Predictive Modeling
NEWS

IBM-Mayo Collaboration Models Likely Aneurisms From Scans

Faster, more accurate, non-invasive and saving lives

by Russell A. Jackson

A new Mayo Clinic project aims to help radiologists detect aneurysms with far greater speed and accuracy, thus giving them better tools to prevent those deadly ruptures of blood vessels in the brain. The method the project uses takes advantage of analytics technology developed by a Mayo and IBM collaboration called the Medical Imaging Informatics Innovation Center. It's already proven a 95% accuracy rate in detecting aneurysms, compared with 70% for manual interpretation. Project findings were reported in the *Journal of Digital Imaging* and were published online in late November.

The next phase of the project will attempt to quantify the increased accuracy in terms of lives saved and procedures avoided. "It will examine the impact on behavior," Mayo radiologist Bradley Erickson MD, senior author of the study that found 95% accuracy and co-director of the collaborative MIIIC, tells *Predictive Modeling News*. "The study we released showed that the computer can find aneurysms," he says, "but we still have humans who must decide if they believe the results and what the correct response is."

Already, Erickson says, the project is saving patients' lives.

Verisk Health Reports Busy Six Months of New Products, Contracts

New clients include Portugal's Central Administration of the Health System

by Russell A. Jackson

W hen you've consolidated six companies in six years, a rush of new product and service announcements is probably to be expected. And Verisk Health Inc., Waltham, MA, does not disappoint. The global healthcare data analytics company has reported several new programs and client success stories recently, and expects to have many more moving forward as health reform and a continuing focus on data management drive new clients the company's way.

Verisk Health, notes Trish Tarantino, vice president of marketing there, was officially formed in January 2009 by Verisk Analytics from six companies it had purchased over the previous six years. DxCG was acquired in 2004, Urix in 2006, HealthCare Insight in 2007, Predicted Solutions in 2008, D2Hawkeye in January 2009 and TierMed last July. The buys represent "a careful acquisition strategy executed over time to develop the most comprehensive and scalable risk management solution suite in the industry," Tarantino says. The company is "experiencing growth in multiple market segments," she adds. "Most notably, as a result of the acquisition of TierMed, a provider of HEDIS reporting solutions, segment growth is occurring with health plans that are mandated to file HEDIS reports with the NCQA as well as with plans that are beginning to submit HEDIS reporting on a voluntary basis."

Verisk, she adds, is "seeing a renewed interest in its tried and true risk adjustment models given the healthcare reform debate. As the cost of care delivery continues to increase, health plans, providers and others that bear risk will need well-validated tools more than ever to assess the risk and future cost of their populations, regardless of where the current healthcare reform debate lands." The company's customers, she says, "have also expressed an interest in models that are focused on supporting the medical home movement and, as a result, we will be offering some new provider profiling models in an upcoming release of our DxCG Risk Solutions Engine."

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IBM-Mayo Collaboration*...continued*

Researchers involved with it have examined more than 15 million images from
thousands of patients since the project began in early July, using technology
that combines advanced imaging with analytics to highlight likely aneurysms for
faster detection. That helps radiologists identify them before they result in brain
hemorrhage or neurological damage.

In the future, Mayo expects to use the same approach for other radiology
detection tests, such as the diagnosis of cancer or vessel anomalies in other
parts of the body. "This fully automatic scheme is significant in helping
radiologists detect aneurysms in magnetic resonance angiography exams,"
Erickson notes. An MRA, he adds, is basically an MRI of blood vessels. "We
expect it will take six months or so to extend the project to work on CTA," he
says. "Researchers will adapt the algorithm to work with the unique properties
of CT angiography -- the vessels look different, the veins have contrast and
bones have signal-like vessels."

The current project is built around the fact that one in 50 people in the United
States has an unruptured brain aneurysm -- an abnormal outward bulging in the
blood vessels in the brain -- and about 40% of people who have a ruptured
brain aneurysm will die as a result. Traditionally, a patient suspected of having
a brain aneurysm due to a stroke, traumatic injury or family history would
undergo an invasive test using a catheter that injects dye into the body, a
technique with risks of neurologic complications. To improve the process of
detection using non-invasive MRA imaging technology, Mayo and IBM created
"automatic reads" that run detection algorithms immediately following a scan.

The predictive technology works on fresh digital images and on old images. "It
works on any time-of-flight MRA that has decent quality – meaning no
significant patient motion," Erickson tells *PMN*. "Much of the technology was
developed and tested on old examinations." Time-of-flight MRA, he points out,
is the technique the project uses for acquiring MRA. "It is the most commonly
used method," Erickson comments, "but for specific things, usually research, we
can also do a 'phase contrast' MRA."

Once images are acquired, they are automatically routed to servers in the
MIIIC, which is located on the Mayo campus in Rochester, MN. It's a
collaborative research facility that combines advanced computing and image
processing to provide faster, more accurate image analysis, a statement says.
There, algorithms align and analyze images to locate and mark potential
aneurysms -- even very small ones that are less than 5mm -- so specially
trained radiologists can conduct a further and final analysis.

From the time an image is taken to the time it is ready to be read by a
radiologist, there often is only a 10-minute window. In that 10 minutes, the new
workflow is able to identify images coming off of the scanners and route those
related to the head and brain through the special workflow, which then conducts
automated aneurysm detection. On average, that can be done in three to five
minutes, improving efficiency and saving valuable radiologist's time, leading to
a quicker diagnosis -- which is especially important in the case of a serious
aneurysm.

"Our joint work with Mayo taps IBM's expertise in high-performance computing
and applies it to health analytics," says Bill Rapp, IBM's CTO of healthcare and
life sciences and co-director of the MIIIC, "enabling us to remove some of the
time and efficiency barriers and making imaging an even more valuable
preventive screening tool. Enabling broad access to the capability via cloud
delivery is the natural next step." Erickson adds: "At this point, it is not available
to other providers, but we do hope to license it out and make it more broadly
available."

The aneurysm detection system uses an algorithm developed by Mayo
researchers that's executed on an IBM WebSphere Process Server to model
and orchestrate the automated workflow. Images are stored on an IBM DB2 for
Linux and Windows data service and workflow logic is run on IBM System x
servers and IBM storage.

