to reduce the risk of hypoglycemia as the glucose lowering action is dependent on blood glucose levels. In 2 randomized control trials with the DPP4 inhibitor sitagliptin, compared to SUs in Ramadan, the incidence of symptomatic hypoglycemia was significantly lower at 6.7% vs 13.2% and 3.8% vs 7.3% with sitagliptinvs SUs respectively. In another study with vildagliptinvsgliclazide, the rate of confirmed hypoglycemia was significantly lower at 3.0% vs 7.0% respectively. There were 2 studies with GLP1 receptor agonist liraglutide in Ramadan. In a study comparing liraglutide 1.2mg vs SUs, the percentage of patients achieving a composite end-point of HbA1c <7.0%, no weight gain and no severe hypoglycemic events was significantly higher at 38.2% vs 20.9% with liraglutide 1.2mg vs SUs respectively. In another study comparing liraglutide 1.8mg vs SUs, the proportion of patients having confirmed hypoglycemia was significantly lower at 2.9% vs 9.4% with liraglutide 1.8mg vs SUs respectively.

In conclusion, use of incretin-based therapies (DPP4 inhibitors and GLP1 –RA) in Ramadan is associated with a significantly lower incidence of hypoglycemia compared to SUs thus enabling patients to undertake fasting safely and complete their fast.

# 17- Ramadan Fasting and Nutritional advices

*Mohsen Nematy*
*Associate Professor, Department of Nutrition,*
*Biochemistry and Nutrition Research Center, Faculty of Medicine,*
*Mashhad University of Medical Sciences, Mashhad, Iran*

Ramadan is a whole month of intermittent fasting, from dawn to dusk, every year. Islam has over one billion followers worldwide. Fasting is one of duties for every Muslim, although it is allowed just for those fasting not harmful for them.One of the most important question for diabetic patients and their physicians before Ramadan is whether fasting is safe for them or not.Due to high prevalence of diabetes all over the word and the high number of million Muslims are fasting yearly, it seems necessary to have evidence based approach for answering this question. The result of our initial studies regarding Ramadan fasting in Type 2 diabetic patients showed significant improvement in lipid profiles, however glycemic control was deteriorated during fasting. This was more evident in patients using oral hypoglycemic medication than diet controlled patients.In order to minimize adverse effects of Ramadan fasting in diabetics such as hypoglycemia, patient education, regular monitoring of blood glucose and adjustment of treatment regimens should be done weeks before Ramadan. Treatment with insulin and sulfonylurea are accompanied with the most risk of hypoglycemia. Such patients need to monitor their blood glucose carefully and if it is needed such treatment regimens may be adjusted. Also, patients with type 2 diabetes should avoid skipping predawn meals, avoid strenuous physical activity among fasting period and consider breaking the fast if there is recurrent or severe hypoglycemia.

# 18- Intelligent Eating in Diabetes (Carbohydrate Counting)

Mohsen Nematy
Associate Professor, Department of Nutrition,
Biochemistry and Nutrition Research Center,
Faculty of Medicine, Mashhad University of Medical Sciences,
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Carbohydrate counting, or "carb counting" is a meal planning technique for managing blood glucose levels. The importance of carb counting is based on the ideas that Carbohydrates is the main nutrient affecting post-prandial glycemic response as well as higher importance of total amount of carbohydrates rather than source of carbohydrates. Carb counting has two main steps: 1. Identifying foods containing carbohydrate in meals, 2. Estimating the carbohydrate content of our meal. Daily intakes of carbohydrate and activities must be recorded. Daily allowed amount of carbohydrate differs from 180 gram (for 1200 kilocalories) to 300 gram (for 2800 kilocalories), depending on daily energy intake. This amount must be divided into different carbohydrate containing food groups. The recommended unit for grains, non-starchy vegetables, fruits and dairy products are 6-11, 3-5, 3-4, and 2-3 respectively, again depending on the daily energy intake. This allowed amount of carbohydrate must be properly divided into main meals and snacks. Three snacks throughout day must contain X gram of carbohydrate, while breakfast, lunch and dinner must contain 2X, 3X and 3X, respectively. Considering carbohydrate content of each food groups is very important as well. Starches and fruits have 15 gram carbohydrate/serving, while dairies and non-starchy vegetables have 12 and 5 gram/serving, respectively. Since meats and fats are carbohydrate-free they are not considered in carb counting. Examples of serving size for starches (15 gr): 1 slice of bread, 1/3 cup cooked pasta or rice and 4-6 crackers. Serving sizes for fruits (15 gr): 1 cup of raw fruit, 1/2 cup juice or canned fruit and1/3 cup grape juice. Serving sizes for dairy products (12 gr): 1 cup milk, 6 oz no sugar added yogurt and for non-starchy vegetables (5 gr): 1 cup of raw or 1/2 cup of cooked vegetables. As conclusion, carb counting is considered as a good aspect of intelligent eating in diabetes and can result in keeping blood glucose in target range aligned with flexibility in meal and snack quantities. Identifying carbohydrate containing foods as well as estimating the carbohydrate content of meal (by multiplying units of each food group and the gram of carb in each unit) are the main steps of carb counting.

