Nate Darnell, Research Analyst and VP of Diabetes Support Services Inc.

[0:00] I sit on the board of directors of Diabetes Support Services, and part of that is functioning as a research analyst to review technologies that are used not only in Western health care but from around the world. And, generally separate the wheat from the chaff; separate the evidenced-based research from all the marketing hype. And, to introduce you to some of the newer tools that we use for health management, especially in the diabetic population.

[0:31] One of the breaking things we're working with right now is hydrogen gas, and using that with our medical diabetic population. …I want to be very clear that when I'm talking about hydrogen gas, I'm referring to H2, not H+. H+ is really acidic; don't drink that, bad. H2 is two hydrogen atoms with extra electrons, so they can donate electrons. They're actually very, very unique. Hydrogen gas, also known as di-hydrogen or di-atomic-hydrogen or molecular hydrogen. …What's very unique about it is that it can pass through - small enough to pass through cellular membranes, including the blood-brain barrier. It can even arrest things like hydroxyl radicals, which are the most cytotoxic free-radicals of all in your body. And, H2 combining with that suppresses it and converts it into water … and there's no negative effects … there's no cytotoxicity at all .

[2:05] That was also fortunately based on thirty years of military research where they used it for super deep-sea diving. They had divers breathing a very specialized gas mixture, called hydro-heliox, which was 49% hydrogen, 50% helium and 1% oxygen. They would breathe that down to about 600 to a thousand feet. What they realized was that there was no cytotoxicity at all.

[2:36] With that said, there was an interesting phenomenon that transpired in the early 1990's in Nordenau, Germany. There is a slate mine that's in that location … and had been converted into a resort. There were a large number of individuals with terminal illnesses that were there for their last hoorah. Coincidentally many of them had spontaneous remissions from their diseases while they were there. It was enough to where local medical professionals got wind of this and were really curious. They went to investigate, and indeed they did document that a large number of people did encounter spontaneous remissions, and they didn't know how it was happening. …

[3:29] They were able to enroll some Japanese physicists and scientists who were able to travel to Germany to perform quantitative analysis on the area, including the cave and the water. It just so happens that the slate mine, itself, had been converted into a large wine cellar. It was this large cave, but it had a stream running through it. The Japanese scientists discovered there was a large quantity of hydrogen gas that was being evolved from the cave. This was coming out of solution and into the water. So, the water was rich in hydrogen gas, which it stays in solution for a period of time. … After 24 hours it's at half-life and 48 hours it's out. The people going to the resort were not only respirating hydrogen gas, they were also drinking what they called therapeutic water. That was coined "The Nordenau Phenomina".

[4:35] The physicians, encountering this, did a follow-up study on 411 diabetic patients. What they discovered during the study was that, after 6 days of consuming this water, bio-markers started changing measurably. LDL cholesterol was dropping by about 15%. HDL cholesterol was elevated by 7-

8%. They encountered significant increases in insulin sensitivity. Some cases they had complete reversal of metabolic syndrome in diabetes type II. That was consuming about one to two liters per day, which is the equivalent of between 4 and 8 glasses in American terms.

[5:16] That's where I came to this from, the diabetic side. Now, why I started investigating this, was because I started investigating the Japanese healthcare system. We started noticing, with our diabetic population in the United States, that quality of life wasn't what we thought it should be in their later years.

[5:38] In western medicine, generally speaking, diabetes is handled to some extent through dietary control; to some extent through physical fitness; but to a large extent synthetic, pharmaceutical medications. The problem with this approach in the long term, and I don't want to harp on western medicine too bad because we're good at what we do, which is emergency management. We're great if you get an arm knocked off, this is the place to be if you want it put back on. But, when it comes to long-term care, the numbers don't lie. We're 49th in the world as far as longevity. In the last month, the 1st-day infant mortality rate of all industrialized nations, we were #1. We have the highest death-rate for first-day infants of any industrialized nation on the planet. That was researched over the last month or two. So, when it comes to long-term health in the United States, these are numbers we really have to take a look at.

