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# Diagnostics of the Future...**NOW!**

Infectious disease is the 4th leading cause of death in the United States. Traditional infections that were once found only in hospitals are now rampantly spreading in the community. In addition, infections are becoming more and more resistant to common medications, drug costs are continuing to climb and are becoming one of the fastest growing healthcare costs in our nation. With the use of current diagnostic testing procedures that take several days to provide results which are less than accurate, physicians truly must "practice" medicine, relying on their knowledge, common sense, and a little 'best guessing' to form a plan of treatment for some patients. Physicians are not always able to key in to the treatment that turns out to be effective. In the meantime, people get sicker, take longer to get well, may require hospitalization, and some may even die from these infectious processes. So, what's the answer?

First, let's review what most physicians and healthcare facilities do to diagnose infections in their patients. There are 2 types of Diagnostic Testing;

1. Culture or Micro-based testing
2. Molecular or DNA testing

Culture tests have been around for a long time (over 50 years) and are the most common way to diagnostically test for infections). These only provide 1 result per test. So, if your doctor thinks you have strep, they test for strep. If strep shows up in the culture, you are diagnosed with a strep infection. If strep doesn't show up, they start all over again and test for the next thing. Each time they do a culture test, it takes 2-5 days to get a result because the culture has to grow and be observed through a microscope to determine the organism. Testing each organism found for drugs it is resistant to, will take an additional 2-3 days beyond the original time frame to grow the culture. So, as you can see, at minimum you have invested 4-8 days in finding out what is making you sick and what drugs to avoid (the drug resistance test) that won't work to cure you. Remember, this culture test only tests for 1 infectious organism at a time. You might have 2 or 3 infections going on at the same time...but this test will not be effective in diagnosing these. Another confounding issue with using the culture test is that, if the patient has been taking an antibiotic when the culture was done, it will probably show

a negative result...when the result may not actually be negative. Another consideration...if the patient has a respiratory infection, it is well documented that co-infections are common in up to 40% of these individuals. The culture test will not catch all of these. So you may be treated with medication that only kills 1 of the organisms that is making you sick. This is why some people 'just don't get better'. A major limitation of culturing is that it is impossible to culture an organism if they don't know ahead of time what to identify.

Molecular or DNA testing is the 2nd type of diagnostic testing available. It has 2 subcategories: Real Time PCR and Tem-PCR tests. Real Time PCR can only do a single test in as little as 2 hours by targeting a virus or bacteria. Since it uses a DNA marker to identify the infectious organism, it is more specific and accurate than culture testing. Limitations of this test is that it can only test for 1 organism at a time...in a 3-part testing process. If it is negative, the test must be started over again for each new possibility.

Tem-PCR is a breakthrough technology that takes some of the features of Real Time PCR, but can test for up to 140 bacteria AND viruses at the same time! It provides results for both types of pathogens in the same procedure in about 4 hours. In this ONE TEST, it can identify all of the infections you have at the same time. It also tells what drugs the organisms are resistant to. AMAZING! This technology has and is being used by the CDC, Walter Reed Hospital, Vanderbilt University and others.

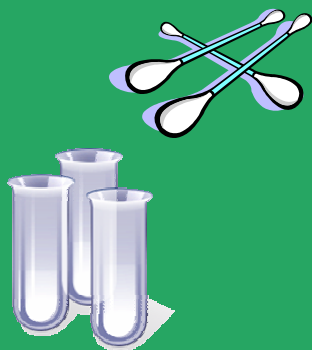
#### Advantages to Tem-PCR Diagnostics?

1. Fast, accurate diagnosis of all infectious organisms in the same test
2. Knowledge of what medications will work, what medications won't work
3. Ability to provide immediate and effective treatment for patients
4. Decrease length of illness
5. Decrease hospitalizations
6. Decrease incidence of death

This technology is available and being used at major healthcare centers around the world. It is not being used everywhere it should be. (cont'd on page 2)