Contact Mayo via spokesperson Bob Nellis at 507-284-9521 or at nellis.robert@mayo.edu

Model Predicts ED Volume for Transitional Facility

A process improvement project coincides with the H1N1 epidemic. A successful surge plan results.

Athens, TX-based East Texas Medical Center faced down the H1N1 epidemic and won, with the help of predictive analytics provided by Elm Grove, WI's Compirion Healthcare Solutions LLC. ETMC saw a 42% average surge last September in the number of patients presenting each day because of publicity surrounding the virus. Improved efficiencies in the emergency department facilitated by Compirion allowed the hospital to absorb the volume and still see an improvement in quality, Compirion notes, while many other Texas hospitals were caught off-guard and resorted to setting up triage tents and drive-through treatment centers to deal with the influx of cases.

ETMC CEO Pat Wallace brought the company in in May to conduct a process improvement project throughout the ED. He wanted all the process flow issues addressed and fully implemented before construction began on a new, larger ED that broke ground earlier this year. It's scheduled to open in January 2012. The ETMC ED now has 15 beds; the new ED will have 22.

"We were in the right place at the right time," says Compirion's Benjamen Gould RN. "We'd been engaged to work on internal processes and had been at the hospital for several weeks prior to H1N1 becoming prevalent in Texas. While we were not engaged for the purpose of dealing with it, we were engaged to work on processes within the ED, and patient volume had a direct influence on our work." The hospital had been working on a surge plan, he adds, but it had not been completed. "The hospital recognized the potential for volume issues as H1N1 became more prevalent, and we were asked to make recommendations to handle such a surge, which we did," he says. Indeed, Compirion and the ED staff returned with a surge plan within three weeks.

That plan, Gould explains, took a proactive approach. Additional space was created and five rooms were added on a temporary basis by utilizing some vacant rooms outside of triage and relocating the offices of a department director and coordinator. The ICU waiting room was configured to be occupied on a temporary basis and turned into two exam rooms. Carts stocked with supplies were added to the new rooms. The plan called for staffing by one MD and one new RN, in addition to the triage nurse already stationed in the area. Computer access could be achieved using laptops.

> "We'd been engaged to work on internal processes and had been at the hospital for several weeks prior to H1N1 becoming prevalent in Texas. While we were not engaged for the purpose of dealing with it, we were engaged to work on processes within the ED, and patient volume had a direct influence on our work."

That's when predictive modeling entered the picture. The hospital was given formulas and predictive patient visit models for determining when the surge plan would be engaged. In the event of a surge, a group identified as the "Call-Back Six" were put on call to help until the volume became manageable again. The six were an ED tech, an RN, a discharge RN, a registrar, a radiology tech and a lab tech. The predictive model was developed by one of Compirion's process analysts, Gould reports. The data used were historical in nature, he says, and were not drawn from H1N1-specific admits, but from normal sources of patient volume in the ED, such as EMS volume and walk-in patients. "From my clinical side, it gave us a fabulous tool, with acknowledged limitations, to predict volume, so that we could in turn predict staffing requirements and other needs," he says.

The model was set up to run every day and, depending on when the data required were entered by the charge nurse or manager, could fairly reliably predict the volume the department would see for that 24-hour period, Gould continues. "The ED could then staff up or down and/or call in additional resources to manage the volume of patients seen," he says. "It should be noted that the surge plan is still being used, and only rarely has been flexed down because of the increased volume the department experienced. I do not associate this with H1N1 at this time."

Says Rebecca Powell, chief nursing officer: "We made our processes parallel instead of linear. That was a huge achievement." Daniel Bywaters, medical director for the ED, adds: "I shudder to think what would have happened if Compirion hadn't been here. Now it is busy, but not as difficult as it was before. It is much better, even at these volumes, now that our process has improved."

> "Surges are like tsunamis. They sneak up, bury you and last a long time. The model works well for surges but wouldn't be as applicable to a disaster."

Because of the generic nature of the model, the tool worked "absolutely great" for Gould as a clinician, he emphasizes. "It could be applied to any ED or for any disease state with expected surges as long as fairly reliable volume history" exists, he says. "But keep in mind that disasters are like tornadoes: here today, gone tomorrow. And they're very visible. Surges are like tsunamis. They sneak up, bury you and last a long time. The model works well for surges but wouldn't be as applicable to a disaster." *Visit www.compirion.com or contact Carol Christ Hoffmann, director of communications there, at carol@compirion.com.*

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Verisk Health Reports Busy Six Months*...continued*

Here's what else the high-profile company has been talking about lately:

D2Explorer Helps CoreSource Lower Overall Medical Costs

CoreSource, a Trustmark company and an administrator of self-funded employee benefit plans, says it has achieved lower medical costs and improved overall member health by using Verisk Health's D2Explorer solution. "Keeping employees healthy is the best way to keep medical costs in line," comments Rob Corrigan, vice president of product management and planning at CoreSource. "Verisk Health's sophisticated drill-down and predictive modeling capabilities were essential in helping us identify ways to make our programs more effective and efficient." CoreSource needed to transform available data into actionable information at both the population and individual levels, a statement from Verisk Health notes. It implemented the D2Explorer solution to analyze its employer medical and pharmacy claims, conduct drill-down analysis to identify areas of opportunity and clinical risk and help drive the success of its "YourCare" care management program.

In its analysis of YourCare's first-year results, CoreSource reviewed medical claims data for 16 self-funded employer clients -- with a total of 13,687 employees and some 29,120 covered lives -- that implemented one or more YourCare programs during the first quarter of 2008 and had the programs in place through March 2009. Results of the program, now in its second year, include "dramatic improvements in compliance with recommended treatment guidelines as well as financial and quality metrics," the statement says. Some additional highlights include:

- reducing expensive utilization by encouraging appropriate use of physician services to proactively manage chronic illness;
- decreasing emergency room visits by 5% and hospital admissions by 15% across five chronic conditions: diabetes, CAD, CHF, asthma and COPD; and
- closing at least one gap in care for nearly 50% of members with chronic conditions.