[6:36] Same thing with diabetics and synthetic, pharmaceutical medications; they are a much higher risk of developing cardiovascular disease and cancer as a result of chronic inflammation and free-radical damage. So, as they progress in life, frequently they're on more antibiotics, to stave off infections, because they have a lack of blood-flow to the lower-extremities, which then puts them at more risk for diabetic ulceration and inflammation. So, there are lots of medications. After 30-50 years then their kidneys take all they can handle and they end up with tubular necrosis and they end up on renal dialysis. And then, life really sucks, and you have to ask yourself, "What's the point?" …especially once they start encountering amputations. That's a total life-changer; that's a game-changer…in a bad way.

[7:30] My job at DSS, Diabetes Support Services, was to look at all the available evidence, separating the evidence-based research from the marketing hype, and figure out how can we best serve our patients. What else is available that we weren't using? Is this how it has to be done, or is this just the way that western medicine does it? And, technically this is what we encountered, which was this was the way that western medicine does it. Are there other underlying issues involved, including both business and politics? Well, the answer is yes.

[7:58] But, what I had to look at was, were there other options available. Then we started looking at the Japanese system, which was very unique. It's also important to know that the Japanese have the highest life-expectancies of every country in the world. They also have one of the lowest infant mortality rates of any nation in the world. They were #1 for years, I think it's only in the past 5 or 6 where they dropped to #3. But, they've also been nuked three times - they smoked like steel batteries. Even so, they're still doing real good, in health pound for pound.

[8:26] What's very unique about their medical system though, is in the 1950's they implemented something called Ningen Dokku, which roughly translated, means human dry-dock. After WWII they were dealing with a devastated medical system, shortages of pharmaceutical supplies, large loss of life, and those that were still alive were dealing with radiation, starvation, malnutrition and other issues. To

make matters worse, policy-making in the United States really muscled-in, wanting to psychologically cripple the Japanese culture, because they knew that they were very proud and determined people….and if they really didn't crush them they might come back. That was the philosophy at the time. So, the Japanese that were left, the policy-makers, really did genuinely believe that they might be susceptible to ethnic annihilation. So, to preserve their numbers, they implemented a process called Ningen Dokku, which turned out to be, as it progressed, the most progressive and results-oriented disease-prevention health-care system ever established. Over the past 50 years, those numbers bear themselves out. They have the longest life-expectancies of any nation on the planet. What they did starting in the 1950's was they mandated that every single important policy-maker, engineer, CEO, contributor to the community had to go to the hospital two weeks out of the year. It was like a motel-stay. They stayed there and they were scrutinized from top to bottom to head-off any illnesses.

[10:02] Out of that they started developing other methodologies for disease management. As far back as 1965 they began using electrolyzed reduced water (in the US known as ionized water), which is rich in hydrogen gas although they didn't understand the principles at the time. They just knew that it worked against acid indigestion, dyspepsia, chronic diarrhea. … It had been around for a long time.

[10:36] It wasn't until the Nordenau Phenomina that they realized, as a component of this, that it could be used for the diabetic population. That's how I started discovering all this research. It's also interesting to note that if you start going through PubMed and you start looking up all these articles, almost none of them are done in the United States. They're all in foreign countries.

[11:03] The Nordenau Phenominon discovered that hydrogen gas, alone, just routine consumption, could significantly change bio-markers for the better in the diabetic population. Then we have additional studies, which this one is double-blind, placebo-controlled for diabetes type II, demonstrating the same concept using synthetically reduced hydrogen from electrolysis.

[11:27] We can produce hydrogen gas in one of two ways. We can either do it through hydrolysis or we can drop magnesium in water and that off-gas, hydrogen. But that's really difficult to control…there's no way to really shut it off or modulate it except just removing the magnesium from the water. But if we use basic electrolysis, electricity through water, what happens? What's water? H2O. So if you add electricity it breaks it apart …what do you get? Hydrogen and Oxygen. So, if you really rigorously gasify the water you'll end up with two big balls of gas and you'll explode some things. (Laugh) It works great, and the byproduct is water.

