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DNA *Today*

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



Pharmacogenomics in Clinical Practice: Where Do We Go From Here?

In an interview with Medscape, Mark J. Ratain, MD, Professor of Medicine at the University of Chicago and Founding Director of the University's Center for Personalized Therapeutics, pointed out that pharmacogenomic testing needs to move from the realm of reflex lab testing to part of the physical exam....

“I think we need to take genetic testing out of the domain of laboratory testing and move it to the domain of physical examination. It can then be one more piece of information for the physician to consider and we wouldn't need to focus on the cost.”

“There are a lot of things we do during a physical examination that have never been demonstrated to be cost-effective. Physicians look at their patients' toes as part of an annual physical. Have you ever seen a study that shows that look-

ing at your toes is cost-effective?”

“We need to conceptualize genetic testing as a part of the physical exam rather than as a laboratory test that needs to be ordered so you can have the information at the time you are seeing the patient. For example, if you're starting a patient on warfarin, or you are considering whether to start him on warfarin, and you already know that he is going to metabolize warfarin a lot more slowly or that he's going to be a lot more sensitive to it,**Continued on page 2**



DNA in the News

Another case-control study published in October pointed out increased risk of stent thrombosis for patients taking Plavix with variations in a gene called CYP2C19. Patients with adverse events were two times more likely to have half of the gene be non-functional. Called intermediate metabolizers, this represents about one-third of patients. Patients with no CYP2C19 function, called poor metabolizers, were seven times more likely to have an adverse event. About 2-4% of Caucasians, 10% of Africans, and 20% of Asians are poor metabolizers. If you or a loved one is taking Plavix, ask about DNA Drug Sensitivity Testing. [See more at theheart.org/article/1300023.do](http://theheart.org/article/1300023.do)



Bringing Personalized Prescribing to the Community Pharmacy

An interview with Brian Hocum, PharmD of Wasem's Pharmacy who has recently made personalized prescribing available to at-risk customers.

Why do you think genetics is important?

I tell my patients that through DNA technology, we are able to determine what type of drug metabolizer they are. I explain how this information can be used to help predict if they are at risk of having bad reactions to drugs (too much drug exposure) or poor response to drugs (too little exposure to the medication). Genetics is important because it allows Health Care Providers, like myself, to predict who will have "bad reactions" or "poor responses" to medications.

How would you define personalized prescribing in your own words?

"Personalized prescribing" is the analysis and incorporation of patient specific factors (i.e. CYP450 metabolizing capacity—derived from DNA testing) prior to prescribing, dispensing and/ or choosing new medications (including OTC, vitamins, herbals) and doses. While we typically think of "prescribing" as something only Physicians do, I feel "personalized prescribing" is something we can all embrace; Physician, Pharmacist & Patient.

Where Do We Go From Here Cont..

you can take that into account in the same way you would probably use a lower dose if your patient were frail or elderly. That is where I think the field needs to move."

"The solution is one that we are piloting here, which is to genotype all patients for all poly-



morphisms that may affect drug response.

You'll then have the results when you need them and your costs will be much lower than doing each test as a one-off laboratory test.

In the current system, you see the patient and want to prescribe a drug, and you say to yourself, 'Maybe I should order a pharmacogenetic test. But I don't

know how to do that, I don't know how long it is going to take to get results, and I don't know if my patient is going to get reimbursed for it. Oh, who cares. I am just going to prescribe the drug.'

"We need to conceptualize genetic testing as a part of the physical exam rather than as a laboratory test that needs to be ordered so you can have the information at the time you are seeing the patient."

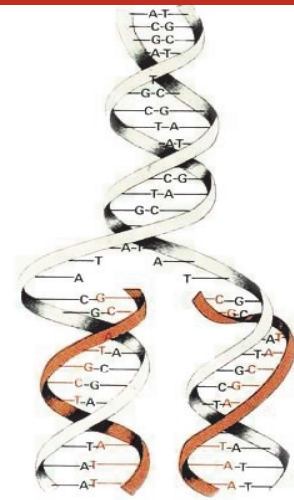
- Dr. Mark Ratain, Professor of Medicine at the University of Chicago

"Unless someone says that you can't prescribe the drug without doing the test, or unless we change the way we look at how pharmacogenomic testing should be incorporated into clinical practice, the system is unlikely to change."