Verisk Health Launches Solution for Identifying Healthcare Risk Drivers

The company recently released DxCG Risk Solutions 3.0, a suite of risk adjustment and predictive modeling products that, it says, "enables organizations to analyze, predict, manage and minimize healthcare risk and costs associated with commercial, Medicare and Medicaid populations." Says Nathan Gunn, chief medical officer there: "Only when you understand risk can you effectively control costs. Identifying cost drivers helps control clinical costs, while understanding predicted costs leads to a better rate-setting process." The new solution, he adds, "provides the sophisticated models and analytics an organization needs to predict current and future healthcare risk and proactively implement actionable strategies for change." Its "important gains in predictive power" are due to a significant revision of the medical classification system and considerable enhancements to its modeling methodologies, a statement continues. For the user, that means the medical classification system "better represents real-world clinical best practices," it says. "It provides greater specificity and granularity to yield better member stratification and intervention opportunities for customers using our products for medical, case or disease management. The system also supports best practices in wellness program implementation in the workplace for better identification of employees at greatest risk." The product can be used by itself, integrated into existing software programs or licensed as part of Verisk Health's overall solution set, which includes D2Explorer, VHIP and TierMed solutions.

Med-Vision Teams With Verisk Health to Reduce Costs, Improve Wellness

Med-Vision LLC, a medical consulting company, has helped clients reduce healthcare costs by 10% to 12% with Verisk Health's Explorer solution, the latter reports. Comments Dan Ross, founder of and CEO at Med-Vision: "Data are power in healthcare and the starting point for enabling meaningful change. Verisk Health gave us the tools we needed to unlock the data and identify the cost drivers and trends to significantly reduce spending for our employer groups." Med-Vision implemented Explorer several years ago "as a creative solution to the complex healthcare crisis facing its mid- to large-sized employer clients," a statement points out. Its goal was to "shape new quality care approaches by drawing on data analytics to understand employer cost trends, identify drivers and determine how best to lower healthcare expenditures." Explorer, a Web-based data analytics solution, helped Med-Vision identify and execute strategies to successfully lower costs while improving clinical, financial, quality and utilization metrics, the statement adds.

"Across the board, most employer groups lack visibility into what is truly driving healthcare outcomes and costs," says Gunn. "Med-Vision's success with our Explorer product is positive proof that clear insight into data goes a long way toward impacting the bottom line." Working with clients, including a cancer treatment center and a regional school district, Med-Vision analyzed existing data and developed strategic programs that addressed the specific trend, quality and compliance issues of each population. The company's efforts also "helped educate members on chronic disease management and prevention," the statement goes on, "which encouraged healthier lifestyle behaviors." Other results from Med-Vision's campaigns include:

- Emergency room visits decreased by 11.9%.
- Per-member-per-month pharmacy costs decreased by 19.3%.
- Per-member-per-month cost decreased by 8.6%.
- Inpatient days declined "significantly."
- Breast cancer screening compliance improved by 38%.
- Generic drug use increased by 4%.

Verisk Health Reports Busy Six Months *...continued*

TierMed HEDIS Solution Says It's 'Ready for 2010 Reporting Season'

TierMed Systems, a Chanhassen, MN-based unit of Verisk Health and a leader in HEDIS quality measurement and reporting solutions, reports the beta release of its Compass Navigator and Engine software for the 2010 HEDIS reporting season. The 2010 TierMed Engine has already been certified by NCQA for 56 of 62 measures and is on track to achieve a 100% rating for all measures, without exception, for the ninth consecutive year. Conceived as a way to streamline measurement efforts and promote accountability in managed care, HEDIS measures are now used by approximately 90% of all MCOs to evaluate performance in areas ranging from preventive care and consumer experience to heart disease and cancer, a Verisk Health statement points out. HEDIS consists of various measures across eight domains of care. Because the measures are so specific and collected by most health plans, HEDIS makes it possible to compare the performance of health plans on an apples-to-apples basis.

To ensure that HEDIS stays current, the National Committee for Quality Assurance has established a process to update the measurements annually. NCQA's Committee on Performance Measurement, a group comprising a wide range of healthcare thought leaders, including physicians, purchasers, consumers and labor and plan representatives, oversees the evolution of HEDIS. Each year, TierMed and other companies that provide the measurement and reporting capability for managed care organizations must re-certify with NCQA to ensure they are compliant with the latest measures. TierMed Systems not only consistently re-certifies, but acts as a testing partner for the NCQA certification process itself, the statement says. TierMed Engine calculates HEDIS measures from source healthcare data, draws samples, assigns chase logic and produces a number of detailed data tables that are then fed to the Compass Navigator, which analyzes and reports the HEDIS healthcare data.

Verisk Health, Windsor Strategy Partners Launch Actuarial Advisor

Verisk Health also reports launching Actuarial Advisor, an underwriting and risk assessment solution that helps predict the cost and utilization of healthcare, a statement says. It was developed in a strategic alliance with Windsor Strategy Partners LLC, an actuarial consulting firm that helps the healthcare industry evaluate and quantify risk. "Quality healthcare demands a rock-solid foundation of data and information," says Chris Kryder MD, CEO at Verisk Health. The new tool "allows users to perform a wide range of activities to better understand and manage medical and financial risk," the statement continues. "Those activities include pricing first-dollar and excess-loss healthcare coverage, evaluating healthcare plan designs and proposed premium changes, developing new health insurance products, facilitating simulation studies for risk analysis and calibrating rating systems to different provider networks." Developed specifically for healthcare actuaries and underwriters, Actuarial Advisor is "ideally suited for insurers and reinsurers, state insurance departments, brokers and consultants, third-party administrators and managing general underwriters."

It uses a specially selected database of more than 3 million commercially insured lives -- one of the most comprehensive longitudinal databases in the industry, its sponsors say -- and is updated annually to capture the most current healthcare trends. The "size and richness" of the database allow for claims distributions that reflect more than two dozen medical service categories, six pharmaceutical categories and nearly 200 medical claims ranges, the statement adds. The Actuarial Advisor tool is available in two versions — Standard (available as a spreadsheet or ASP-based model) and Power-user (available only as a spreadsheet model), which is geared toward pricing actuaries. Both versions allow users to calculate projected costs for first-dollar and excess-loss healthcare coverage.

