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Interview with **Dr. Reyes Haro Valencia**, Head of the Instituto Mexicano de Medicina Integral del Sueño

Dr. Reyes Haro Valencia heads Mexico's preeminent clinic for sleep disorders, the Instituto Mexicano de Medicina Integral del Sueño (IMMIS). With Mexico's high rates of obesity, obstructive sleep apnea (OSA) is a major health concern in this region. Furthermore, Dr. Haro shares that developing nations often don't have enough sleep clinics to care for all the patients who are afflicted with sleep disorders; IMMIS currently has a 3-week waiting list.

IMMIS was founded 10 years ago to treat and diagnose patients of all ages suffering from OSA, as well as snoring, insomnia, sleep apnea, and other sleep-related conditions. Dr. Haro's staff consists of a multi-disciplinary team of experts from fields including neurology, neonatology, psychiatry, internal medicine, and dentistry.


Dr. Haro first became acquainted with Neurovirtual ten years ago at a medical conference, and he has remained impressed with our system since that time. In particular, Dr. Haro cites the high-quality of our equipment, our competitive pricing, and the exceptional 24/7 support we offer to customers; he also highly recommends Neurovirtual equipment to his colleagues in many medical specialties.

In addition to caring for patients, Dr. Haro and his team conduct research, participate in congresses, and train their colleagues in the science of sleep. Here at Neurovirtual, we are impressed with all of the great work being done at the Instituto Mexicano de Medicina Integral del Sueño, and pleased that Dr. Haro has chosen to partner with us in meeting the needs of sleep patients throughout Mexico.

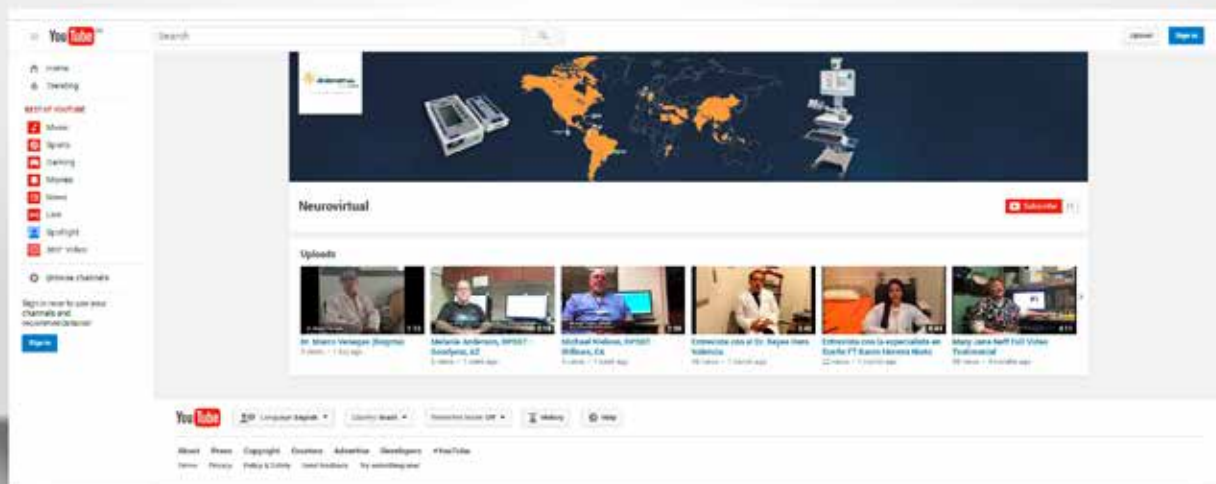


Watch the entire interview on our website:

www.neurovirtual.com/news/reyesharo

 +  = www.youtube.com/c/Neurovirtualvideos

Access our channel on youtube, and watch interviews with renowned doctors, RPSGT-RT, customer reviews and more...



Neurovirtual Partners with Sistersville General Hospital to Offer High-Quality, Convenient Sleep Technology Services

As the only accredited sleep center in its area, Sistersville General Hospital fills a vitally important role for the communities that it serves along the Ohio River. So, when it came time to upgrade their system, the Sistersville sleep center team knew they had a crucial decision to make.