[12:20] If you run weak electrolysis, you can actually stabilize, for a period of time, the gas in solution. So, you can stabilize the hydrogen gas in solution up to 24 hours. You'll still have a little bit of though. It stays in maximum concentration for the first 4 hours. In 48 hours it's pretty much back to equilibrium.

Kelly-Ann wanted me to share this with you, in large part because she wanted to open your minds to alternative technologies that perhaps are not being shared in your training.

[13:07] Not only do we have to worry about the long-term negative ramifications of routine consumption of synthetic pharmaceutical medications for our physiology, but we have to worry about the environmental impact as well.

[13:22] When we start looking at what's happening 50-years after western medicine went gung-ho on antibiotics and all kinds of pharmaceutical medications and after we deregulated the marketing process

– now we have direct consumer marketing for prescription medications, we're now detecting residues from all kinds of prescription medications in our water-sheds and in our water supplies - including significant antibiotic resistance. Now, the problem with this – the municipal water treatment plants were designed 50 and 60 years ago – were never designed to filter out these residues. So, they're trickling through, and up to 93% of them can still make it through the system. And, they end up in a river stream and in our drinking water.

[14:02] There's currently no scientific way to understand how all 2,000-plus of these chemicals, residues, are going to interact and cause an effect on our long-term health and the health of wild-life, our children, etc. and the environment itself. This is becoming a real problem and the same thing with antibiotic resistance. Right now, as of last month … the chief medical officer in Great Brittan indicated that antibiotic resistance in Great Brittan has become such an issue it's now an issue of national security.

[14:48] So, these are things that we have to really start thinking about in regard to how do we proceed with health-care around the world in a way which really produces positive results in ways that cost very little and respect our communities and the environment. That's not necessarily an easy challenge, especially when there are politics and business-models in the way. From a scientific standpoint it's really not that difficult sometimes, it's all the middle-men that often times add complexity to it.

[15:31] (Answering a question) …It will not change the insulin production in type-ones. What type-ones usually wrestle with in their long-term progression of the disease, is collateral damage to all their other organs. They don't die from diabetes. They die from cardiovascular disease, cancer and everything else that's caused by significant free-radical damage… kidney failure, liver damage…

[15:55] So, hydrogen gas significantly suppresses free-radical damage and therefore preserves significant amounts of other tissue…and retards the progression of the disease. Even in the case where someone's freedom was compromised, instead of drinking maybe a glass every three or four hours, you'd give them a little whiskey shot (of the water) every single hour. So, they're consuming between one and two liters per day, but they're doing it on a routine basis. This way the body's not having to wrestle with a large influx of liquid – they can just get a little shot routinely – makes it easier to manage.

[16:29] (Answering another question) …in the double-blind study, that was done over a period of 90-days, and the benefits were only had as long as the water was being consumed. It's one of those things where you have to keep doing it. But, the good thing is that it's not just for diabetics. Across the board, when you look at the epidemics that are occurring in the United States and around right now, almost all of them have an underlying condition of chronic inflammation and free-radical damage. And, if there's a way to arrest that cost-effectively and not toxically, we can significantly arrest the progression of numerous diseases throughout the world.

[17:36] (Answering another question) …Hydrogen moves through the body very quickly …water within 15 minutes has already made its way through the body and it's utilized within 3-4 hours completely. So, you have to keep consuming it.

[18:00] Hydrogen gas is different from other antioxidants… big molecules. … Most of those molecules, because they're big, they can't fit through membranes. Hydrogen can, because it's so small. So, it's very short-lived. … As long as you keep it coming in, it'll keep doing its job.

[18:50] You can respirate it too, but that's significantly more challenging, because now you've got hydrogen floating around in the air and at 4% concentration …there's an explosion hazard. So, the safest and most effective way of taking it in is simply enriching water with a certified electric water generator (known in the US as a water ionizer).