US Preventive Medicine Chooses Verisk Health's Risk Assessment Solution

US Preventive Medicine, a provider of prevention and chronic condition management programs, has selected Verisk Health's Explorer solution to manage its member stratification, clinical outcomes analysis and predictive modeling needs, a statement says. "Preventing and managing illness is essential to saving lives and improving the bottom line," said Charles Smithers CPA, executive vice president of operations at US Preventive. His company provides services to employers, hospitals and government entities. Explorer, a data-driven solution, will provide US Preventive with population- and member-level analytics as well as clinical and financial prediction capabilities, including:

- population-level analysis by cost, condition, demographics and quality and risk measures;
- identification of high-cost and high-risk members in need of medical intervention;
- individual-level claims detail and a gaps-in-care overview; and
- cost and member count overview per top chronic condition.

Portugal Contracts for Risk Adjustment Consulting Services

Portugal's Central Administration of the Health System -- Administração Central do Sistema de Saúde -- has selected Verisk Health's consulting services to evaluate the use of risk adjustment methodologies for allocating funding to the country's five regional health administrations, or "Administrações Regionais de Saúde." The ACSS is an administrative central agency of Portugal's National Health Service. The country introduced diagnosis-related groups in 1984, the first European country to do so for hospital production management and financing. Now, ACSS is starting a new project for the introduction of an individual-based classification system in primary healthcare. Aligned with primary healthcare provision reform -- a key strategy for NHS economic sustainability and quality in Portugal -- resource allocations will become more equitable and in accordance with population health needs, a statement says.

*T*hought Leader's *C*orner

Each month, *Predictive Modeling News* asks a panel of industry experts to discuss a topic suggested by a subscriber. To suggest a topic, send it to us at info@predictivemodeling.com. Here's this month's question:

Q: "We can all learn from failure as well as success. Are you aware of a predictive modeling initiative that didn't achieve its intended result? Why didn't it?"

"In disease management, when carried out by experienced people, predictive modeling usually results in powerful tools for identifying and qualifying health risk. Designed right, the logic can find 'in need' yet otherwise unnoticed individuals and assist in mapping out care plans for offsetting health complications and rising healthcare spending. Now, as with initiatives in any field, PM can fail to achieve its intention and I see some common themes behind poor performance. First, compromised data (modeling with incomplete information or large amounts of coding reflecting reimbursement incentives rather than true condition); second, miscommunication of PM objectives (a disconnect between departmental PM stakeholders); third, an under-resourced analytics group or lack of analytic skill. Each of those elements can appear on its own or combined to disrupt modeling processes. Successful healthcare organizations understand that well-functioning PM is necessary to establish effective care management and, as a result, choose to either maintain contracts with reputable analytic vendors or build their staffs with experienced analytic professionals who safeguard against those and other pitfalls in its development and application."

Damon Shepherd MS
Clinical Outcomes and Business Analytics
Humana/LifeSynch
Irving TX

"Predictive modeling is no different than other complex human endeavors. And, yes, although success has been far more common than failure, over the 20 years I have been involved in or witnessed PM and risk adjustment initiatives, there have been unexpected results. Some of them could be considered failures, but others actually involved unanticipated outcomes that were surprise successes. I have seen 'failures' due to poor planning, follow-through, lack of checks and balances, political intervention, inadequate resources or just dumb 'human' mistakes. One important bit of advice is that not only should all major PM/RA initiatives be done carefully and with professional guidance, they should, if possible, also be piloted or phased in so that any mistakes will be uncovered during a limited evaluation mode. But as they say in the quality improvement field, an error identified, understood and rectified is really a gem, as it can then be avoided in the future. Likewise, it is also great when we can identify and capitalize on (and repeat) unanticipated successes."

Jonathan Weiner DrPH
Professor, Health Policy and Management; Director, PhD Program in Health Services Research and Policy; Deputy Director, Health Services Research & Development Center, Johns Hopkins University
Baltimore MD

"You've asked a very important question about predictive modeling. I don't think I have come across complete failures yet. It'd be fair to say that many people have come to a realization that predictive modeling does not hold the answer to everything. Take, for instance, predictive models aiming to identify patients suitable for care/disease management. Those models usually only produce a patient list with a dump of claims history, and sometimes gaps in care flags and an actionability score. I've heard people in medical management commenting that either the models provide no new information or that the models don't tell them what to do with the patients. Another example is predictive models for underwriting, where actuaries and underwriters want to understand the credibility at the group level and the vendors are unable to provide. I think we all can learn from those experiences -- how to set the right expectations and convey the right messages. Predictive modeling still has a long way to go. So far, it's only a piece of information subject to human interpretation. To advance the field and be more successful, it has to be combined with other tools, and the modeling companies also need competent support and consulting to support the various applications."

Rong Yi PhD
Senior Consultant
Milliman Inc.
Boston MA

*T*hought Leader's *C*orner

"As consultants, we run into implementations all the time that clients are dissatisfied with. Here are some common factors:

1. Data have to be sent to a remote vendor for integration. The delay that that process causes results in dissatisfaction because the identified targets are viewed as 'stale'.
2. Identified targets are either 'obvious' (the health plan knows about them through other sources) or not intervenable.
3. The reason that a targeted individual is selected by the predictive modeling process is not intuitive to clinicians.
4. A 'high-tech' prediction process is coupled with a manual management process that fails to achieve the interventions within a reasonable time frame from identification."

Ian Duncan FSA FIA FCIA MAAA
President, Solucia Inc.
Farmington CT

""I can't think of one directly, but you certainly could point to the predictive model described by officials in the State Department and Defense Department about what would happen after we toppled Saddam Hussein in Iraq. Sorry I don't have a healthcare-specific example from my own experience. While the example I gave has obvious political overtones, I mean it as an objective example that actually matches quite closely how the question is worded."

