

MDx and MDs: Is a dose of knowledge the prescription for adoption?

Results of a landmark physician study on personalized medicine by CAHG provide insights on barriers to and catalysts for adoption of molecular diagnostics into clinical practice

The speed and volume of innovation in molecular diagnostics are critical drivers of personalized medicine. The ability to identify biomarkers at a molecular level—especially genomics-based biomarkers—and the application of those biomarkers to screening, diagnosis, prognosis, and treatment selection are moving personalized medicine from promise to practice every day.

In oncology, molecular diagnostics are already being used for earlier detection, better diagnosis and staging, and more targeted treatment. And the application of molecular diagnostics to pharmacogenomics is enabling patient therapeutic response—both efficacy and safety/adverse events—to be better identified, thus moving personalized medicine beyond oncology (eg, Erbitux® [cetuximab] and tamoxifen) into cardiology and primary care (eg, Coumadin® [warfarin] and Plavix® [clopidigrel]).

As more molecular diagnostic platforms and assays move from research through regulation and approval, and especially as they move closer to point-of-care application, physicians will be confronted with a potentially dizzying array of options, choices, and information, much of which they may be ill-prepared to handle. That's because, as findings from our landmark study reveal, physicians acknowledge a simultaneously high level of interest yet low level of information about genomics and molecular diagnostics.

This "interest/information gap" presents a critical challenge (or, as we at CAHG see it, a major opportunity) for developers and marketers of molecular diagnostics as well as pharmaceutical and biotech companies. There is a significant need for end-user education about molecular diagnostics services and products, as most physicians acknowledge having received little or no training in genomics and needing a lot of information about molecular diagnostic testing. As our study reveals, the prescription for adoption just might be a dose of knowledge.

We chose oncology, cardiology, and primary care as the physician specialties for our study to access a broad overview of physician awareness, attitudes, and adoption potential. For example, given the penetration of personalized medicine into oncology, we hypothesized higher awareness, more positive attitudes, and greater adoption by physicians; our suppositions were, to some extent, validated by our results. Cardiology was chosen as the "middle" range, with some integration of personalized medicine (via pharmacogenomics) into clinical practice. Finally, primary care physicians were chosen because of their critical importance to healthcare as "front-line" providers as well as our hypothesis that they would be much less aware and have lower adoption than oncologists and cardiologists (see table 1 for baseline characteristics).



Jerry Coamey

SVP, Practice Leader,
Personalized Healthcare,
CAHG

(312) 475-2555
jerry.coamey@cahg.com



As SVP, Practice Leader of Personalized Healthcare, Jerry leads the newest service offering from CAHG. The practice is the first and only marketing and communications group focused on accelerating adoption of genomics-based medicine and personalized healthcare into clinical practice, from wellness through disease management. CAHG, an Omnicom Group company, is one of the largest healthcare communications companies in the US and provides brand stewardship throughout the lifecycle of a brand, from compound development to patent expiry and beyond, including genomics-based medicine and personalized healthcare communication and strategies; clinical trial patient recruitment and management; market-conditioning and promotional medical education; full-service interactive support through relationship marketing and digital/interactive communications; and technology-inspired studio solutions. CAHG offers blockbuster global brand stewardship in the professional healthcare advertising, branding, and promotions disciplines.

