

diabetes WATCH

philippines

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A Journey Along the Metabolic Communication Highway

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- Bone as an Endocrine Organ
- The Gut Microbiome: An Encounter with the "Forgotten" Gastrointestinal Organ
- DP Workshop in Cebu
- Type 1 Ka? Kita Tayo sa Type 1 Congress
- Reflections of an Elderly Diabetic
- The Travelling Diabetic
- The 34th Diabetes Philippines Annual Convention



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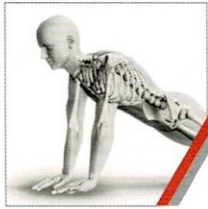


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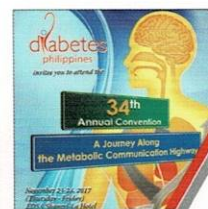
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1. Fewer Filipinos with diabetes
2. Improved quality of life for Filipinos with diabetes

OUR VALUES

INTEGRITY

Above all, the nobility of our purpose. We serve patients, pursue education and conduct research with zeal and without regard for personal gain. Honesty and transparency rule our behavior in relating with fellow members, partners, supporters and other stakeholders of our organization.

EXCELLENCE

Passionate workers, we expect from ourselves only the best effort.

We continuously upgrade our knowledge and skills, adopt ever-improving technologies, and expand the reach of our services to attain our vision. Our mentors, generous with their knowledge and time, model excellent leadership.

COOPERATION

We work as one for the common good, enjoying the camaraderie, observing respect and maintaining loyalty even in dissent. We partner with institutions and other specialties that aim for the same goal. Caring for everyone's well being, we make work pleasant for members and staff.

COMMITMENT

Persistent in our search for solution to diabetes. We have selflessly devoted five decades to the improvement of diabetes care, education and research to prevent the onset of the disease in high risk individuals and the complications in those already afflicted by it. We take on responsibilities with diligence until their successful conclusion.

YOUR PRESIDENT SPEAKS



This is my second message to you as your President, and already, I am feeling nostalgic. How swiftly time flies. It seemed just like yesterday when I was sworn in, and now, I am nearing the end of my term. It is now time to look back at what we have done as your Board for the last two years. Have we kept our promises?

The short answer is, YES, I think we did.

The amended Constitution and By laws will soon be approved by the General Membership. This will be the lasting legacy of our leadership for the future generation of DP leaders. Your present DP Board takes pride in leaving you with such a legacy to guide future young leaders and carry on the Mission and Vision that DP stands for.

Our alliance and partnership with various International Diabetes communities and organizations is continuously growing and getting stronger. DP supports and collaborates closely with these organizations towards achieving our common goals for our diabetic communities and their families.

Our new home will be inaugurated and opened very soon. We are happy to have been given permission by the International Diabetes Federation (IDF) to use the official logo of the IDF, the blue circle, in the facade of our building. We know of no other building that has been allowed it use, and this makes your Diabetes Phillipines one of its kind. All of you are welcome to use and visit our building - our home, your home. We hope to see you all there in the very near future.

The Chapters and the various Councils of DP are in full swing and have been doing their own activities, projects and workshops with the guidance of the national organization. There were new Chapters that were formed and inducted, and we welcomed all of them with open arms. We encourage the other regions to organize their own DP Chapters and work closely with the mother organization. Indeed, there was full rebirth of these very important arms and partners of DP and we recognize all of them and are most thankful for all their support and dedication to DP and its advocacies.

This year, DP celebrates its 60th anniversary. I am honored to be the Diamond President of DP! Our

Annual Convention is geared towards honoring DP, its history and leaders on its diamond celebration. The Annual convention committee is preparing a special Fellowship party for all DP past and present leaders while welcoming the new breed of young and dynamic diabetes enthusiasts. DP is one of the oldest existing medical organizations in the country - and that and more, are reasons why we should all celebrate! So join us on our 59th annual convention, celebrating with DP on its diamond year. Let us all be proud to belong to DP!

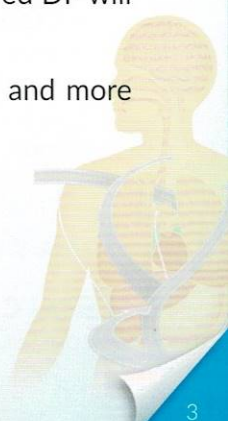
I am honored and truly privileged to have served DP and to have been part of its history as its 26th President. There can never be a greater honor than to serve the organization and the people who share the same advocacies and passion. I want to thank my very dedicated and passionate Board who, I said in my first message, were my dream team. I want to salute my work force of two hardworking and ever reliable PCP Secretariat, RUTH and JULIE, who are indispensable to DP. I thank all of you with all my heart. You all made my journey as DP President "a walk in the park."

Lastly, I want to thank all of you DP members and advocates for sharing the mission and vision of DP and for living the dream. Our work is not over, everyday with DP is a brand new challenge, and I know that my Board and all future leaders of DP will make more significant and important changes to make the lives of our diabetic patients and their families of better quality - worth living and more meaningful. Together, we can all make this happen!

A past President of DP never really retires. They just elevate us to the Council of Elders and I do not mind being called as such. I know the wisdom that I have gained through all the years that I have served DP will be valuable in many ways.

Thank you for the honor and the privilege, and more power!

Agnes Torrijos - Cruz MD,
MS, FPCP, FPSN, FPSD
President



From the EDITOR'S DESK



Greetings!

This latest installment of *Diabetes Watch* covers the organization's activities from July-December 2017. Not surprisingly, its theme comes from our annual convention's title, "*A Journey Along the Metabolic Communication Highway*". This was chosen by our scientific chair, Dr. Grace K. de los Santos, with the aim of choosing topics that elucidate how diabetes relates to other organs that affect the metabolic health of an individual. I have included articles from some of the lectures in this issue.

The year was also marked with sadness on the passing of a formidable leader in the diabetes community. Everyone's dear Tatay, Dr. Ricardo Fernando, passed away peacefully last September 18, 2017. We will all miss him dearly. I have included a reprint from an old Diabetes Watch issue in his honor. "Reflections of An Elderly Diabetic" are Dr. Fernando's personal musings. May we all be guided by his wise words.

I have also included a copy of the Sugar-Sweetened Beverage Tax position statement of DP. Our dear president, Dr. Agnes Cruz, along with Board member Dr. Jen Duatin, RND and other members have actively rallied in support of this bill with other medical societies. This makes the Philippines among the first in Asia to introduce SSB tax in the national agenda. Evidence has shown that reduction in consumption of sugars correlates with a decline in the prevalence of overweight, obesity, and noncommunicable diseases such as diabetes and cardiovascular disease. Kudos to all!

In our DP On the Move pages, follow the other activities that DP has been busy with including the Diabetes Awareness Week, the World Diabetes Day, Gimik Diabetes and the numerous television and radio programs in which our very active officers and board have guested these past months.

Read on!

Marsha C. Tolentino

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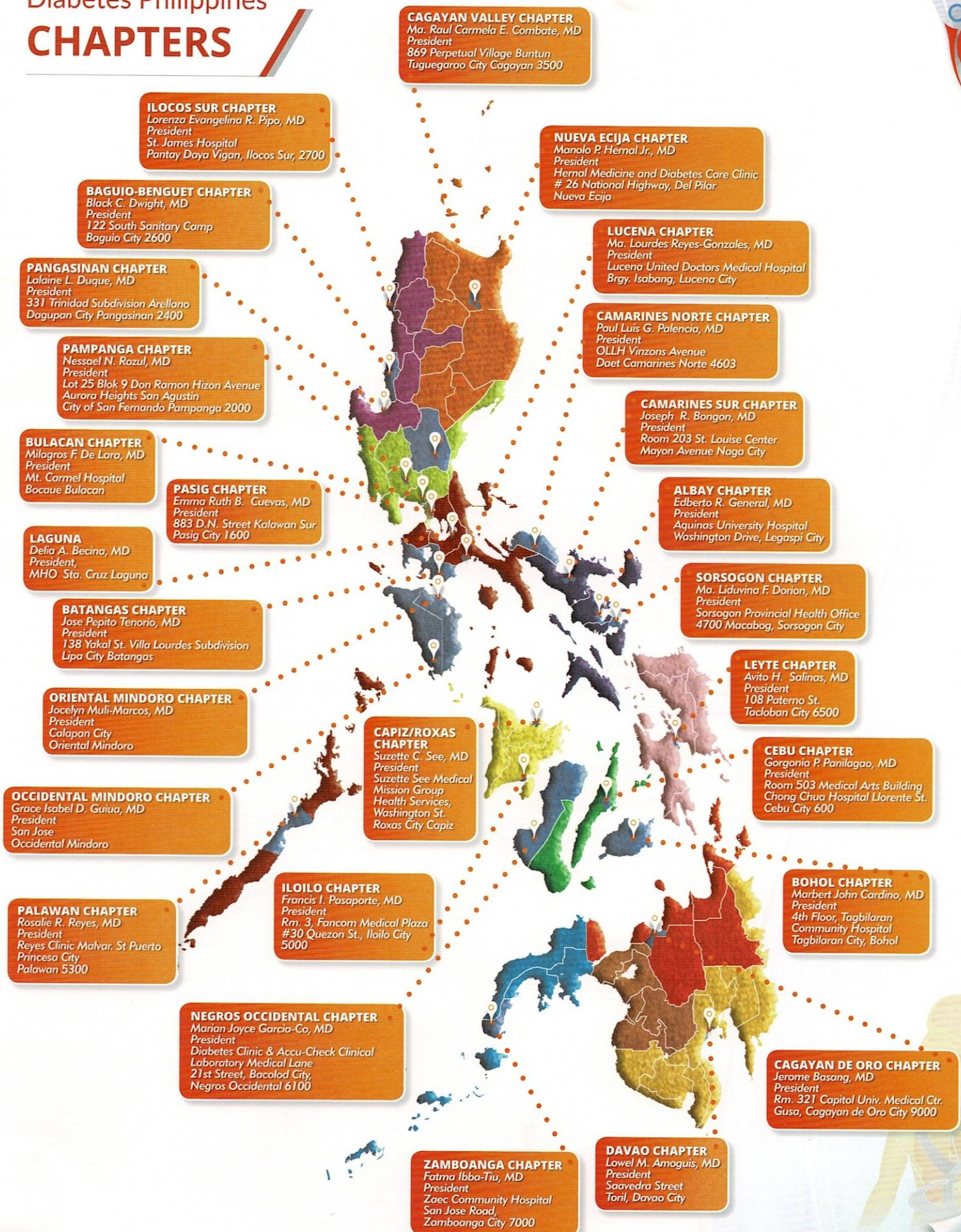
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CHAPTERS





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Bone as an Endocrine Organ

by Marie Yvette Rosales-Amante, MD

Bone has been conventionally seen as an inert organ, with the primary purpose of mobility, calcium homeostasis, and maintenance of the hematopoietic balance. Recent advances have shown bone as a regulator of a number of metabolic processes that are independent of mineral metabolism.

