Diagnostic Testing and Technology Report

Competitive Intelligence & Analysis for an Expanding Global Market

Stephanie Murg, Managing Editor, smurg@ioma.com

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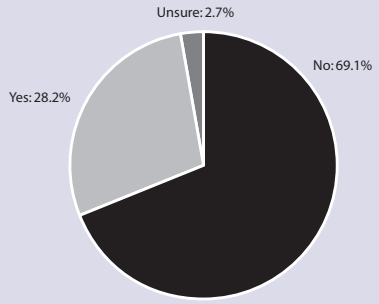
Outreach Testing Programs Move to Integrate Diagnostic Services

A growing number of outreach testing programs across the country are moving to integrate diagnostic services by marketing other services along with laboratory testing, according to the newly released results of the *Eighth Annual National Outreach Survey*, conducted by Chi Solutions (Ann Arbor, Mich.). In discussing the key trends that emerged from this year's survey at the 2009 Lab Outreach conference, presented by Washington G-2 Reports (Newark, N.J.) and Chi on June 8-10 in San Diego, Chi Solutions President Kathleen Murphy, Ph.D., singled out "a move toward diagnostics" as an emerging market driver.

The survey found that more than a quarter (28.2 percent) of outreach programs surveyed were actively marketing other services along with laboratory testing. Of that group, nearly three-quarters (71.4 percent) said that they were marketing imaging services while 19.0 percent pointed to cardiology services and 9.5 percent said they were marketing occupational therapy services. For more on the changing market for laboratory outreach testing services, see *Inside the Diagnostics Industry*, pp. 5-6.

Do You Market Other Services Along with Laboratory Testing?



Source: Chi Solutions, *Eighth Annual National Outreach Survey (2009)*

Agendia Expands Stateside with New CLIA Laboratory

Molecular diagnostics company Agendia (Amsterdam, Netherlands, and Huntington Beach, Calif.) has opened a CLIA-licensed clinical genomics laboratory in Huntington Beach. The 3,500-square-foot facility will perform the company's molecular diagnostic tests for cancer, including MammaPrint, which predicts the risk of breast cancer recurrence. Agendia also has a clinical laboratory at its Amsterdam headquarters.

"Our new genomics lab's capacity will allow us to meet the increasing demand for MammaPrint across the United States and give physicians and patients optimal test-result turnaround and unmatched service and support," said Jan Groen, Ph.D., Agendia's chief operating officer, in a statement issued by the company. The new lab will reduce turnaround time for the test from 10 days—when samples had to be sent to Amsterdam—to seven days.

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▲ **New CLIA Laboratory,** *from page 1*

Pathologist Chynel Henning, M.D., will serve as laboratory director. Other recent hires at Agendia's U.S. office include Chief Medical Officer Richard Bender, M.D.; Daniel Forche, vice president of sales and marketing; and Alan B. Carter, vice president of global business development.

In 2007, MammaPrint became the first in vitro diagnostic multivariate index assay (IVDMIA) to be cleared by the U.S. Food and Drug Administration. Agendia's expanded presence stateside will include increased efforts to drive adoption of the test. The company plans on doubling its U.S. salesforce this year to increase MammaPrint volume, said Forche.

Agendia's current sales staff totals over a dozen and is focused on the major cancer testing markets of California (Los Angeles and San Francisco), Ohio, Texas, Chicago, Florida, and New York, said Forche, who added that the company's expanded salesforce will allow it to move deeper into these markets, as well as into other regions. Ideally, these efforts will boost volumes to the point where Agendia will need to move to a larger facility. "We want to grow out of the Huntington Beach lab very quickly," said Forche.

The retail price of MammaPrint is $4,200, and the test is currently reimbursed by a handful of insurance providers. Some Blue Cross Blue Shield plans, such as CareFirst in the Washington, D.C.-Virginia-Maryland region, are covering the test. But expanded coverage is obviously critical to driving adoption, said Forche, adding that Agendia is in talks with a variety of payers, including the Centers for Medicare & Medicaid Services.

Expanded reimbursement coverage will make MammaPrint more competitive with Genomic Health's Oncotype DX test, which boasts wide reimbursement and market adoption. Forche also believes that there is great potential for Agendia to build a family of microarray-based diagnostic products. While MammaPrint evaluates the expression of 70 genes, the array has the potential to analyze as many as 15,000 genes. "We're just starting to find out what's going on with these genes," he said. "That's a lot of real estate related to the genes, and we can continuously build products on these expression capabilities."

Among the other tests that Agendia is moving to market is Coloprint, a genomic test that detects which colorectal cancer patients are likely to benefit from chemotherapy. The company expects to submit the test to the FDA for IVDMIA clearance in 2010. "It may take a little longer to get FDA clearance, but we believe it's really worth it," said Forche.

Agendia executives continue to vocally support increased regulatory oversight of lab-developed tests (LDTs). In May, the company's founder and CEO, Bernhard Sixt, Ph.D., wrote to the FDA in support of Genentech's petition that urges the agency to hold in vitro diagnostic tests to a single set of scientific and regulatory standards. "Agendia finds the arguments in favor of FDA oversight of LDTs as presented in Genentech's Citizen Petition balanced, compelling, and irrefutable," wrote Sixt. "The company also regards the pragmatic model as presented by AdvaMed for a risk-based triage approach in regulating LDTs a promising start deserving serious consideration by the FDA in its quest for a comprehensive regulatory system for LDTs."