Sistersville General Hospital is located halfway between the communities of Wheeling, West Virginia, and Parkerburg, West Virginia, near the state border with Ohio. A patient from the Sistersville area receiving care in



either of these two cities would need to travel nearly 45 minutes in each direction. The long distance, combined with the economic restraints faced by many members of this community, makes seeking care elsewhere for sleep disorders very challenging. Therefore, the services provided by the sleep center at Sistersville General Hospital are an essential service for the community.

Mary Jane Neff, manager of the 11-bed facility, has been extremely satisfied with the transition to the Sleepvirtual system. In particular, she and her clinical staff have enjoyed the outstanding level of support that we provide our clients.

"They guaranteed me that I would have tech support 24/7, and I do. And they've also been very, very generous with making sure that anything that can't be handled as far as remotely goes, they send someone in to me, and he has been a very, very strong support system for us", Mary Jane says.

Now that the Sistersville General Hospital staff members have had some time to become thoroughly acquainted with their new Sleepvirtual system, Mary Jane admits that her team is quite impressed with the upgraded equipment and affirms that they have really enjoyed how our product has simplified the process of conducting an overnight sleep study.

"I also liked a lot of the new adaptations that they made. They didn't reinvent the wheel, but they did put some new things in there that made sleep studies at night a little less challenging, a little less 'sorting through buttons' and... it just makes a big difference if you do night studies", shares Mary Jane.

While Mary Jane Neff and her team admit that making the switch to Sleepvirtual hasn't been without its learning challenges, they credit the excellence of our equipment and the outstanding support provided by our tech team as the keys to their success. Together, Sistersville General Hospital and Neurovirtual form a strong partnership to offer high quality, convenient sleep technology services to patients in West Virginia and Ohio.





Ketogenic Diet

A therapeutic option in refractory epilepsy

The ketogenic diet (KD) is a non-pharmacological treatment which aims to control or reduce seizures in patients with refractory epilepsy. Intractable seizures affect 30% of epilepsy patients. Refractoriness occurs after the use of at least two antiepileptic drugs suitable for the seizure type presented by the patient in effective doses, mono or polytherapy.

The classic KD is often indicated in children and adolescents, giving preference to the Diet Atkins Modified or Low Glycemic Index diet in adulthood or the KD TCM base (Triglycerides Medium Chain). The KD is the treatment of choice in cases of deficiency transporter GLUT-1 glucose and some epileptic encephalopathies.

The seizure-freedom is achieved in about 15% of individuals on the ketogenic diet. Furthermore, about 50% have approximately 50% reduction of seizures after six months of treatment. After a few months of treatment, if the patient has a right response, the physician can start to reduce antiepileptic medications. In addition to the control of seizures, cognitive improvement in patients in the diet is noted.

The KD relies on lipid metabolism and the generation of ketone bodies. Therefore, the distribution of macronutrients consists of a hyperlipidemic, hypoglycemic and a regular protein intake diet, suitably calculated by a nutritionist specialized in KD. Today, we have KD centers in some regions of Brazil. In most of these, the onset of KD occurs in outpatients clinic. Also, there is the possibility that KD to be initiated during hospitalization.

Initially, the patient undergoes a medical consultation, in which is accessed clinical data with detailed description and classification of seizures. When indicated, is performed a pre-KD screening protocol. The doctor also guides the patient to keep a

diary, in which must be recorded all kinds of seizures, in addition to the monthly frequency of each type.

After medical clearance, the patient is referred for consultation with a nutritionist, responsible for nutritional assessment, dietary recall, and anthropometric data, as well as guidance on pre-KD adaptations. In this meeting the nutritionist understands the dietary preferences of each patient, trying to adapt them to the KD restrictions. With the science of food preferred by the individual, the nutritionist calculates the first menu to meet the daily energy needs of the patient.

The classical KD starts with 2:1 ratio (two parts of fat to one part carbohydrate + protein) and evolves to 4: 1 ratio as adaptation and tolerance of the patient evolves. This proportion comprises



sleep medicine should be a bright spot!
why do you keep using old technology?