Source: <http://www.medscape.com/viewarticle/739944?src=ptalk>



DID YOU KNOW?



Wasem's Welcomes
Brian Hocum, PharmD, to our Pharmacy



Brian graduated from WSU College of Pharmacy and is a Clarkston native.

Did you know that your DNA affects your reaction to most medications?

Wasem's Pharmacy offers personalized prescribing, a simple DNA test that can help reduce the chance of side effects and treatment failures. One test provides data that can be used for a lifetime.

Please stop in and visit with Brian today about our new DNA testing (personalized prescribing).

Brian Hocum, PharmD

WASEM'S
800 6th Street • Clarkston
758-8461 • 1-800-548-2804

Testing is typically covered by Medicare and most private insurers.

their patient charts. I plan to host a dinner soon for Health Care Providers to educate them about “personalized prescribing.”

You have now made several successful interventions on a patient's behalf; can you share one of these stories?

Yes, here is one of the first testimonials I received after a successful pharmacogenetic intervention. This patient struggled with adverse drug reactions her whole life, and was relieved that science and technology are finally beginning to understand and incorporate “personalized prescribing.”

“Thank you so much for guiding me through the new way to approach medication. Armed with the letter to my health care provider, I feel confident that finally my doctor will be able to adjust some of my medications. Maybe some day genetic testing will be a routine procedure before prescribing meds. How much misery and money could be saved if we get it right the first time...”

Why did you decide to launch this program at Wasem's?

As a Pharmacist working in a community pharmacy, my number one goal is to serve the patients of the community. Our services are what bring patients into the store and they are what keep them coming back for years. Keeping patients safe through more informed medication and dose choices is the best service we can provide and “personalized prescribing” is the best tool I know of to do so.

What efforts have you made to educate physicians and patients in your community about personalized prescribing?

We have in the past and continue to educate the community through newspaper advertisements, co-marketing posters and speaking with community volunteer groups like the Rotary, Lion's club and retirement centers.

Since pharmacists are able to order laboratory tests in Washington State for the purpose of monitoring drug therapy, I often find that the prescribers are unacquainted with “personalized prescribing.” I send them a fax describing what the genetic results mean, and any alternate medications or dose adjustments that they might considered based on the results. The response has been all positive. Doctors are noting the recommendations in

Healthcare Provider? Ready to Make Personalized Prescribing Part of Your Pharmacy or 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.

In March of 2010, the FDA put a warning on the Plavix (clopidogrel) product insert that patients with a certain DNA variation of CYP2C19 (pronounced sip-2C19) were at high risk of treatment failure resulting in major cardiac problems or even death.

CYP2C19 is not just involved in Plavix metabolism, it is involved in the metabolism of ~10% of medications.

Other common medications processed by CYP2C19 include:

- voriconazole
- Prilosec
- Prevacid
- Aciphex
- Nexium
- Soma
- Lexapro
- Silenor
- Dexilant





Embassies Crack Down on Third-party Immigration DNA Tests

Third-party resellers of DNA testing abound on the internet. Unfortunately, many of them are unfamiliar with strict requirements for immigration DNA testing. The problem has become so pronounced that many Embassies are now requiring petitioners to contact AABB-accredited laboratories directly.

Natalie Messelt from the US Embassy in Addis Ababa stated, "A petitioner must independently choose his or her own AABB lab, make the appointment, and go to the collection site directly. The collection site must then send the specimen to the main AABB lab testing site directly,

through the lab's internal, controlled system. Third-party vendors include, but may not be limited to, private companies or clearinghouses that serve as intermediaries to make appointments on behalf of petitioners or beneficiaries.

Under no circumstances should petitioners use third-party vendors to select their lab, arrange appointments, or transport the specimens outside of the lab chain-of-custody controls.

- Natalie Messelt, US Embassy, Addis Ababa

The authority for collecting DNA specimens in the United States resides exclusively with the AABB labs and their directly affiliated collection sites."

The immigration process is complex and lengthy, don't risk delays and unneeded additional expenses of retesting – contact the AABB labs directly.

Questions? Comments?

Call a Genelex DNA
Testing Consultant
800 TEST-DNA
(800-837-8362)
or visit us online

www.HealthandDNA.com



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