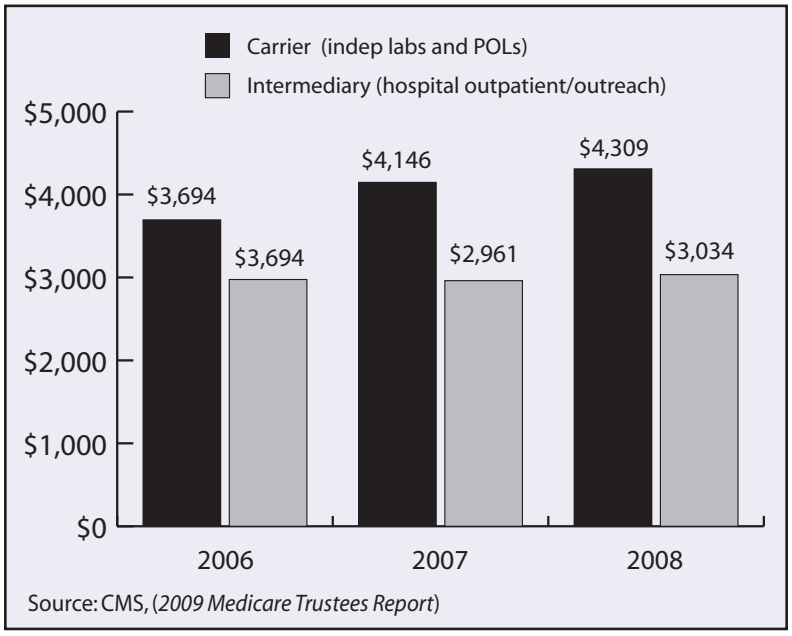
Medicare Part B Lab Spending Up 3.3% to $7.3 Billion in 2008

Medicare Part B spending on clinical laboratory services continues to increase, with 2008 spending totaling $7.3 billion, an increase of over 3 percent from 2007 totals, according to the latest data from Centers for Medicare & Medicaid Services's *2009 Medicare Trustees Report*. The Medicare program covered a total of 45.2 million enrollees in 2008.

Total Medicare program spending increased by 8.4 percent to reach $468 billion in 2008, as compared with $431.7 billion in 2007. This means that Part B lab services spending made up 1.6 percent of the total Medicare spending for last year.

Of the $7.3 billion total for Part B lab services, 59 percent or $4.3 billion was comprised of spending for lab-related carrier services—which included independent and physician office labs.

This is an increase of 4 percent over the 2007 total of $4.1 billion. Forty-one percent—or $3 billion—was from intermediary lab-related services, which included hospital outpatient and outreach testing services. This represents an increase of 2.5 percent from 2007's total of $2.9 billion.



Source: CMS, (*2009 Medicare Trustees Report*)

For intermediary services, spending per fee-for-service enrollee (FFS) for outpatient lab testing totaled $88.37 in 2008, an increase of 2.2 percent over 2007's FFS amount of $86.44. For carrier services, FFS spending came in at $130.92, up 7 percent from 2007's amount of $121.86.

At approximately $189 billion, total Part B spending was 1.3 percent of the gross domestic product (GDP) in 2008 and is projected to grow to about 4.5 percent by 2083.

However, the report notes that this figure is understated as a result of the multiple years of physician payment reductions that are currently required under law, including the scheduled cut of 21.5 percent for 2010. If these reductions are implemented, the GDP spending rate could increase by 18 percent to 21 percent in 2015 and as much as 10 percent by 2030 and later.

With New CLIA Lab, Perlegen Plans Fall Launch of Breast Cancer Test

Perlegen Sciences (Mountain View, Calif.), a 2001 spin-off of genetic analysis giant Affymetrix (Santa Clara, Calif.), is gearing up for the fall launch of its first product: a novel genetic test to help determine a patient's risk of developing breast cancer. On June 4, the company opened a clinical laboratory at its Mountain View headquarters after a successful inspection for CLIA licensure by the California Department of Public Health's Laboratory Field Services.

Perlegen CEO Bryan Walser, M.D., called the opening of the company's high-complexity CLIA lab "a significant advance in our efforts to commercialize Perlegen's key genetic tests." First to market will be MammaPLUS, a genetic test panel that can detect the absence or presence of common single nucleotide polymorphisms (SNPs) associated with an increased risk for nonfamilial breast cancer. The SNPs are an extended set of the novel breast cancer susceptibility loci identified in a genome-wide association study and published in a 2007 *Nature* paper.

According to Perlegen, MammaPLUS "is designed to help physicians assess aggregate breast cancer risk from these genetic markers, plus factors from a standard clinical assessment based on a patient's family and personal history, thus giving a clearer picture of an individual woman's risk of developing breast cancer."

The company views the test as particularly useful for women "at intermediate risk" of developing breast cancer, a group that includes the more than one million women per year who have negative or benign breast biopsies and thereafter have up to a four times greater risk of developing breast cancer.

In anticipation of the fall launch of MammaPLUS, Perlegen recently added several key executives to its ranks. The company's new director of product marketing is Susan Billat, a veteran of Monogram Biosciences (South San Francisco, Calif.). At Monogram, Billat was senior product manager for oncology and virology and launched the HERmark breast cancer assay, which uses a dual antibody method to quantify HER2 protein and HER2 homodimer levels for patients with breast cancer.

Fran Strauss, Perlegen's new director of managed care, will help lead the company's efforts to market the test to physicians, payers, and advocacy organizations. Strauss is the former director of women's health and health plans for Adeza Biomedical and previously spent several years at Digene Corporation (now part of Qiagen), where she introduced HPV testing for cervical cancer to U.S. private and public payers in the United States.

Looking ahead, Perlegen plans to commercialize additional molecular diagnostic tests that are based on genetic variations it has discovered and validated. The company is also expanding its technology base beyond SNP genotyping to allow for high-throughput, massively parallel gene sequencing.