"... we looked at customer service, price, and just the overall ease-of-use of the software... Sleepvirtual met and exceeded all of our needs in those various categories, specially the customer service category, that was really what sold it for us."

Melanie Anderson, RPSGT - Goodyear, AZ

"In the last twelve months that we have been using Neurovirtual, our experience has been incredible. The customer service is topnotch, our questions are always answered and help is readily available. Transition was seamless and kept us running topnotch sleep studies..."

**Tina Hephrey, RRT, RPSGT - Sleep Lab
Coordinator at Bellin Health, WI**

"[Neurovirtual] Very user-friendly not only for our technicians, but also for our physicians. They are able to remotely access the reader station, to do reporting. So they can do this from their office, or a laptop from their home... If we were happen to have any issues, we call tech support and they are there for us 24/7..."

**Lauren McCune, RN, BSN - Supervisor of
Electrodiagnostics Services at Butler Memorial
Hospital, PA**

"... [Neurovirtual] it's a very intuitive, well thought out, comprehensive sleep package."

Michael Nielson, RPSGT- Willows, CA

"I am impressed with Neurovirtual's service personnel and commitment to customer satisfaction."

Ron Price EEG T. - Duncanville, TX

"My Neurovirtual experience was pleasant and exceeding my expectations"

John Axley MD - Pensacola, FL





approximately 90% lipids, 8% protein, and 2% carbohydrate. Primary objectives are to provide the appropriate development and growth of the child, as well as reach the daily required amount of protein, combining the fraction of fat that diet needs and the supplementation with carbohydrates.

KD, as its name suggests, aims that the patient remains in a state of ketosis. In the presence of maintained ketosis (approximately 150 mg/dL), there is an adaptation stage of brain metabolism estimated at three weeks. After this period, the neurons start to use free fat acids instead of glucose as the primary energy source.



Adherence and KD metabolic effectiveness are evaluated qualitatively and non-invasively by measuring ketone bodies in urine with

individual strips that are essential for the proper management of diet. The therapeutic effect is given through various mechanisms, including raising the seizure threshold.

After the patient achieved the ketosis, the KD is maintained for 3 to 4 months for initial assessment of the reduction in the number of seizures. If the diet proves useful, it is maintained for about 2 to 3 years. In specific cases, such as GLUT-1 deficiency, DC is maintained indefinitely.

Short and long term complications are, in most cases, rapidly reversed with specific treatment for each instance. Short-term complications include drowsiness, hypoglycemia, vomiting, diarrhea, constipation, lethargy and refusal to

eat. The long-term complications include kidney stones, recurrent infections, metabolic disorders including hyperuricemia, hypocalcemia, acidosis, hyperlipidemia, irritability and feed refusal. There are reports that selenium deficiency can cause heart disease, with importance in the supplementation of vitamins and minerals during treatment with DC.

Metabolic control tests are conducted every three months, including lipid profile, uric acid, complete blood count, measurement of calcium, sodium, chloride, selenium, potassium, glucose, venous blood gas analysis and protein electrophoresis. According to the protocol of each service also is carried out controls with electroencephalography and neuropsychological assessment.

At Children's Epilepsy Clinic at the Federal University of São Paulo - Unifesp, one of the ketogenic diet centers in the Southeast of Brazil, we perform the introduction and maintenance of nutrition therapy, and related research. We have video-EEG machine reserved for this purpose, and multidisciplinary team to accommodate and help patients adaptation.

It is essential that this therapeutic option is offered to patients with refractory epilepsy.

Paula Giroto, MD - Child Neurologist and Marcela Gregório - Nutritionist Clinical fellows in Epilepsy - Department of Neurology and Neurosurgery - Federal University of São Paulo - Unifesp - Advisor Laura Guilhoto, MD Ph.D.



Neurovirtual at **Medica** in Dusseldorf, **Germany**



"The Medica Trade fair is the largest medical trade show in the world, bringing together thousands of vendors, distributors, and medical professionals displaying and researching new technology and innovations, and seeking to establish new relationships or strengthen current ones.