Lawrence S. Borok
President
Vantage Point Healthcare Information Systems
New Milford CT

Verisk Health Reports Busy Six Months *...continued*

"Understanding and integrating risk adjustment models based on individual health status will enable the ACSS to predict healthcare risk and cost accurately, promote comprehensive healthcare planning, enable a more efficient contracting process with providers and ultimately provide more adequate healthcare provisions," it adds.

As part of the analytics consulting agreement, Verisk Health will analyze existing NHS pharmaceutical data, as well as diagnosis data, for one of the country's regional health administrations. Through that analysis, Verisk Health will evaluate the possibility of introducing risk adjustment into the Portuguese health system. Implementation of such a methodology would provide the ACSS with the knowledge it needs to allocate funding efficiently and rationalize overall healthcare spending, the statement says. "Improving healthcare financing requires a deep understanding of a population's underlying risk and an accurate forecast of future costs," adds Mike Coyne, executive vice president at Verisk Health.

Contact Tarantino at ttarantino@veriskhealth.com. Visit www.coresource.com, www.med-vision.com, www.wspactuaries.com, www.uspreventivemedicine.com and www.acss.min-saude.pt.

INDUSTRY NEWS

Kerr Drug Adds Assessment Tool

Raleigh, NC's Kerr Drug says it's enhancing its health and wellness program with the addition of "a revolutionary assessment tool" called Know Your Number, which predicts an individual's risk of developing chronic, preventable obesity-related diseases such as diabetes, stroke and heart disease.

Kerr Drug is partnering with Durham, NC-based BioSignia to offer the test; it's only available to customers at Kerr Drug stores in the Triangle region. It's not available at any other pharmacy chain nationwide. Says Anthony Civello, CEO and president at Kerr Drug: "Know Your Number not only provides a reality check of your current health status and disease risk, it also provides a roadmap of how to reduce that risk. It's a powerful tool to improve the health of our customers."

continued

Kerr Drug Adds Assessment Tool*...continued*

The test takes a person's unique health information, including weight, blood pressure, family history, lifestyle habits and key blood values, then uses BioSignia's proprietary technology to produce a detailed report on that person's risk of developing specific diseases. The report also shows a person's "inner age," a measure of how fast the internal parts of the body are aging. Obesity, lack of exercise and an unhealthy lifestyle often mean a person's "inner age" is greater than his or her chronological age.

"Most importantly," a statement from Kerr says, "the Know Your Number report provides a personalized roadmap showing what disease risks can be reduced, how to lower your 'inner age' and regain lost years of life and what steps to take to help live a longer, healthier life." Kerr Drug has offered the Know Your Number test as part of its corporate wellness programs and in its work with North Carolina state agencies, but it's now available to in-store customers. The test can be performed with an appointment in about 30 minutes and costs $50. Test results are strictly confidential. *Visit www.kerrdrug.com and www.knowyournumber.com.*

INDUSTRY NEWS

CHS Releases Latest Version of Optic Predictive Modeling Platform

Comprehensive Health Services Inc., a Reston, VA-based workforce health management company specializing in onsite healthcare solutions, reports the successful deployment of Optic, the next iteration of its wireless, paperless technology platform that provides electronic health record and enterprise practice management functionality, predictive modeling, clinical reporting, evidence-based medicine compliance reporting and advanced financial outcome reporting. "CHS is committed to innovation, and we continue to invest in useful, practical technology that assists large employers in determining what onsite programs work best for them and how to accurately measure the performance of those programs," says CHS executive vice president Stuart Clark. "This is not about who has the fanciest EMR. This is about improving provider efficiency, delivering higher-quality care consistently, measuring provider and patient behavior, reporting validated clinical and financial outcomes and using limited data to predictively model the employer's disease landscape."

Arun Villivalam, CHS associate medical director and chief medical information officer, adds: "Optic raises the standard for onsite patient care, ranging from customized, evidence-based medicine templates and e-prescriptions to automatic health maintenance reminders, laboratory order entry and results reporting. The ability to integrate onsite clinical activity with the clinical documentation and activity by outside providers is a major advancement in functionality." Given proper permissions and compliance with HIPAA privacy standards, the new platform can link a patient's onsite medical record, health risk assessment and biometric screening results, health plan information, PBM data and disease management care plan information.

Specifically, the Optic system includes "robust data warehousing and predictive modeling capabilities" resulting from a two-year research project sponsored by CHS with the Health Systems Institute at the Georgia Institute of Technology and Emory University, a statement says. The result is CHS' Workforce Health Assessment Model, which identifies company-specific, cost-effective strategies that reduce long-term health risks and workforce health costs while improving productivity. Visit www.chsmedical.com for details.

GeneGo Gets Government Grant to Develop Predictive Analytics Tool

GeneGo Inc., a systems biology tools company based in St. Joseph, MI, has been awarded a $336,000 Phase I Small Business Innovation Research grant from the National Institute of General Medical Sciences for "creating a novel type of predictive signatures for drug resistance," the firm says in a statement. Under the project, GeneGo will develop "regulation signatures," which should overcome many shortcomings of existing methods of molecular diagnostics.

GeneGo Gets Government Grant...*continued*

The company says it will utilize its "extensive manually curated database of signaling interactions and recently developed algorithms for identifying key proteins in signaling networks."

The work will be performed in collaboration with the Van Andel Institute for Translational Medicine. "What we propose here is the novel concept of using inferred activity of key signaling proteins for building predictive models," says Andrej Bugrim, GeneGo COO and principal investigator on the grant. "Our early results indicate that such models should be significantly more robust than currently available diagnostic applications that are based directly on gene or protein levels." He adds: "If successful, the methodology could be replicated for developing predictive models for sensitivity to a broad range of targeted therapies, leading to a number of diagnostic applications, such as specialized molecular tests, systems for formulating combination therapies and procedures for selecting patient cohorts for clinical trials." GeneGo's flagship product, MetaCore 6.0, assists pharmaceutical scientists in target selection and validation, data mining in biology, identification of biomarkers for disease states and toxicology. The second product, MetaDrug 6.0, is designed for prediction of human metabolism, toxicity and biological effects for novel small molecules compounds. MetaBase represents the knowledge base for MetaCore. Visit www.genego.com.