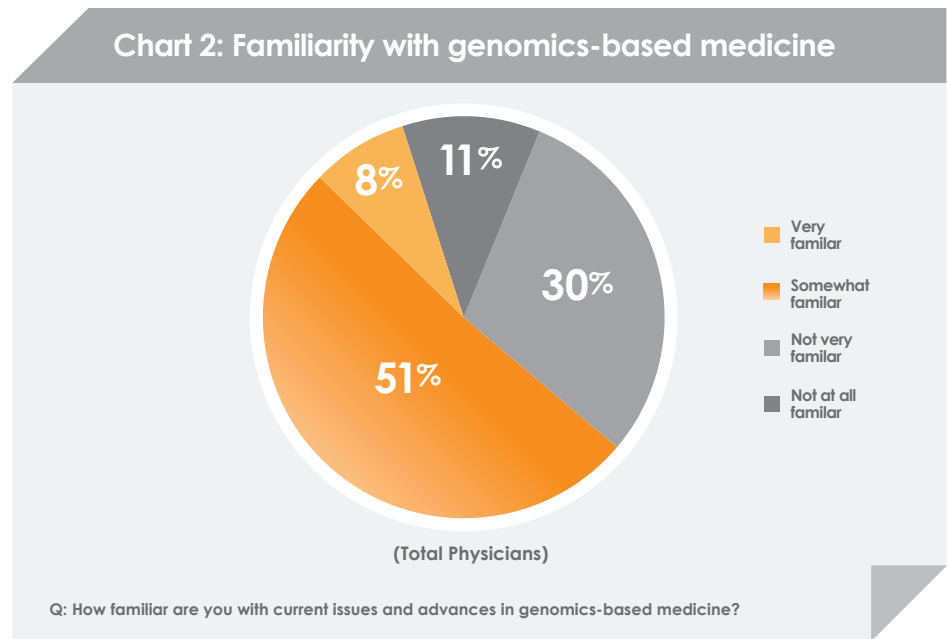
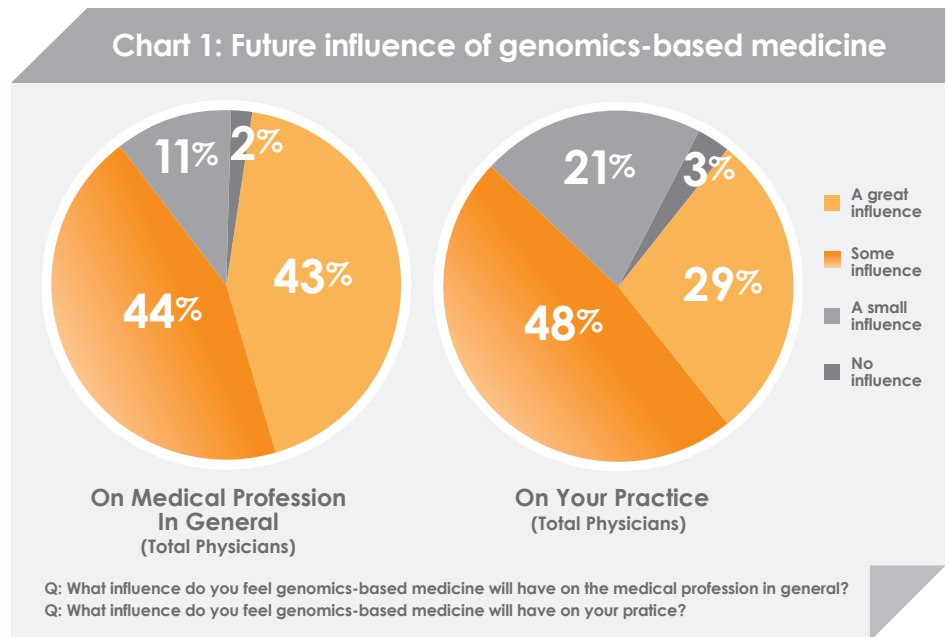
...physicians will be confronted with a potentially dizzying array of options, choices, and information, much of which they may be ill-prepared to handle.

Despite acknowledging its growing influence on their profession and their practice, most physicians admit very low familiarity with personalized medicine

Among all the insights emerging from our landmark study, perhaps the most profound is the apparent gap between physicians' acknowledgement of the growing influence of personalized medicine and their limited knowledge about it.

For example (chart 1), when asked, *What influence do you feel genomics-based medicine* will have on the medical profession in general?*, nearly 9 in 10 physicians[†] stated "some" to "a great" influence. Similarly, when asked, *What influence do you feel genomics-based medicine will have on your practice?*, nearly 8 in 10 stated "some" to "a great" influence. (Perhaps not surprisingly, a higher percentage of oncologists stated "some" to "a great" influence when answering these two questions.)