Celera Licenses Perlegen Genetic Markers for Cardiac Tests

As it prepares to launch MammaPLUS, Perlegen Sciences has begun out-licensing its genetic analysis intellectual property. In April, the company announced a nonexclusive agreement that allows Celera (Alameda, Calif.) to use Perlegen's specific predictive genetic markers for coronary heart disease. Celera is expected to use the markers, which are located on chromosome 9p21, to develop novel diagnostic tests related to personalized management of cardiovascular disease as well as diabetes and metabolic syndrome.

At G-2's Outreach Conference, an Emphasis on 'Knowing Your Numbers' to Succeed in a Growing Market

The power of data was a key topic at the eighth annual laboratory outreach conference, presented by Washington G-2 Reports (Newark, N.J.) and Chi Solutions (Ann Arbor, Mich.) on June 8-10 at the Hyatt Regency Mission Bay in San Diego. Focused around the theme of "Making Outreach Work: Maximizing Value, Profitability, and Service," the event brought together clinical laboratory leaders and hospital executives from around the country to discuss the issues, challenges, and significant opportunities in the outreach testing market.

Many of the speakers emphasized the appealing nature of outreach testing programs: they often require little new capital, can take advantage of excess capacity (whether with labor, time, or equipment), and can link physicians to the hospital and all its services through electronic medical records (EMRs), as well as provide the ability to cross-sell through an external salesforce. But to succeed, an outreach program must secure the commitment of lab leadership, present a strong business case to key stakeholders, and be ready to take advantage of the main drivers of outreach growth.

In a keynote presentation entitled "Know Your Numbers," Michael Metzler, the former COO of St. Elizabeth's Medical Center (Boston) and CEO of St. Anne's Hospital (Fall River, Mass.), provided a valuable window in the mind of a CEO considering a move into outreach testing. Metzler prefaced his discussion of how to make the business case for outreach with a warning. "The lab must have a reputation for excellence before outreach can be sold to the CEO," he said. "Weaknesses must be fixed before making the case for outreach."

As for how to make that case, Metzler laid out the key components of a business plan. In addition to the typical elements of projected revenues, costs, capital needs, and cash flow over five years, he advised including an operational plan. "You really need to show that you've got the specifics down really well by including tasks, timelines, and assignments."

Metzler also recommended balancing conservative revenue estimates with "realistically aggressive" estimates for items such as courier service, IT, training, and sales and marketing staff. "You're not going to have a good outreach program if you don't have a sales staff," he added.

Another vital component to an outreach business case is a market analysis that outlines specific strategies for acquiring volume. "As a CEO, I would expect to hear the story, not just the numbers," said Metzler.

The outreach testing "story" can be enhanced through such selling points as the potential for bundling of outreach lab testing with other ancillary services such as imaging and the attractiveness of the hospital EMR. Finally,

the outlook for outreach is bright thanks to several drivers, including EMRs, patients' online access to medical records, universal coverage, changing demographics, and yes, capitation.

"It's capitation but with a check on balance and quality," said Metzler of the plans that he is seeing move forward in Massachusetts. "There's a feeling that it will control health care costs and create a much greater demand for diagnostic testing to reduce hospitalizations. Capitation also gives you an opportunity to work with physicians on utilization."

Survey Finds Outreach Labs Averaging $26 in Revenue per Test

Despite the current recession's negative impact on hospitals, laboratories that perform outreach testing are seeing boosts in revenue and profitability, according to the results of the *Eighth Annual National Outreach Survey*, conducted by Chi Solutions (Ann Arbor, Mich.).

Based on averaged survey responses from outreach programs nationwide, the "typical" outreach program earns net revenue of $13.5 million and is experiencing annual revenue growth of 3.2 percent, explained Chi Solutions President Kathleen Murphy, Ph.D., at Lab Outreach 2009. Revenue per test is up to $26.38, with a revenue per requisition of $65.95 (based on 2.5 tests per requisition), even with volume down an average of 2.2 percent.

"Typical" Outreach Program

Net Revenue	$13.5 million
Revenue per Test	$26.38
Revenue per Requisition	$65.95*
Profitability	20%-27%

*Based on 2.5 tests per requisition

Source: Chi Solutions, *Eighth Annual National Outreach Survey (2009)*

"Performance is strong," noted Murphy, who emphasized the healthy profitability reported by the outreach programs survey. Outreach program profitability, measured as contribution margin or pretax profit, averaged between 20 percent and 27 percent, which compares favorably to that of LabCorp (17.8 percent) and Quest Diagnostics (13.7 percent).

Outreach program performance on another key metric, revenue per requisition, also stands up to that of the national laboratories. Based on the survey results, the typical outreach programs averaged $65.95 in revenue per requisition (based on 2.5 tests per requisition), while Quest recently reported $43 in revenue per requisition and LabCorp comes in just under that at $38.38.

Other positive news from the survey revealed that merger and acquisition activity is not completely dormant. Fifteen percent of respondents indicated that they were contemplating growth via the acquisition of a lab or outreach program, although 72 percent said they were not contemplating acquisition at this time.

One area still in need of improvement, however, is bad debt. While Quest and LabCorp both keep their bad debt to around 5 percent (4.8 percent for Quest and 5.3 percent for LabCorp), the typical outreach program is hampered by a bad debt rate of double that at 10 percent.