Bone is a unique organ because it has the ability to renew itself. The biphasic process of bone remodeling occurs throughout life, and is responsible for linear growth and bone maintenance. Because of the size of the skeletal system and its dynamic homeostatic nature, the energy requirement for these processes are deemed enormous.

Its association with energy regulation has been one of the identified nonconventional roles for bone. Insulin has pleiotropic roles: regulating glucose homeostasis, lipid and protein metabolism; insulin regulates energy utilization, mediating its effects through the Insulin Receptor. Results from numerous in vitro studies have established a functional Insulin Receptor in bone.

Emerging evidence from epidemiological, clinical, and experimental studies have proven that bone is involved in glucose metabolism by regulated insulin secretion from pancreas, and by adipokines from adipose tissue (Figure 1). Osteocalcin is the most abundant osteoblast-specific non-collagenous protein. Accumulating evidence has shown that osteocalcin regulates glucose homeostasis by stimulating insulin expression in pancreas and adiponectin expression in adipocytes, resulting in improved

glucose tolerance. On the other hand, insulin and adiponectin stimulate osteocalcin expression in osteoblasts, suggesting that positive feedforward loops exist among bone, pancreas, and adipose tissue. In addition, recent studies have shown that osteocalcin enhances insulin sensitivity and the differentiation in muscle, while secreted factors from muscle, myokines, regulate bone metabolism (Kanazawa 2015).

improved metabolic state via adiponectin in females, and via testosterone in males (Buday et al. 2013). Osteocalcin knockout mice have been noted to have decreased testosterone, and diminished sperm count (Oury 2013).

Osteocalcin has been identified to have effects on the brain too, by affecting neurotransmitter synthesis. Osteocalcin crosses the blood-brain barrier and binds specifically to serotonergic

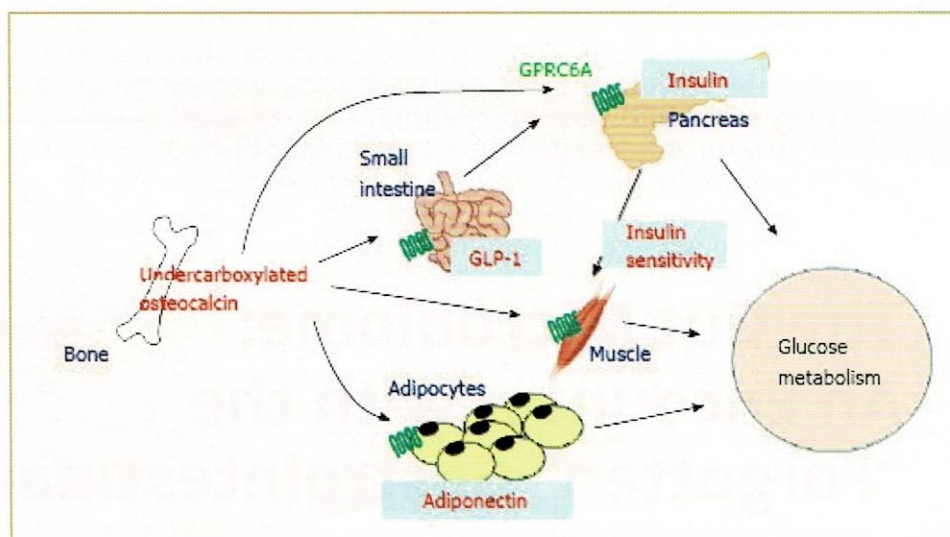


Figure 1

Schematic representation of the mechanisms regulating glucose metabolism by bone. Undercarboxylated osteocalcin (ucOC) secreted from bone directly stimulates insulin secretion from pancreas and indirectly through increasing the secretion of glucagon-like peptide-1 (GLP-1) from small intestine. ucOC stimulates the expression of adiponectin in adipose tissue, resulting in increasing insulin sensitivity. ucOC also enhances insulin signaling in muscle. G-protein coupled receptor family C group 6 member A (GPRC6A) is a receptor for ucOC and expressed in pancreas β -cells, epithelial cells of small intestine, adipocytes, and myotubes. Kanazawa 2015, World J Diabetes.

Osteocalcin has also been positively associated with testosterone levels (Hannemann et al 2013). Results from one study have indicated that there is a sex-specific action of the bone-energy homeostasis axis, with osteocalcin being associated with

neurons of the raphe nuclei in the brainstem, neurons of the CA3 region of the hippocampus, and dopaminergic nucleus of ventral tegmental area in the midbrain. (Oury et al 2013).

At least three other bone hormones moonlight as endocrine

couriers, recent studies show, but there could be more. These are sclerostin, fibroblast growth factor 23 (FGF 23) and Lipocalin 2.

The latest studies involve Lipocalin 2, which bones unleash to stem bacterial infections, also works in the brain to control appetite. Lipocalin 2 crosses the blood-brain barrier, binds to the melanocortin 4 receptor (MC4R) in the paraventricular and ventromedial neurons of the hypothalamus and activates an MC4R-dependent anorexigenic (appetite-suppressing) pathway. In an analysis of patients with type 2 diabetes, blood levels of lipocalin 2 were inversely correlated with body weight and blood A1c levels (Kousteni et al. 2017).

FGF23 is synthesized by oste-

oblasts and regulates phosphate metabolism. FGF23 targets a limited number of tissues, including kidney, parathyroid gland, choroid plexus, and pituitary gland that co-express FGF receptors.

Sclerostin, which downregulates bone turnover, is now implicated in insulin resistance and fat metabolism. Sclerostin is a glycoprotein secreted by osteocytes. It antagonizes the Wnt (Wingless-type mouse mammary tumor virus integration site) pathway, thus suppressing osteoblast activity and downregulating bone turnover. A gene mutation in the Wnt signaling pathway has been associated with hyperlipidemia, hypertension, and early coronary artery disease in patients with metabolic syndrome. Sclerostin

has been noted to be elevated in individuals with prediabetes. There is a proven correlation between sclerostin and insulin resistance in skeletal muscle, liver, adipose tissue (Daniele et al. 2015).

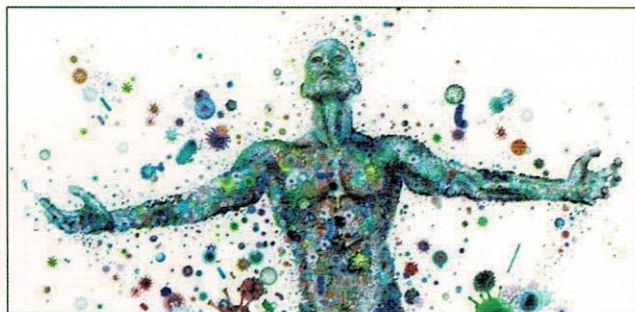
Future research on these novel endocrine networks is likely to lead to new appreciation of the cooperation between various organ systems to regulate phosphate, vitamin D, glucose and energy metabolism, obesity, even reproduction. Thus this may lead to possible new therapies from bone-derived hormones. 

REFERENCES

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The Gut Microbiome: An Encounter with the "Forgotten" Gastrointestinal Organ

by Marivic Vestal, MD, FPCP, FPCC and Celine Aquino MD, FPCP, FPCC



The Gut Microbiome

In the last decade, the gut microbiome, also known as the "forgotten gastrointestinal organ", has moved slowly but inexorably to center stage. Interest among medical practitioners has blossomed as evidence accumulates on the interaction between the microbes that exist within us and various systemic diseases.

Since the time of Aesculapius,

physicians have known that the gut can dictate health and disease in humans. We now know that it does so by the behaviour and composition of the bacteria that inhabit its nether regions. All the microbes that inhabit every nook and cranny of the human body comprises the "microbiota": and as each of us is unique, so is each population of microbiota unique to an individual: as unique and as identifiable as a fingerprint!

Now if an average human has

some 10 trillion cells - he also carries 100 trillion microbes and if we use this measure as context, then we are actually then, only 10% human! If we argue that it is our genes and not the cell count that make us human...

Then, consider that "MICROBIOME" is the term given to the microbiota plus their genes or the microbes' DNA! The human genome has been mapped - adding up to approximately 23,000 genes per person. The human

microbiome on the other hand, consists of anywhere from 2 million to 20 million genes! And in this context, we are now only 1% human! Whether we like it or not, BUGS are US!