However, juxtaposed against that feeling is the admission that they have very limited knowledge of this emerging area. For example, when asked, *How familiar are you with current issues and advances in genomics-based medicine?*, only 8% of physicians answered "very familiar" (chart 2). While 51% were "somewhat familiar," 30% were "not very" and 11% "not at all"



*For study purposes, personalized medicine was actually referred to as "genomics-based medicine." To ensure clarity, before each question on this subject, physicians were given the following definition: "Utilization of an individual's genomic information for: identifying presymptomatic risk for developing a disease or condition; screening and diagnosis; disease prognosis and staging; and selection of optimal treatment. This is also referred to as "Personalized Medicine" and "Molecular Medicine."

[†]"Physicians" refers to results from the total number of physicians in the study, which were weighted to reflect the US population of physicians across these three specialties.

► **Table 1: Baseline characteristics**

	PCP (n=300)	Cardiologist (n=250)	Oncologist (n=251)
REGION			
Northeast	25%	25%	25%
South	25%	26%	25%
Midwest	24%	22%	28%
West	25%	25%	25%
GENDER			
Male	71%	89%	78%
Female	29%	11%	22%
AGE			
Mean age	48.8	51.8	47.9
HOURS SPENT SEEING PATIENTS			
Mean number of hours per week spent seeing patients	44.4	51.6	49.4
YEARS PRACTICING IN PRIMARY SPECIALTY			
Mean number of years practicing in primary specialty	17.2	18.4	14.8
PRACTICE SETTING			
Urban	39%	38%	49%
Suburban	50%	56%	43%
Rural	11%	6%	8%
PRACTICE TYPE			
Solo office-based practice	25%	18%	8%
Group office-based practice	66%	79%	79%
Hospital staff only	4%	0%	8%
Clinic staff only	3%	1%	2%
Other	2%	0%	2%
TIME SPENT IN PRACTICE SETTING			
Office-based	90%	90%	86%
Hospital-based	10%	10%	14%

Study overview: methodology and baseline characteristics

- ◆ Quantitative, web-based study of 801 US physicians (300 primary care physicians, 250 cardiologists, and 251 oncologists) fielded from mid-July through mid-August of 2010
- ◆ Comprised over 120 questions covering:
 - genomics knowledge and use
 - molecular diagnostics perceptions and actions
 - targeted therapy perceptions and usage
 - learning about genomics
 - patient interactions
 - barriers to and catalysts for adoption
- ◆ Captured a rich array of demographic and psychographic information, providing further opportunity for analysis and insight
- ◆ Data informed a proprietary microsegmentation model designed to identify likely early adopters and mid-market adopters of molecular diagnostic testing, as well as laggards
- ◆ Respondents had to spend at least 30 hours per week providing patient care and must have been in practice for at least 2 years and less than 35 years
- ◆ For each of the three specialties in the study, respondents were screened (and their responses weighted) to reflect the specialty population on gender, region, practice type (eg, solo, group, hospital), and practice setting (eg, urban, suburban, rural)
- ◆ The “Total” of physicians in the study was weighted to reflect the US population of physicians across these three specialties

The time is now to educate, inform, and prepare [physicians] for the inevitable influx of molecular diagnostics into their everyday clinical practice.

familiar. (Again, responses were higher among oncologists, with 28% answering “very familiar.”)

In addition to low familiarity, physicians also acknowledge a lack of education in personalized medicine, whether in medical school or after medical school. When asked to check *all that apply* to the question, *In which of the following settings, if any, have you had education or training in genomics-based medicine?*, only 16% of physicians reported “Medical School” (chart 3). And although 42% stated “Post-Medical School,” 50% selected “Neither.” (The percentage of oncologists answering “Medical School” was similar to the percentage of total physicians but oncologists had a significantly higher percentage [71%] reporting “Post-Medical School.”)