# 19- Footwear for low Resources Country: A Practical Approach

*Bent R. Nielsen*
*Chief Podiatrist,*
*Gentofte University,*
*Copenhagen, Denmark.*

A method for making individual temporary shoes during healing periods has been developed at Gentofte University Hospital, Copenhagen, Denmark. By using thermoplastic materials with low weight you can make any shape and size you want for the purpose. Using materials with different rigidity you can achieve several goals: Reliving of pressure, corrections for abnormal gait function, stabilizing foot-disorders etc. By using different materials you can do corrections corresponding to the progress of the healing progress, or if surgeons do secondary surgery.

***Method:*** Survey of the foot, evaluating of the status of the patient. Making the base of the shoe, making pressure relief, correcting or improvement of the gait function. Instructions to the patient. Testing the shoe on the patient. The shoes can be made and used few hours after operations

***Consumption of time:*** From one hour for one shoe for most of the cases.

***Benefits:***

- Patients are immediately able to work and do not need to be bedridden.
- Low costs.
- Easy to do changings during the healing progress so the shoe is 100% customized to the status of the foot.
- Shorter healing period.

# 20- Oxidative stress,dicarbonyl stress and emerging treatment options for cardiovascular disease in diabetes

*Naila Rabbani*
*Reader in Experimental Systems Biology,*
*University of Warwick, U.K.*

Oxidative stress is a consequence of dysglycaemia in diabetes. Drivers for oxidative stress are: increased formation of reactive oxygen species by mitochondrial dysfunction, vascular NADPH oxidase and nitric oxide synthase uncoupling; and down regulation of anti-oxidant stress response – particularly transcription factor Nrf2 and antioxidant response element-linked gene expression. Although oxidative stress is considered to be a major player in vascular complication of diabetes, antioxidant therapies have proven ineffective. Other metabolic features upstream of oxidative stress may also be involved.

We have studied dicarbonyl stress – the abnormal accumulation of glucose-derived methylglyoxal - in diabetes as an alternative mechanism involved in vascular complication of diabetes.Glyoxalase (Glo1) metabolizes methylglyoxal. Experimental studies suggest dicarbonyl stress contributes to insulin resistance and vascular inflammation in obesity and diabetes. Increased formation of methylglyoxal occurs in hyperglycaemia associated with diabetes and Glo1 is down-regulated in the vascular endothelial cells. In pre-clinical and clinical genome-wide association studies Glo1 down regulation is a driver for coronary heart disease. This likely occurs through LDL and HDL modification by methylglyoxal producing small, dense atherogenic LDL and unstable and dysfunctional HDL to exacerbate dyslipidaemia. A recent clinical trial with a Glo1 inducer that alleviates dicarbonyl stress showed improved vascular health and arterial function.

# 21- Antenatal Care in Gestational Diabetes Mellitus (SAFOG Experience)

*Dr. Ashma Rana*
*TU Teaching Hospital, Nepal,*
*President of Nepal Society of Obstetrics & Gynecology (NESOG)*

In our part of the world crisis management supervenes, unfortunately exposing mother and her unborn/newborn to amounting risks. It's not surprising to see women for the first time during her pregnancy or labor in hypertensive crisis, eclampsia, torrential hemorrhage, obstructed labour several hours or shoulder dystocia contraray to virtuous facts and figure projected nationally.

I would like to share some of the recent cases that came across, first was a post partal lady who came after home birth, who said she was told that she had hypertension health posts but was left untreated. Next was 28 years G4 P3 (all 3 live birth, 2 sons and 1 daughter) with chronic kidney disease (being treated with ten different drugs; which was diagnosed 2 years before the last child birth, 7 years back) at 25 weeks gestational age. When asked why she did not acquire contraception, the prompt answer was that she was amenorrheac and did not realize she could be gravid. Last one is the one who happened to be in our maternal mortality discussion; a young primigravida diagnosed to have huge pancreatic tumor at 2 months of pregnancy and was referred at 26 weeks with severe anemia from tumor bleed and hemoperitoneum augmented by intrauterine fetal death-induced coagulopathy.