If our microbiota is as individual to us as our fingerprint, what determines our microbiota and microbiome? Quite a number of things actually...First, the way we are born: C-section babies have a different microbiome from vaginally delivered babies! Our level of hygiene matters: if we are too clean; whether we were breastfed or not; even our use of antibiotics... all these have an impact on our microbiome. Other factors include aging and our exposure to our environment. Take French kissing for instance – such an act can transfer up to 80 million good bacteria! This means that whoever we “French-kiss” has the potential to alter our DNA.

Even intimacy within the family can have the potential to alter our microbiota... interaction with

pets, exposure to food, infected environments, pharmaceuticals can all alter our DNA. Having said that, it is important to know that a lot also depends on our own innate genetics.

The Father of Microbiome-Medicine

The “microbes maketh the man” concept is not new!

Over the turn of the last century, a forward-thinking visionary scientist emerged from Russia. Ilya “Elie” Metchnikoff worked on a revolutionary idea - and he did it in an unusual series of experiments that no one should try to reproduce today!

Distraught after his 2nd wife Olga fell victim to typhoid fever, he inoculated himself with the bacteria so he could die with her; but to his astonishment, they BOTH survived – in an era before antibiotics! He concluded that the body must have its own natural defense system. Professor Metchnikoff conducted his investigations in Louis Pasteur's laboratories where his discovery of the phagocyte and the process of phagocytosis earned him the Nobel Prize in recognition of his pioneering work in cellular immunity.

In 1892, France was in the throes of a cholera epidemic. The eccentric Metchnikoff drank a home-made concoction of *Vibrio cholera* and again, he failed to fall ill. Not content with this dangerous experiment, he convinced a volunteer to take the same concoction and this volunteer also remained well. Not content with this, he found still another volunteer to whom he applied the same treatment – but his luck ran out here... this last volunteer nearly died of the cholera!

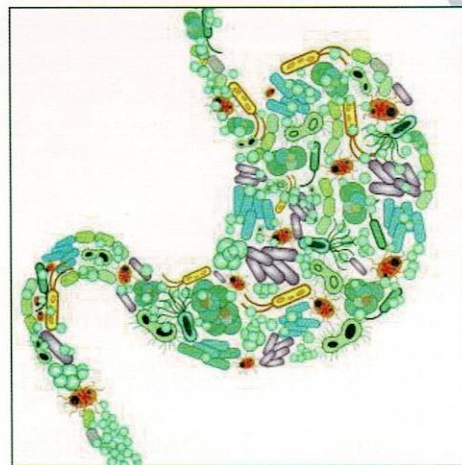
After a feverish effort to discover the reason for this discrepancy, Professor Metchnikoff discovered that some gut microbes hindered the growth of cholera and others stimulated it! Thus began his revolutionary idea: that the flora of the human gut played a part in disease prevention – and that altering the intestinal flora can even help to battle disease. This was an idea more than 100 years ahead of its time: in 1892, he already had an inkling of the concept of “microbial balance” in the gut.

Unfortunately, the idea never took off and the gut microbiome became the forgotten gastrointestinal organ.

It was not until the beginning of the new millennium that interest was renewed in the microbiota ... an interest propelled by the march of technology. Before the 2000's, 80% of all microbes could not be cultured. With new technology, it became possible to identify microbes - via their genetic blueprints - through gene sequencing.

Dysbiosis & Health

The new millennium brought about the “microbiome revolu-



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tion". Our current understanding of the importance of both BALANCE and DIVERSITY in maintaining a healthy microbiome means that a disturbance in either the balance or diversity spells out "DISEASE" in the process we now know as "intestinal dysbiosis".

Dysbiosis refers to an alteration in the microbiome brought about by

- 1) change in microbiota composition;
- 2) change in microbiota metabolic activity; and/or
- 3) shift in local distribution of communities of microbes.

Clostridium difficile is a spore-forming anaerobic bacterium capable of elaborating exotoxin. It is aptly named as it is really hard to eradicate. When established, the infection leads to an intractable diarrhea - a manifestation of a colitis that can persist and worsen with time - resulting in megacolon and eventually death.

Any condition that leads to decimation of normal gut flora allows the overgrowth of the pathogenic *C. difficile* ... and the outcome is commonly lethal. So where are we now in our management of this difficult disease? We are now deep in the nitty-gritty; the down and dirty; the foul reality of ... poop transplants!

Poop transplants are made possible by first locating a HEALTHY donor with a DIVERSE bacterial microbiome. In essence, it is the transfer of diluted stool from such a donor into the sick individual - via oral intake, endoscopic delivery or enema.

The theory is that transplanting the healthy microbiome given as fecal microbial transplant or FMT, will renew the sick gut and return its population of healthy microbiota: in a process called "re-poop-ulation"! It may sound horrifying but the cure rate is an impressive 91-98% for chronic relapsing *C. difficile* infection.

And not just for *C. difficile* infection. There is significant involvement of the microbiome in such disorders as inflammato-

ry bowel disease, irritable bowel syndrome, ulcerative colitis, colorectal CA and Crohn's disease. Today, there is some data linking the gut microbiome and common neuropsychiatric disorders including autism, ADHD, depression and anxiety. The auto-immune disorders; asthma and allergy; dermatologic conditions; obesity and metabolic syndrome - and even cardiovascular disease may have their roots in intestinal dysbiosis.

Pathophysiology

These seemingly random relationships actually have a good sound basis: gut dysbiosis leads to a "leaky" gut. The tight junctions that make the intestinal lining impermeable are disrupted - so that toxins and microbes can enter the blood stream from the gut lumen and cause an immune response, thus initiating the inflammatory cascade. Making INFLAMMATION the origin of the long list of diseases attributed to an unhealthy gut.

Today we speak of such a thing as the heart-gut axis: CAD has its roots in the metabolic syndrome that, as a cardiovascular risk factor, strengthens the link between the gut microbiome and heart disease.

The Mouse Twins

Earlier studies on animal subjects already described a link between gut bacteria and obesity. The first study involved lab mice bred for obesity where it was found that obese mice had only half

the population of bacteria of the Bacteroidetes phylum and more of the Firmicutes phylum than did lean mice.

In an example of discordant-weight twins, microbiota transplants from the obese donor caused the recipient mouse to also become obese (!) while the mouse receiving microbiota transplant from the lean donor stayed lean (!)

And the theory behind microbially-induced obesity is that an altered gut microbiome leads to disordered functions. In essence, the altered gut microbiome - consisting mainly of increased Firmicutes population with depleted Bacteroidetes populations - leads to increased GLP-2 and increased gut permeability that in turn leads to an increase in lipopolysaccharide or LPS. It is the increased LPS that initiates the inflammatory response.

This same alteration in gut microbiome leads to inhibition

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of an enzyme called "Fiaf" or fasting-induced adipocyte factor that in turn increases lipoprotein lipase (LPL), a regulatory enzyme responsible for the absorption of fatty acids as well as accumulation of adipocyte triglycerides. And this leads to obesity... well, in theory at least.

Not Enough Proof

It sounds good – but the obesity-microbiome axis has not been established!

Rob Knight and associates did a metaanalysis in 2016 to get further insight into the human gut microbiome and its association with obesity and the outcome was, to say the least, --- unimpressive.

The low Firmicutes-to-Bacteroidetes-bacterial-population ratio that favored lean-ness in animal experiments did not show any such consistency of the ratio with either obesity or lean-ness. There was only a small – and non-significant – association with particular bacterial taxa or overall diversity in obese and lean subjects. At this time, there can be no direct evidence of causality. The results of the metaanalysis also throws cold water over the claims of makers of PROBIOTICS that if we JUST alter our gut microbiome by using their products, then we can all aspire to become Kate Moss.

When we remember that the pathogenesis of obesity is complex and diverse, we also see that the contribution of the gut microbiome to obesity, while important, is not likely to be the main contributor!

Dysbiosis & Diabetes

On the matter of type 2 diabetes mellitus however, the link between the gut microbiome and diabetes is better established. When the microbiota are healthy, there is optimum activity of the satiety hormones GLP-1 and peptide YY, resulting in normoglycemia; and maintenance of lean body mass

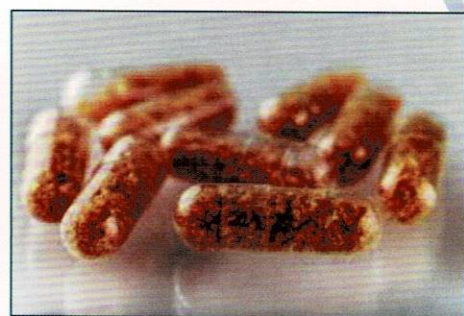
– both effects achieved by increased satiety and maintenance of insulin sensitivity. Dysbiosis disrupts the activity of these 2 satiety hormones causing failure of satiety and making both obesity and insulin resistance inevitable.

Of the 2 satiety hormones, it is GLP-1 that is the regulator of both glucagon and insulin and a decrease in GLP-1 levels starts the patient on the road to diabetes. The discovery of the incretin pathway of which GLP-1 and GLP-2 are major players led to the expansion of our understanding of diabetes and the genius concept of the ominous octet. The latter concept identified the 8 organs that contribute to the development of T2DM, including the beta cells of the pancreas; the alpha cells; the skeletal muscle; the adipose cells; the liver; incretin pathway in the upper gut; the brain neurotransmitter dysfunction and the kidney. The ominous octet refers to the targets for intervention in T2DM management today. As knowledge grew, the ominous octet is giving way to the egregious eleven by reason of the inclusion of the immune mechanism; the amylin link; and of course, the colonic microbiome.

At this time, there is unfortunately no direct RCT that can demonstrate whether or not microbes can cause diabetes. But for indirect proof, look no further than the dramatic results obtained with bariatric surgery. Bariatric surgery is no longer just "weight-loss" surgery - it is touted as a diabetes CURE. Two out of the 3 possible types of bariatric surgery will give from 80 - 95% cure of T2DM - an effect that was independent of the subsequent weight loss.