While lack of knowledge poses one major barrier to adoption, another is the dramatic lack of confidence among physicians with even the most basic logistics of molecular diagnostic testing

In addition to assessing physician knowledge of personalized medicine, we also asked a series of questions on various aspects of using molecular diagnostic tests in their practice. The results demonstrate that oncologists are generally more confident with most aspects of molecular diagnostics, while cardiologists and primary care physicians express a very low level of confidence, with primary care physicians being the least confident.

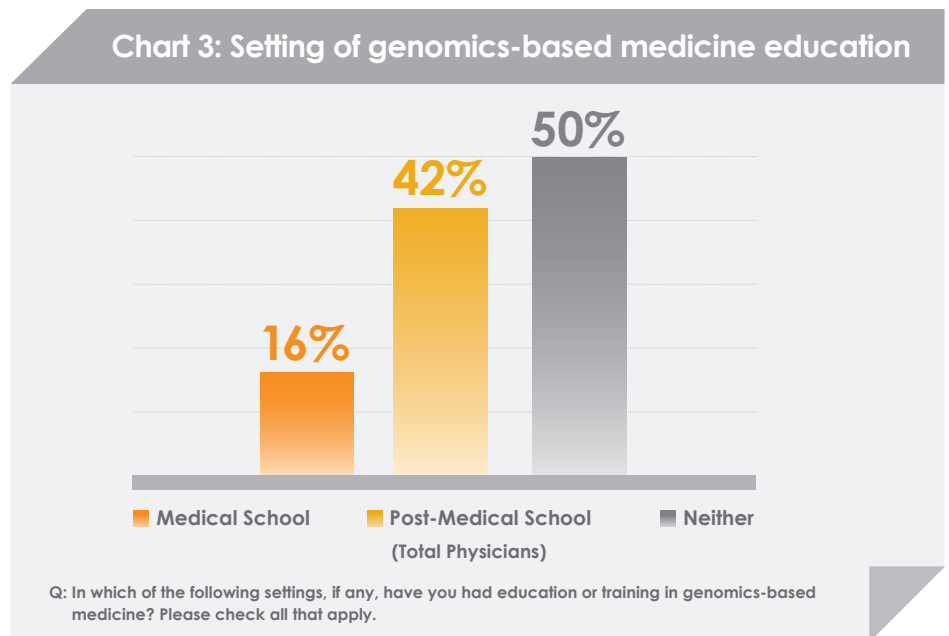
For example, on a 5-point scale (with 5=completely agree and 1=completely disagree), only 35% of primary care physicians and 50% of cardiologists “completely” or “somewhat” agreed with the statement, *When it comes to molecular diagnostic tests, I am confident I can choose the right test* (table 2). Similarly, only 42% of primary care physicians and 52% of cardiologists “completely” or “somewhat” agreed that, *I am confident I can understand and interpret the test results.*

That confidence diminishes dramatically, even among oncologists, when it comes to choice of laboratory and issues with insurance. For example, only 30% of primary care physicians, 35% of cardiologists, and 56% of oncologists “completely” or “some-

what” agreed with the statement, *I am confident I can choose which lab to send tests to.* An even smaller percentage of all three specialties expressed confidence in determining the right insurance codes, with only 23% of primary care physicians, 25% of cardiologists, and 34% of oncologists choosing “completely” or “somewhat” agree.

Surprisingly, however, about 4 in 10 physicians would use molecular diagnostics to screen presymptomatic patients—even in the absence of any treatment option

Physicians were also asked to respond to a battery of questions on issues and challenges with molecular diagnostic tests, such as perceived value of the test, amount of time



► **Table 2: Confidence with molecular diagnostic tests**

<i>I am confident I can...</i> (% choosing "4" or "5")	PCP (n=300)	Cardiologist (n=250)	Oncologist (n=251)
Explain test results to my patients	46%	61% [†]	84% [§]
Identify appropriate patients for testing	45%	57% [†]	85% [§]
Understand and interpret the test results	42%	52% [†]	83% [§]
Choose the right test	35%	50% [†]	83% [§]
Choose which lab to send tests to	30%	35%	56% [§]
Determine if the test is covered by insurance	24%	30%	39% [§]
Determine the right insurance codes	23%	25%	34% [§]

[†] Significantly higher than PCPs.