Revenue per Requisition: Outreach vs. National Labs

Outreach Program	$65.95
Quest Diagnostics	$43.00
LabCorp	$38.38

Source: Chi Solutions, *Eighth Annual National Outreach Survey (2009)* and company reports

Clinical Data Sees Pharmacogenomic Test Revenues Climb 116 Percent

As Clinical Data (Newton, Mass.) sharpens its focus on developing targeted drugs for conditions such as depression, the biotechnology company has achieved significant growth in its pharmacogenomic testing division, PGxHealth. On June 15, Clinical Data reported fiscal 2009 revenues of $10.4 million, an increase of 104 percent over fiscal 2008 revenues of $5.1 million. PGxHealth test revenues for the fiscal year increased 116 percent, jumping from $4.6 million in fiscal 2008 to $9.9 million.

The company attributed the increase to the build-up of the PGxHealth sales and marketing force and the increased payer coverage during the last 18 months. Sales and marketing expenses increased accordingly, rising 115 percent, from $3.6 million in fiscal 2008 to $7.8 million in fiscal 2009.

In the 2009 fiscal year (ended March 31), Clinical Data's PGxHealth division launched two new genetic tests for inherited cardiac syndromes: hypertrophic cardiomyopathy and arrhythmogenic right ventricular cardiomyopathy, an often fatal heart condition.

Increased payer coverage in recent months included a new in-network contract with Aetna and a contract with the Blue Cross and Blue Shield Association to provide individual Blue Cross and Blue Shield companies with access to Clinical Data's FAMILION Long QT Syndrome (LQTS) genetic test for inherited cardiac syndromes. Over 200 million patients are now covered for FAMILION testing, and the company is now planning to launch an enhanced version of the LQTS test that will double the number of genes analyzed.

Other diagnostic development initiatives include a new research collaboration with the Dana-Farber Cancer Institute (Boston) and the University of Pittsburgh to further examine the role of FCGR3A and potentially other variants in predicting response to monoclonal antibody therapies in cancer treatment.

In addition to expanding its therapeutic pipeline through the recent acquisitions of Adenosine Therapeutics and Avalon Pharmaceuticals, Clinical Data emphasized its core drug development business by divesting its Cogenics genomic services division. In April, the company sold the division to Beckman Coulter (Fullerton, Calif.) for $17 million.

Quest Launches New HIV Tropism Test

A new laboratory-developed test (LDT) from Quest Diagnostics (Madison, N.J.) can assist physicians in determining whether a patient with a history of HIV drug resistance will respond to the class of antiretroviral therapies known as CCR5 antagonist entry inhibitors. Launched on June 12, Quest's HIV-1 Coreceptor Tropism Test will compete with the market-leading Trofile assay developed and performed by Monogram Biosciences (South San Francisco, Calif.). The new LDT replaces SensiTrop, the HIV tropism test that Quest offered through a license with Pathway Diagnostics before acquiring the company in December 2008.

HIV coreceptor tropism refers to which chemokine coreceptor that a strain of HIV uses to enter healthy CD4 cells. Entry inhibitors, a new class of antiretroviral drugs, targets the tropism process involving one or both coreceptors, CCR5 or CXCR4, of CD4 cells, which help the immune system fight infection. Depending on which coreceptor a particular virus uses to enter cells, a patient's HIV infection can be categorized as R5 HIV (CCR5-tropic), X4 HIV (CXCR4-tropic), or D/M HIV (dual- or mixed-tropic).

The World Health Organization estimates that approximately 1.2 million people over the age of 15 in the U.S. were infected with HIV in 2005, the most recent year for which data is available.

X4 HIV and dual-tropic viruses typically emerge after years of infection and are found in up to half of patients with a history of drug resistance or those with advanced disease. Three out of four people taking HIV drugs experience treatment failure linked to drug resistance.

Guidelines issued in January 2008 by the United States Department of Health and Human Services recommend tropism testing prior to the start of a CCR5 inhibitor, such as maraviroc (marketed by Pfizer as Selzentry in the United States and Celsentri elsewhere). Maraviroc has been approved by the U.S. Food and Drug Administration for use in combination with other HIV medications in treatment-experienced adult patients with CCR5-tropic HIV.

"Our new HIV tropism test will advance personalized medicine for HIV by helping physicians identify suitable patients for a particular therapy and ensure those who are not suitable do not lose precious treatment time potentially better spent on a different drug," said Jon R. Cohen, M.D., Quest's senior vice president and chief medical officer.

Quest expects to report results for its new HIV tropism test within seven days of receiving a patient's specimen, compared to Monogram's Trofile turnaround time of approximately 14 days.

"Considering that tropism status can change in as little as a few weeks in patients with a history of HIV drug resistance, faster results potentially translate into earlier initiation of efficacious therapy," noted Jay G. Wohlgemuth, M.D., vice president of Science and Innovation at Quest.

Launched commercially upon the FDA's approval of maraviroc in August 2007, Trofile is a single-cycle recombinant virus assay that directly measures tropism. Monogram has performed more than 58,000 Trofile assays, and all trials of coreceptor antagonists have used Trofile in the clinical development. In June 2008, Monogram introduced an enhanced sensitivity version of Trofile, with 30-fold greater sensitivity to detect low-level X4 HIV compared to the original assay.

In a three-way study using samples from patients with histories of drug resistance, Quest researchers found that the HIV-1 Coreceptor Tropism LDT demonstrated 74 percent agreement with Trofile and 74 percent agreement with SensiTropII, a genotypic tropism test previously available from Pathway Diagnostics. The SensiTrop II test, which is no

longer commercially available, was 73 percent in agreement with Trofile. Additionally, Quest researchers found that the proportion of X4 viruses detected did not vary significantly by assay type. These findings were presented by Quest on June 11 at the XVIII International HIV Drug Resistance Workshop in Fort Myers, Florida.