The Foregut Hypothesis

The foregut hypothesis postulates that the exclusion of the duodenal nutrient passage can offset the GI abnormality responsible for insulin resistance and T2DM; supporting the theory that



manipulating the GUT microbiome can play the major role in combating DM and obesity. It is but a short step from the metabolic syndrome to CVD but there is a more direct link between the gut microbiome and CVD: the effect of what we put into our mouths on our gut microbiome.

The Other DNA

Since 99% of the totality of the genes in each of us comes from microbes, current literature also refers to the microbiome as "The Other DNA"; and the National Institutes of Health have embarked on the NIH Human Microbiome Project that aims to map out the microbial ecology and function in both health and disease.

The project will give us a lot of information on the microbiome, the most important of which will answer the question of how the microbiome can be used to benefit the health of the host. While the short answer is obvious: to restore the healthy gut, less clear is the answer to the question of "HOW?"

Hypothetical interventions include judicious use of antibiotics; of probiotics and pre-biotics; fecal transplant therapies; and microbiome therapies. Elie Metchnikoff's interest had focused on the Balkans because of the unusually high concentration of centenarians in Eastern Europe, the majority of whom were poor and lived simply – but, they also consumed large quantities of yoghurt, a sour milk alive with microorganisms. His theory was that the bacteria in the milk promoted a balance of good and bad microbes in the gut and contributed to – if not, was

responsible for - their longevity. Until his death, Professor Metchnikoff devoted his life to the study of *Lactobacillus bulgaricus*, the bacterium responsible for Balkan yoghurt and a century ago, he had already set the stage for the rise of the probiotics.

The Rise of the Probiotics

A "pre-biotic" is an indigestible substance that promotes the growth of "good" bacteria. Pre-biotics include high fiber fruits and vegetables and spices. "Pro-biotics" are live microorganisms that confer health benefits on the host; probiotics include yoghurt and other fermented products, as well as a whole range of nutraceuticals. So why aren't they standard treatment yet? At this time, we have no consistent data that supports their use. What would limit the effectiveness of probiotics? As yet, we have no proof they can survive the acidity of the stomach to get to their destination in the colon; or the complex pH and physiology of the small intestine or even the complex flora of the large intestine.

Other Applications of the Microbiome

Today, we rely on the "power of poop"! Fecal microbiota transplant (FMT) indications include *C. difficile* infection but other studies are delving into its potential for cure of colitis, IBS and a whole range of GI problems.

Freeze-dried stool in capsules are now available in the open market. This popularity is due in part to the success rate - at least for *C. difficile* infection - that has been validated in many centers around the world...

A further exciting development may be on the horizon: in 2011, there was breaking news about a 32-year old woman without metabolic syndrome who contracted *C. difficile* infection - the subsequent intractable diarrhea was unresponsive to conventional treatment. She was

given a poop transplant as a last resort from her overweight teenage daughter. The treatment was successful but the woman developed a medical obesity that was unresponsive even to a supervised diet-exercise program! The investigators admit they could not rule out other causes of obesity but they emphasized that the lady never had problems with her weight before the transplant!

This case ignited interest in other possible indications for poop transplants.

So much so that the venerable Massachusetts General began an RCT in 2016 that seeks to prove (or disprove) the use of the poop-in-a-pill from a lean donor for the treatment of obesity!

But do people really want to ingest... shit? Wouldn't we want a drug as effective as FMT (fecal microbiota transplant) but cleaner? Yes, we would.

It is in answer to this that there are a lot of "microbiome-directed" therapies in the pipeline - to address a whole lot of diseases from infectious to autoimmune to metabolic and cardiovascular to oncologic and psychiatric disorders.

Development stages are hot in:

1) the utilization of "druggable" microbes - a mixture of strains of vegetative bacteria to achieve similar efficacy and safety as the shit - forgive me, I mean, the FMT; 2) antimicrobial compounds produced by the bacteria themselves like BACTERIOCINS and small molecule inhibitors that become the

source of a whole new generation of anti-microbials; and 3) the development of bio-engineered probiotics

Much interest is especially generated in the last one as these interventions are directed not only for infections but also for cancer. Much is also being done towards the development of targeted drug-delivery systems that will enhance probiotic colonization and expand their effect. These particular pathways, however, are still in pre-clinical development and no microbiome-directed therapy is FDA approved - although, no doubt this will be the next big thing in medicine.

For now, however, there is only the FMT (poop) transplant. Reassuringly, donor guidelines are very stringent... with the FDA continuing to regulate it as strictly as they do organ transplants. And all acceptable poop donors should rest secure that they at least have a really healthy gut microbiome. 

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DP Workshop in Cebu

by Marsha C. Tolentino, MD



Diabetes Philippines, Inc. held its 61st Diabetes Workshop and 26th Diabetes Forum at Cebu City last August 31 to September 1, 2017. The one and a half day intensive course of lectures, clinical case discussions and wet clinics aimed to equip general practitioners, internists and diabetes educators with the necessary tools to treat and manage diabetes mellitus. Attendance totaled 180 practitioners, which included physicians, nurses and nutritionists from all over Cebu province.

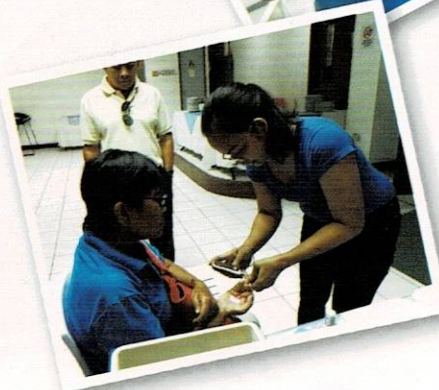
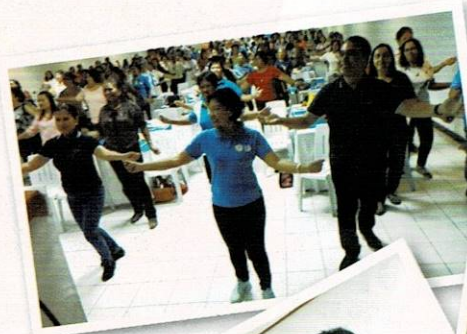
The aim of these workshops is to bring to more intimate venues the fundamentals of diabetes management. That is why the officers and directors travel around the country and partner with 3 local DP chapters every year in order to reach more clinicians, majority of whom may not be able to attend the more comprehensive scientific program offered during the annual convention in Manila.

After an introduction to the challenges of diabetes, the scientific curriculum focused on different aspects in the management of diabetes. These included treatment of acute complications, management of the diabetic kidney, wound care, insulin basics and medical nutrition therapy. Lectures are followed by an open forum in which questions are answered and conflicting issues are clarified. Speakers are available throughout the day for any clinical cases that participants may want to discuss more extensively.

The focus of the half-day diabetes forum was Diabetes Self-Management Education, as it is only by including the patient and caregiver in the management plan that can ensure sustained success in keeping to treatment goals and impacting quality of life. In order to bring home the point, patients from the various diabetes clubs in the city (including Perpetual Succour Hospital, Vicente Sotto Memorial Medical Center, Visayas Community Medical Center, Sacred Heart Hospital, and Cebu City Medical Center) were invited to lectures and demonstrations on self blood glucose monitoring,

insulin injection techniques and simple diet tips for everyone.

The Diabetes Philippines, Inc. officers and board of directors would like to acknowledge the local Cebu chapter, specifically Dr. Gorgonia Panilagao, president, Dr. Consolacion Cutillar, secretary and the rest of the officers and members who contributed to the success of the workshop. The participating pharmaceutical companies' sustained support ensures the continued success of bringing these workshops to the different cities and provinces nationwide. To all these partners, the DP board is ceaselessly grateful. 



Type 1 Ka? Kita Tayo sa Type 1 Congress

by Richard Elwyn V. Fernando, MD



"I have Type 1 Diabetes," said Gina (not her real name), barely twelve years old. "I inject 16 units of NPH insulin before breakfast and 6 units before supper. I also prick my fingers to check my sugars three to four times daily so Mama can decide to inject additional regular insulin or adjust my doses. I am not allowed too much sweets but sometimes Mama would give me a cup of sweet juice when my blood sugar was too low. I was nine when

I got really ill and my doctor told my parents I had ketones in my blood and urine and that all these treatments will continue throughout my life."

While there are millions of individuals with type 2 diabetes in our country, there would probably be only a couple of thousands with type 1. And in a national population of a hundred million people, type 1 diabetes would be rare and easy to lose in the crowd. Any person will feel depressed and lonely

when given this infrequent life-time diagnosis. Treatment is indeed a struggle for patients and their families.

Nora (not her real name) also has type 1 diabetes. About three years older than Gina, her type 1 diabetes was discovered only last year. It was not difficult for them to relate to each other even when they met only for the first time in a national gathering of people with type 1 diabetes. In a mysteriously pleasant way, they forgot the feeling of loneli-

TYPE 1 DIABETES

IS AN AUTOIMMUNE CONDITION IN WHICH THE BODY IS NOT ABLE TO PRODUCE INSULIN

INSULIN THERAPY IS THE ONLY EFFECTIVE TREATMENT FOR TYPE 1 DIABETES

ABOUT 1 IN 500 PEOPLE IN THE UNITED STATES HAS THE CONDITION

TYPE 1 DIABETES ACCOUNTS FOR \$14.9 BILLION IN HEALTH CARE COSTS PER YEAR

5% OF PEOPLE WHO HAVE A PARENT OR SIBLING WITH TYPE 1 DIABETES WILL ALSO DEVELOP THE CONDITION

ABOUT 80 PEOPLE GET DIAGNOSIS WITH TYPE 1 DIABETES IN THE EACH



ness. Even without words, there was the feeling of warmth and acceptance.