[§] Significantly higher than PCPs and Cardiologists.

required, level of information required, and ability to act on the information. While physicians—particularly PCPs—expressed a general lack of confidence about a broad range of issues regarding molecular diagnostic testing, a surprising percentage stated a willingness to use such tests for presymptomatic screening and diagnosis *without any treatment option available*.

For example, when asked, *Would you be willing to screen a presymptomatic patient using a molecular diagnostic test if there were no treatment options for the condition or disease (ie, therapy, surgery, or lifestyle intervention)?*, 37% of physicians stated "yes." Likewise, 41% of physicians stated "yes" to using such a test to *diagnose a patient in the absence of any treatment option (ie, therapy, surgery, or lifestyle intervention)*.

Despite these challenges, the opportunity exists for industry to provide significant value to a critical—and apparently eager and willing—customer base

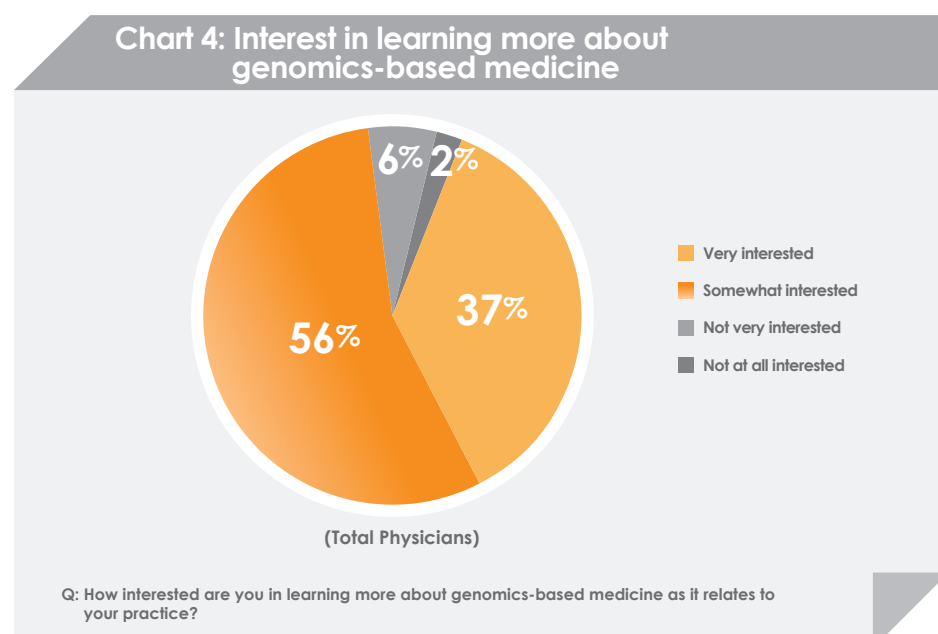
The significant need for education emerging from our study also provides significant opportunity for developers and marketers of molecular

diagnostic products and services (as well as pharmaceutical and biotech companies developing potential companion therapeutics) to gain access, cultivate relationships, and provide ongoing value to end users of their products and services. What is particularly encouraging is the strong interest from physicians in gaining more knowledge and in meeting with sales representatives.

When asked, *How interested are you in learning more about genomics-based medicine as it relates to*

your practice?, more than 9 in 10 physicians expressed being "very" to "somewhat" interested (chart 4). (Oncologists were similar to the total of physicians except for having a higher percentage of "very" interested compared to PCPs and oncologists.)

