

With Diagnostic Tests, It's a Brave New World

These six medical tests are not only game changers, but backed by real science

by Margery D. Rosen, [AARP Bulletin](#), May 2015

The latest generation of tests can identify who's at risk for certain diseases, as well as determine the best [treatment](#). Here are six game-changers backed by real science.

1. **Less-guess prostate test**

Men diagnosed with [prostate cancer](#) have a tough choice among a range of options: from surgical removal of the prostate — difficulty with urination and impotence can be [side effects](#) — to watchful waiting. The Oncotype DX prostate cancer test is making the decision easier. By analyzing genetic information in a biopsy, the test distinguishes between slow-growing tumors that warrant regular monitoring and faster-growing tumors that demand immediate treatment. "For too long, we've overtreated prostate cancer," says Michael Roizen, M.D., chief wellness officer at the Cleveland Clinic. "This test allows us to avoid aggressive treatment when it's not needed and save lives when it is."

2. **Meds and genes**

Medications affect people in different ways. "By analyzing each person's genetic code, it's now possible to predict which drugs will work best for each patient and which ones are ineffective and possibly dangerous," says Dietrich Stephan, M.D., a professor and chairman of the department of human genetics at the University of Pittsburgh Graduate School of Public Health. The Food and Drug Administration has posted on its website more than 150 [medications](#) for which DNA screenings can help avert futile treatments or adverse reactions and determine optimal dosages. For example, one screening for gene variations helps identify people who aren't likely to respond to certain antidepressants, or who are more likely to experience bad side effects. A genetic test can help doctors prescribe an optimal dosage of the blood thinner warfarin so it doesn't cause bleeding. Stephan recommends checking the FDA list and consulting your doctor about whether a DNA test could make a difference in your prescriptions.

3. **Blood simple**

Elizabeth Holmes, a 31-year-old Stanford University dropout and self-made billionaire, vowed to revolutionize the field of blood testing — and she's doing it, one pinprick at a time. That's the first big change: no more tourniquet, syringe or hunt for a vein. With a few drops drawn from a poke in your fingertip, the formula patented by Holmes' company, Theranos, can perform more than 200 blood tests — from standard cholesterol checks to sophisticated DNA analyses. Accustomed to waiting days or weeks for lab results? Theranos delivers results to doctors within a few hours. What's more, the cost is a fraction of what competing labs charge. Theranos Wellness Centers are already operating in many Walgreens stores.

4. **Dreading that colonoscopy?**

Some people have a new alternative: the PillCam COLON2. Recently approved by the FDA, it's a disposable, battery-run video camera in a capsule you swallow. Traveling through you for up to 10 hours, the PillCam transmits high-speed color pictures of its journey to a recording device, attached to a belt around your waist, that relays those images for your doctor's review. The upside: no sedation or recovery time. The downside: You still need the cleansing prep required before a standard [colonoscopy](#), and any polyps or other findings must be dealt with the old-fashioned way. For now, the PillCam is available only for people who can't have a traditional colonoscopy.

5. Heart trouble ahead?

Researchers at the Cleveland Clinic have found a correlation between people's level of a substance called TMAO (trimethylamine-N-oxide) and cardiovascular trouble. In a study, those with the highest levels of TMAO — produced when you digest choline, found in eggs, red meat and dairy products — had double the risk of death, heart attack and stroke compared to those with the lowest levels. Even more striking: The prediction can be made for those without high blood pressure or other risk factors for [heart disease](#). Because symptoms develop slowly, many people have no hint of coronary disease until they suffer a [heart attack](#) or [stroke](#). "But with this test, we can give them personalized nutrition information so they can begin to make [heart-healthy food choices](#)," says Roizen, author of the book *This Is Your Do-Over*. The Cleveland Clinic expects TMAO tests to be commercially available this year.

6. Your personal ECG

AliveCor Heart Monitor (about \$75), ECG Check by Cardiac Designs (about \$129) and similar monitors use your smartphone to record an accurate electrocardiogram (ECG) and send it to your doctor. You simply attach a thin device with built-in sensors onto the back of your phone and download a free app. Traditional, strap-on heart monitors have been around for decades, but, says Timothy Dutta, M.D., of Weill Cornell Medical College, "Murphy's Law says that people will wear a monitor 24/7 for several weeks, and experience no symptoms. Once they take it off, they do." With a smartphone handy, you can whip it out at the first sign of light-headedness or heart palpitations and simply rest your fingers on the sensors.

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