Diabetes Philippines recognizes that type 1 diabetes is a serious condition that we must be aware of. To improve their quality of life is embedded in the association's purpose. Last 28th of October 2017, DP Council on Childhood Diabetes held the first Type 1 Congress at the Century Park Hotel Manila with the theme "We are One: One Voice Against Type 1." The

support of the board of directors and the entire organizing committee initiated by Dr. Francis Pasaporte made the congress a success. We now look into the future with similar events.

Gina, Nora and others with type 1 diabetes did learn from the various activities of the congress. Of course a lot of misconceptions have to be unlearned. But learning from one another was probably the highlight of this togetherness.

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In Memoriam: RICARDO E.

May 16, 1929 - September

Reflections of an Elderly Diabetic

I turned seventy three in May this year (2003). In 1995 while on a diabetes workshop in Mindanao, at the height of



"Red Tide" in Luzon,

we stumbled into a unique seafood restaurant in the middle of fish ponds - oysters, crabs, shrimps, fish and what have you - ad libitum together with three cans of Cali (eat all you can, drink all you can!!). The restaurant ran out of boiled rice with the twelve of us filling up ourselves "in compensation" for the inhibition we had to go through in Luzon.

The following morning I registered an FBS of 385 mgs. thrice done. I was caught not practicing what I was preaching! For a while I had forgotten that I had an uncle who was a diabetic. Fortunately, the hyperglycemia was not too difficult to control. Initially I kept on reminding myself that I had no

business counseling diabetics if I cannot control my own blood sugars properly. The next tragedy happened in New York City on September 11, where I was caught without medicines for one week, thanks to Bin Laden. It was not too difficult to correct that upon arrival in the Philippines. Like I always tell my patients - (Disiplina ang Kailangan) - especially when my drugs were not available in the USA.

I still cannot understand why so many diabetics want to hide their disease when there are 300 million of us all over the world. I have always been an optimist even in the midst of the worst that life has doled out to us. When we suffered a very severe financial crisis in the earlier days - with the threat of imprisonment - we turned our faces up to heaven and said "The worst has come, we are down under. There is no other way but up." And we found out that God really does listen to our prayers.

I started to put up the Institute for Studies on Diabetes in 1989 and over the years we have encountered all the worst that the devil could devise to put us down. We all looked up and today the

sun is still shining. In spite of all the miseries and evil in this world, this still is my Father's world! All depressed diabetics should rank themselves "with the lilies of the fields and the birds of the air" - heaven has not forgotten you!

Like the man called Job in the Good Book, there is no challenge to man's existence that one cannot face successfully when the connections are right. I have a picture on my desk which has a quotation that continues to inspire me- "The task ahead of us can never be greater than the power behind us." I would like to paraphrase it thus - "the problems of the diabetic cannot be greater than the One who really cares for us."

I often tease my patients when I ask if they know how to pray. The answer often is "I pray everyday." I would then suggest that they pray more and harder. "Kulitin nyo ang langit!" Nothing better could consistently help those who are despondent.

Food? I love vegetables, thanks to my mother's prodding. Upo, Chayote, kalabasa, ampalaya, carrots, pipino. Seafoods? Yes! Avoiding oil as much as possible. Chicken breast without skin.



FERNANDO, MD

18, 2017

Father of Philippine Diabetology
 Founder of UERMMC ISDFI
 Beloved father, teacher and doctor

Changing lifestyle is no easy work among a population that has grown up over a hundred years with softdrinks and hamburgers and ham and butter. But where one's future depends on it - eat to live, not live to eat.

Many people at this age become so obsessed with "the nearness of death" especially when plagued by various complications. With a little help from above, this can easily be converted to "the nearness of life." We always talk about the beauty of heaven but seem to be hesitant to go up there. And many people pass on without being able to say "O grave where is thy victory, O death where is thy sting!"

Living life to the fullest is not the sole property of the physically healthy alone. It is a distinction of all people who persistently look up ... not down.

Ricardo E. Fernando, MD



The Travelling Diabetic

by Johanah Co



I live in the Philippines where every expensive test strip & every unit of insulin is paid out of our pocket. Imagine the difficulty people with T1D face. Our basic need for survival is at stake. How much greater is the cost when we also need to manage our mental, social, emotional, and spiritual well being if our physical health is compromised? How can we conquer diabetes and not be afraid of complications? I hope we can address 3 areas:

1. Accessibility to medications which will save lives
2. Educational awareness which will provide for better quality of life
3. Counseling services to encourage people with T1D to live without constant fear

We need the help and resources of the global diabetes community. We need provisions for test strips, insulin, HBAIC kits, counseling services, and educational programs. Let's work on making a holistic diabetes program that can be shared worldwide and encourage change. To live long is possible but we need help to avoid unnecessary deaths.

The YLD Program

Last winter, I was grateful to be sent by Diabetes Philippines (DP) to experience and network with 59 Type 1 diabetes (T1D) mentors and leaders coming from seven regions of the world. From December 4-8, 2017, International Diabetes Federation

(IDF) conducted a Young Leaders In Diabetes (YLD) program in Abu Dhabi to be the voice for young people with diabetes. The YLD program empowers all delegates to become diabetes advocates worldwide by raising diabetes awareness, prevention, and education in hopes of providing access to quality care, improving quality of life and ending discrimination.

I was amazed and inspired to meet fellow T1Ds from different walks of life and professions: physicians, nurses, surgeons, dentists, teachers, businessmen, all of whom shared the various programs implemented in their countries. Striking programs that stood out to me included a diabetes talk show on a Christian radio station in Africa, a T1D theatrical play in Greece and a T1D football league in Hungary. I was surprised to learn different Type 1 stories and issues from around the world. I felt uplifted when I received encouragement from fellow T1Ds. I'm excited about a world with fearless people with Type 1 diabetes, living lives of longevity and acceptance.

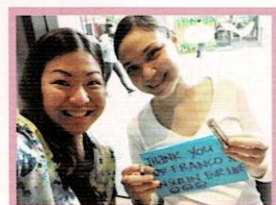
We spent much of the time listening to various talks conducted by health care professionals that covered topics like: Diabetes & Oral Health, 10 Steps Advocacy, Neuropathy and Sex and Collaboration to make a better place for people with diabetes. The key takeaways were: (1) Oral health must be part of diabetes management to avoid periodontal disease; (2)

knowledge for insulin dosage adjustment is essential when traveling. We were also interviewed as to the needs of our country. I responded by outlining the issues mentioned in the introduction, as well as the steps necessary to address these issues.

What comes next

I am continuously seeking help from sponsors such as Insulin for Life. When I was in Australia last year, I was grateful to receive free insulin primarily to distribute to my T1D friends in Philippines. I am still distributing the remaining insulin for 2018.

Living with Type 1 diabetes can be hard and costly but it is manageable. A life of longevity and acceptance is possible through family support, a supportive health care team, accessibility to medication and glucose strips, diabetes education and counseling. I am very grateful for the support I receive from my family, doctors, friends, counselors and diabetes support group. Without them and God's grace, I wouldn't be where I am now. To God be all the glory.



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> Photo by Oleksandr Pidvalnyi - Pexels.com

The 34th Diabetes Philippines Annual Convention

by Marsha C. Tolentino, MD
Scientific Co-Chair

"A Journey Along the Metabolic Communication Highway" was 2017's convention theme. The topics chosen were aimed at elucidating how diabetes relates to other organs that affect the metabolic health of an individual. High-caliber speakers, all experts in their chosen fields, comprised the line-up of presenters in the 2-day event from November 23-24, 2017 at EDSA Shangri-la Hotel. A total of 1093 delegates attended the convention, which included 718 MDs, 147 RNs, 202 RNDs and 26 other healthcare professionals.

Prof. Michel Marre delivered the 11th Dr. Augusto D. Litonjua Endowed Lectureship, presenting the most recent data on STENO-2, a multifactorial intervention that showed improved lifespan after 21 years of follow-up.

While Dr. Erlinda V. Valdelon, a dear friend of the late Dr. Fernando, was the speaker for the 11th Dr. Ricardo E. Fernando Endowed Lectureship. She discussed "DIABETES: A Journey Along The Metabolic Communication Pathways".

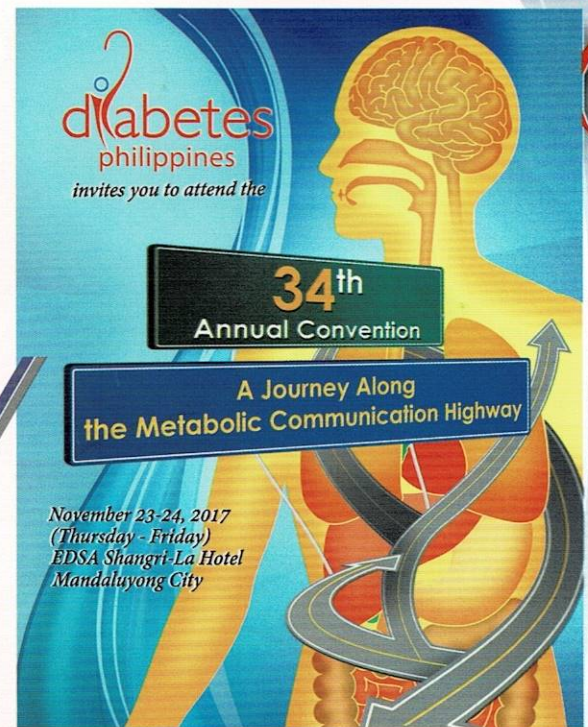
Knowing the importance of physical activity in diabetes management and prevention, we inserted zumba exercises in between every 2-3 lectures to keep all delegates up on their feet. Coaches Jim and Toni Saret of Fit-Fil National Weight Loss Challenge fame were asked to demonstrate Exercise for Diabetes Made Easy.

