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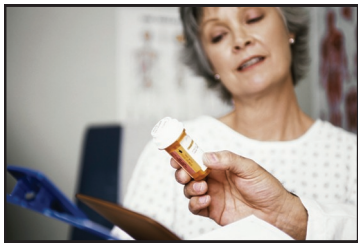
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DNA *Today*

ADDRESSING THE DNA TESTING NEEDS OF MEDICAL PROFESSIONALS AND PATIENTS SINCE 1987.



Personalized Prescribing: Making the Most of Medicare Preventive Services

Many people don't realize that personalized prescribing based on DNA testing is covered by most public and private insurers if a healthcare provider believes it is medically necessary. Be sure to ask about personalized prescribing at your next annual wellness visit.

Medicare offers a number of preventive services, including a free annual wellness visit so your doctor can identify health risk factors and recommend steps you can take to reduce those risks. Your doctor will evaluate your personal and family medical history, as well as current medications, and order tests. (See page 3 for complete description.) The goal of these visits is to prevent disease and to improve your overall health and well-being.

More and more physicians are including medication risk assessments to identify drug side-effects and interactions

that may be causing problems along with the standard risk assessments for depression, heart disease, and cancer. If you're taking four or more prescription drugs or one, such as Plavix, with a warning about genetics on the label, your doctor may order DNA Drug Sensitivity Testing to help optimize your prescriptions. Typically covered by insurance if ordered by a qualified healthcare provider, personalized prescribing helps doctors determine both "drug-to-drug" and "drug-to-DNA" interaction risk.

.....Continued on page 2



DNA in the News

Caltech researchers recently developed an artificial neural network from human DNA molecules. They chose DNA molecules because they can act like circuits, computing data, transmitting information and processing it. The team then tested the intelligence of their creation with a series of trivia questions— the test tube brain scored 100%. Learn more in the July 21st issue of the journal *Nature*.



Blood Lines and DNA Differ, Implications for Native Americans

Most people think DNA is the same as blood lines; if their mother is 25% Native American, they expect to be 12.5%, but DNA doesn't work that way.

According to family folklore, your great grandmother was a full blooded Choctaw Indian, but genealogical research is unable to uncover any information about her history. Many Americans have a story similar to this. Unfortunately, if family members did not make it onto the roles, Native American ancestry is almost impossible to confirm without DNA testing.

If Native American ancestry was passed through a line of unbroken males or unbroken females, Y-STR or mtDNA testing can be used to confirm Native American ancestry, but this is rarely the case. The only option remaining is ethnicity DNA testing, which looks at the percentage of ethnic markers you carry associated with European, Native American, East Asian,

and African ancestry. Keep in mind that if your mother is 25% Native American, that does not mean you automatically have 12.5% Native American markers. The easiest way to understand this is to picture two decks of 100 cards of which you are dealt 50 from each. If one of the decks has 25 Native American cards and 75 other cards, you can get anywhere from 0 to 25 of the Native American cards in your hand. Although genes passed tend to be in a similar range as blood lines, there is no guarantee that they will be. Having the genetic markers is great for confirmation of Native American ancestry, but lack of markers doesn't disprove it. DNA testing can be useful, but it has limitations.

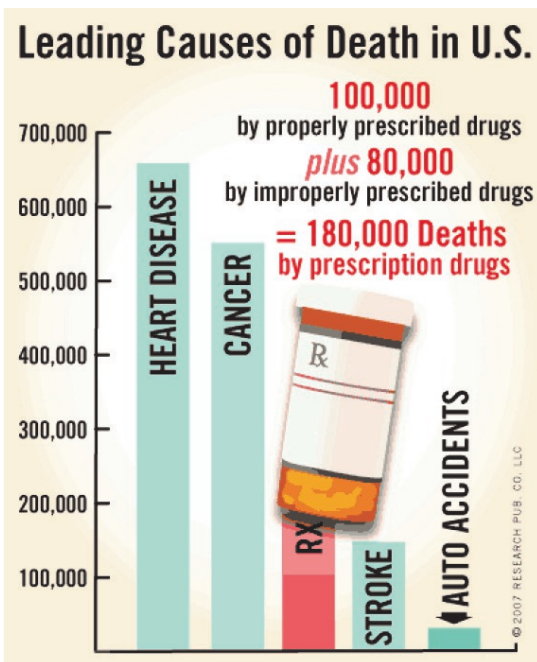
Personalized Prescribing Cont....

The comprehensive personalized prescribing program analyzes all the prescription drugs, herbal preparations, and over-the-counter medicines patients are taking for their combined interaction risk, and for their compatibility with a patient's unique DNA profile.

As the number of drugs an individual is taking goes up, so do the risks of a serious or even fatal reaction. If these drugs are being prescribed by more than one doctor, are self-prescribed, such as herbals, or purchased from more than one source, the risks go up even more.

"With this tool, no longer is it a trial and error proposition as to what drug and dose to prescribe; we can now do it scientifically with a much better outcome for the patient."