Protein Marker Linked to Effectiveness of Pancreatic Cancer Drug

A protein related to aggressive cancers can improve the efficacy of gemcitabine (Gemzar) at treating pancreatic cancer, according to a study published in the June issue of *Cancer Research*.

Researchers found that a RNA-binding protein called Hu antigen R (HuR) is a stress response protein found in the cytoplasm of pancreatic tumor cells. In certain experimental settings, pancreatic cancer cells that overexpressed HuR were up to 30 times more sensitive to gemcitabine than control cells were.

In a clinical correlate study that included 32 resected pancreatic cancer patients who received gemcitabine, patients who had low cytoplasmic HuR levels had a seven-fold increased mortality risk compared to patients with high levels. This was after adjustment for variables including age, sex, radiation therapy, and other chemotherapy use.

"This marker appears to tell us upfront whether a patient will respond to treatment with gemcitabine, which is the routine treatment for pancreatic cancer," said Jonathan Brody, Ph.D., assistant professor of surgery at Jefferson Medical College of Thomas Jefferson University (Philadelphia) and senior author of the study. "Of course, larger and comprehensive prospective studies need to be performed, but we now have a real clue about how to make this treatment better."

Brody and colleagues found that in pancreatic cancer, HuR helps to regulate an enzyme called deoxycytidine kinase (dCK), which is responsible for metabolizing and activating gemcitabine. As with most chemotherapy drugs, gemcitabine causes cell stress and activates the HuR stress proteins. In turn, the high levels of HuR stimulate the production of more dCK, thus making gemcitabine more efficient.

"Finding a mechanism that regulates gemcitabine's metabolism in pancreatic cancer cells is the real novel and exciting aspect of these findings," says senior author Jonathan Brody, Ph.D.

"Normally, patients with higher HuR cytoplasmic levels have a worse prognosis since HuR expression is associated with advanced malignancies," Brody said. "However, in our study, they did better than patients with low HuR levels when they were treated with gemcitabine. We think it's because they already have high HuR levels at the time of treatment, which may be a response to the tumor cell environment."

Research is under way to find a way to activate HuR in patients with a low expression. Other goals include expanding these findings to a larger pancreatic cancer population and to other tumors that may be treated with gemcitabine, including breast, ovarian, and certain lung cancers. The researchers also want to determine if other chemotherapeutic agents engage this pathway.

Clarient Launches EGFR Mutation Testing to Aid in Therapy Selection for Non-Small Cell Lung Cancer

Anatomic pathology and molecular testing laboratory Clarient, Inc. (Aliso Viejo, Calif.), has launched a laboratory-developed test (LDT) that can help physicians select the proper therapy for patients with non-small cell lung cancer (NSCLC) by detecting mutations in the epidermal growth factor receptor (EGFR) gene.

"Our new EGFR mutation test can be used as a predictive molecular biomarker to explain why a subset of patients with non-small cell lung cancer may respond to EGFR tyrosine kinase inhibitor therapies," said Clarient CEO Ron Andrews.

Lung cancer, the most common cause of cancer-related death in men and the second most common cause of cancer-related death in women (after breast cancer), is responsible for 1.3 million deaths annually worldwide. According to the National Cancer Institute, there were more than 215,000 patients diagnosed with lung cancer in 2008. NSCLC accounts for approximately 85 percent of all lung cancer cases.

"Recent changes to practice guidelines suggest that EGFR mutation testing is moving towards becoming the standard of care for patients with non-small cell lung cancer."

When activated, EGFR plays a role in cellular tumor growth and proliferation and is the target of tyrosine kinase inhibitors (TKI) such as erlotinib (Tarceva) and gefitinib (IRESSA). Approximately 10 percent to 15 percent of NSCLC tumors harbor the EGFR mutation, and about 85 percent of patients with these mutations respond to TKI treatment.

NSCLC patients with EGFR mutations have shown improved response rates and longer time to disease progression, making EGFR mutation analysis a valuable tool to identify patients who are more sensitive to anti-EGFR TKI therapy. "Recent changes to practice guidelines suggest that EGFR mutation testing is moving towards becoming the standard of care for patients with NSCLC," said Ken Bloom, M.D., Clarient's chief medical officer. "Since lung cancer is such a deadly disease, these advances in biomarker profiles are considered among the most important ones we've seen in predictive medicine."

"We are now well-positioned to help community pathologists incorporate EGFR mutation testing into the existing work-up for NSCLC, allowing patients to avoid unnecessary toxicities, treatment delays, and higher overall cost of therapy," said Andrews. "We feel that EGFR mutation testing is a significant part of the equation, but we are constantly looking for other pathway markers to provide an even more comprehensive story."

EGFR mutation analysis has long been offered by laboratories such as Genzyme Genetics (Cambridge, Mass.), which holds exclusive, worldwide diagnostic rights to the discovery of EGFR gene mutations in NSCLC tumors. Research is under way to determine if EGFR mutation testing can help bring effective, targeted therapies to patients suffering from other cancers.

Inverness Medical Innovations to Acquire Drug Testing Company

While clinical laboratories nationwide continue to report plummeting rates of drugs-of-abuse testing, Inverness Medical Innovations (Waltham, Mass.) is looking to expand its presence in the market. On June 5, the company announced its proposed acquisition of Concateno (London), a leading European provider of drugs-of-abuse testing and a manufacturer of diagnostic tests.

The proposed cash and stock deal, valued at £147 million pounds ($236 million), calls for each Concateno shareholder to receive 79 pence in cash and 0.02 shares of Inverness common stock for each Concateno share. If approved by Concateno shareholders and United Kingdom courts, the deal is expected to close during the third quarter of 2009.