This was one convention where the audience was out of their seats just as much time as they were seated. After all, sitting is the next smoking!

This year, we invited Dr. Sanjay Kalra, a charismatic speaker on Managing the Elderly Diabetic. He was able to inspire empathy on how we view our more senior patients' needs and urge us to treat them with the respect they deserve. Mental Health is an oft overlooked issue in Diabetes. Psychiatrist Dr. Jerome Go discussed how we can address this difficult issue in the clinic.

Needless to say, the highlight of the plenary lectures was the come-back tandem of Drs. Celine Aquino and Marivic Vestal, Cebu-based cardiologists who presented their Docutainment on the Gut Microbiome. I am not sure if everyone in the room appreciated the concept of fecal microbial transplant but I am certain that no one will forget the poop-pill. For those who missed the lecture, we have included an article on the topic in this edition of Diabetes Watch.

A symposium on "Interorgan Communication" featured Dr. Ivy Amante discussing the Role of Bone in Metabolism and AACE-Philippines president Dr. Rey Rosales describing the Cardiac and Skeletal Muscle as Endocrine Tissue. Also included was a symposium specific to women's issues since the year's World Dia-



betes Day theme was Women and Diabetes. And who better to invite than 2 brilliant females in their fields. Dr. Joy Arabelle Fontanilla delivered a captivating lecture on "Challenges in the Post-Menopausal Woman with Diabetes" while Dr. Marivic Tan, Cebu-based reproductive endocrinologist, discussed "Female Fertility Issues in Diabetes".

The nutrition symposium included Ms. Edeline Clemente's comprehensive talk on the Role of Vitamins and Minerals in Diabetes Management and our very own board member, Jen Duatin, RND giving 5-minute Dietary Advice for Non-nutritionists.

The Diabetic Foot symposium emphasized the importance of a multidisciplinary approach for successful management of this diabetic complication. As such, speakers from different fields made up the panel: endocrinologist and diabetic foot advocate Dr. Teresa Plata-Que, surgeon Dr. Luinio Tongson, orthopedic surgeon Enrico De Jesus and diabetes nurse educator Nerissa Llanza. DP board member Ms. Leyden Florido moderated this interactive panel discussion.

Needless to say, the concurrent symposia venues for both convention days were jam-packed

The Lighter Side of DIABETES

by Dr. Allan Hernandez



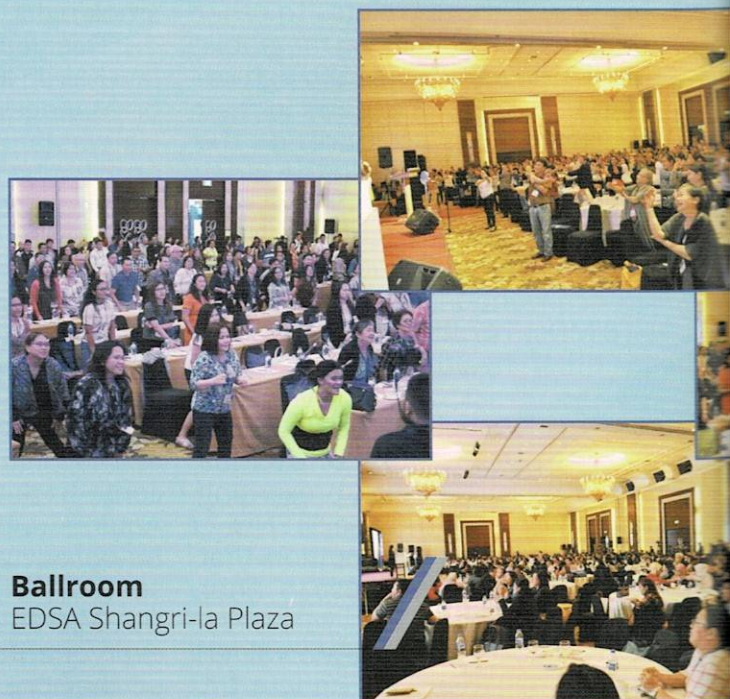
The 34th...

compelling the scientific committee to rethink the physical arrangements for forthcoming conventions.

Of course, the overwhelming support of corporate pharmaceutical partners resulted in several sponsored CME activities with diverse topics ranging from the Asian diabetic, management with DDP4-inhibitors and SGLT-2 inhibitors, intensification of insulin therapy, cardiovascular risk management in diabetes, hypertension in both diabetic and nondiabetic populations and a comprehensive update on hypophosphatemia.

Last but not least, Diabetes Philippines again had an enjoyable and laughter-filled Christmas-themed fellowship night where officers, members, delegates and pharma friends let loose for an evening of thanksgiving with lots of singing and dancing.

Thank you all for making our 34th annual convention a success. 



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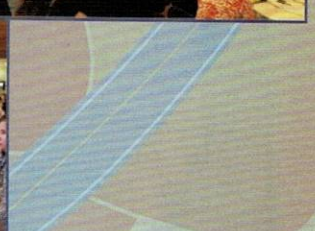
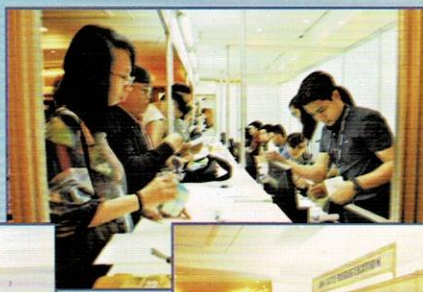


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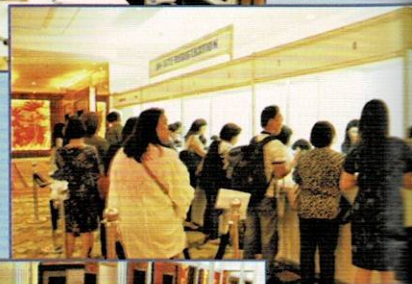




Exhibit Booth Shots
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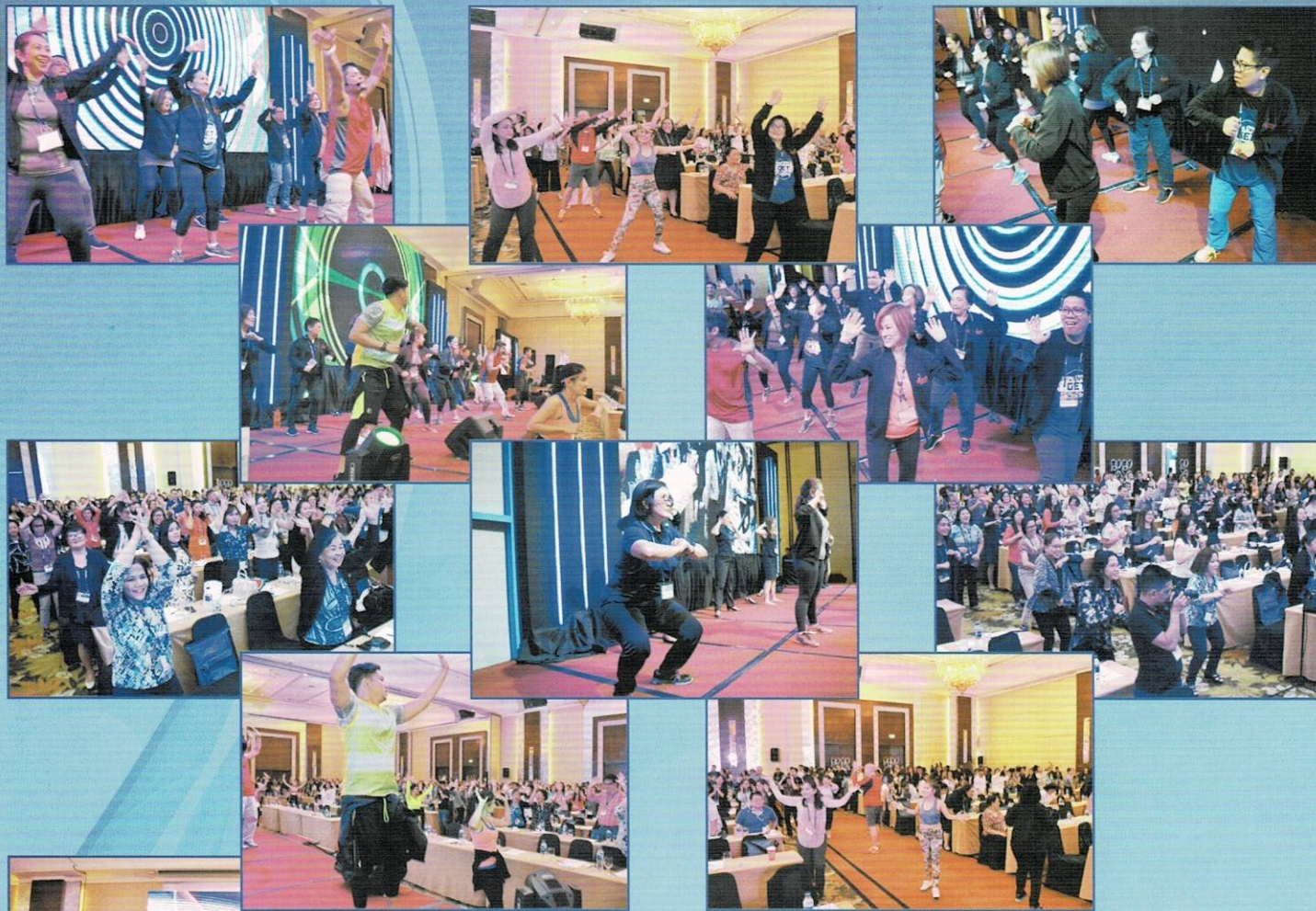
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34th Diabetes Philippines Annual Convention