Palladian to Use QualityMetric's Survey Tools

Palladian Health LLC has entered into a strategic alliance with QualityMetric Inc. under which the former will use the latter's SF health surveys to measure outcomes for all of its muscular skeletal management products, including chiropractic, physical therapy and Palladian Coordinated Spine Care, a statement says. The partnership "will allow

Palladian to implement innovative Web-based solutions that provide real-time clinical decision support driven by standardized outcomes tools that measure functional health and well-being," the statement adds. In addition, Palladian and QualityMetric "will collaboratively research the impact of Palladian's clinical management approach on muscular skeletal care patient outcomes." Palladian's technology platform measures, monitors and predicts a patient's condition through the course of muscular skeletal care. QualityMetric's SF-12v2 Health Survey and SF-10 Health Survey for Children are key components in Palladian's clinical management philosophy, the statement continues.

Developed from years of evidenced-based scientific research, the SF-12v2 and SF-10 are "two of the most widely used patient-reported outcome tools," it says. As clinical recommendations and determinations are generated, data are compiled detailing a patient's condition in a seamless user experience. The collaborative, technology-driven platform will soon be available in multiple languages. Visit www.qualitymetric.com.

INDUSTRY NEWS

**MedeAnalytics Launches Tool
to Streamline Patient Registration**

MedeAnalytics, a provider of healthcare performance management solutions, reports the launch of its Patient Access Services solution, a Web-based workflow application that provides real-time intelligence during the patient registration process. Directly integrated with key hospital information systems, PAS "includes patient payment estimation, charity care screening, address validation, risk segmentation and insurance eligibility verification capabilities combined into one simple interface designed for front-end staff," a statement says. PAS also "leverages a variety of third-party data sources and predictive modeling techniques to automatically segment patients prior to service and prompt registrars for appropriate action using customized business rules and logic." Healthcare providers face a wide variety of challenges in the patient access area, including fragmented IT systems, manual paperwork and high staff turnover, the statement adds. The MedeAnalytics PAS solution "helps automate the process and integrates meaningful analytics and business intelligence into the front-end workflow." Visit www.medeanalytics.com.

**Dataspace, Central Michigan University
Team on Patient Volume Tool**

Dataspace, an Ann Arbor, MI-based business intelligence software and consulting firm, and Business Insight, a part of the Central Michigan University Research Corp., have announced the introduction of Patient Volume Forecaster, a service that "helps healthcare leaders predict and respond to expected demand for services," the pair say in a statement. PVForecaster obtains data from operational systems, integrates data available from external sources, includes a planning tool to evaluate opportunities to influence patient volume and utilizes a proprietary algorithm to translate the data into actionable information for practical use. Joe Czyzyk, analytics director for the PVForecaster team, notes that "for years, industry research has shown that when hospitals have a clear idea of their expected patient volume, they can align resources accordingly, resulting in reduced stress, increased patient safety and shortened length of stay." The new product "delivers specific and timely information about expected patient volume to improve operational scheduling and match capacity to demand," he adds. Reports on expected patient volume are provided weekly -- or daily, if appropriate -- to key decisionmakers who control the allocation of critical resources. Expected volume can be reported by physician specialty code, nursing station or clinic. In addition to operational scheduling, the PVForecaster service analyzes the impact that strategic decisions will have on patient volume, the statement adds. Subscribers can model how changes in competitive activity, marketing spend, customer service ratings and other variables impact expected demand over longer time periods. PVForecaster is an SaaS offering. Visit www.dataspace.com.

DST Releases Enhanced ACG System

Birmingham-based DST Health Solutions LLC has released version 9.0 of The Johns Hopkins University's Adjusted Clinical Groups System, which includes "extensive enhancements that not only improve predictive accuracy but also identify opportunities for intervention to improve health outcomes," a statement from DST says. The company is the exclusive distributor of the ACG System in the United States. "Risk adjustment and predictive modeling are critical to measuring population health to support quality assessment and payment reform," says JHU's Jonathan Weiner, co-developer of the original ACG System and leader of the research and development team at the Johns Hopkins Bloomberg School of Public Health. "The ACG System was conceived to ensure access and equity in healthcare purchasing," he adds. "Version 9.0 will allow users to better understand the needs of the chronically ill" by "identifying members with chronic conditions who are at risk for low adherence to prescription regimens, poor coordination of care among primary care providers and specialists or acute hospitalization needs." Greater predictive accuracy, he comments, is also achieved through further refinement of the ACG System's clinical classifications. "Most predictive models focus heavily on costs, but often we already know about the highest-cost members and there is little opportunity for intervention," says Don Hughes, president of Encompass Medical Management, an ACG client. "With the ACG System, we can describe populations for intervention where we can have the greatest impact through better coordination of care and targeted improvements in pharmacy adherence. The ACG System enables us to focus interventions for both the extreme-high-cost patients and those in danger of becoming high-cost." The Johns Hopkins system, the statement adds, "applies unique clinical criteria including information regarding medication use and coordination of care to create intuitive ACG models for clients seeking greater insights into opportunities for early intervention." The ACG System "maximizes the use of available data to support a full range of risk adjustment applications based on a multi-morbidity framework," it says. The system continues to be developed, it adds, "ensuring a unique level of openness and continual evaluation in the context of rigorous health services research." Visit www.dsthealthsolutions.com.

Yi to Consult Chinese Government on Risk Adjustment

Here's a report from Rong Yi PhD, a senior consultant in Milliman Inc.'s Boston office: "I just came back from a short trip to Beijing, where interest in risk adjustment is heating up, given the country's rapid reform agenda -- covering 90%-plus of the population by the end of this year. I was appointed visiting research fellow by the Ministry of Health -- a three-year appointment -- and my responsibilities include training on risk adjustment and helping health officials there to assemble a research center for risk adjustment."