# DIAGNOSTICS: How To Get This Cutting Edge Technology in Your Area (cont'd from page 1)



You can be the advocates for your consumers, yourselves, and your families and friends by providing information about this technology to your physicians, nurse practitioners, hospitals, clinics and other healthcare facilities. Read more on the website at Diatherix Labs at [www.diatherix.com](http://www.diatherix.com) about the different infection panels that can be diagnosed, research that has been done, and the history of Diatherix. Share this website with your physicians. Give them the information they need to make an educated decision to utilize this technology. Any physician group, clinic, hospital, etc. that would like to get set up to provide this diagnostic service to their patients can do this at no cost to them. The Diatherix personnel will provide inservicing on all aspects of how the technology works, sample collection, mailing, notification, billing, and will supply all materials needed for the process. The diagnostic test is billed to the patient's insurance just like any other test. Medicare pays 100% for this test. Medicaid is on the list for approval in several states. It is a win-win-win situation for all. Patients are correctly diagnosed within 24 hours instead of waiting days for a diagnosis that may be incorrect or may only be a partial

diagnosis (only 1 organism diagnosed when 2 organisms are causing the problem). Physicians can begin treating with the most effective medication within 24 hours rather than 'guessing' what's going to work. Their patients don't get as sick, and they recover more quickly. Insurance companies save money because all testing is done in 1 test. There is no need to do several tests to narrow down the choices of what the infecting organism is. You, the nurses and staff caring for our consumers.....are able to keep your consumers healthier, have less hospitalizations, and decrease the number of deaths due to lengthy infectious processes that won't resolve. Be an advocate! Share this information! Once physicians and others review the website and would like more information or would like to get set up to provide this diagnostic service to their patients, they need to contact Sue Burnett at [sue.burnett@diagnostixna.com](mailto:sue.burnett@diagnostixna.com) with their contact information and she will connect them to the person who will provide Diatherix service in their area. Let's get this cutting edge technology out there so our consumers and families can benefit from it!

## ANTIDEPRESSANTS BASICS

Antidepressants have become a huge market in the United States in the past few years, with usage doubling between 1996 and 2005 to a whopping 10.1 % of the population using an antidepressant. <sup>1</sup> Some of these medications are among the biggest selling medications out there, as drug therapy has become the primary treatment strategy for depression. It is possible that with the many issues present in our economy in the past few years leading to the economic decline, loss of industry jobs, housing market bottoming out, and general instability of the world as we knew it, that more and more people are simply stressed....and depressed. Many of our consumers are taking antidepressants also. Depression is a serious mental illness and can cause physical problems, social problems, and lifelong relationship and work issues. There are many antidepressants currently on the market, providing a lot of choice for physicians and patients. It is wise to know a

little about these drugs before embarking on either taking one yourself...or in monitoring the effects of antidepressant use in one of the consumers you support.

Antidepressants are prescribed for depression and its accompanying symptoms. Most people with depression also have underlying anxiety which these medications also relieve, in addition to insomnia, pain, and feelings of sadness.

Remember, every drug does not work for every person. About 40% of the people will not respond to the first antidepressant they take.<sup>1</sup>

Many people may need to try several antidepressants before getting one that works well for their particular set of symptoms and has minimal or tolerable side effects. More than 60% of people taking antidepressants will have at least 1 side effect. <sup>1</sup> Think about this with our consumers and monitor closely for any potential side ef-

fects that are troublesome. The most common side effects for patients taking antidepressants are dizziness, diarrhea, constipation, headache, insomnia, sexual dysfunction, weight gain, and dry mouth. Suicide risk for young adults to age 24 has also been identified as an issue. Just because a person has side effects is not reason enough to switch medications. The patient and physician must determine if the side effects are a problem for that patient or if they can be easily managed.

One of THE MOST IMPORTANT facts to know about antidepressants is that **it can take 6-8 weeks, or more, for a particular antidepressant to achieve full therapeutic effect<sup>1</sup>** in a specific person. For this reason, you don't want to switch meds too early, before the medication has been given a true chance to work.

<sup>1</sup> Agency for Healthcare Research and Quality (AHRQ) Pub. No. 07-EHC007-3, Aug. 2007

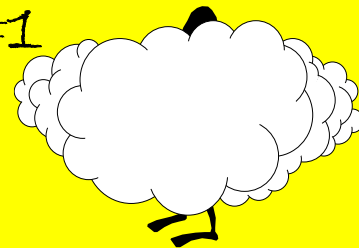


MORE THAN 16% OF AMERICANS WILL HAVE DEPRESSION AT LEAST ONCE IN THEIR LIVES.



# New Year's Resolution #1

## Stop Smoking



So how many years have you made this New Year's Resolution? Why is it so hard to quit and to stay quit? Most people understand the health issues surrounding smoking. We know it's bad for our health and for the health of our loved ones around us when we smoke. And yet....we keep coming back. That little rolled cylinder of tobacco and chemicals beckons us....over and over.