- J.E. Block, MD, FACP, Tulsa, Oklahoma



A questionnaire is now available that allows patients to quickly calculate their risk for adverse drug reactions and treatment failures to help determine if they are a candidate for DNA Drug Sensitivity Testing and a Personalized Prescribing evaluation. Based on information compiled from NIH, the FDA, and www.medsandaging.org, you can download the questionnaire at www.HealthandDNA.com/risk.pdf or request copies for yourself or a medical office by calling 800-523-3080 now.

Sources: U.S. Centers for Disease Control and Journal of the American Medical Association





What is the Medicare Preventive Visit?

The information provided is directly quoted from Medicare.gov

The "Welcome to Medicare" preventive visit helps you and your doctor develop a personalized plan to prevent disease, improve your health, and help you stay well. A few things you should know:

- **It's free.** There's no copayment or deductible for the visit.
- **It's easy** to use this benefit. Just call your doctor when you sign up for Medicare.
- You can sign up for the visit during the first 12 months you have Medicare. After the first year, you can get a yearly "Wellness" visit for free.
- **It's comprehensive.** The visit includes a review of your medical history, preventive tests and screenings, and planning for a healthy future.
- The visit is covered by Original Medicare (Part B) and Medicare Advantage Plans. Under

the new healthcare law, the visit is now free along with a number of preventive screenings and services (like mammograms and colonoscopies).

What should I expect during the visit?

During the visit, your doctor will:

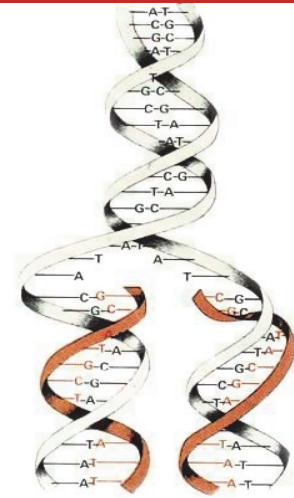
- Record and evaluate your medical and family history, current health conditions, and prescriptions.
- Check your blood pressure, vision, weight, and height to get a baseline for your care.
- Make sure you're up-to-date with preventive screenings and services, such as cancer screenings and shots.
- Order further tests, depending on your general health and medical history.

Following the visit, your doctor will give you a plan or checklist with free screenings and preventive services that you need.

What you should bring to your "Welcome to Medicare" preventive visit:

- **Medical records,** including immunization records. Even if your current doctor does the visit, gather as much medical information as you can to make sure nothing is overlooked.
- **Family health history.** Try to learn as much as you can about your family's health history before your appointment. The information will help you and your doctor better understand what screenings you should get and what to watch for in the future.
- **Prescription drugs.** Bring a list of any prescription drugs, over-the-counter drugs, vitamins, and supplements that you currently take, how often you take them, and why.

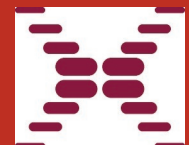
Don't delay. Schedule your annual preventive wellness visit today! Ask your healthcare provider, or visit www.medicare.gov for more details.



Human beings differ only in 0.1% of their overall DNA; in the other 99.9%, they are identical. One of the ways our DNA differs the most is in the coding for the enzymes that process the majority of the most commonly prescribed drugs. These enzymes vary more than any others known.

A complete 3 billion base genome would take only 3 gigabytes of storage space, which would fit on memory cards now commonly used in many digital cameras.

The codeine product insert warns that nursing mothers may cause harm to their babies if, like 7% of the population, they have duplications of a gene called CYP2D6.



Healthcare Provider? Ready to Make Personalized Prescribing Part of Your Practice?

Contact Genelex at **800-523-3080** and ask for a Medical Accounts Specialist. We can help you take the guesswork out of prescribing at no cost to your patients or your practice.

Patient? Is Personalized Prescribing Right for You?

Contact Genelex at **800-523-3080** or visit www.HealthandDNA.com.



New Plavix Study Confirms Importance of Genetic Testing

Almost all of the deaths and major cardiovascular events observed in Plavix patients occurred in poor metabolizers of a liver enzyme called CYP2C19, according to data from the GIFT sub study of GRAVITAS presented at American College of Cardiology 2011 annual meeting. Poor metabolizers are people who lack the DNA coding required for their bodies to make CYP2C19, which acts on about 10% of medications. Approximately 2-4% of European origin individuals, 10% of Africans, and up to 20% of Asians are CYP2C19 poor metabolizers. Plavix is a prodrug, taken in an inactive form that requires CYP2C19 to activate it. Additionally, the study found that doubling Plavix dose from 75 to 150 mg

improved platelet reactivity results in the one-third of patients who are intermediate metabolizers, but had no impact on poor metabolizers of CYP2C19.

“The thing that hit me in the face was that virtually all of the events were in those [poor metabolizers].”

- Dr. Gibson, Duke University

Dr. C. Michael Gibson and Dr. Ajay Kirtane from Duke University discussed the study, and both commented that the FDA boxed warning about Plavix genetics was premature until seeing this data. Dr. Kirtane stated, “I’m wondering if maybe we should spend more effort trying to find these non responders for the homozygous gene [poor metabolizers].”

Watch the Duke cardiologists discuss the study at www.vimeo.com/22008430
Read details of the study at: www.theheart.org/article/1208199.do

Questions? Comments?

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Editor: Catherine Bentz
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