The show was very well attended and featured over 17 halls with every medical device imaginable on display.

Neurovirtual featured our BW3 PSG and EEG dual-purpose device as well as our BWMini Portable PSG and Ambulatory EEG device. We met with multiple interested distributors who were looking for a versatile system with excellent service and support to bring a better option for EEG and sleep diagnostics to their respective markets.

Among our global strengths are 24/7 technical support geared to make our specialists available to all customers at all times regardless of time zone, and the fact that we are represented in over 40 countries world-wide."

Neurovirtual at the 2016 ACNS **Annual Meeting**



"The American Clinical Neurophysiology Society (ACNS) Annual Meeting & Courses are designed to provide a solid review of the fundamentals and the latest scientific advances in both "central" and "peripheral" clinical neurophysiology. Presentations at the Annual Meeting & Courses are given by leading experts in the field and have value for health care professionals who utilize clinical neurophysiology. Sessions include symposia, workshops, courses and Special Interest Groups, featuring didactic lectures, expert panels, debates and interactive formats. Poster presentations at the Annual Meeting highlight the latest work conducted at clinical neurophysiology centers around the country."

(from www.acns.org)

The show prominently featured a research poster section where research teams presented their findings and had a delegate available to answer attendee questions and better explain their methods and conclusions.

Neurovirtual featured our EMU/LTM and ICU monitors during the show, including our BW3 EEG and BWMini Ambulatory LTM products. Speaking with attendees reinforced our theory that service and support in the industry has been sub-par as of late, whereas the Neurovirtual service and support experience continues to be recognized for being meticulous and available, with immediate support provided around the clock in three languages.



Neurovirtual participates on an average of 20 to 30 congresses and conferences in different countries around the globe. Taking our goal to humanize the diagnostic, we proud ourselves to be part of this community and be able to give our contribution to clinicians and patients.

Below you will find the list of events for 2016, where Neurovirtual will be presenting its solutions to make neurology and sleep diagnostic more human! We hope to see you there!

USA

APSS Associated Professional Sleep Societies- Sleep 2016

Colorado Convention Center
700 14th St
Denver, CO 80202
11 to 15 June 2016

ASET - The Neurodiagnostic Society

Wyndham Grand Pittsburgh Downtown,
600 Commonwealth Pl,
Pittsburgh, PA 15222
18 to 20 August 2016

The Southern Society of ElectroNeuroDiagnostic Technologists Annual Conference

Clearwater, FL, USA
08 and 09 October 2016

BRASIL

XXI Congresso Paulista de Medicina do Sono

Associação Paulista de Medicina- Avenida Brigadeiro Luis Antônio, 278- Bela Vista São Paulo - SP
13 and 14 May 2016

XXIII Feira Hospitalar

Pavilhão Expo Center Norte- Rua José Bernardo Pinto, 333 Vila Guilherme São Paulo - SP
17 to 20 May 2016

36º congresso Brasileiro da Liga de Epilepsia

Mercure Mar Hotel Conventions, Rua Barão de Souza Leão, 451, Boa Viagem Recife- PE
08 to 11 June 2016

XXVII Congresso Brasileiro de Neurologia

Av. Amazonas, 6030 Gameleira, 30510-000, Belo Horizonte- MG
27 to 31 August 2016

COLOMBIA

XXVIII Congreso Nacional de Medicina Física y Rehabilitación y III Congreso Panamericano de Neurorehabilitación

centro de Eventos y Exposiciones de Bucaramanga Cenfer
12 to 15 October 2016

XVI Congreso Latinoamericano del sueño, y XII Congreso Colombiano de Medicina Del Sueño

Hotel intercontinental Medellín
16 to 19 November 2016

MEXICO

XXIV Congreso Internacional de la Sociedad Mexicana de Neurofisiología Clínica

Guadalajara jalisco mexico
4 to 7 May 2016

IX Congreso Latinoamericano en Epilepsia 2016

Cancún Quintana Roo
20 to 23 August 2016

XL Reunión Anual Academia Mexicana de Neurología A.C.

Cancún Quintana Roo
29 October to 3 November 2016

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