November 23-24, 2017

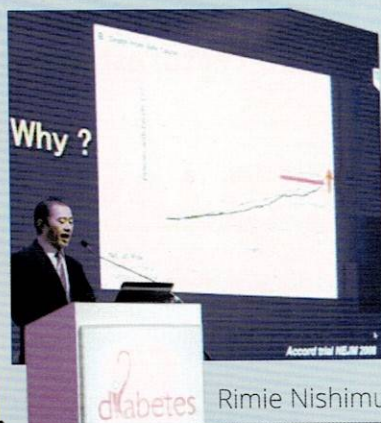
EDSA Shangri-la Plaza Hotel,
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Speakers



Coach Jim Sarret



Rimie Nishimura, MD



Prof. Michael Marre



Prof. Merlin Thomas

Grace K. De los Santos, MD



Joy Arabelle C. Fontanilla, MD



Maria Yvette R. Amante, MD



Reynaldo F. Rosales, MD



Maria Victoria R. Tan, MD



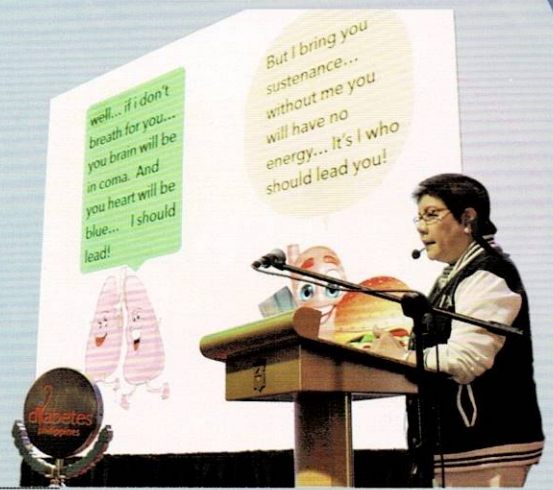
Romeo J. Santos, MD



Sanjay Kalra, MD



Marivic V. Vestal, MD



Celine T. Aquino, MD



Lynn A. Gomez, MD



Jerome L. Go, MD



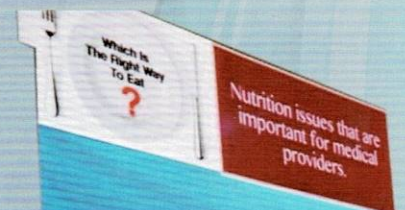
Erlinda V. Vadellon, MD



Rima T. Tan, MD



Fatma I. Tiu



Edelina N. Clemente, RND



Enrico De Jesus, MD - Nerissa C. Llanza, RN -
Ma. Teresa Plata-Que, MD - Lunio S. Tongson, MD -
Leyden V. Florido, RN (left to right)

Jennina A. Duatin, RND



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§ Compared to standard BD thin wall pen needles.

¹ Compared to standard BD 3-bevel pen needles.

References: 1. Aronson R, et al. Effects of extra thin-wall needle technology on preference, confidence, and other patient ratings. *Clinical Therapeutics*. 2013; 35(7): 923-933. 2. Hirsch LJ, et al. Impact of a Modified Needle Tip Geometry on Penetration Force as well as Acceptability, Preference, and Perceived Pain in Subjects with Diabetes. *J Diabetes Science & Technology* 2012;6(2):328-335.

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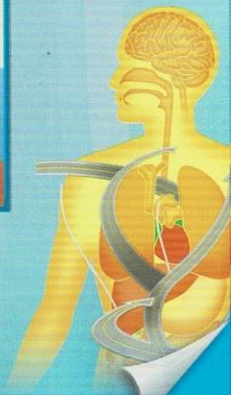
IDF - WPR Council Meeting

December 3, 2017
ADNEC - ABU DHABI



IDF Global Village

December 5 - 7, 2017
ADNEC - ABU DHABI



Type 1 Diabetes Workshop

October 28, 2017
Century Park Hotel



Diabetes Awareness Week

July 23, 2017

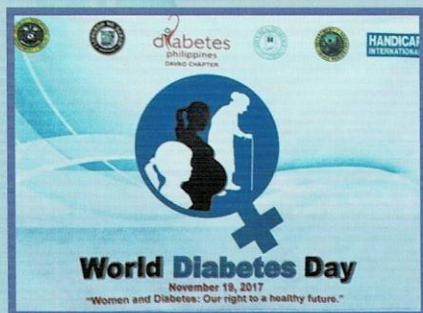
Alabang Festival Mall



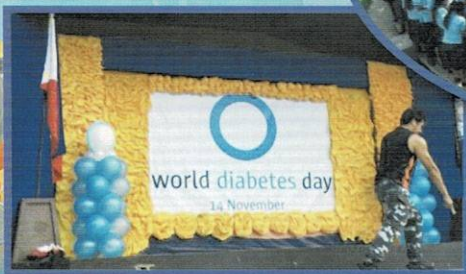
AACE 2017
Convention
Cebu City



Gimik Diabetes Year 11
EDSA Starmall



World Diabetes Day





Philippine Neurological Association
Cebu



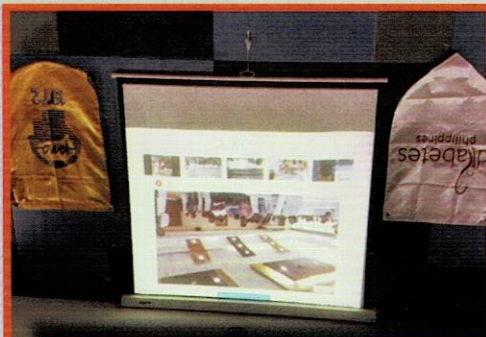
Philippine Neurological Association
Tuguegarao



Philippine Neurological Association
Bulacan



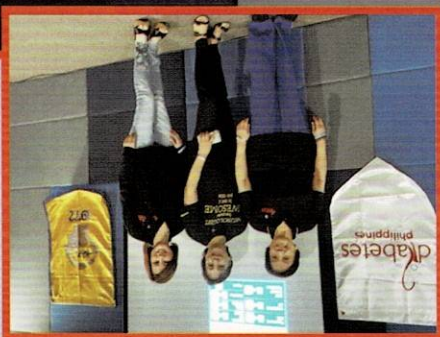
Philippine Neurological Association
Lucena



Philippine Neurological Association
Batangas

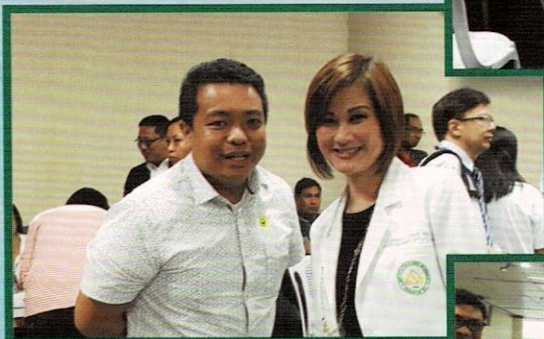


Philippine Neurological Association
Antipolo

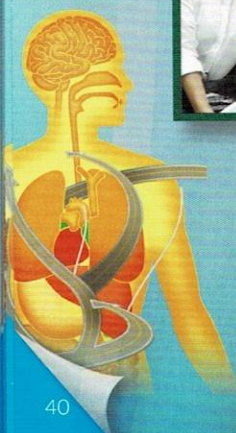


Philippine Neurological Association
Activity (Chapters)
November 5, 2017





**Sugar Sweetened Beverages
Tax Public Hearing**
August 24, 2017



A Position Statement on Sugar-Sweetened Beverages

Diabetes mellitus poses a huge health burden among Filipinos.

Diabetes mellitus ranked fifth among the leading causes of mortality in the Philippines.¹ In 2015, the International Diabetes Federation estimated its prevalence in the country at 6.1%.² In the same data, overweight, obesity and physical inactivity were also shown to have a high prevalence in the country – 22%, 5% and 14% respectively.

Overweight and obesity mediates the development of type 2 diabetes and cardiovascular disease.

The risk of developing type 2 diabetes and cardiovascular disease is often mediated through the effects of overweight and obesity, among other risk factors. Measures aimed at reducing overweight and obesity will also reduce the risk of developing type 2 diabetes and cardiovascular disease, and the complications associated with these diseases.³

Sugar-sweetened beverages are significantly linked to overweight, obesity and diabetes mellitus.

Consumption of sugar-sweetened beverages is significantly linked to overweight, obesity, and diabetes worldwide.⁴ A recent meta-analysis has shown that high consumption of sugar-sweetened beverages, which include soft drinks, fruit drinks, iced tea, energy and vitamin water drinks has been associated with weight gain, development of metabolic syndrome and type 2 diabetes. Such data provide empirical evidence that consumption of SSBs must be limited to reduce obesity-related risk of chronic metabolic diseases.^{5,6}

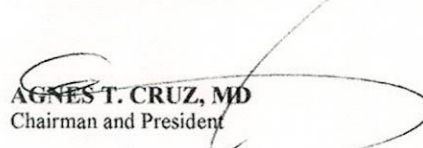
Taxing SSBs may significantly impact overweight and obesity.