Over the last few years, Concateno has worked to consolidate drug and alcohol testing businesses. Its acquisitions have included providers of hair testing and oral fluid-based testing, as well as drug test manufacturers. In 2008, the company performed approximately 8 million tests and reported revenues of £47.5 million (approximately $76 million).

Inverness, which has been on an even bigger buying spree in recent years, views Concateno as a complement to its existing drugs-of-abuse business, which includes its consumer business of First Check "home diagnostics" for drugs-of-abuse and health screening. In early 2008, Inverness completed its $99 million acquisition of Redwood Toxicology Laboratory. Drugs of abuse currently accounts for approximately 10 percent of Inverness's worldwide revenue ($1.67 billion in 2008), behind other business areas such as cardiology (32 percent), women's and children's health (17 percent), and infectious disease (15 percent).

Inverness CEO Ron Zwanziger sees "very little product overlap" between the two companies because Inverness already supplies Concateno with many of its visually read drug tests. Concateno manufactures meter-read products through its Cozart subsidiary. Additionally, much of Inverness's drugs-of-abuse business comes from the United States, while more than half of Concateno revenue comes from the U.K. market.

Genetically Elevated Lipoprotein Levels Linked to Heart Attack Risk

A genetic analysis of data from three studies suggests that genetically elevated levels of lipoprotein(a) are associated with an increased risk of heart attack (myocardial infarction), according to a study published in the June 10 issue of the *Journal of the American Medical Association*.

Researchers evaluated three studies to determine whether genetically elevated lipoprotein(a) levels are associated with increased risk of myocardial infarction (MI), which remains a leading cause of illness and death. Levels of lipoprotein(a) may vary up to a thousandfold among individuals, and levels are partly determined by variations in the LPA gene. The most influential variation in the LPA gene is the kringle IV type 2 (KIV-2) size variation, with the number of KIV-2 repeats correlating inversely with levels of lipoprotein(a). The researchers looked at three independent studies of a total of 40,486 people from Copenhagen in which plasma lipoprotein(a) levels, lipoprotein(a) KIV-2 size variation genotype, and

MIs were recorded from 1976 through July 2007.

They found that risk of MI increased with increasing levels of lipoprotein(a), as well as with decreasing numbers of lipoprotein(a) KIV-2 repeats. The increase in risk of MI associated with genetically elevated levels of lipoprotein(a) was consistently seen in all three studies. The authors note that the next step is to follow up these findings with randomized clinical trials that can demonstrate reduced MI risk in response to lipoprotein(a)-lowering therapy.

Myriad Genetics Clears Hurdles to Pharma Spin-Off

Myriad Genetics (Salt Lake City), best known for developing and marketing the BRACAnalysis test for hereditary breast and ovarian cancer, is moving forward with its plan to spin off its pharmaceutical business from its core molecular diagnostics business. At a meeting on June 4, the company's board of directors set the shareholder of record and distribution dates in connection with the spin-off. The transaction cleared a key regulatory hurdle a week later, when the Securities and Exchange Commission declared effective Myriad Pharmaceuticals' registration statement on Form 10.

The company expects to complete the spin-off on June 30, when Myriad Genetics shareholders will receive a pro-rata dividend of a quarter share of Myriad Pharmaceuticals common stock for each share of Myriad Genetics stock they own.

Myriad Pharmaceuticals common stock will trade on the Nasdaq Global Market under the ticker symbol MYRX, while Myriad Genetics common stock will continue to trade on the Nasdaq Global Select Market under its current symbol, MYGN.

"We believe separating these unique businesses will allow each company to better pursue its long-term strategic initiatives and compete more effectively in its respective market," said Peter D. Meldrum, president and CEO of Myriad Genetics. While the parent company focuses on continuing the rapid growth of the seven molecular diagnostic tests it currently offers, Myriad Pharmaceuticals will pursue development of therapeutic candidates in the areas of cancer and HIV.

Legislation Would Revise 'Date of Service' Policy for Complex Tests

Under Senate legislation introduced on June 9, independent laboratories offering complex, advanced diagnostic tests would be allowed to bill Medicare directly for the tests when ordered less than 14 days after a patient's discharge from the hospital.

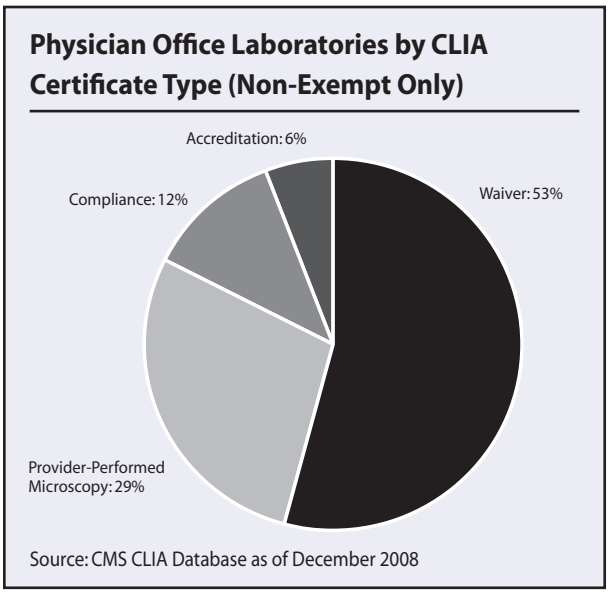
According to current Medicare rules, the date of service for a lab test ordered within that time frame is the date on which the specimen was collected. As a result, the test is treated as having been performed when the patient was in or at the hospital, and the hospital must bill for it. In practice, this has led to access problems for this category of tests, notes the American Clinical Laboratory Association (ACLA; Washington, D.C.).