INDUSTRY NEWS

Versus Deploys Patient Flow Predictive Technology at St. Louis VA Facility

Versus Technology Inc., Traverse City, MI, has effectively deployed Enterprise VISion for the St. Louis Veterans Administration Medical Center, John Cochran Division, to help manage patient flow, room status and interaction with patients in real time, the company says. The St. Louis VAMC, a two-division tertiary care facility with more than 200 beds, chose the Versus Real-time Location System to improve safety, efficiency and volume management for its growing patient population. Specifically, the Center is using VISion: Clinic in its outpatient eye clinic and VISion: OR in its operating room. Those areas, as well as a number of dedicated caregivers, support about 100 patients a day. "Like every other healthcare organization, the St. Louis VA needed a way to address patient flow, prevent roadblocks and collect data efficiently, consistently and on a budget," a statement says. Already one of the busiest VAs in the country, the St. Louis facility is also preparing for increased patient volume as a result of troop surges in Afghanistan, veterans returning from Iraq and Afghanistan and an aging veteran population. Within the eye clinic and the eye surgery OR, patients will be assigned a Versus locating badge, which will help staff to not only quickly and easily locate them, but also monitor their wait times and the lengths of specific procedures. Because staffers also wear the Versus badge, the clinic also captures patient alone time and time spent with caregivers. Because Versus determines patient location and interactions with caregivers, the St. Louis VA is able to "begin" and "end" specific intervals of care -- such as the evaluation, eye screening, visual field tests, dilation, exam and "consent, verification and site mark" stages -- without having to tell someone or manually log it into a system. They then have Versus reports available for each of the individual stages and the overall patient visit -- for every visit -- that can be analyzed for process improvement. Visit www.versustech.com.

DecisionView Launches StudyOptimizer 4

DecisionView Inc., a San Francisco-based provider of software solutions to optimize clinical trial enrollment for life sciences companies, reports the release of StudyOptimizer 4, the latest iteration of its Web-based solution. Now in use by several major global pharmaceutical companies, DecisionView's flagship product includes advanced historical analysis and templates capabilities, as well as enhancements to its predictive analytics technology. For the first time, a statement from the company notes, clinical trial managers have a comprehensive 360° view of their organizations' clinical trial patient recruitment performance at their fingertips with:

- past enrollment patterns and metrics;
- present enrollment actual performance compared to plans; and

DecisionView Launches StudyOptimizer 4*...continued*

- future forecasted end dates of trials based on performance to date.

"StudyOptimizer's advanced predictive analytics and visualizations, automated in a consistent, standardized approach to clinical trial planning, has enabled GSK to double the frequency with which trials are completed on time," comments Alex Lancksweert, director of business performance analytics at GlaxoSmithKline. "StudyOptimizer has enabled our teams to work in a more collaborative style to create robust plans grounded on empirically justified assumptions, and to streamline decisionmaking by more effectively communicating trial progress to a dispersed study team and participating research sites. It brings historical analysis into that equation, empowering those teams to make decisions informed by hindsight as well as foresight." Adds Alan Louie PhD, research director at IDC: "Clinical trial patient enrollment is one of the most promising areas for pharmaceutical companies to look at for operational performance improvements. The ability to capture, analyze and leverage historical clinical trial enrollment data in planning future patient recruitment efforts provides a critical baseline that life sciences organizations need to benchmark and improve those processes."

StudyOptimizer allows clinical trial managers to plan, track, diagnose and correct enrollment plans via a single centralized Web-based application that captures and aggregates clinical trial patient enrollment data from across the organization. The application uses predictive analytics to forecast enrollment trends and estimate completion dates, which are dynamically updated based on actual enrollment patterns and which give clinical trial managers the necessary information to measure actual and projected performance against plan. Because StudyOptimizer's clinical trial software enables faster, more predictable clinical enrollment, trials can finish on budget and on schedule. The new product allows for improved hindsight and foresight as well as productivity and uptime. New features include:

- historical analysis to benchmark and compare the enrollment performance of past clinical trials;
- plan templates with pre-defined enrollment plans based on past studies or historical averages;
- enhanced predictive analytics technology with improved forecasting parameters and thresholds;
- confidence intervals that provide prediction ranges around projection curves;
- enhanced data integration technology that increases the availability of current data;
- enhanced data analysis with advanced Online Analytical Processing cube technology; and
- improved user interface designed to streamline navigation and enhance the user experience.

Recently, DecisionView announced the availability of the Software-as-a-Service version of StudyOptimizer. Through that offering, StudyOptimizer is available on a single or multiple trial basis and includes hosting, implementation and support services from the company. Visit decisionview.com.

INDUSTRY NEWS

**Johns Hopkins University
International ACG Conference**

The conference, sponsored by the Johns Hopkins University Bloomberg School of Public Health, will be held in Tucson, AZ, May 10 through 12, 2010. It is, its sponsor says, "the largest and longest-running academic conference of its type in the world" and is "unequalled as a source of information on predictive modeling, risk adjustment and population case mix methods."

It's designed for users of the Johns Hopkins ACG system and those using other methods as well.

Johns Hopkins faculty and dozens of presenters from leading organizations from across the US -- and numerous other nations -- will present a full schedule of sessions that includes five plenaries and more than 20 concurrent presentations based on independent abstract submissions.

There will also be training sessions.

One plenary features Jonathan Weiner on the impact of reform on the PM field. Another featured plenary by Barbara Starfield will offer perspectives on the treatment of chronic disease and co-morbidity around the globe.

The conference will be held at the LoewsVentana Resort and will be co-located with the DST Health Solutions annual users group. (DST is the US distributor of ACGs.)

More information, including a draft agenda and online registration, can be found at: acg.hugconferences.com. Early bird registration discounts for the conference end on April 9, 2010.

**Hospital Wins TRICARE Award
With ProModel-Based Solution**

TRICARE, the military health system for active duty military personnel, has selected an innovation developed by a team from Evans Army Community Hospital, Fort Carson, CO, to win its 2009 Healthcare Innovations Program Award under the heading of Access. The title of the innovation is "Department of Behavioral Health Innovation -- Psychiatry/Psychology." The winning team, led by hospital patient safety officer Don O'Hare, developed a ProModel Corp. process simulator predictive analytics solution that led to reducing behavioral health patient waiting time from more than two hours to less than 30 minutes. That "dramatic" wait time reduction ensures no patient leaves the facility without being seen by a physician, which was not the case when patients were waiting more than two hours, the winning hospital says in a statement. The award was competitively selected from more than 50 abstract submissions.