According to the National Cancer Institute, tobacco is the leading avoidable cause of cancer and it is estimated that it accounts for approximately 30% of cancer deaths in the U.S. Most people think of smoking as causing lung cancer, but smoking increases the risk of many other types of cancer as well, like myeloid leukemia, cancer of the mouth, throat, pancreas, kidney, bladder, cervix, and stomach. For a heavy smoker, this risk can be up to 10 times that of a non-smoker. Smoking is also an accessory in other diseases like heart disease, stroke, emphysema, bronchitis, and in problems of pregnancy when mothers smoke. Secondhand smoke from smokers also causes health problems in those around them who inhale the smoke....like higher risks for lung cancers, coronary artery disease, infants exposed have more sudden infant death, asthma, ear infections and respiratory infections.

According to the National Cancer Institute's 2007 research, 22% of adult men and 17% of adult women were smokers at that time. Interesting to note that rates of smoking were highest in those with the least education. These rates decreased as educational level increased. The rate of smokers overall has been decreasing in the past 30 years as health risks have become more and more evident. People are realizing that smoking and tobacco use is not healthy....and so, they are quitting.

Stopping smoking or using tobacco in any form is difficult. It is an addiction, sometimes for decades, for some people. As a matter of fact, this is why it is so hard for people to quit. Smoking is as addictive as heroin or cocaine. It stimulates the same part of the brain's pleasure centers as

these dangerous, addictive drugs. No wonder so many people have such a hard time quitting and staying quit. It is an addiction that is physical and mental, so quitting smoking means dealing with both of these aspects of the addiction. Just like heroin. Most people don't understand what happens when they inhale a big lung full of cigarette smoke. It is pulled deep into your lungs. It is absorbed very quickly into your bloodstream through all the vessels surrounding your lungs. And it is carried from there....to every organ, every cell, every square inch of your body. It goes to your brain faster than an injection given into your bloodstream....that's fast. It doesn't just stay in your lungs and come back out with your next breath. This constant, repeated inhaling of smoke over and over for many years continues to touch every cell in your body. Something to think about.

The nicotine in cigarettes is what hooks the smoker. It is the addictive ingredient that causes the rather pleasant euphoria in a smoker and makes them want to pick up the next cigarette. It is not only mentally addicting with each puff, it is causing a physical response as well. This makes it increasingly difficult to quit when the smoker wants to.

So....you want to quit. But, you'd like to know what your choices are because you might need some help. There are a variety of options. First, you need to have a plan. Are you going to use a smoking cessation aid like a medication or gum? If so, you need to get those in hand. This may require going to your doctor for prescription medications or simply going to your neighborhood drugstore for over-the-counter aids like patches or nicotine gum. You need to tell everyone around you that you are going to quit smoking and ask them to help. They can help by not offering you cigarettes, not smoking in front of you, and by giving you positive strokes for each day you are smoke-free. You need to identify what your smoking triggers are so you can plan for these situa-

tions and times. Do you smoke after eating? At work on breaks? While driving? Plan for these times in your head. After eating, get busy with an activity right away. At work, go for a jog rather than smoke. Plan what you are going to do ahead of time....instead of smoking. It helps to know that the cravings for tobacco only last a few minutes. Know that they are coming. But, you only have to be strong for a few minutes. Get busy and focus your mind on something else, another activity....and the craving will go away on its own. For an abundance of resources on smoking cessation, go to The National Institutes of Health's site at [www.nlm.nih.gov/medlineplus/quittingsmoking.html](http://www.nlm.nih.gov/medlineplus/quittingsmoking.html). This site has loads of info on coping while quitting, research on smoking, videos, health check tools, guides, manuals to help people stop smoking, info on withdrawal...it's all there to use as your resource.

Withdrawal...the most feared aspect of quitting smoking. Withdrawal starts within a few hours of your last cigarette and peaks in about 3 days. This is when most of the nicotine and other chemicals are out of your system. Withdrawal can last for a few days up to several weeks but it does get better and better with each smoke-free day you have. Symptoms you may experience are depression, anxiety, irritability, sleep problems, coughing, sore throat, runny nose, headaches, weight gain (usually less than 10 pounds), and trouble concentrating. These symptoms will also go away over time.

Medications that may be helpful include one of a variety of nicotine replacement products (Nicorette gum, Nicotrol inhaler, Nicoderm HQ patches, Habitrol, or Commit) or non-nicotine medications (Zyban, Chantix, Pamelor, Topamax) that require a prescription from your physician. All of these medications do have side effects and you should discuss use of any of them and your desire to stop smoking....with your physician before using any of them. Be smoke free by 2011!



## THE POST SCRIPT

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