Perhaps even more compelling, despite more physicians limiting—and in some cases eliminating—access to sales representatives, in the area of personalized medicine they appear to have an open-door attitude. To the question, *How*



As we continue to analyze our proprietary study, we are certain it will provide additional insights and opportunities...

interested are you in meeting with a diagnostics rep to learn more about molecular diagnostics?, nearly 7 in 10 answered “somewhat” to “very” interested (chart 5).

As demonstrated by a few key findings from our landmark study, molecular diagnostic, pharmaceutical, and biotech companies have opportunities to be a valuable source of information and education for physicians, who are increasingly becoming a critical customer segment as molecular diagnostics (particularly genomics-based) moves more and more into clinical practice. And while oncologists are certainly in the forefront of awareness and adoption, these opportunities also extend to cardiologists and primary care physicians. The time is now to educate, inform, and prepare them for the inevitable influx of molecular diagnostics into their everyday clinical practice.

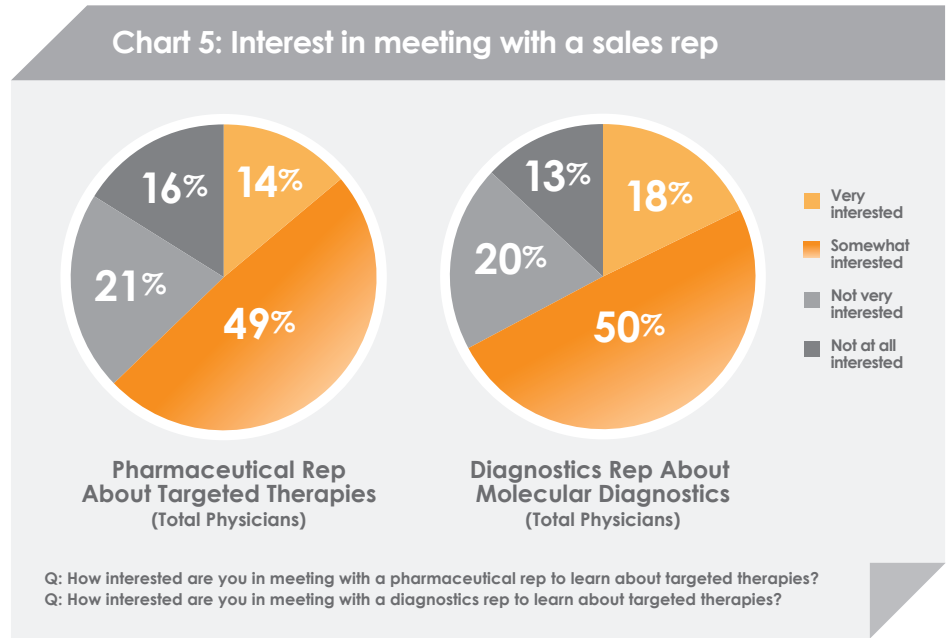
These opportunities may include creating and implementing best-in-class educational programs, optimizing sales force promotional programs, leveraging multichannel marketing—

including digital/online platforms—and, for those companies with smaller or nonexistent sales forces, segmenting physicians to focus efforts on early adopters of personalized medicine and molecular diagnostics.

The ability to capitalize on these opportunities may be enhanced by partnering with marketing communication experts who understand the emerging area of personalized

healthcare, as well as the evolving area of healthcare professional marketing and communications.

As we continue to analyze our proprietary study, we are certain it will provide additional insights and opportunities for molecular diagnostic, pharmaceutical, and biotech companies who want to increase awareness and adoption of their products and services among physicians.



CAHG is a wholly owned subsidiary of Omnicom Group Inc. Omnicom Group Inc (NYSE: OMC) (www.omicomgroup.com) is a leading global marketing and corporate communications company. Omnicom's branded networks and numerous specialty firms provide advertising, strategic media planning, digital and interactive, direct and promotional marketing, public relations, and other specialty communications services to over 5,000 clients in more than 100 countries.