The Senate bill (S. 1220) is sponsored by Senators Arlen Specter and Ron Wyden. A similar bill (H.R. 1699) was introduced in the House in March by Representatives Jason Altmire and Tim Murphy.

ACLA "strongly supports the legislation," said President Alan Mertz in a statement. "Genetic and molecular diagnostics are at the cornerstone of the important and emerging field of personalized medicine. This bill corrects an antiquated Medicare rule so that patients can receive cutting-edge genetic and molecular diagnostic tests in time to make a difference. Many of these tests are not only helping to save lives but also reduce the cost of care."

CMS Projects Modest Growth in POLs Doing CLIA-Waived, PPM Tests

The number of physician office laboratories (POLs) that perform testing classified as waived or provider-performed microscopy under CLIA is projected to grow by 3.5 percent in the fiscal year 2009 to 2010 survey cycle, according to the president's recent budget proposal for the Centers for Medicare and Medicaid Services.



Currently, approximately 90,064, or 82.6 percent, of CLIA-certified POLs perform waived or microscopy testing. Unlike labs that perform tests of moderate and high complexity under CLIA, these labs are not required to undergo routine on-site inspections every two years.

Released in May, the budget request for the CLIA program for FY 2010 is $56.4 million, all of it financed by user fees, as required under the CLIA statute. It includes funding for state survey workloads (excluding waived labs, PPM labs, state-exempt labs, and accredited labs). Workloads projected for the FY 2009 to 2010 cycle include 19,336 nonaccredited labs, state validation surveys of 809 accredited labs, and approximately 1,409 follow-up surveys and complaint investigations.

PLUS Diagnostics to Launch Hematology/Oncology Testing Services

Anatomic pathology provider PLUS Diagnostics (Lakewood, N.J.) continues to expand with the opening of a 15,000-square-foot West Coast facility in Orange County, Calif. The new laboratory will serve as a base for the company's launch of hematology and oncology testing services by the end of 2009.

PLUS is also expanding its footprint on the East Coast. In August, the company will move to a new 25,000-square-foot laboratory in Union, N.J. The move will triple overall lab capacity for PLUS, according to CEO Doug Berg. There are also plans to expand the company's sales and marketing staff from a year-end total of 30 in 2009 to 50 by the end of 2010.

In 2008, PLUS refined its platform business of genitourinary (GU) pathology and entered the gastrointestinal (GI) pathology market, which is currently valued at between $1 billion and $1.5 billion in the United States. GU testing continues to

drive most of the company's revenue. Berg estimates that 2009 revenue will grow by 100 percent to $60 million, with approximately 80 percent coming from GU testing services and 20 percent from GI. In 2010, Berg expects revenue to grow to $100 million, fueled by the hematology and oncology offerings.

"By 2010, we will have GU and GI under our belt," explained Berg. "And no later than Jan. 1, 2010, we will have a full launch of hematology and oncology."

Groups Can Help Fund Testing Services, Says OIG

A nonprofit charitable group can help financially needy Medicare and Medicaid patients pay their cost-sharing amounts for advanced diagnostic testing used in treating HIV and colon cancer without risking federal civil penalties, the Department of Health and Human Services Office of Inspector General (OIG) said in a new advisory opinion.

The OIG said the patient assistance program poses little risk to federal health programs because the structure of the program minimizes the risk for improper referrals or influence on beneficiaries' selection of providers and suppliers.

The OIG also noted in the advisory opinion that it has longstanding guidance that clears aid to financially needy Medicare and Medicaid patients through bona fide charitable assistance programs. "Under a properly structured program, such donations should raise few, if any, concerns about improper beneficiary inducements," the OIG said.

The organization that requested the advisory opinion is a charitable group that provides financial assistance to needy patients nationwide, including Medicare and Medicaid beneficiaries. The group specifically asked the OIG to analyze its program for helping beneficiaries pay their cost-sharing amounts for diagnostic tests used in caring for HIV-positive patients and colorectal cancer patients.

The OIG previously approved a separate assistance program operated by the group for helping financially needy patients pay for specialty therapeutics used to treat certain chronic conditions. Funding for the assistance program is donated by individuals, foundations, and corporations that include drugmakers, pharmacies, and suppliers of services for which the requestor provides financial assistance.

While donors are able to earmark their contributions for assistance to either HIV-related services or colorectal cancer-related services, donors are prohibited from specifying which type of provider or product is used, according to the advisory opinion. Donors are also not provided the names of patients assisted through the program. Patients are free to choose or switch products without regard to whether a donor is affiliated with a product or service for which a patient is seeking help, according to the advisory opinion.

The OIG said that among its reasons for approving the program was because the arrangement "insulates beneficiary decisionmaking from information attributing the funding of their benefit to any donor," making it unlikely that beneficiaries would choose a product or service based on donors to the program.

"Similarly, there appears to be a minimal risk that donor contributions improperly influence referrals to any provider, practitioner, supplier, service, or product by Requestor," the OIG said.

IVD Stocks Gain 6%; Affymetrix Up 20%

The G-2 Diagnostic Stock Index is up for the third consecutive month, having gained an average of 6 percent in the five weeks ended June 5, with 10 stocks up in price, five down, and one unchanged. The G-2 index has gained 12 percent so far this year, while the Nasdaq is up 18 percent and the S&P has lost 6 percent.