**These points the lapses in our system and calls for making antenatal care more client friendly, comforting, giving required time, answering queries politely by maintaining privacy with full emphasizes focused in counseling and contraception.**

# 22-Diabetes and Biomarkers for vascular and metabolic health: Clinical and practical implications

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Glycemic control in diabetes is conventionally assessed clinically by glycated hemoglobin A1C, glycated albumin, fructosamine and fasting and 2-hour post-meal plasma glucose tests. Self-monitoring of blood glucose is particularly important for patients using insulin. A1C captures glycemic control in the 6 – 8 week period prior to measurement, glycated albumin and fructosamine 3 – 4 weeks prior to measurement and fasting and 2-hour post-meal plasma glucose on the day of measurement. In a 24 h period, the proportion of glucose exposure captured by these biomarkers is: A1C, 71%, fasting plasma glucose, 63%, and 2-hour post-meal plasma glucose, 78%; reflecting the importance of measurements under glucose challenge conditions. A simple and robust measure of insulin resistance is the Oral Glucose Insulin Sensitivity (OGIS) index – based on plasma glucose and insulin measurements during a glucose tolerance test.

Glycated albumin, fructosamine and plasma advanced glycationendproduct (AGE) markers of glycemic control assays are confounded in obese and hypertensive patients by increased capillary permeability and interstitial fluid volume, which may lead to under-reporting of glycemic exposure.

For cardiovascular disease (CVD) risk assessment, the QRISK2 score is recommended, relating CVD risk to clinical characteristics combined with total cholesterol (TC)/high density lipoprotein (HDL) cholesterol ratio. Pro-atherogenic lipoprotein subtypes may improve prediction of impaired vascular health.

# 23- Unifying Maternal Child Health (MCH) with Non Communicable Diseases (NCD): Lessons learned from Nirogi Maatha

*Prof. Chandrika N Wijeyaratne,*
*Professor in Reproductive Medicine, Faculty of Medicine,*
*University of Colombo, Honorary Consultant Physician & Endocrinologist,*
*De Soysa Hospital for Women, Sri Lanka.*

The NIROGI Lanka project (National Initiative to Reinforce and Organize General Diabetes Care in Sri Lanka), funded by World Diabetes Foundation, enabled the national medical organization in Sri Lanka (advocate) in liaison with the Ministry of Health-MoH (policy and planning) to catalyze the development of a nationally relevant model for tackling the NCD burden in Sri Lanka.

Component 1 of phase II (from 2012) focused on Gestational diabetes (GDM) - NIROGI Maatha.
***Justification:*** Exponential rise of type 2 diabetes in South Asia place young Sri Lankan women at risk during pregnancy. Temporal trends of GDM mirror that of type 2 diabetes, with community prevalence of GDM reaching 10.3% (2003) in suburban Sri Lanka.

The national focal point (Family Health Bureau - MoH) for Maternal & Child Health (MCH), that has effectively countered maternal mortality, runs a focused programme with insufficient horizontal integration with national NCD programme.

***Goal:***

- Improve quality of maternal diabetes care in Sri Lanka
- Empower communities to be responsible for prevention of diabetes and CVD
- By integrating national MCH and NCD programmes.

To achieve quality care for GDM and to ensure healthy offspring, the field staff (primary care) and hospital staff (secondary and tertiary care) required capacity building to provide a conducive environment for diabetes and cardiovascular risk reduction commencing from the girl child through pregnancy and post partum with a more holistic, health promotion oriented MCH service.

***Intended project results***

- Capacity building of existing human and technical resources for cost effective universal screening, pragmatic management and long term follow up of GDMon a national scale atgrassroot level
- Achieve universal coverage, enable data collection and monitoring

Approximately 95% of women receive ANC from state sector, through well-established field and institutional level maternal care programme. Universal screening by glucometers for GDM was commenced Islandwide in mid-2012. All pregnant women were targeted with high risk factors identified at booking visit (in the field); (~400,000 per year) undergo 2 hour PBBS as a first contact in the first trimester. If PPBS >120mg/dl, 75gOGTT wasperformed at the closest hospital. Remaining pregnant women POA undergo non fasting 75gOGTT (DIPSI method) between 24-28 weeks.

