Study Offers New Step Toward Personalized Care

When the Coriell Institute for Medical Research in New Jersey proclaimed last week it had unlocked five genetic predictors of hypertension in African-Americans, it illuminated a new path on the road to personalized medicine.

The potential use for this research appears vast – from biopharmaceutical entrepreneurship down to tailor-made medication to treat an often debilitating and pervasive condition among African Americans.

What remains unanswered is the level of impact this discovery will have on the masses and when, particularly amid ongoing health disparities and intensified debate on health care reform and its costs.

“We spend $300 billion a year on prescription drugs, and half of that is completely wasted because people get drugs that don’t work for them,” Dr. Michael Christman, president and CEO of the Coriell Institute told BlackAmericaWeb.com. “That fits into the president’s agenda for reform. [With genetic testing] we’re about to see a new tool being made available to doctors that we have not had before.”

Roughly two in five black people aged 20 and up struggle with hypertension, according to the Centers for Disease Control. In fact, the CDC reports that one in seven African-Americans have one or more chronic health conditions that seriously curbs day-to-day activities, conditions like hypertension. That ailment alone often leads to other devastating incidents like heart disease and stroke, leading causes of death among black adults.

Rather than one-size-fits-all medicine, doctors in the future would be able to review a patient’s genetic mapping and determine the drugs most likely to address specific needs, as well as ones that could have fatal results, Christman said. Some 6 percent of all hospital visits are due to such toxic combinations – something that could be screened for and avoided in advance if genetic information were in hand.

Coriell used data gathered by the Howard University Family Study, a multigenerational look at genetic data among blood relatives in metropolitan Washington, D.C. For the past decade or more, researchers have sought to transfer genomics findings to medical applications, particularly medicine development. Still, the vast majority of studies and
related therapies tend to focus on those of Western European descent, without taking into account variations and effectiveness among ethnic groups, Christman said.

But the situation is more complicated than just complexion, said Dr. Joseph L. Graves Jr., dean of university students and a professor of biological sciences at North Carolina A&T University. He argues that there is a difference between personalized and “racialized” medicine, especially given the genetic diversity found within African-Americans.

Graves, an evolutionary biologist, cautions anyone from leaping to the conclusion that a panacea for black people – or any given ethnic group – is on the horizon; in fact, he doubts one could ever exist.

When personalized medicine is commonplace, genetic mapping should be one of many factors that would determine the best prescriptions, coupled with lifestyle, environmental exposures, diet and more. And it certainly could not be based solely on how someone self-identifies ethnically, Graves said.

In one Cleveland study, for example, some 93 percent of self-identified whites had predominantly European genetic backgrounds yet only 4 percent of self-identified blacks in the study had predominantly African genetic backgrounds.

“There could be a person in China with the same genetic background, exposed to similar toxins in the environment, living the same lifestyle as an African-American here,” he said. “And in that case, the drugs prescribed for an African-American may work just as well for that person.

“African-Americans have the most diverse genetic variation in the world. People are different at a number of levels. We will never be at, ‘You have genetic marker X so you need drug Y.’

In 2001, Howard University launched its National Human Genome Center with the express purpose of studying and solving the complexities of genetically-linked medical disorders among African-Americans and those of the African Diaspora. Increasing the number of those involved in gene mapping experiments opens up new worlds of understanding and treatment options.

But even when based at a respected institution such as Howard, the legacy of the Tuskegee Syphilis Experiment haunts some would-be participants.

That infamous federally-financed project that ran from the 1930s through the 1970s studied the effects of untreated syphilis on poor black man, under the guise of providing free medical attention.

Hundreds thinking they were receiving care were instead left to languish and die under the supervision of medical professionals, who then documented the results. Researches
involved in the study blatantly denied relief to the participants. Those actions have been roundly condemned as unethical and unmoral and helped usher in more stringent and unbiased testing standards in the years since.

Those queasy about their genetic information falling into the wrong hands need not worry, Christman said. Not only is the likelihood of someone breaking into a genetic information bank to do mischief low, in 2008, President Bush signed a law that prevents U.S. insurance companies and employers from discriminating on the basis of information derived from such tests.

The promise of tailored medications also would help lower insurance costs because there would be less trial and error, meaning less waste, Christman said.

While that plays into the current conversation about health care reform, few African-Americans can afford for personalized medicine to be at the forefront at this time, Graves said.

African-Americans continue to die at disproportionately higher rates than others in the country, attributable most often to an inability to afford or access health care. About one in six African-American adults go without a usual source of health care, roughly the same number of adults under 65 who are uninsured, the CDC reports.

The costs are more than just out-of-pocket expenses for the uninsured and underinsured. An inability to address treatable and manageable diseases can lead to a host of effects are legion, with disability in prime earning years to bankruptcy to children drifting into the streets after a parent’s death among them.

Personalized medicine, Graves contends, falls more into the luxury lines when the basics go wanting.

“Personalized medicine is down the road,” he added. “Right now, people don’t have access to the current medicines that exist or medical treatment, and that’s the real problem.”