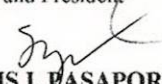
A German model-based analysis was performed to estimate the tax impact on BMI in different age, gender and income groups. Results show that implementing an SSB tax reduced energy consumption and decreased the mean BMI particularly in younger groups. In this analysis, taxation was estimated to avoid 1,028,000 (–3% relative reduction) overweight individuals and 479,000 obese individuals (–4%).⁷

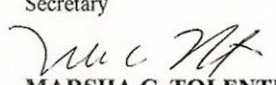
Diabetes Philippines, Inc. supports a healthy Philippines

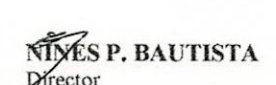
Given the above, we, the **Diabetes Philippines, Inc.**, in our aim to effectively prevent diabetes and provide excellent care among those who are suffering from it, strongly believe that cutting down on the consumption of sugar-sweetened beverages reduces the risk for overweight, obesity and other risk factors that may lead to the development of diabetes mellitus, cardiovascular disease and their complications.

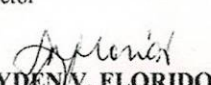
We support initiatives like public awareness and education, including taxing sugar-sweetened beverages. This will help reduce the consumption of sugar-sweetened beverages leading to the prevention of overweight, obesity and other risk factors that may lead to diabetes mellitus and its complications.


AGNES T. CRUZ, MD
Chairman and President

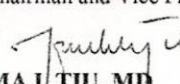

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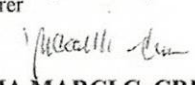

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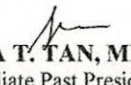

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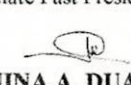

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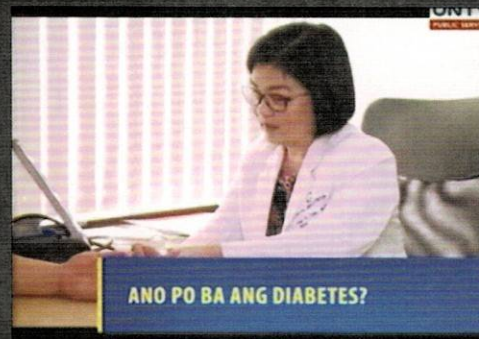
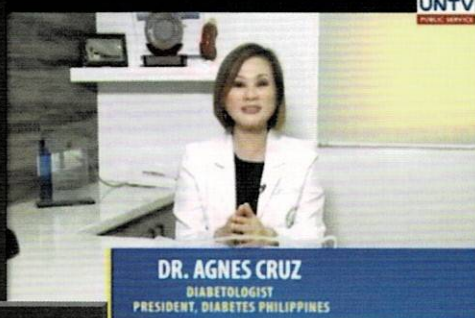

RIMA T. TAN, MD
Immediate Past President


JENNINA A. DUATIN, RND
Director

References:

1. Philippine Statistics Authority, Philippine Death Statistics Factsheet (2011-2013).
2. International Diabetes Federation, Diabetes Atlas Seventh Edition, 2015.
3. World Health Organization, Guideline – Sugars Intake for Adults and Children, 2015.
4. Basu S, et al. American Journal of Public Health Vol 103. No. 11. November 2013.
5. Imamura F, et al. BMJ 2015. 351. H3576.
6. Malik VS, et al. Diabetes Care 33:2477–2483, 2010.
7. Schwendicke and Stolpe BMC Public Health (2017) 17:88

TV/Radio/UNTV Appearance



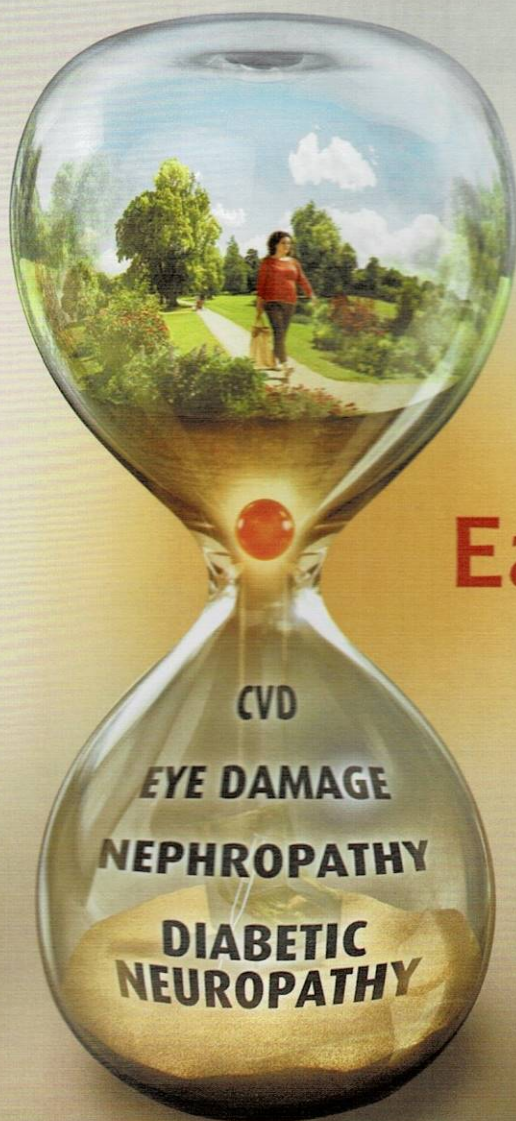
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1. The ADVANCE Collaborative group. *N Engl J Med* 2008; 358: 2560-2572. 2. Perkovic V et al. *kidney Int.* 2013 Jan. Advance Online Publication. 3. Turnbull FM et al. *Diabetologia* (2009) 52: 2288-2298. 4. Sawada F et al. *Metabolism Clinical and Experimental* 57 (2008) 1038-1045.

COMPOSITION: Diamicron MR 60 mg, modified release tablet containing 60 mg of gliclazide, contains lactose as an excipient. **INDICATION:** Non-insulin-dependent diabetes (type 2) in adults, in association with dietary measures and with exercise, when these measures alone are not sufficient. **DOSAGE AND ADMINISTRATION:** One half to 2 tablets per day i.e. from 30 to 120 mg taken orally as a single intake at breakfast time, including in elderly patients and those with mild to moderate renal insufficiency with careful patient monitoring. One tablet of Diamicron MR 60 mg is equivalent to 2 tablets of Diamicron MR 30 mg. The breakability of Diamicron MR 60 mg enables flexibility of dosing to be achieved. In patients at risk of hypoglycemia, daily starting dose of 30 mg is recommended. Combination with other antidiabetics: Diamicron MR 60 mg can be given in combination with biguanides, alpha glucosidase inhibitors or insulin (under close medical supervision). **CONTRAINDICATIONS:** Hypersensitivity to gliclazide or to any of the excipients, other sulfonylurea or sulphonamides; type 1 diabetes; diabetic pre-coma and coma, diabetic ketoacidosis; severe renal or hepatic insufficiency (in these cases the use of insulin is recommended); treatment with miconazole (see interactions section); lactation (see fertility, pregnancy and lactation section). **WARNINGS:** Hypoglycemia may occur with all sulfonylurea drugs, in cases of accidental overdose, when calorie or glucose intake is deficient, following prolonged or strenuous exercise, and in patients with severe hepatic or renal impairment. Hospitalization and glucose administration for several days may be necessary. Patient should be informed of the importance of following dietary advice, of taking regular exercise, and of regular monitoring of blood glucose levels. To be prescribed only in patients with regular food intake. Use with caution in patients with G6PD deficiency. Excipient: contains lactose. **INTERACTIONS:** Risk of hypoglycemia - contraindicated: miconazole; not recommended: phenylbutazone; alcohol; use with caution: other antidiabetic agents, beta-blockers, fluconazole, ACE inhibitors (captopril, enalapril), H2-receptor antagonists, MAOIs, sulfonamides, danthronmycin, NSAIDs. Risk of hyperglycemia - not recommended: donazol; use with caution: chlorpromazine at high doses; glucocorticoids; ritodrine; salbutamol; terbutaline. Potentiation of anticoagulant therapy (e.g. warfarin), adjustment of the anticoagulant may be necessary. **FERTILITY, PREGNANCY AND BREASTFEEDING:** Pregnancy: Change to insulin before a pregnancy is attempted, or as soon as pregnancy is discovered. Lactation: Contraindicated. **DRIVING & USE OF MACHINES:** Possible symptoms of hypoglycemia to be taken into account especially at the beginning of the treatment. **UNDESIRABLE EFFECTS:** Hypoglycemia, abdominal pain, nausea, vomiting, dyspepsia, diarrhea, constipation. Rare: changes in hematology generally reversible (anemia, leukopenia, thrombocytopenia, granulocytopenia). Raised hepatic enzymes levels (AST, ALT, alkaline phosphatase), hepatitis (isolated reports). If cholestatic jaundice: discontinuation of treatment. Transient visual disturbances at start of treatment. More rarely: rash, pruritus, urticaria, angioedema, erythema, maculopapular rashes, bullous reactions such as Stevens-Johnson syndrome and toxic epidermal necrolysis, and exceptionally, drug rash with eosinophilia and systemic symptoms (DRESS). As for other sulfonylureas: observed cases of erythrocytopenia, agranulocytosis, hemolytic anemia, pancytopenia, allergic vasculitis, hyponatremia, elevated liver enzymes, impairment of liver function (cholestasis, jaundice) and hepatitis which led to life-threatening liver failure in isolated cases. **OVERDOSE:** Possible severe hypoglycemia requiring urgent IV glucose, immediate hospitalization and monitoring. **PROPERTIES:** Diamicron MR 60 mg is a sulfonylurea reducing blood glucose levels by stimulating insulin secretion from beta cells in the islets of Langerhans, thereby restoring the first peak of insulin secretion and increasing the second phase of insulin secretion in response to a meal or intake of glucose. Independent hemovascular properties. **PRESENTATION:** Box of 60 tablets of Diamicron MR 60 mg in blister. Servier Philippines, Inc. #2 Orion Cor. Mercedes Sts, Bel-Air Village, Makati City.

Further information available upon request.