***Achievements***

1) Unifying a common approach to GDM by MCH and NCD programmes at national level
2) National commitment to Universal Screening for GDM by BG testing
3) Sensitize a life cycle approach to GDM – mother and baby long term follow up
4) Data monitoring

Sustainability- strong for Universal Screening and formal GDM related education- through existing MCH programmewith real time data collection through multiple partners / stakeholders

Challenges - to determine the most valid and cost effective tool through the WHO country office.

# 24- Peripheral Artery Disease (PAD) in our region- is it a real problem?

*Prof. Mandika Wijeyaratne*
*Professor & Chair of Surgery,*
*Faculty of Medicine,*
*University of Colombo, Srilanka.*

***Objective:*** To find out the truth about suspicion that Asian diabetics have less PAD than in Caucasians despite a paucity of data.

***Method:*** In a community survey of 2779, >40-74yrs, from suburban Sri Lanka, PAD was diagnosed using clinical, Doppler and duplex criteria. In addition, the Colombo University vascular and wound care service was audited using the Society for Vascular Surgery lower extremity threatened limb classification.

***Results:*** Community - Overall, PAD was detected in 3.2% (88/2779), with 72% of those with PAD (63/88) having diabetes. Nineteen percent (527/2779) of the population were diabetic with 26% (138/527) of them, known to be affected for >10 years. Prevalence of PAD among the diabetics was 12 %( 63/527), with over ¾ of them (48/63) having diabetes for >10 years.

Tertiary Hospital - In the University Vascular Service, among the last 100 consecutive admissions with non-healing foot ulceration, diabetes was present in 87%. The median age was 64(39-93) and 79% were male. Grades of ischaemia were none (23.3%), mild (27.9%), moderate (18.6%) and severe (30.2%). Estimated risk of amputation were high (65.1%), moderate (11.6%), low (11.6%) and very low (11.6%). Estimated benefit of revascularisation was high (46.5%), moderate (23.3%), low (7.0%) and very low (23.3%). From among the last 100 consecutive revascularizations for non-healing foot ulceration and gangrene, 90% were diabetics.

Delayed/non realization of ischaemia leading to primary proximal amputation or loss of more than half the foot by the time of revascularization was observed in 60% of those referred.

***Conclusion:*** Increasing life expectancy coupled with early onset diabetes, leading to longer duration of disease, results in a higher prevalence of PAD. Furthermore, the bulk of wound care and lower extremity revascularization involves diabetics in Sri Lanka. Delayed intervention for PAD leads to poor outcomes and is a significant problem among the Sri Lankan diabetics.

## 25- Psychological support for people with diabetes

*Ms. Susan Clever*
*Consultant in Medical Psychology,*
*Dept. of Diabetes and Metabolism,*
*Bethanien Hospital, Hamburg , Germany*

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## 26- Safety of fasting in people with diabetes

*Dr. Khaled Tayeb.*
*Consultant at Ministry of Health,*
*Saudi Arabia*

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## 27- Diabetes in MENA Region, Obstacles and difficulties and regional plan

*Dr.Nizar Albache*
*Head of Diabetes Research Unit,*
*Consultant Diabetes Department Aleppo University, Syria*

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## 28- Insulin Treatment during Ramadan: Recent evidences

*Prof. Adel A. El-Syed,*
*Professor of Internal Medicine and Chair of Diabetes Unit,*
*Faculty of Medicine, Sohag University, EGYPT*

## 29- Changing Role of Diabetes Educator to Case Manager: The new era

*Barbara Eichorst, MS, RD, CDE*
*Global Diabetes Care Lead Facilitator,*
*VP of Clinical Practice, Healthy Interactions, USA*

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## 30- Is Diabetic Peripheral Neuropathy More Central then Peripheral

*Prof. Ryaz A. Malik.*
*Consultant Physician ,*
*Diabetologist & Endocrinologist,*
*Professor of Medicine,*
*Weill Cornell Medical College Qatar,*

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## 31- Diabetes and disasters: A real critical issue in the region

*Dr. Mohamad Sandid*
*Consultant Nephrologist,*
*Wesley Medical Center, Wichita, Kansas, USA*

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## 32- Normal and productive life with T1DM from the perspective of Resource constraint society

*Dr. Graham Ogle, Consultant Paediatric Endocrinologist,*
*General Manager IDF Life for a Child Programme,*
*Director of Health and Social Services HOPE worldwide (Australia).*

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## 33- Get in, Get fit and Live as healthy life with Diabetes

*Mr. Lucas Fogarty, USA*