Affymetrix (Santa Clara, Calif.) climbed 20 percent to a June 5 close of $6.07 per share and a market capitalization of $469 million. On June 2, the microarray company announced that it had achieved two milestones in its plan to consolidate array manufacturing, boost reagent capabilities, and relocate product distribution in the United States. All Affymetrix microarrays are now produced in the company's Singapore plant, while U.S. distribution has been moved to a Louisville, Ky., facility operated by UPS. The consolidation activities, which were completed three months ahead of schedule, are expected to save the company between $20 million and $25 million annually, according to Affymetrix President and CEO Kevin King.

While shares in **Quidel** (San Diego) continued to rise on the swine flu outbreak, **Becton Dickinson** (Franklin Lakes, N.J.) also saw a boost in recent weeks. Shares in the medical technology company gained 7 percent to close at $67.32. The company recently announced that its BD Diagnostics segment will commercialize its molecular assays on a new automated molecular diagnostic platform that is being developed in collaboration with HandyLab (Ann Arbor, Mich.). The novel BD MAX system will use HandyLab's bench-top Jaguar instrument and will initially focus on BD's GeneOhm line of molecular assays that aid in the detection of health care associated infections including methicillin-resistant Staphylococcus aureus (MRSA).

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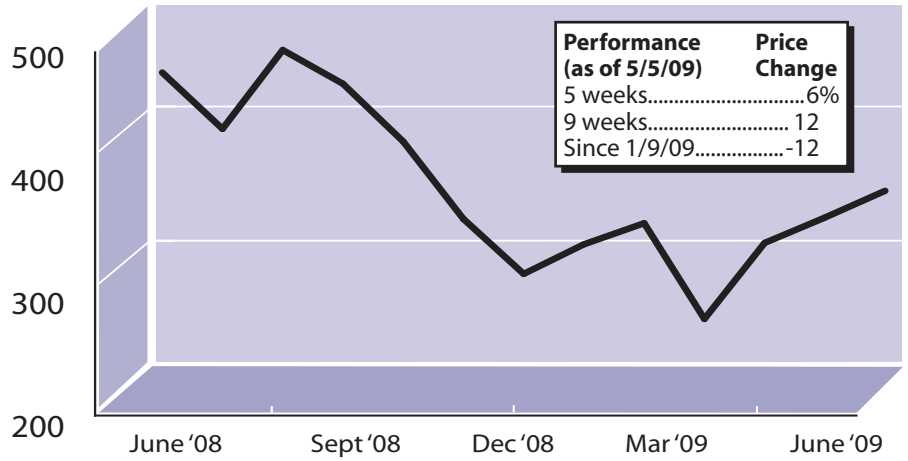
Slipping 4 percent in recent weeks was **Immucor** (Norcross, Ga.). The maker of automated instrument-reagent systems for the blood transfusion industry ended the period with a share price of $15.84 and a market capitalization of $1.13 billion. The company recently signed a five-year agreement with Alverno Clinical Laboratories (Hammond, Ind.). Under the agreement, Alverno will use Immucor instruments to automate and standardize pre-transfusion testing in its 26 facilities. Immucor will also be the primary source for Alverno's blood bank reagent needs.

G-2 Diagnostic Stock Index



Source: The G-2 Diagnostic Stock Index is tabulated weekly by *DTTR* from the average percentage change in the stock price of 16 IVD companies.

UP	Price	% Chg
Abaxis	$17.56	3%
Affymetrix	6.07	20
Becton Dickinson	67.32	7
Inverness Medical	33.18	7
Johnson & Johnson	55.93	2
Luminex	16.42	5
Meridian	19.35	4
Nanosphere	5.10	39
OraSure	3.98	5
Quidel	14.53	19
UNCHANGED		
Abbott Labs	44.98	0
DOWN		
Beckman Coulter	55.00	-1
Bio-Rad	73.75	-4
Clinical Data	11.92	-3
Gen-Probe	43.54	-4
Immucor	15.84	-4

G-2 Insider

Would cancer patients choose to undergo genetic testing to predict their disease prognosis, even if no treatments were available for the condition? Yes, according to a study published in the June issue of the *Journal of Genetic Counseling*. Researchers from the University of California Los Angeles surveyed 99 patients who had been diagnosed with ocular melanoma. The perceived usefulness of prognostic information was then evaluated in all patients, including a subset that had undergone cytogenetic testing for the genetic marker most strongly linked to rapid metastatic disease. Patients whose tumors show loss of a copy of chromosome 3 have at least a 50 percent chance of death within five years. Aggressive cases can result in blindness and death in as quickly as a year.

"People understand that no good treatment currently exists after their cancer spreads. Everyone wants to know what their risk is for metastasis."
— Annette Stanton, Ph.D.

A full 98 patients responded that they would have wanted predictive testing at the time of their treatment. Only one patient declined. Additionally, 98 of the respondents stated that counseling should be offered when patients receive their test results. "We were surprised to see such a unanimous response," said Tara McCannel, Ph.D., director of the Ophthalmic Oncology Center at UCLA. "We expected some patients would prefer not to know, but the numbers consistently said otherwise."

The UCLA survey also measured quality of life and depression symptoms in patients who received genetic test results and compared their rankings to those of untested patients. "Regardless of their test result, all of the patients rated themselves about the same in terms of quality of life and emotional well-being," said coauthor Annette Stanton, Ph.D. "We hope that these findings reduce clinical resistance and pave the way for prognostic testing to become the standard of care in the management of ocular melanoma."

Company References

ACLA 202-637-9466
Affymetrix 408-731-5000
Agendia 714-849-7515
Beckman Coulter 800-742-2345
Becton Dickinson 201-847-6800
Celera 510-749-4200
Chi Solutions 734-662-6363
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Quidel 858-552-1100

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