ProModel is a process optimization and decision support company that "delivers predictive analytics business intelligence solutions with innovative technology," the firm says in a statement. Compared to traditional performance improvement approaches, ProModel's solutions "help decisionmakers make better decisions faster by integrating its predictive simulation software with industry-leading tools to dramatically reduce the learning curve and 'time to value' – thus enabling companies to do more with less by providing more accurate, quantifiable results." Visit www.promodel.com

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Catching Up With…Beverly A. Collins

BAC: I first heard of predictive modeling in 1988 in my master's programs in business administration and epidemiology and preventive medicine. I first applied predictive modeling in a school project in which I developed a model that used regression analysis to predict weight loss by participating in various types of exercise. The epidemiology program required a research practicum for degree completion, where a large data set was provided and questions were to be explored, such as what factors in men are most predictive of a positive PSA test for prostate cancer detection.

Predictive modeling became a responsibility in my current position to predict which health plan members would be expected to become high cost, high risk or at risk for hospitalizations or emergency room visits. Those members can then be targeted for care management programs to either decrease or maintain their current risk status while saving money.

I think predictive modeling has become more sophisticated over time in that there are multiple techniques used now that were not available when I first explored the field, such as neural networks, decision trees and cluster analysis. They are exciting and cool to consider and explore, but are difficult to explain in some circumstances.

PMN: What occupies a typical day or week for you? What functions, activities and workload are you typically engaged in?

BAC: My typical workload includes back-to-back meetings to discuss any number of topics, from primary care medical homes to meaningful use of EHRs to reporting on quality metrics and the best risk-adjustment tool to use for our current projects. I am the senior director of a medical informatics department with 25 analysts and biostatisticians who I assist with project development. I give input from a clinical perspective and review results prior to sending to customers. We measure provider performance on quality and costs, stratify members for program interventions and perform advanced analytics on such things as uncovering referral patterns, segmenting a 3.4 million-member population into meaningful clusters and following their migration from strata to strata over time.

I also participate on several advisory boards with the state health department, addressing such issues as healthcare-associated infections and data sharing in a healthcare data exchange. And I serve on the board of the Maryland Business Group on Health and the board of the American College of Medical Quality. I have also been appointed to an NQF Steering Committee to address ambulatory care measures.

Catching Up With….

Beverly A. Collins MD MBA MS FACPM

**Beverly A. Collins MD MBA MS FACPM, Senior Director, Medical Informatics
CareFirst BlueCross BlueShield, Baltimore MD**

She didn't see a predictive modeling-based career coming. In fact, when she was tending bar, selling camera supplies and building bridges -- the kind that cars and trucks use to traverse waterways – right out of undergrad school, she wasn't sure the pursuit of an MD she'd anticipated since high school would pan out. It did, which ultimately led her to a focus on predictive analytics.

Beverly A. Collins MD MBA MS FACPM

- In current position, manages department that analyzes various healthcare data sources to assess quality and efficiency of care delivered to CareFirst members.
- Previously, as medical director, medical informatics, there, leveraged data and methodologies for care cost management, clinical evaluation, epidemiology studies, public health, clinical condition management, predictive modeling and quality studies.
- From 2000 until 2004, served as medical director, quality improvement, at the Delmarva Foundation for Medical Care, Hanover, MD.
- There, advised hospital leadership, nursing home administrators and practitioners to improve performance for public reporting of quality data.
- While there also implemented a hospital assessment process to determine "readiness to change" and to adopt quality improvement interventions addressing acute myocardial infarction, heart failure, pneumonia, stroke and atrial fibrillation.
- Also recruited and actively engaged more than 340 practitioners for an ambulatory project to redesign office work flow for efficiency and incorporate systems approaches to improve care delivery; realized 3% to 6% improvement for the group in three measures over eight months as a result.
- More than 30 professional presentations and published papers.
- Master's in Science, Resident, University of Maryland, School of Medicine, Department of Epidemiology and Preventive Medicine, Baltimore, 1995-1997.
- Master of Business Administration, Loyola College, Baltimore, 1987-1989.
- General Surgical Residency, three years, University of Maryland Medical Systems, Baltimore, 1983-1986.
- Doctorate of Medicine, University of Maryland, School of Medicine, Baltimore, 1979-1983.
- Bachelor of Science, Zoology, University of Maryland, College Park, 1973-1977.

Predictive Modeling News: What path did you take to your present position, starting right out of college? Was it the career path you envisioned when you started?

Beverly A. Collins MD*: I had planned to attend medical school, but once in college, strayed from that path. I majored in zoology. When I finished college, I planned to return to graduate school to study cell biology, but the odd jobs showed me that I liked not being a poor student so much that I did not return to school for the next two years. When work became boring, I applied and was accepted to medical school, which occupied my next four years.

I completed three years of surgical residency and decided that being constantly on call on weekends and most nights was not something I wanted to do with the rest of my life. I then worked in a clinic for two years as a primary care physician. I developed a peer review system at the clinic, which helped steer me into a nine-year stint at the Maryland Department of Health and Mental Hygiene. As a physician advisor, I surveyed all types of medical facilities to ascertain compliance with state and federal laws and regulations and evaluated the quality of care rendered to patients as well as peer review and utilization review activities. During that time, I earned two master's degrees -- one in business administration and another in epidemiology and preventive medicine, which sent me down yet another career path.

I consulted for two years with a private for-profit company that had a model for physician behavior change using social network analysis and opinion leader insights. I then worked with Maryland's Quality Improvement Organization, a firm that contracts with the Centers for Medicare and Medicaid Services to work with hospitals, nursing homes, physicians' offices and home health agencies to improve delivery of care to Medicare beneficiaries. There, I served as medical director of quality improvement. After four years, I moved on to my present position at CareFirst BlueCross BlueShield, a not-for-profit health insurance plan serving Maryland, the District of Columbia and Northern Virginia. This career path could certainly not have been envisioned from where I began.

PMN: How did predictive modeling become one of your responsibilities? When did you first hear about it, and when did you first start deploying it? How has it changed over time?