[19:11] The Japanese have a medical system that's geared toward genuine disease prevention and they do that because they were genuinely concerned about ethnic preservation. That's different from the way the western medical system works. …Our medical system was never based on cultural or ethnic preservation. It was based on a business model that was developed in the early 1900's, and it's continued to this day. …

[19:34] In 1999 Japanese researchers started figuring out some of the mechanisms of action with regard to hydrogen rich water on tumor cells. The hydrogen which is contained in electrolyzed reduced water (ionized water) … has an effect on T-lemurs, on tumors' DNA. … They don't know exactly why it does this, but they do know that electrically reduced water (ionized water), which is rich in hydrogen gas, suppresses T-lemurs and tumor cells, thereby retarding the development of the tumor. It appears to be selective…

[20:28] Also, it's important to recognize that radiation exposure causes hydroxyl radicals, which are the most cytotoxic free-radicals on the earth. When a hydroxyl radical interacts with the gas, what's the by-product? Water. H2O. So, in Japan right now, they're investigating the routine consumption of electrolyzed reduced water as a counter-measure against radiation exposure following their nuclear power-plant disaster. Because it's cost-effective. Perhaps one of the reasons why it's not utilized in the United States is because it's a natural substance and it's not patentable. …

[20:15] One in three of us will be diabetic …if we proceed with the direction that we're going. One in two of us will have cancer. And we'll certainly all have cardiovascular disease…if we keep using this same system that we're using.

[21:30] For cisplatinum induced toxicity…cisplatinum, a very powerful chemotherapy drug, often causes kidney-failure, kidney-damage, and hydrogen gas significantly suppresses the damage.

As you'll note almost all of this research is done in Japan.

We can also use the same technology to produce water that is rich in oxygen gas. If we use saline solution instead of water then we can actually produce a very powerful disinfectant. …technically called hypo Chloris-acid. And, that is not to be confused with hydrochloric acid. Hydrochloric acid will burn your face off. Hypo Chloris-acid might dry your skin out. Hypo Chloris acid is actually the same, natural biocyte that's in our white blood cells. What we do know is that we produce it with salt and electricity. …like your body, but just on a bigger scale. What's important to note about this is that it's completely bio-degradable. In 12 hours it's completely inert. We can suppress mercer in 30 seconds or less, using this topically.

So, when we start thinking about antibiotic resistance and using all kinds of synthetic pharmaceutical medications, which are governed, because they're patentable, and controllable and prices can be inflated, and we have something that's not patentable, really not that controllable and is completely biodegradable, it's a no-brainer. My problem is I've got big-pharma on this side and a snake-oil salesman

on the other side and I'm just trying to shoot right down the middle and show the evidence-based research and separate that out of the rest.

In the case of hypo Chloris-acid, this is also important for diabetic patients, because they're much more susceptible to lack of blood-flow to the lower extremities, the development of diabetic ulcers, and then if an infection sets in, potential amputation.

So, the general course in the United States is antibiotics to suppress bacteria load, and then some type of topical wound treatment to help in closure, if it happens. We could also use hypo Chloris-acid topically.

This article, written in 2012, is called, Electrically Activated Solutions. That's currently the lingo that we use in the clinical environment, or, hypo Chloris-acid, for any electrically reduced solution to be used as topical disinfectant or solvent. …This was used in 1915 in WWI…they used it in hospital ships. …the military had sophisticated electrical systems on their ships. So, they built electrolyzers…and they dumped sea water in there because what's sea water? Saline solution. Now they had an aqueous solution that was rich in oxygen gas and free chlorine, which they then used to clean the decks, wash the laundry and treat surgical infections.

With that said, we can use the same technology on diabetic ulceration. A 71-year-old case study last summer. A diabetic who developed diabetic ulceration on the medial side of his right leg, just above the ankle. It initially started about this big, the end of a little pin…within 4 days it was that long (5 inches) and an inch and a half wide. The oncologist said, look "You're 71-years-old and have cardiovascular disease, significant neuropathy … I'd like to be able to tell you good things, but here's the reality of it. You'll probably need an amputation."….long-story-short… Hypo Chloris-acid …was placed in a container. They spritzed it every 4 hours; within 3 days he had scab-over; within 3-weeks he had 75% resolution; 6 weeks it was completely healed with no antibiotics, whatsoever. So, again, this is another way of reducing the dependency upon antibiotics, thereby reducing our risk of being exposed by resistance and environmental impact.